# Curriculum Improvement Cycle
# Draft Technical Framework
# Third Level

## November 2026

Version 1.0

These are draft materials. The content, format and style are subject to change. They are being shared as part of the co-design process and in advance of engagement and feedback time during the 2026/27 session. There is no expectation on educators, schools or settings to do anything now with these drafts. It would not be appropriate to change current planning or tracking and monitoring systems in establishments at this stage.

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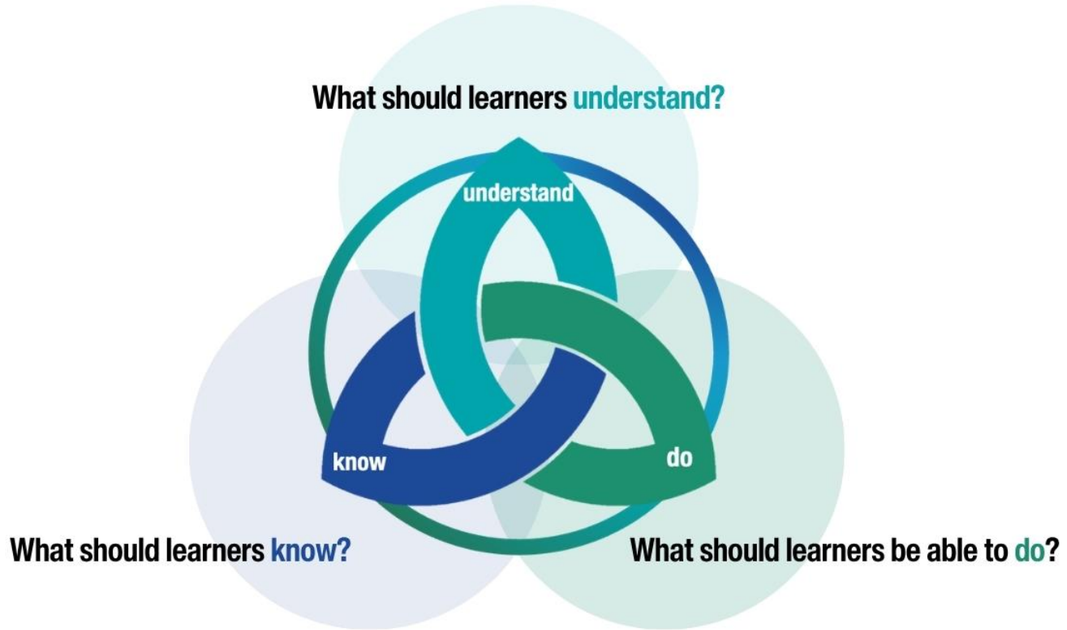
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# The Know-Do-Understand (KDU) framework




## How the KDU knots are written

**Understand:**
Statements that decribe the relationship between concepts.

**Know:**
**Facts, definitions** or **case studies** that learners need to know to develop the understanding above.

**Do:**
**Skills**, **processes** and **procedures** learners need to know to develop the understanding above.

**Notes:**
Information that helps practitioners in their planning for this KDU knot.

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# Introduction to the Third Level Know-Do-Understand Framework

At Third Level, children and young people build on their prior learning to develop greater depth of knowledge, skills and understanding across the curriculum. They encounter increasingly challenging concepts and contexts, making connections between different aspects of their learning and developing a deeper understanding of themselves and the world around them.

Across the technical frameworks, there is an increasing emphasis on applying learning with greater independence and purpose. Children and young people are supported to ask questions, explore different approaches and perspectives, engage critically with information and evidence, solve problems and apply their developing knowledge, skills and understandings in new contexts. Learning continues to encourage curiosity, creativity, collaboration and critical thinking, supporting the development of the four capacities of Curriculum for Excellence.

The draft Third Level frameworks set out what children and young people should know, do and understand by the end of the level, with some identifying a sequence for learning within the level, supporting progression from previous learning and continuity across curriculum levels and transitions.  Practitioners can plan meaningful learning experiences that reflect their learners, contexts and communities, ensuring that the intended knowledge, skills and understanding are developed by the end of Third Level.

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# Summary of Third Level

| Curricular Area | Strand | Sub-Strand | Sub-sub Strand | Third Level Understanding |
|---|---|---|---|---|
| **Expressive Arts** | **Creative Process** | | | Creative decision making becomes deliberate as ideas are considered, refined and organised to achieve an intended purpose. |
| | **Perform, Present and Produce** | | | Creative work can be refined and organised to strengthen meaning, purpose and audience engagement. |
| | **Self-expression** | | | Self-expression is influenced by personal perspectives, experiences and culture to communicate ideas. |
| | **Reflect and Respond** | | | Making connections between creative decisions, purpose and context helps to shape understanding of meaning and interpretation within artistic work. |
| | **Cultural Awareness and Understanding** | | | Artistic choices, styles and forms reflect cultural meanings and may be interpreted differently in different cultural contexts. |
| **Health and Wellbeing** | **Communities in Action** | | | Resources, structures and power can influence how communities function and change. |
| | **Relationships** | | | Communication, expectations and power can influence relationships between people. |
| | **Habits for Health** | | | Repeated behaviour and changing influences can establish or disrupt habits over time. |
| | **Mental, Emotional, Social and Physical Health (MESP)** | | | Mental, emotional, social and physical factors can interact to influence responses and decisions. |
| | **Safety** | | | Changing circumstances can affect how likely an event is to occur, its possible consequences and how people manage risk. |
| | **The Growing Body** | | | Changes across life stages can influence how body systems function and respond. |
| **Languages** | **Understanding Language** | | | People use knowledge of vocabulary, grammar and context to understand texts.<br><br>People understand texts by following how ideas and information are organised. |
| | **Using Language** | | | People sequence language to describe experiences, explain ideas and express opinions.<br><br>People adapt simple language to communicate new ideas in familiar contexts.<br><br>People communicate successfully even when language is not complete or fully accurate. |
| | **Language for Interaction** | | | People interact to exchange ideas, opinions and information to develop shared meaning.<br><br>People manage interactions and use strategies to maintain shared meaning, even when there are gaps in language.<br><br>Interaction reflects awareness of audience and context. |
| | **Identity and Belonging** | | | People express identity and belonging in different ways across communities and cultures where a language is used. |
| | **Perspectives and Worldviews** | | | Experiences, communities and cultures can affect how people interpret the same situation. |
| | **Cultures and Traditions** | | | Festivals, traditions and celebrations reflect the history, beliefs and ways of life of communities where a language is used. |
| | **Pattern and Structure** | | | People use pattern and structure to understand and express a range of ideas and opinions in texts and interactions. |
| | **Pronunciation and Writing Systems** | | | People use knowledge about pronunciation and writing systems to communicate clearly and accurately. |
| | **Language Learning Strategies** | | | Planning language helps people organise and communicate their ideas in talking and writing. |

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| | | | | Grammatical knowledge is a tool that supports accuracy in sharing meaning. |
| **Literacy and English** | **Communicating and Interacting** | | | Discussion with others enables deeper learning and develops self-advocacy and communication. |
| | | | | Stories, real and imagined, build empathy by connecting readers to people's experiences and emotions. |
| | **Story and Identity** | | | Selecting and creating texts for personal purpose and enjoyment empowers and enriches understanding of ourselves, others and the wider world. |
| | **How Texts Work** | | | People choose how they use language, style and other features according to the form, purpose and audience of the text they are creating. |
| | **Information Literacy** | | | Forming questions and using search strategies and tools helps find relevant information for different purposes. |
| | | | | Careful consideration of the source, purpose and context of information helps decide how reliable it is. |
| | | | | Using information from different sources deepens understanding and helps draw well-informed conclusions. |
| | **Tools for Reading Comprehension** | | | Background knowledge, topic/curricular knowledge and vocabulary support interpretation, inference and comprehension of written texts. |
| | | | | Skilled readers monitor understanding and deploy strategies when meaning breaks down. |
| | | | | Grammar and punctuation observe rules and conventions and are used in written texts to communicate meaning clearly to readers. |
| | | | | Reading with accuracy and automaticity bridges word recognition and reading comprehension of written texts, contributing the reader's overall understanding. |
| | **Tools for Writing** | | | Writers use the processes of generating ideas, planning, drafting, editing and revising to create and refine written texts that their intended audience will understand and engage with. |
| | | | | Writers use the rules of grammar and punctuation in order to communicate meaning clearly to their readers. |
| | | | | Knowledge of letter patterns and word roots support spelling and written communication across the curriculum. |
| **Literacy and Gàidhlig** | **Feartan na Gàidhlig/Features of the Gaelic Language** | | | A varied Gaelic vocabulary supports communication and expression across a range of contexts.<br><br>Dialectal variation occurs across regions and affects how Gaelic is used and understood.<br><br>Grammatical patterns help speakers and writers communicate meaning accurately and consistently.<br><br>Idiomatic language enriches communication and expression. |
| | **Conaltradh agus Leasachadh Cànain/Communication and Language Development** | | | Recognising social cues used in spoken Gaelic supports communication.<br>Focused listening allows meaning to be constructed from spoken Gaelic across contexts.<br>Attention to style, ideas and implied meaning supports analysis of spoken texts.<br>Accurate and flexible language use, including self-correction, supports clarity in spoken communication.<br>Purpose and audience of spoken Gaelic shape language choices, structure and delivery.<br>Engaging with a range of Gaelic texts introduces new ideas and shapes thinking.<br>Recognising language patterns supports accurate reading of unfamiliar texts.<br>Critical reading reveals ideas and perspectives across a range of texts.<br>Writing involves shaping language and content to achieve purpose and impact.<br>Reviewing and editing strengthens clarity, accuracy and coherence in writing. |
| | **Compàirteachas agus Buintealas/Participation and Connecting with Others** | | | Engagement with Gaelic culture shapes and deepens individual and collective identities.<br>Using Gaelic across a range of contexts strengthens connections, creates opportunities and broadens experiences. |
| | **Dualchas Cultarach agus Coimhearsnachd/Gaelic Cultural Heritage and Community** | | | Gaelic cultural heritage is shaped by the relationship between people, place and community. |
| | **Luachadh agus Tagrachd/Appreciation and Advocacy** | | | The rights of Gaelic speakers are protected through policy to support equality, identity and access to language and education.<br><br>Being an advocate for Gaelic strengthens its status and sustainability in Scotland and beyond. |
| **Numeracy and Mathematics** | **Quantity, Numbers and the Algebraic Properties of Number** | Number Systems and Structures | | The base ten number system extends infinitely in both directions, allowing increasingly large quantities and increasingly precise values to be represented, interpreted and communicated.<br>For whole numbers greater than one, the number of factors a number has determines whether it is prime or composite. |

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| | | | | Index notation provides a compact way to express repeated multiplication, enabling the efficient calculation and generalisation of powers. |
| | | Number Relationships and Operations | | Place-value relationships and operation properties allow numbers of any magnitude or precision to be scaled, approximated and justified, supporting problem solving in a range of contexts.<br>Number relationships extend across zero to include positive and negative values, while equivalence, inverse relationships and operation properties remain consistent.<br>Fraction operations depend on equivalence and unit size, with common units supporting addition and subtraction and multiplicative relationships underpinning multiplication and division. |
| | | Proportional Reasoning | | Proportional relationships involve quantities that are connected in a consistent way, so if one quantity is multiplied or divided by a given factor, the other quantity changes by the same factor. |
| | | Patterns and Sequences | | Sequences of numbers that follow multiplicative rules can lead to patterns of rapid growth or decay.<br>Rules describing sequences enable the efficient identification of the next term or any particular term based on its position. |
| | | Expressions, Equations and Relationships | | Like terms combine to simplify expressions because each variable represents the same quantity.<br>Equations and inequations can be solved using inverse operations and algebraic properties to determine values that satisfy equality or ranges of values that satisfy inequality.<br>The construction of expressions and formulae describe unambiguously the operations involved and in what order they are carried out. |
| | | Finance | | Effective financial planning involves balancing income and expenditure, making informed choices about products and services and considering risks, costs and implications over time. |
| | **Shape, Space and Measurement** | Position and Movement | | Bearings determine direction relative to north using angles, supporting precise navigation.<br>Known angle relationships can be used to determine unknown angles, while labels and notation enable clear communication about geometric properties.<br>Positive and negative coordinates can be used to represent and locate positions in two-dimensional space. |
| | | Properties of Shapes and Solids | | Relationships between the properties of 2D shapes and 3D solids allow unknown measurements to be calculated and shapes to be represented, analysed and constructed. |
| | | Proportional Reasoning | | Proportional relationships determine how quantities that scale together are modelled, represented and analysed. |
| | | Measures | | Relationships between dimensions determine how perimeter, area and volume are calculated and used to quantify spaces.<br>Irrational numbers are needed to describe exactly the relationships between the radius, circumference and area of a circle, enabling calculations to be carried out with appropriate precision. |
| | | | | Relationships between units of time can be used to estimate, calculate and reason about duration. |
| | **Information, Data and Uncertainty** | Data Management | | Representative samples reflect the characteristics of a wider population, supporting conclusions about that population.<br>Different types of data require different forms of organisation and representation to communicate information. |
| | | Data Analysis and Interpretation | | Graphical representations reveal trends in data that support comparison and inform predictions.<br>The ways in which data is collected, selected and represented can influence interpretation and can clarify or distort the conclusions drawn.<br>The distribution of numerical data influences which statistical measures best describe and compare data sets. |
| | | Probability | | Experimental data informs estimates of probability, supporting predictions about future outcomes. |
| **Religious Education Roman Catholic** | **Seeking God's Presence in Our Lives** | | | The wonder of our creation and the mystery of the trinity are signs of God's invitation to relationship. |
| | **Knowing we are made in God's Image** | | | Human dignity, conscience and vocation shape how Christians live as disciples and serve the Kingdom of God. |
| | **Believing in One God revealed to us** | | | God reveals His loving and saving nature through key people, events, and covenants in the Old and New Testament and how these deepen understanding of the nature of the Trinity. |
| | **Encountering the life, death and resurrection of Jesus Christ** | | | Jesus is truly human and truly divine; Our Saviour who brings the New Covenant and what that means for us.<br>The connection between the ministry, passion, death and resurrection of Jesus culminate in the Paschal Mystery.<br>Studying the world 2,000 years ago helps us truly understand who Jesus was, why His message was so unexpected, and how His life still transforms ours today. |
| | **Nurturing faith through Church and the Sacraments** | | | The Church continues Christ's mission through Word, Sacraments and service. |
| | **Exploring the Word of God** | | | The literary forms, context and purpose of Scripture help reveal God's message more deeply.<br>God speaks through Scripture, calling people to witness, discipleship and mission today. |

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| | **Responding through Prayer, devotion and Liturgy** | | | Prayer, liturgy, and the Sacraments help us encounter God, reflect on our lives, and respond to Christ. |
| | **Journeying to Holiness through Christian Livin** | | | Our experience of wisdom and compassion affect how we live.<br>Forgiveness and reconciliation restore our relationship with God and others.<br>Church teaching moral decisions and actions. |
| | **World Religions** | | | A “sense of the sacred" influences moral choices and worship, enriching our respect for human dignity across all faiths. |
| **Religious, Moral and Philosophical Studies Sciences** | **Religion & Worldviews** | | | There is diversity of belief *across* religion and worldviews.<br>There is diversity of belief *within* religion and worldviews.<br>The practices and traditions that religion and worldviews engage in express their beliefs, ideas and identities in a range of ways. |
| | **Morality, Ethics and Values** | | | There are different views across religion, worldviews and philosophical perspectives about what is right and wrong in relation to moral issues.<br>Religion, worldviews and philosophical perspectives reach conclusions about moral issues in different ways. |
| | **Questions, Arguments and Sources** | | | Religion, worldviews and philosophical perspectives ask, explore and reach conclusions about religious and philosophical questions. |
| **Science** | **Scientific Investigation** | | | Scientific investigations are planned by identifying variables, considering risks and using repeatable methods to produce reliable findings. |
| | **Interpreting and Analysing** | | | Interpreting and analysing data helps to make comparisons, show relationships and identify patterns, helping us to form conclusions and build scientific knowledge. |
| | **Evaluation in Science** | | | Evaluating scientific practice involves considering the strengths and limitations of the method, results and conclusion, supporting more accurate and reliable findings in future investigations. |
| | **Scientific Communication and Review** | | | Scientists select appropriate graphs and units to share their findings in a consistent way, enabling evidence and findings to be communicated and accessed effectively. |
| | **The Connected World** | **Nature and Earth’s resources** | **Nature** | The environment consists of a variety of ecosystems, and scientific monitoring helps identify environmental change to enable nature-focused solutions. |
| | | | **Food and interdependence** | Soil health, climate and pollinators play an essential role in the survival of living things, including plant growth, food web stability and food security. |
| | | | **Materials and their properties** | Metals and plastics are materials that are chosen for particular uses, taking account of their impacts on people, other living things and the environment. |
| | | **Energy in society** | **Energy sources and security** | Electricity is produced, transferred, stored and managed in different ways to meet changing demand, so societies can maintain reliable and sustainable energy supplies. |
| | | | **Energy and climate change** | Using less energy sources from non-renewable sources and using alternatives such as renewable energy sources can reduce greenhouse gas emissions, supporting the journey to net zero. |
| | | **Space** | | Gravitational forces cause objects in space to move in predictable orbits and patterns, helping to explain observations of the Solar System and wider Universe. |
| | | **Health and disease** | | Public health strategies, such as vaccination and responsible antibiotic use, reduce the transmission of infectious diseases and help limit antimicrobial resistance, protecting individuals and populations. |
| | **The Living World** | **Survival of living things** | **Concept of life** | Living things are made of cells whose structures enable them to carry out the functions needed for life |
| | | | **Genetic variation** | Genetic information can vary and be inherited, creating differences and adaptations between organisms that can affect their chances of survival. |
| | | **Systems for survival** | **Nervous system and the senses** | The brain and nerves work together in the central nervous system to process sensory information, enabling coordinated responses to changes in the environment. |
| | | | **Digestive, respiratory and circulatory systems** | The digestive, respiratory and circulatory systems depend on each other to provide the conditions needed for life. |
| | | | **Reproductive systems in humans and other animals** | Sexual reproduction produces genetic variation within a population, which can help species survive and adapt to changing environments. |
| | | | **Plant systems** | Plant root and shoot systems depend on each other to transport substances needed for photosynthesis, growth and survival. |

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| | **The Chemical World** | **Physical changes** | **States of matter** | Matter is made of tiny particles called atoms, and the way these particles are arranged determines the properties and behaviour of different states of matter, influencing how materials can be used. |
| | | | **Mixtures** | A solution forms when a solute dissolves in a solvent, and differences in solubility help to explain how substances interact and how mixtures can be separated into useful components. |
| | | **Chemical changes** | **Chemical reactions** | In a chemical reaction, reactants are transformed into products (which have different properties from the reactants), enabling the creation of new substances that can be useful for specific purposes. |
| | | | **Rates of reaction** | The rate of a chemical reaction can be controlled, allowing reactions to be carried out safely and efficiently. |
| | | | **Acids and bases** | pH measures how acidic or alkaline a substance is, and understanding pH helps identify substances, predict their behaviour, determine their uses and ensure they are handled safely. |
| | | **Elements and compounds** | **Elements and the periodic table** | The periodic table organises all known elements in a logical way, and the patterns it contains help understand the properties and relationships of the building blocks that make up the world. |
| | | | **Compounds** | Elements combine chemically to form compounds, creating the vast range of substances in the Universe, and the names of compounds help identify their composition and properties. |
| | **The Physical world** | **Electricity** | **Electrical circuits** | Electrical circuits are systems in which components work together, allowing charge to flow when the circuit pathway is complete. |
| | | | **Static electricity and electromagnetism** | Electric charge can create interactions at a distance, and moving charge can create magnetic effects that can be used in everyday technologies. |
| | | **Forces** | **Motion** | Speed is a measure of how fast an object travels and can be determined using distance and time, helping us compare and predict motion. |
| | | | **Forces and interactions** | Forces can be measured and represented, allowing us to explain the motion of objects and the interaction of forces. |
| | | **Waves** | **Sound** | Sound is a wave that has properties such as pitch, loudness, frequency and amplitude which make sound useful for different purposes. |
| | | | **Light** | Light can be reflected or absorbed by materials in predictable ways, helping us explain what we see and how reflection is used in everyday technologies. |
| | | | **Wave properties** | Waves transfer energy from one place to another and play an important role in processes such as hearing and sight. |
| | | | **Electromagnetic radiation** | Visible light is part of a wider electromagnetic spectrum, with the different types of radiation within the spectrum having a wide variety of uses in everyday life. |
| | **Taking Scientific Action** | | | Applying scientific evidence helps to make informed decisions, recognise the consequences of actions and improve solutions to everyday problems. |
| | **Science Around Me** | | | Responsible scientific innovation develops through the collaboration of people from diverse cultures and communities, helping to create jobs and new industries in Scotland. |
| | **Informed and Responsible Decision-making** | | | Scientific evidence can be evaluated and compared, helping to identify misinformation, disinformation and bias to justify decisions. |
| **Social Studies** | **Causation** | | | Causes and consequences can happen over different timescales. |
| | **Conflict** | | | Conflict develops from competing factors, leading to short and long-term consequences. |
| | **Cooperation** | | | Cooperation requires compromise, negotiation and balancing different interests. |
| | **Enquiry** | | | Enquiry requires selecting methods and information to answer questions. |
| | **Environments** | | | Human actions affect environments. |
| | **Equality** | | | Barriers can prevent people and groups from experiencing equality. |
| | **Evidence** | | | Evidence may be influenced by the way it is gathered, created or presented. |
| | **Perspective** | | | People's perspectives can be shaped by their experiences, identities and contexts. |
| | **Power** | | | Power is not fixed. |
| | **Society** | | | Societies are diverse. |
| | **Systems** | | | Systems function in ways that affect people, places and processes. |
| **Technologies** | **Identify, Define, Explore and Articulate** | | | Ideas are developed through an iterative process of analysing needs, generating solutions, testing outcomes and refining designs based on evidence. |
| | **Make It Happen** | | | Reliable solutions are created through the skilled use of tools, processes and resources within a design and development process. |
| | **Systems** | | | The behaviour and performance of a system are influenced by the interaction of its people, processes and resources. |
| | **People and Planet** | | | Technology and innovation decisions require balancing the needs of people, communities and the environment. |
| | **A Data Rich World** | | | Data has value and decisions become more informed when data sources, quality and patterns are critically analysed. |

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# Expressive Arts Know-Do-Understand Strands

<table>
<tr><td>Strand</td><td colspan="5">Creative Process<br>The Creative Process, within the Expressive Arts, is the development of knowledge, understanding and skills across Art and Design, Dance, Drama, Film and Screen and Music and Music Technology. It involves exploring ideas, experimenting with materials and techniques and refining work through thoughtful adjustment. It focuses on the ways that creative ideas grow and develop before they are shared.</td></tr>
<tr><td></td><td colspan="2">Art and Design</td><td colspan="2">Dance</td><td>Drama</td></tr>
<tr><td rowspan="4">Third Level</td><td colspan="2">Understand: Creative decision making becomes deliberate as ideas are considered, refined and organised to achieve an intended purpose.</td><td colspan="2">Understand: Creative decision making becomes deliberate as ideas are considered, refined and organised to achieve an intended purpose.</td><td>Understand: Creative decision making becomes deliberate as ideas are considered, refined and organised to achieve an intended purpose.</td></tr>
<tr><td>Know:<br>The creative process for art and design is a cycle: stimulus/brief, research, develop, outcome and evaluate.<br><br>Creative ideas are developed through experimentation, adaptation and purposeful refinement.<br><br>Visual and design elements, materials and techniques can be selected, manipulated and used with increasing consideration.<br><br>A design brief outlines a problem to be solved, with a client, target market, requirements and restrictions.<br><br>Research is used to inform and justify creative ideas and decisions.</td><td>Do:<br>Explore and interpret the meaning of the stimulus/brief using visual elements and design concepts and techniques.<br><br>Investigate relevant visual elements, materials, techniques, other artists' and designers' work and sources such as natural or man-made elements.<br><br>Use research to create, develop and refine ideas that respond to the stimulus/brief.<br><br>Select and justify ideas to create a final outcome that fulfils the stimulus/brief and may include elements of originality.<br><br>Evaluate and justify how creative choices develop and refine ideas, evaluating the success of the outcome.</td><td>Know:<br>Choreographic processes are used to develop and refine dance ideas through movement selection, adaptation, combination and structure.<br><br>Use of choreographic device and motif reflect the core theme of a stimulus.</td><td>Do:<br>Create an original dance using selected movement elements, choreographic devices and music in response to a stimulus/theme.<br><br>Develop an original motif in response to theme or stimulus.</td><td>Know:<br>Dramas are shaped through structure, style, design, dramatic conventions, genre and form.<br><br>Drama skills and production elements can be selected and combined to control pace, build tension, develop character and relationships and shape meaning.<br><br>Drama skills can be developed and refined through increasingly deliberate use of voice and movement. Rehearsal techniques support development and experimentation.</td><td>Do:<br>Generate and develop ideas from a range of diverse stimuli to achieve an intended purpose.<br><br>Experiment with and select dramatic conventions, structure, genre and production elements to shape ideas and build tension.<br><br>Apply and refine drama skills across a variety of roles.<br><br>Adapt and develop ideas in response to feedback and self-evaluation.<br><br>Use appropriate drama vocabulary to describe and reflect on work.</td></tr>
<tr><td colspan="2">Includes, but not limited to<ul><li>stimuli such as questions, images, texts, objects, artefacts, themes, music and performance</li><li>research sources including the work of artists, designers, makers and creative practitioners</li><li>starting points for idea development, including observational drawing from objects, environments, artefacts and images</li><li>design outcomes such as fashion and textiles, jewellery, architecture, graphics and product design</li><li>visual elements including line, colour, shape, form, pattern, texture and tone</li></ul></td><td colspan="2">Includes, but not limited to<ul><li>dance elements such as space, timing, dynamics and relationships</li><li>choreographic devices such as canon, mirroring, repetition, retrograde, accumulation, motif and theme and variation</li><li>movement experiences which support the development of refined dance skills and movement quality</li></ul>Notes<br>Dance elements can be used individually and in combination to create, perform and evaluate dance.<br><br>Refinement of movement skills supports greater control, precision, expression and confidence in performance.</td><td>Includes, but not limited to<ul><li>drama concepts such as tension, purpose, character and status</li><li>voice techniques such as tone, emphasis, articulation and intonation</li><li>movement techniques such as direction, use of space, proxemics, levels, positioning, gesture and facial expression</li><li>rehearsal techniques such as voices in the head, character cards, role play and thought tunnel</li><li>dramatic forms such as spontaneous improvisation, rehearsed improvisation, scripted drama, mime and pantomime</li><li>drama conventions such as flashback, flashforward, freeze frame, slow motion and voice-over</li><li>dramatic structures such as linear and non-linear narratives</li><li>dramatic styles such as naturalistic and non-naturalistic drama</li><li>drama genres such as tragedy, comedy, melodrama, tragicomedy and mystery</li></ul></td></tr>
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<td>Notes<br>Stimuli support the generation, exploration and development of creative ideas. Research, investigation and engagement with artists, designers and makers inform creative decisions.<br><br>Observational drawing supports noticing, recording, analysing and developing ideas.<br><br>Design briefs identify purpose, audience, requirements and constraints.<br><br>Visual elements communicate ideas, create meaning and enhance visual impact.<br><br>Awareness of art and design careers supports understanding of creative applications and pathways.</td>
<td>Choreographic devices can be used to structure, develop and extend movement ideas within a dance sequence.<br><br>Retrograde involves performing movements in reverse order and direction.<br><br>Accumulation involves adding movements, phrases or performers over time to build and develop a sequence.<br><br>Motif refers to a short movement pattern that is repeated, adapted or developed throughout a dance and may represent an emotion, character, idea or theme.<br><br>Selecting and combining dance elements and choreographic devices supports the communication of meaning, intention and artistic expression.</td>
<td>• production skills such as costume, lighting, sound and props<br><br>Notes<br>Voice and movement techniques can be used to communicate character, mood, meaning and intention.<br><br>Rehearsal techniques support the exploration, development and refinement of characters, ideas and performances.<br><br>Production elements can enhance atmosphere, focus attention and support the communication of dramatic intent.</td>
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<td colspan="2">Film and Screen</td>
<td colspan="2">Music and Music Technology</td>
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<td rowspan="3">Third Level</td>
<td colspan="2">Understand: Creative decision making becomes deliberate as ideas are considered, refined and organised to achieve an intended purpose.</td>
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<tr>
<td>Know:<br>The importance of a script in the filmmaking process.<br><br>The filmmaking process involves pre-production, production and post-production.<br><br>Intended purpose, including audience impact, is planned and realised in response to a filmmaking brief.<br><br>Film and screen products are developed, produced and edited in response to a filmmaking brief.<br><br>Shared expectations, set etiquette and collaboration influence the quality and effectiveness of creative work.<br><br>Film and screen industries have a wide variety of crew roles.<br><br>Camera, sound and editing decisions are selected and used purposefully to shape meaning and creative choices.</td>
<td>Do:<br>Develop and structure scripts of more than one scene, for a variety of film and screen products.<br><br>Plan, create and present film and screen products in response to briefs that are suitable for an identified audience.<br><br>Edit film and screen products in response to briefs, that are suitable for an identified audience.<br><br>Collaborate and show effective use of set etiquette in the making of own and others' film and screen products.<br><br>Undertake and reflect on a variety of production roles.</td>
<td>Know:<br>Music from a diverse range of styles, genres and contexts can inform and influence creative decisions and stylistic choices.<br><br>Musical elements can be combined to create and develop musical composition.<br><br>Musical ideas are developed and adapted through a creative process that includes exploring, generating and refining.<br><br>Creating music can involve individual creativity, communication, collaboration and shared decision-making.<br><br>Recording, playback and editing can be used to develop, adapt and refine musical ideas throughout the creative process.</td>
<td>Do:<br>Explore, listen to and discuss music from different styles, genres and contexts to help shape creative choices.<br><br>Use musical elements, instruments, voices and technology to create and develop a musical composition and/or digital project.<br><br>Explore, develop and refine musical ideas independently and with others, making changes in response to reflection and feedback on creative choices.<br><br>Use digital tools to record, edit and review musical ideas, making purposeful changes to develop compositions and performances.</td>
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<td colspan="2">Includes, but not limited to<br>• planning tools such as storyboards, shot lists, briefs and narrative frameworks<br>• filmmaking techniques such as camera shots, angles, sequencing, editing, visual storytelling and audio elements including dialogue, music, sound effects and ambient sound<br>• filmmaking roles and collaborative practices such as director, camera operator, location scout, props master, editor, communication and shared decision-making</td>
<td colspan="2">Includes, but not limited to<br>• musical styles and genres such as orchestral music, musical theatre and popular music<br>• creative approaches such as improvisation, pentatonic scales, melodic, rhythmic and chordal ideas<br>• digital music-making tools and projects such as Digital Audio Workstation (DAW), software, apps, radio broadcasts, film and game music, loops, video clips and sound effects</td>
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| | **Notes**<br>Film and screen products can be planned, created and edited in response to a brief, purpose or creative intention.<br><br>Story structure and planning processes support the organisation and development of narrative, visual and audio ideas.<br><br>Experimentation and creative choices involving image, sound, movement and editing can communicate meaning, mood, character and perspective.<br><br>Filmmaking involves collaboration, shared responsibilities and safe, respectful working practices, including set etiquette.<br><br>Creative work can be adapted, refined and evaluated in response to challenges, emerging ideas and feedback.<br><br>Reflection supports understanding of how creative decisions influence the process, outcome and audience experience. | **Notes**<br>Listening to and reflecting on music from different styles, times and places supports musical understanding and appreciation.<br><br>Musical features such as structure, instrumentation, compositional techniques and musical elements can be identified, discussed and applied creatively.<br><br>Improvisation supports the exploration, development and refinement of musical ideas.<br><br>Digital technologies can be used to create, record, edit, arrange and share music and multimedia content.<br><br>Reflection and evaluation support the development of musical processes and creative outcomes.<br><br>Musical elements at this level: melody, harmony, rhythm, tempo and dynamics. |

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<tr><td>Strand</td><td colspan="4">Perform, Present and Produce<br>Perform, Present and Produce is the process of preparing and sharing creative work with others. It involves organising, refining and presenting work so that ideas, stories or intentions are clear. This includes live performance, recorded formats and physical or digital display.</td></tr>
<tr><td></td><td colspan="2">Art and Design</td><td colspan="2">Dance</td><td colspan="2">Drama</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Creative work can be refined and organised to strengthen meaning, purpose and audience engagement.</td><td colspan="2">Understand: Creative work can be refined and organised to strengthen meaning, purpose and audience engagement.</td><td colspan="2">Understand: Creative work can be refined and organised to strengthen meaning, purpose and audience engagement.</td></tr>
<tr><td>Know:<br>Visual elements are selected and refined to communicate ideas with increasing control and purpose.<br><br>Design concepts are selected and refined to communicate design ideas.<br><br>Composition, viewpoint, scale and presentation influence interpretation and audience engagement.<br><br>Art and design works can be curated and organised to communicate themes, concepts and messages.<br><br>Presentation decisions contribute to the meaning and impact of creative work.</td><td>Do:<br>Develop, refine and resolve art and design work outcomes for presentation.<br><br>Select and apply visual elements, design concepts, media and techniques with increasing control and intention.<br><br>Arrange and present work considering placement, sequence, interpretation and impact.</td><td>Know:<br>Focus, timing, energy and expression affect performance quality.<br><br>Different dance styles have distinctive features such as movement quality, rhythm, posture and use of space.<br><br>Alignment, posture, strength, stamina, flexibility and coordination contribute to effective performance.<br><br>Rehearsal and refinement strengthen artistic intention and audience engagement.</td><td>Do:<br>Perform a dance demonstrating control alignment, posture and movement to improve performance quality.<br><br>Apply technical and expressive skills with increasing control and purpose.<br><br>Use body and facial expression to communicate an idea, emotion or theme.<br><br>Rehearse and refine movement to improve increased strength, stamina and flexibility.<br><br>Effectively warm up and cool down the body, ensuring stretches are appropriate for ability.</td><td>Know:<br>Staging, blocking and use of space influence meaning, atmosphere and audience engagement.<br><br>Production skills such as props, costume, sound and lighting enhance meaning and communication.<br><br>Drama communicates ideas through character, relationships, tension, time and place.</td><td>Do:<br>Rehearse, stage and present drama for a chosen audience and purpose.<br><br>Apply staging choices to communicate character, relationships, tension and time.<br><br>Use staging, movement and space purposefully to enhance meaning and audience engagement.<br><br>Use drama skills to create and sustain character.<br><br>Adapt performance choices in response to feedback to strengthen audience engagement.<br><br>Demonstrate increasing independence in devising, rehearsing and presenting drama.<br><br>Use appropriate drama vocabulary to describe and reflect on work.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>• presentation formats such as portfolios, exhibitions, design boards, digital galleries and online showcases<br>• presentation approaches such as mounting displays, curating exhibitions and creating portfolios<br>• design concepts such as function, fitness for purpose, style and trends, materials and techniques, visual impact and target audience<br>• visual elements such as line, colour, shape, form, pattern, texture and tone<br>• roles and opportunities within art and design such as artist, designer, illustrator, architect, animator and craftsperson<br><br>Notes<br>Presentation decisions should consider audience, context and purpose.</td><td colspan="2">Includes, but not limited to<br>• performance opportunities such as performances for peers, families, school audiences and community audiences<br>• dance experiences such as individual performances, duets and small-group work<br>• performance elements such as timing, rhythm and musical accompaniment<br><br>Notes<br>Dance can be rehearsed and performed for a range of audiences and purposes.<br><br>Timing, rhythm and accompaniment can be used to support coordination, expression and communication within performance.<br><br>Control and fluency contribute to the effective performance of movement sequences.</td><td colspan="2">Includes, but not limited to<br>• drama approaches such as devised drama, scripted drama and issue-based drama<br>• staging configurations such as end-on, proscenium arch, avenue, thrust, in-the-round and promenade<br>• dramatic purposes such as educating, exploring themes and issues, communicating a message and providing meaningful experiences<br>• techniques for creating impact such as staging, movement and production elements<br><br>Notes<br>Drama can be created and presented for a range of purposes, audiences and contexts.<br><br>Audience interpretation and response can be influenced by creative, performance and production choices.</td></tr>
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| | Effective presentation may include evidence of research, development, refinement and final outcomes.<br><br>Increasing independence supports the planning, development, refinement and presentation of creative work.<br><br>Design concepts can influence creative decisions and help evaluate the effectiveness of outcomes.<br><br>Visual elements can be used individually and in combination to communicate meaning, create visual impact and support creative intentions.<br><br>Awareness of roles, pathways and careers in art and design supports understanding of how creative knowledge and skills can be applied in a variety of contexts. | Rehearsal supports the development, refinement and presentation of dance work.<br><br>Increasing independence supports decision-making, responsibility and confidence throughout the rehearsal and performance process. | Staging, movement and production elements can be combined to create mood, atmosphere and meaning.<br><br>Different staging configurations can shape performer-audience relationships and influence how drama is experienced.<br><br>Devised, scripted and issue-based approaches provide opportunities to explore ideas, themes, viewpoints and real-world contexts.<br><br>Increasing awareness of audience supports informed decisions about how dramatic intent is communicated and understood. |

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| **Third Level** | **Film and Screen** | | **Music and Music Technology** | |
| | **Understand:** Creative work can be refined and organised to strengthen meaning, purpose and audience engagement. | | **Understand:** Creative work can be refined and organised to strengthen meaning, purpose and audience engagement. | |
| | **Know:**<br>Film and screen content is created and can be shared with an intended audience.<br><br>Film and screen products use elements such as narrative structure, camera techniques, sound and production design to communicate meaning and create an audience response.<br><br>Editing and sequencing of images and sound can shape structure and pace. | **Do:**<br>Produce and share a short film or screen product for an intended audience.<br><br>Select and use camera, sound and editing techniques with increasing control to communicate ideas.<br><br>Sequence and edit image and sound to create a coherent and engaging product for an intended audience. | **Know:**<br>Specific rehearsal techniques can develop fluency and confidence in performance.<br><br>Notation and performance directions, including staff notation, chord symbols, tablature (TAB) and digital formats, communicate musical information and support accurate performance.<br><br>Musical and technological skills, techniques and processes influence how music is performed, recorded and presented.<br><br>Musical choices influence audience engagement and interpretation. | **Do:**<br>Use rehearsal techniques to improve accuracy, fluency, interpretation and artistic intention in solo and ensemble performance.<br><br>Perform, record and present music independently and with others, maintaining awareness of balance, timing and texture to communicate character and meaning.<br><br>Follow notation and performance directions to support accurate rehearsal, recording and performance. |
| | **Includes, but not limited to**<br>• film and screen products such as narrative films, music videos, documentary clips and trailers<br>• sharing opportunities such as class screenings, school events and digital platforms<br>• film techniques such as extreme close-up, close-up, medium, long, high-angle, low-angle and overhead shots<br>• narrative devices such as foreshadowing and flashbacks<br>• audio elements such as sound effects and musical score<br>• production design elements such as sets, props and costume<br><br>**Notes**<br>Film and screen products can be created and shared for a range of audiences, purposes and contexts.<br><br>Visual, audio and narrative elements can be combined purposefully to communicate meaning, mood, character and story.<br><br>Camera shots and angles can be selected to influence audience attention, perspective and emotional response. | | **Includes, but not limited to**<br>• performance experiences such as solo and ensemble performances, concerts, recordings, multipart pieces, simple arrangements and collaborative projects<br>• rehearsal techniques such as sectional practice, practising at varied speeds, repetition, full run-throughs and the use of dynamics<br>• musical notation such as minims, dotted minims, semibreves, rests, repeat signs, Italian tempo markings, dynamic markings and performance directions<br><br>**Notes**<br>Music can be rehearsed and performed individually and collaboratively in a range of contexts.<br><br>Rehearsal strategies support the development, refinement and presentation of musical performances.<br><br>Notation and performance directions support the accurate interpretation, rehearsal and communication of musical ideas. | |

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| | Narrative devices can be used to structure and develop storytelling.<br><br>Production design contributes to atmosphere, context and audience understanding.<br><br>Sharing work with different audiences provides opportunities for reflection, evaluation and refinement of creative practice. | Listening skills and ensemble awareness contribute to balance, timing, coordination and effective group performance.<br><br>Creative and performance decisions can be informed by musical understanding, interpretation and expressive intent.<br><br>Increasing independence supports confidence, responsibility and self-management when preparing and presenting performances. |

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<tr><td>Strand</td><td colspan="4">Self-expression<br>Self-expression is how learners use the expressive arts to explore and communicate their thoughts, emotions and ideas.</td></tr>
<tr><td></td><td colspan="2">Art and Design</td><td colspan="2">Dance</td><td>Drama</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Self-expression is influenced by personal perspectives, experiences and culture to communicate ideas.</td><td colspan="2">Understand: Self-expression is influenced by personal perspectives, experiences and culture to communicate ideas.</td><td>Understand: Self-expression is influenced by personal perspectives, experiences and culture to communicate ideas.</td></tr>
<tr><td>Know:<br>Art and design can express ideas about identity, belonging, culture, environment, memory and society.<br><br>Visual elements, materials and techniques can be chosen to support meaning.<br><br>Style, mood and atmosphere influence how ideas are communicated and interpreted.<br><br>The work of artists and designers can inform creative choices and extend possibilities for expression.</td><td>Do:<br>Develop and refine visual ideas that express a personal or social theme or solve a problem.<br><br>Use and combine visual elements, materials, techniques and styles to communicate meaning.<br><br>Identify and explain how artists' work has influenced creative decisions.<br><br>Evaluate how effectively artwork or design communicates intended ideas.</td><td>Know:<br>Dance can communicate and express feelings, ideas, experiences and viewpoints through movement.<br><br>Dance can represent personal and shared experiences, interests and emotions, influencing how movement is created, performed and interpreted.<br><br>Dance can contribute positively to mental, emotional and physical well-being and can be used as a means of self-expression and communication.</td><td>Do:<br>Explain and justify how movement choices communicate feelings, ideas, experiences and viewpoints.<br><br>Develop and refine movement material to make the intended meaning clear to an audience.<br><br>Contribute and respond to ideas within a group dance, incorporating personal experiences and viewpoints.</td><td>Know:<br>Characters, situations and production choices can be used to explore ideas, feelings and experiences in more depth.<br><br>Drama skills can communicate viewpoint, mood and meaning.<br><br>Different characters and situations can present contrasting perspectives.</td><td>Do:<br>Create and develop drama that explores personal, imagined or social ideas and experiences.<br><br>Use drama skills to communicate character, mood and viewpoint.<br><br>Make choices about character and production elements to strengthen meaning.<br><br>Work with others to develop situations that show different perspectives.<br><br>Use drama vocabulary to explain and reflect on creative choices.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>• creative approaches such as identity projects, issue-based work, mixed-media explorations and sketchbooks as thinking spaces<br>• artistic approaches such as mixed-media, digital and three-dimensional work<br>• creative features such as visual elements (line, colour, shape, form, pattern, texture and tone), composition, mood and atmosphere, visual style, distortion, juxtaposition and limited palettes<br>• creative tools and processes such as materials, techniques and exploration of art movements and styles<br>• research sources such as the work of artists and designers<br><br>Notes<br>Art and design can provide opportunities to explore and communicate personal identity, viewpoints, experiences and issues.<br><br>Sketchbooks and other developmental processes can be used to record, explore, test and refine ideas.<br><br>Conceptual intentions can be communicated through the purposeful selection and combination of visual elements, materials, techniques, styles and compositional approaches.</td><td colspan="2">Includes, but not limited to<br>• stimuli such as themes, issues, emotions, music, images, stories, events and personal experiences<br>• choreographic features such as movement, structure, dynamics, relationships and motifs<br>• collaborative approaches such as listening, sharing ideas, negotiation, adaptation and collective decision-making<br><br>Notes<br>Dance can be used to communicate ideas, emotions and intentions with increasing clarity and purpose.<br><br>Movement choices should demonstrate a clear relationship between the chosen stimulus and the choreographic intention.<br><br>Choreographic material can be selected, developed and refined to communicate meaning effectively to an audience.<br><br>Collaboration involves contributing ideas, listening to others, negotiating decisions and adapting movement while maintaining individual creativity and responsibility.<br><br>Reflection and refinement support the development of purposeful, effective and expressive dance work.</td><td colspan="2">Includes, but not limited to<br>• stimuli such as personal, imagined, cultural and social experiences, themes, issues, stories and events<br>• drama approaches such as improvisation, devised scenes and scripted work<br>• dramatic concepts such as character, relationships, status, motivation and viewpoint<br>• drama techniques such as voice, movement, use of space and production elements<br><br>Notes<br>Drama can be created in response to a range of stimuli to explore ideas, perspectives, experiences and issues.<br><br>Character, relationships, status, motivation and viewpoint can be developed to communicate meaning and dramatic intention.<br><br>Voice, movement, space and production elements can be selected and combined purposefully to enhance performance and audience engagement.<br><br>Learners should be encouraged to explore different perspectives and experiences without the expectation of personal disclosure.<br><br>Rehearsal, discussion and reflection support the development, refinement and evaluation of dramatic work.</td></tr>
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<tr><td></td><td>Researching and analysing the approaches of artists and designers can support creative development, experimentation and informed decision-making.<br><br>Creative choices can influence meaning, mood, atmosphere and audience interpretation.<br><br>Reflection throughout the creative process supports the development, refinement and evaluation of ideas and outcomes.</td><td></td><td>Increasingly purposeful creative choices can be informed by intention, audience, context and the impact of performance decisions.</td></tr>
<tr><td rowspan="4">Third Level</td><td colspan="2">Film and Screen</td><td colspan="2">Music and Music Technology</td></tr>
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<tr><td>Know:<br>Film and screen content communicates ideas, themes, personal thoughts and feelings, related experiences and/or social issues.</td><td>Do:<br>Plan, create and edit film and screen products that communicate and explore ideas, thoughts and feelings.<br><br>Make and justify creative decisions in relation to purpose, audience and message.</td><td>Know:<br>Composers and performers develop recognisable styles, influenced by personal and social experiences and culture.</td><td>Do:<br>Improvise and/or compose music using musical elements, making deliberate choices to support an intended outcome.<br><br>Perform music with attention to detail that reflects interpretation and expression.<br><br>Describe how influences and experiences have informed musical choices.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>• film and screen products such as short films, documentaries, campaign videos and other screen-based media<br>• creative considerations such as audience, purpose, representation and context<br><br>Notes<br>Film and screen products can be created for a range of audiences, purposes and contexts.<br><br>Consideration of audience, purpose, representation and context can inform creative, technical and editorial decisions.<br><br>Creative choices can influence how individuals, groups, ideas and issues are represented and interpreted by audiences.<br><br>Reflection on representation and context can support responsible, informed and ethical filmmaking practices.</td><td colspan="2">Includes, but not limited to<br>• creative approaches such as songwriting, beat-making, instrumental compositions, vocal compositions, independent compositions and collaborative compositions<br>• listening and discussion activities such as analysing phrasing, harmonic progression, dynamics, texture, melody, harmony, rhythm and tempo<br><br>Notes<br>Music can be created through a range of compositional approaches, using vocal, instrumental and digital resources.<br><br>Listening, discussion and analysis can support understanding of how musical elements influence creative and performance decisions.<br><br>Musical elements can be selected, combined and developed to communicate ideas, mood and artistic intention.<br><br>Reflection on musical choices can support the development, refinement and evaluation of compositions and performances.<br><br>Independent and collaborative music-making provide opportunities to explore, develop and communicate original musical ideas.<br><br>Musical elements at this level: melody, harmony, rhythm, tempo and dynamics.</td></tr>
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| Strand | **Reflect and Respond**<br>Reflect and Respond is the process of observing, interpreting and evaluating artistic work. It involves noticing creative choices, considering their impact and developing informed responses that deepen understanding of the Expressive Arts. | | | | | |
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| | **Art and Design** | | **Dance** | | **Drama** | |
| | **Understand:** Making connections between creative decisions, purpose and context helps to shape understanding of meaning and interpretation within artistic work. | | **Understand:** Making connections between creative decisions, purpose and context helps to shape understanding of meaning and interpretation within artistic work. | | **Understand:** Making connections between creative decisions, purpose and context helps to shape understanding of meaning and interpretation within artistic work. | |
| | **Know:**<br>Analysing visual elements, design concepts and context can help interpret meaning and purpose in art and design work.<br><br>Artists' and designers' intentions and cultural/historical/ contemporary contexts shape creative work.<br><br>Reflect and Respond is part of the creative process. | **Do:**<br>Describe and analyse how visual elements and design concepts work together.<br><br>Interpret meaning using evidence from art and design work.<br><br>Compare art and design work from different artists, designers, cultures, periods or styles.<br><br>Evaluate personal work, identifying refinements and improvements. | **Know:**<br>Themes, ideas and intentions can be explored through dance.<br><br>Reflection and quality feedback supports technical refinement and performance quality. | **Do:**<br>Analyse how movement elements and devices communicate intention.<br><br>Interpret themes using evidence from choreography and performances.<br><br>Use dance vocabulary to compare dance work and styles.<br><br>Evaluate strengths and areas for improvement in performances. | **Know:**<br>Drama choices can shape meaning and audience response.<br><br>Performance and production choices can work together to create impact.<br><br>Feedback and reflection can help develop drama. | **Do:**<br>Explain how performance and production choices create meaning and impact.<br><br>Reflect on creative choices and use feedback to develop work.<br><br>Give constructive feedback using appropriate drama vocabulary. |
| **Third Level** | **Includes, but not limited to**<br>• art and design vocabulary such as symbolism, style, movement, perspective, proportion, harmony, line, colour, shape, form, pattern, texture and tone<br>• analytical approaches such as description, analysis, interpretation and evaluation<br>• art and design work from a range of artists, designers, movements, cultures and contexts<br><br>**Notes**<br>Appropriate art and design vocabulary supports the discussion, analysis and evaluation of creative work.<br><br>Exploring concepts such as symbolism, style, movement, perspective, proportion and harmony can deepen understanding of how meaning and visual impact are communicated.<br><br>Structured analysis can support critical engagement with art and design through description, analysis, interpretation and evaluation.<br><br>Discussion, analysis and evaluation of a range of art and design work can support informed responses and creative decision-making.<br><br>Reflection should take place throughout the creative process to support the development, refinement and realisation of ideas.<br><br>Visual elements can be identified, analysed and used purposefully to communicate ideas, meaning and creative intentions. | | **Includes, but not limited to**<br>• dance vocabulary such as space, time, dynamics, relationships, motif, contrast, canon, unison and repetition<br>• dance experiences such as exploring, discussing and comparing performances from different styles, cultures and contexts<br>• reflective approaches such as discussion, self-reflection, peer feedback and video playback<br><br>**Notes**<br>Appropriate dance vocabulary supports the description, analysis and evaluation of dance processes, performances and creative choices.<br><br>Understanding dance elements and choreographic devices can support analysis of how meaning, mood and intention are communicated.<br><br>Comparing contrasting dance performances can support awareness of different styles, approaches, cultural influences and artistic intentions.<br><br>Reflection throughout the creative and performance process supports the development, refinement and evaluation of dance work.<br><br>Video playback can support observation, self-evaluation and informed decision-making.<br><br>Analysis and reflection can support understanding of how dance influences audience response and communicates ideas. | | **Includes, but not limited to**<br>• response approaches such as individual, paired and group discussion, reflection and evaluation<br>• areas for discussion such as character and relationships, voice and movement, space and positioning, structure, dramatic conventions and production elements such as set, props, lighting, sound and costume<br>• performance experiences such as live performances, recorded performances and classroom presentations<br><br>**Notes**<br>Drama responses should be supported by evidence from performance and references to the impact of creative, performance and production choices.<br><br>Discussion and reflection can support the analysis and evaluation of character, dramatic techniques, conventions and production elements.<br><br>Comparing different approaches can support understanding of effectiveness, intention and audience response.<br><br>Feedback can be used to refine, adapt and improve dramatic work.<br><br>Viewing and discussing a range of performances can broaden understanding of different styles, contexts and theatrical approaches.<br><br>Reflection and evaluation support informed judgement, critical thinking and creative decision-making. | |

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<table>
<tr><td rowspan="4">Third Level</td><td colspan="2">Film and Screen</td><td colspan="2">Music and Music Technology</td></tr>
<tr><td colspan="2">Understand: Making connections between creative decisions, purpose and context helps to shape understanding of meaning and interpretation within artistic work.</td><td colspan="2">Understand: Making connections between creative decisions, purpose and context helps to shape understanding of meaning and interpretation within artistic work.</td></tr>
<tr><td>Know:<br>Reflecting and reviewing supports pre-production planning, production and post-production editing.<br><br>Responding to the work of others and reflecting on film techniques helps to inform creative choices.<br><br>Regular feedback is essential to developing creative choices and technical skills.</td><td>Do:<br>Pre-production: give a personal response to a film or screen product using film and screen vocabulary.<br><br>Explain and justify opinions and responses in an informed way.<br><br>Production: review what has been planned or filmed, solve problems and adapt if required.<br><br>Post-production: reflect on completed work to identify and make informed choices about next steps.<br><br>Provide feedback for future development.</td><td>Know:<br>Music can be interpretated in a variety of ways, depending on context, experience and perspective.<br><br>Musical elements are used to shape meaning and communicate intent.<br><br>Creative decisions are influenced by purpose, audience, genre, cultural and historical context.<br><br>Refection and feedback support musical development.</td><td>Do:<br>Listen to a wide range of music and identify musical elements using appropriate vocabulary.<br><br>Reflect on performance and composition providing feedback and suggested improvements.<br><br>Compare and contrast pieces identifying musical elements from different genres, cultures or time periods.<br><br>Explain how cultural, historical and social context influence musical choices and interpretation.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>• film and screen language such as shot, angle, lighting, sound, costume and props<br>• feedback relating to creative, practical and production considerations such as budget, safety and time management<br><br>Notes<br>Appropriate film and screen vocabulary supports the description, discussion and evaluation of creative and technical choices.<br><br>Film and screen language can be used to analyse how visual and audio elements communicate meaning, mood and audience response.<br><br>Feedback can support the planning, refinement and improvement of film and screen work throughout the creative process.<br><br>Practical considerations, including resource management, safety and organisation, contribute to effective production outcomes.<br><br>Reflection and feedback support informed decision-making and the development of creative and technical skills.</td><td colspan="2">Includes, but not limited to<br>• musical signs, symbols and notation features such as note values, rests, dynamics, tempo markings and performance directions<br>• music from a range of genres, cultures and historical periods<br><br>Notes<br>Appropriate music vocabulary supports the discussion, analysis and evaluation of music.<br><br>Musical signs, symbols and notation can be recognised and interpreted to support performance, composition and understanding.<br><br>Listening and responding to music from a range of genres, cultures and historical periods can support musical understanding and appreciation.<br><br>Reflection throughout the creative and performance process supports the development, refinement and evaluation of musical work.<br><br>Musical elements can be identified, discussed and analysed to understand how they contribute to musical character, style and expression<br><br>Musical elements at this level: melody, harmony, rhythm, tempo and dynamics.</td></tr>
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<tr><td>Strand</td><td colspan="4">Cultural Awareness and Understanding<br>Cultural Awareness and Understanding is recognising and valuing Scotland’s artistic heritage while appreciating creative traditions, practices and perspectives from diverse cultures, times and places. It develops awareness of the beliefs, customs and ideas that shape creative expression.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Art and Design</td><td colspan="2">Dance</td><td>Drama</td></tr>
<tr><td colspan="2">Understand: Artistic choices, styles and forms reflect cultural meanings and may be interpreted differently in different cultural contexts.</td><td colspan="2">Understand: Artistic choices, styles and forms reflect cultural meanings and may be interpreted differently in different cultural contexts.</td><td>Understand: Artistic choices, styles and forms reflect cultural meanings and may be interpreted differently in different cultural contexts.</td></tr>
<tr><td>Know:<br>Cultural, social and historical, contemporary contexts influence artistic and design decisions to communicate meaning and identity.<br><br>Symbols, styles and techniques reflect cultural viewpoints and traditions.<br><br>Art and design movements respond to beliefs, traditions, cultural, social, historical and contemporary contexts.</td><td>Do:<br>Develop and refine art and design work by selecting and combining visual elements, design concepts, media, materials and techniques to communicate cultural ideas, values and viewpoints with increasing control.<br><br>Discuss the ways art and design works from different cultural, social, historical and contemporary contexts communicate meaning using relevant art and design vocabulary.<br><br>Apply and adapt symbols, styles and visual references to communicate ideas and cultural meaning within creative work.</td><td>Know:<br>Different cultures and traditions have distinctive movement styles, patterns, rhythms, music, costumes and formations that contribute to the purpose of a dance.<br><br>Scotland has a distinctive and historical dance culture, including traditional dances that reflect Scottish history, community and social traditions.</td><td>Do:<br>Create and perform a dance inspired by a cultural context, selecting and combining movement to communicate ideas and cultural meaning.<br><br>Discuss how dances from different cultures and contexts communicate meaning, using appropriate dance vocabulary and examples.<br><br>Adapt aspects of a Scottish Dance style to create a sequence of dance.</td><td>Know:<br>Drama can reflect culture, identity, place and different ways of life.<br><br>Plays and performances are influenced by the time, place and culture in which they are created.<br><br>Characters, language, style and performance choices can communicate different cultural perspectives.</td><td>Do:<br>Explore culture, identity or place through drama.<br><br>Explain how the time, place or culture of a drama influences characters, themes or performance choices.<br><br>Identify how drama choices communicate different cultural perspectives.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>• art and design influences such as local, Scottish and global artists, designers, movements and creative traditions; historical and contemporary art and design; and age-appropriate social, cultural and political contexts<br>• artists, movements and contexts such as Art Deco, conflict art, Pop Art, feminist art, Andy Warhol, Banksy and Cindy Sherman.<br>• media such as drawing, painting, digital technologies and 3D modelling<br>• materials such as pencils, oil pastels, charcoal and watercolours<br>• visual elements such as line, colour, shape, form, pattern, texture and tone<br><br>Notes<br>Exploring art and design from different times, places and cultures supports understanding of historical and contemporary creative practices.<br><br>Art and design can provide opportunities to explore social, cultural and political ideas in age-appropriate ways.</td><td colspan="2">Includes, but not limited to<br>• dance experiences from local, Scottish and wider-world contexts<br>• dance features such as movement, music, costume, rhythm, structure and formation<br>• dance vocabulary such as movement, rhythm, level, direction, dynamics, formation and structure<br><br>Notes<br>Exploring dances from different cultures and traditions can support understanding of diverse forms of expression, identity and heritage.<br><br>Comparing and contrasting dances can support recognition of similarities and differences in style, purpose, movement and cultural context.<br><br>Appropriate dance vocabulary supports the description, discussion and evaluation of dance experiences and performances.<br><br>Engagement with local, Scottish and global dance traditions can deepen appreciation of both cultural heritage and contemporary dance practices.</td><td colspan="2">Includes, but not limited to<br>• drama experiences such as Scottish theatre, theatre from other cultures and traditions, live and recorded performances, theatre visits, festivals and workshops<br>• stimuli such as plays, extracts, performances, stories, local and historical events, traditions, contemporary issues and the work of playwrights and theatre-makers<br>• cultural influences such as time, place, language, beliefs and traditions<br>• Scottish theatre opportunities such as local theatres, the National Theatre of Scotland, touring companies, Scots language, Gaelic language and the work of Scottish playwrights and theatre-makers<br>• partnerships such as artists, theatre practitioners and cultural organisations<br><br>Notes<br>Drama provides opportunities to explore and respond to a range of cultures, traditions, perspectives and lived experiences.<br><br>Engagement with Scottish, local and wider-world theatre can support understanding of cultural heritage, identity and contemporary society.</td></tr>
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<tr><td></td><td>Historical and contemporary movements can be considered within broader timelines to support understanding of influence, change and continuity in art and design.<br><br>Media, materials, techniques and visual elements can be selected and applied purposefully to communicate ideas, meaning and creative intentions.<br><br>Critical engagement with a range of artistic and design approaches can support the development of personal responses and creative outcomes.</td><td colspan="2">Observing, discussing and reflecting on dance can support informed responses and creative decision-making.</td><td>Time, place, language, beliefs and traditions can influence the creation, interpretation and performance of drama.<br><br>Exploration of different cultures and perspectives should promote curiosity, respect and appreciation of diversity while challenging stereotypes.<br><br>Experiences of performance, participation and collaboration can deepen understanding of drama as an art form and its role within communities.<br><br>Engagement with theatre-makers, artists and cultural organisations can broaden understanding of creative practices and career pathways.</td></tr>
<tr><td></td><td colspan="2">Film and Screen</td><td colspan="2">Music and Music Technology</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Artistic choices, styles and forms reflect cultural meanings and may be interpreted differently in different cultural contexts.</td><td colspan="2">Understand: Artistic choices, styles and forms reflect cultural meanings and may be interpreted differently in different cultural contexts.</td></tr>
<tr><td>Know:<br>Film and screen products from diverse cultures and contexts use elements such as narrative and production design to communicate cultural identity and meaning.</td><td>Do:<br>Plan, create and edit a film or screen product to communicate cultural identity and meaning.</td><td>Know:<br>Music from a variety of cultures and contexts uses instruments, voices, musical forms and performance styles to communicate cultural identity, meaning and understanding.<br><br>Cultural, social and technological influences shape musical traditions and affect how music is created, preserved, recorded, produced and shared over time and across communities.</td><td>Do:<br>Use music vocabulary to identify and describe how cultural, social and technological influences are reflected in music from different cultures, times and contexts using music vocabulary.<br><br>Perform, improvise and compose to communicate cultural awareness and understanding.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>• film and screen products such as live-action films, documentaries, animations, music videos and advertisements from local, Scottish and global contexts<br>• film and screen texts that represent a range of cultures, perspectives, experiences and storytelling traditions<br><br>Notes<br>Viewing and creating film and screen products provides opportunities to explore diverse cultures, identities, perspectives and experiences.<br><br>Engagement with local, Scottish and wider-world screen content can support understanding of different traditions, viewpoints and ways of communicating meaning.<br><br>Film and screen products can reflect and influence culture, identity and society.<br><br>Comparing and discussing a range of screen texts can support critical thinking, informed responses and creative decision-making.<br><br>Exposure to diverse voices, stories and perspectives can broaden understanding of the world and encourage respectful engagement with others.</td><td colspan="2">Includes, but not limited to<br>• musical experiences such as vocal and instrumental music, live and recorded performances and traditional and contemporary musical contexts<br>• musical traditions and styles from local, Scottish and wider-world cultures<br><br>Notes<br>Engaging with music from a range of cultures, traditions and time periods can support understanding of diverse musical practices and perspectives.<br><br>Research and listening can support the identification and discussion of key features and characteristics of different musical traditions.<br><br>Comparing music across cultures and contexts can support recognition of similarities, differences and influences.<br><br>Live and recorded musical experiences can broaden musical awareness and inform creative, performative and evaluative responses.<br><br>Appropriate music vocabulary supports the discussion, analysis and evaluation of music.<br><br>Musical elements at this level: melody, rhythm, harmony, tempo, dynamics, timbre, texture and structure.</td></tr>
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# Health and Wellbeing Know-Do-Understand Strands

<table>
<tr><td>Strand</td><td colspan="5">Communities in Action<br>How people participate in and contribute to communities, and how communities influence people’s experiences and opportunities.</td></tr>
<tr><td rowspan="4">Third Level</td><td colspan="2">Food and Health</td><td colspan="2">Physical Education, Physical Activity and Sport</td><td>Personal and Social Education</td></tr>
<tr><td colspan="2">Understand:<br>Resources, structures and power can influence how communities function and change.</td><td colspan="2">Understand:<br>Resources, structures and power can influence how communities function and change.</td><td>Understand:<br>Resources, structures and power can influence how communities function and change.</td></tr>
<tr><td>Know:<br>Agriculture, fisheries, food and textile industries contribute to communities and economies.<br><br>Production systems involve interconnected stages.<br><br>Sustainable production practices seek to respond to environmental, economic and social challenges.<br><br>Power within supply chains can affect producers, workers and consumers differently.<br><br>Food and textile choices can involve competing ethical, economic and environmental considerations.</td><td>Do:<br>Investigate relevant career pathways within the Food and Textile Industries.<br><br>Explain connections between production, employment, communities and the economy.<br><br>Investigate how production methods respond to sustainability challenges.<br><br>Produce a food or textile outcome and evaluate how decisions about sourcing and production connect to communities and sustainability.<br><br>Analyse and adapt a food or textile product in response to affordability, availability, production and distribution.</td><td>Know:<br>Community values and expectations can influence access and participation.<br><br>Resources, facilities and infrastructure can shape patterns of participation.<br><br>Sporting legacy can influence opportunities for physical activity and sport.</td><td>Do:<br>Analyse factors influencing participation.<br><br>Explain how community provisions or opportunities can influence patterns of participation.</td><td>Know:<br>Identity, culture and society can influence how communities function and change.<br><br>Social, digital and economic change can create opportunities and challenges.<br><br>Collective action can influence responses to community issues.<br><br>Differences in power can influence whose views shape community decisions and which needs receive attention and resources.<br><br>Rights, law and collective action provide mechanisms for promoting equality and equity.</td><td>Do:<br>Analyse how identity, culture or society influence experiences within communities.<br><br>Explain how social, digital or economic changes affect communities.<br><br>Justify possible individual or collective responses to a community challenge.<br><br>Evaluate how differences in power influence community decisions and responses to people’s needs.<br><br>Explain how individual and collective action can influence equality and equity.</td></tr>
<tr><td colspan="2">Includes, but not limited to:<br>Production systems<br>• primary production<br>• secondary production<br><br>Notes<br>Primary production involves producing raw materials. Secondary production involves processing raw materials into food or textile products.</td><td colspan="2">Includes, but not limited to:<br>Community provision and support<br>• sports clubs<br>• facilities<br>• volunteers<br>• coaches<br>• transport</td><td>Notes</td></tr>
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<tr><td>Strand</td><td colspan="4">Relationships<br>How people form and experience relationships, and how communication, difference, needs, rights, boundaries, expectations and power shape those relationships.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Food and Health</td><td colspan="2">Physical Education, Physical Activity and Sport</td><td colspan="2">Personal and Social Education</td></tr>
<tr><td colspan="2">Understand:<br>Communication, expectations and power can influence relationships between people.</td><td colspan="2">Understand:<br>Communication, expectations and power can influence relationships between people.</td><td colspan="2">Understand:<br>Communication, expectations and power can influence relationships between people.</td></tr>
<tr><td>Know:<br>Food-related expectations and assumptions can affect whether people feel respected or excluded in shared food experiences.<br><br>Shared food experiences may require different needs and food practices to be accommodated.</td><td>Do:<br>Analyse how food-related assumptions can affect respect and inclusion.<br><br>Prepare and adapt food to meet specified cultural, dietary or individual requirements, and justify the decisions made.</td><td>Know:<br>Interactions within a group can affect whose views shape decisions and how people participate.<br><br>Status, confidence, roles and relationships can affect how much say people have in decisions during physical activity and sport.<br><br>Captains, coaches, officials and leaders can have formal authority to make or enforce decisions in physical activity and sport.<br><br>Peers and performers can have informal power through their status, experience or relationships with others.<br><br>Stereotypes, discrimination, harassment and exclusion can impact relationships and participation.</td><td>Do:<br>Analyse how group dynamics influence participation.<br><br>Adapt roles, movement strategies or communication during physical activity in response to group dynamics.<br><br>Evaluate how group organisation can make participation more equitable.</td><td>Know:<br>Positive relationships involve mutual respect, trust, communication and regard for individual boundaries.<br><br>The legal age of consent to sexual activity in Scotland is 16.<br><br>Beliefs, values, culture and social expectations can shape perspectives on relationships.<br><br>Rights, consent, boundaries and safety always apply within relationships.<br><br>Differences in power can affect autonomy and choices.<br><br>Pressure, coercion and manipulation undermine consent.<br><br>Gender based violence is rooted in unequal beliefs and attitudes.<br><br>Digital influences can affect expectations about relationships.</td><td>Do:<br>Analyse how respect, trust, communication and boundaries affect relationships.<br><br>Explain how the law on age of consent protects rights and informs decisions.<br><br>Analyse how beliefs, values, culture and social expectations influence perspectives on relationships.<br><br>Examine how rights, consent and boundaries influence choices within relationships.<br><br>Analyse how differences in power influence autonomy, choice and consent.<br><br>Distinguish consent from pressure, coercion and manipulation.<br><br>Analyse how unequal beliefs and attitudes can contribute to gender-based violence.<br><br>Analyse how digital influences can shape expectations about relationships.</td></tr>
<tr><td></td><td colspan="2">Notes</td><td colspan="2">Notes<br>Formal authority comes from roles with responsibility for making or enforcing decisions. Informal power can arise through status, experience or relationships.</td><td colspan="2">Includes, but not limited to:<br>Family relationships<br>• parents and children<br>• carers and children<br>• siblings<br>• extended family members</td></tr>
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| | | | **Notes**<br>Misogyny involves prejudice, contempt or hostility towards women and girls. Misogynistic beliefs and attitudes can contribute to gender-based violence. |

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| **Strand** | **Habits for Health**<br>How repeated behaviours and routines develop into habits, what sustains and changes them and how these influence health and wellbeing. | | | | | |
| **Third Level** | **Food and Health** | | **Physical Education, Physical Activity and Sport** | | **Personal and Social Education** | |
| | **Understand:**<br>Repeated behaviour and changing influences can establish or disrupt habits over time. | | **Understand:**<br>Repeated behaviour and changing influences can establish or disrupt habits over time. | | **Understand:**<br>Repeated behaviour and changing influences can establish or disrupt habits over time. | |
| | **Know:**<br>Repeated dietary patterns can have cumulative effects on health.<br><br>Food labels and other nutritional information can inform decisions.<br><br>Consumer trends and food production can impact availability, affordability and desirability.<br><br>Allergies and intolerances can require established food habits to change. | **Do:**<br>Evaluate how different factors influence food habits.<br><br>Analyse food information to justify an informed food decision.<br><br>Plan and produce a meal in response to specified nutritional needs, social and environmental considerations.<br><br>Select and adapt food in response to specified allergies or intolerances.<br><br>Evaluate how repeated dietary patterns can influence health over time. | **Know:**<br>Personal, social and environmental factors influence physical activity habits.<br><br>Physical activity preferences and motivation can change through experience and over time.<br><br>A participation pathway is a route through which a person accesses and continues physical activity.<br><br>Changes in circumstances can alter established physical activity habits. | **Do:**<br>Analyse factors that influence physical activity habits.<br><br>Compare how experiences can affect enjoyment, preferences and motivation.<br><br>Identify and compare participation pathways.<br><br>Plan an adaptation to an activity habit in response to a changing circumstance. | **Know:**<br>Internal and external influences can sustain or disrupt habits.<br><br>Repeated behaviours strengthen the brain's reward system, making habits easier to continue.<br><br>Changing a habit may require adaptations to routines, environments or sources of support. | **Do:**<br>Explain how reward processes contribute to habit formation.<br><br>Analyse factors that make habits easier or harder to sustain or change.<br><br>Evaluate different approaches to changing or maintaining a habit. |
| | **Notes** | | **Includes, but not limited to:**<br>Participation pathways<br>• physical education<br>• active travel<br>• recreation<br>• outdoor activity<br>• community activities<br>• exercise<br>• sport<br><br>**Notes**<br>Participation pathways are different ways people access and continue physical activity. | | **Notes** | |

| Strand | **Mental, Emotional, Social and Physical Health (MESP)**<br>How mental, emotional, social and physical health factors interact to influence feelings, responses, participation and decisions. | | | | | |
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| Third Level | **Food and Health** | | **Physical Education, Physical Activity and Sport** | | **Personal and Social Education** | |
| | **Understand:**<br>Mental, emotional, social and physical factors can interact to influence responses and decisions. | | **Understand:**<br>Mental, emotional, social and physical factors can interact to influence responses and decisions. | | **Understand:**<br>Mental, emotional, social and physical factors can interact to influence responses and decisions. | |
| | **Know:**<br>Personal, social, cultural and media factors can influence body image.<br><br>Stress and emotional states can influence food-related decisions.<br><br>Food choices can affect physical and emotional responses.<br><br>Food and drink choices can affect physical performances, concentration and participation. | **Do:**<br>Analyse how thoughts, feelings, body image and social influences can affect food-related decisions.<br><br>Compare possible responses to a specified food or body-related situation.<br><br>Evaluate information or messages about food, bodies or health.<br><br>Evaluate how food and drink choices can affect physical performance, concentration and participation. | **Know:**<br>Emotions, cognition, relationships and physical responses interact during performance.<br><br>Concentration and arousal can affect decision-making.<br><br>Pressure can influence thoughts, emotions, physical responses and actions.<br><br>Regulation strategies have different effects depending on person, task and context.<br><br>Clear goals can focus attention, support motivation and provide a way to review progress. | **Do:**<br>Analyse how interacting mental, emotional, social and physical factors influence performance.<br><br>Select and apply a strategy in response to changing performance demands.<br><br>Analyse how pressure can affect thoughts, emotions, physical responses, actions and movement decisions.<br><br>Evaluate the effect of selected strategies on movement decisions or performance.<br><br>Set and review a goal for a specified physical activity challenge and explain how it can support focus and motivation. | **Know:**<br>Previous experiences, relationships and circumstances can impact responses.<br><br>Internal and external circumstances can affect responses to challenge.<br><br>Stress involves interacting psychological, emotional and physical responses.<br><br>A range of support is available for different circumstances.<br><br>Goal setting, planning and problem-solving can support decision-making.<br><br>Feedback and reflection can affect confidence, participation and future actions.<br><br>Effort, persistence and self-regulation can help people respond to challenge and change. | **Do:**<br>Analyse factors influencing responses to stress or challenge.<br><br>Compare the effectiveness of strategies for different situations.<br><br>Apply goal setting or planning to a specified scenario.<br><br>Use feedback and reflection to refine strategies that improve outcomes. |
| | **Notes** | | **Notes** | | **Notes**<br>The effects of regulation strategies can vary according to individual needs, strengths and circumstances. | |

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<table>
<tr><td>Strand</td><td colspan="5">Safety<br>How people recognise, assess, manage and evaluate risk to make informed decisions about safety.</td></tr>
<tr><td rowspan="4">Third Level</td><td colspan="2">Food and Health</td><td colspan="2">Physical Education, Physical Activity and Sport</td><td colspan="2">Personal and Social Education</td></tr>
<tr><td colspan="2">Understand:<br>Changing circumstances can affect how likely an event is to occur, its possible consequences and how people manage risk.</td><td colspan="2">Understand:<br>Changing circumstances can affect how likely an event is to occur, its possible consequences and how people manage risk.</td><td colspan="2">Understand:<br>Changing circumstances can affect how likely an event is to occur, its possible consequences and how people manage risk.</td></tr>
<tr><td>Know:<br>Time, temperature, hygiene and storage conditions influence the growth and spread of harmful microorganisms.<br><br>Different food safety hazards require different controls during preparation, cooking, storage and service.<br><br>Food safety controls can work together to reduce the likelihood and consequences of harm.</td><td>Do:<br>Identify and control interacting hazards across a food or textile process.<br><br>Select and apply appropriate controls for different identified hazards.<br><br>Evaluate the effectiveness of selected controls.<br><br>Use allergen information when selecting and applying food safety controls.</td><td>Know:<br>Experience, confidence, pressure and competition can influence risk perception.<br><br>Risk can change rapidly in dynamic activity environments.<br><br>Risk management involves balancing challenge with possible consequences.</td><td>Do:<br>Assess changing risks during physical activity.<br><br>Adapt performance decisions as risk changes.<br><br>Evaluate the effectiveness of a risk-management decision.</td><td>Know:<br>Social pressure, manipulation and unequal power can affect individuals, families and communities.<br><br>Digital interactions can affect wellbeing, respect, consent, trust and relationships.<br><br>Sexual health information can support safer and more informed decisions.<br><br>Harmful situations may develop gradually.<br>The effects and risks of substance use can vary according to the substance, amount, pattern of use and circumstances.<br><br>Substances can alter risk perception and decision making.</td><td>Do:<br>Analyse how pressure, power, substances or digital influences can alter risk perception.<br><br>Evaluate possible responses to a complex risk situation.<br><br>Evaluate the reliability of-sexual-health information used to inform a decision.<br><br>Identify ways of protecting against Sexually Transmitted Infections (STIs).<br><br>Analyse indicators of harmful behaviours.<br><br>Identify an appropriate source of support.</td></tr>
<tr><td colspan="2">Notes</td><td colspan="2">Notes</td><td colspan="2">Includes, but not limited to:<br>Harmful behaviours<ul><li>grooming</li><li>coercion</li><li>control</li><li>intimidation</li><li>manipulation</li><li>exploitation</li></ul></td></tr>
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<tr><td>Strand</td><td colspan="5">The Growing Body<br>How the body functions, grows, develops and adapts throughout life, including the roles of interacting body systems, puberty, nutrition and movement.</td></tr>
<tr><td rowspan="4">Third Level</td><td colspan="2">Food and Health</td><td colspan="2">Physical Education, Physical Activity and Sport</td><td>Personal and Social Education</td></tr>
<tr><td colspan="2">Understand:<br>Changes across life stages can influence how body systems function and respond.</td><td colspan="2">Understand:<br>Changes across life stages can influence how body systems function and respond.</td><td>Understand:<br>Changes across life stages can influence how body systems function and respond.</td></tr>
<tr><td>Know:<br>Nutritional requirements vary according to age, biological factors, health and activity.<br><br>Varied dietary patterns can meet nutritional needs.<br><br>Allergies involve immune responses, while intolerances involve different mechanisms.</td><td>Do:<br>Explain relationships between nutrition and body function during growth and development, including brain function.<br><br>Compare ways of meeting nutritional requirements through different dietary patterns.<br><br>Prepare and adapt food for interacting nutritional needs and justify decisions using nutritional knowledge.<br><br>Distinguish between food allergy and food intolerance.</td><td>Know:<br>Muscles, joints and body position can impact how movement is produced and controlled.<br><br>Movement skills and movement decisions can be adapted and transferred between activities with similar demands.<br><br>Technique, timing and coordination can be refined to make movement more controlled and fluent.<br><br>Different methods of practice can support learning and development in different ways.<br><br>Principles such as specificity, progression, appropriate challenge and recovery can guide how physical activity is adapted to different strengths, needs and goals.<br><br>Repeated physical activity can produce adaptations in the body’s systems.<br><br>Physical activity, sleep and recovery can influence cognitive as well as physical functioning.<br><br>Recovery needs vary and can influence adaptation and continued participation. Rest, sleep, nutrition, hydration and changes to activity can support recovery.</td><td>Do:<br>Analyse a selected movement and explain how muscles, joints and body position contribute.<br><br>Refine movement by adjusting timing, coordination and body position.<br><br>Apply or adapt movement skills or movement decisions across physical activities with similar demands.<br><br>Select and use an appropriate method of practice to support development of a movement skill.<br><br>Apply selected principles to plan and adapt physical activity for an identified strength, need or goal.<br><br>Observe or monitor responses to repeated physical activity and describe physical, emotional or cognitive changes.<br><br>Analyse changes in physical and cognitive responses to activity and recovery.<br><br>Select and explain suitable recovery approaches for different activities and individual needs.</td><td>Know:<br>Adolescence is associated with neurological development and changes in executive functions.<br><br>Hormonal changes can affect brain and body function during adolescence.<br><br>Hormonal and reproductive processes affect sexual development, fertility and reproductive health.<br><br>Contraceptive methods differ in how they prevent pregnancy and whether they protect against Sexually Transmitted Infections (STIs).<br><br>Development, relationships, culture and media can influence body image.</td><td>Do:<br>Explain how hormonal changes can affect brain and body function during adolescence.<br><br>Explain relationships between sexual development, fertility and reproductive health.<br><br>Evaluate reliable sexual-health information.<br><br>Distinguish pregnancy prevention from STI protection.<br><br>Explain what contraceptive methods are and their effectiveness.</td></tr>
<tr><td colspan="2">Includes, but not limited to:<br>Interacting nutritional needs can reflect combinations of<br>• age</td><td colspan="2">Notes</td><td colspan="2">Includes, but not limited to:<br>Neurological development<br>• reward processing</td></tr>
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| | • health<br>• activity requirements. | | • emotional responses<br>• sleep regulation<br>Executive functions<br>• planning<br>• organisation<br>• impulse control<br>• decision-making<br>Sexual and reproductive health<br>• fertility<br>• contraception<br>• pregnancy prevention<br>• protection against sexually transmitted infections<br><br>**Notes**<br>Consent, sexual rights and relationship boundaries connect with learning in Relationships. |

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# Languages Know-Do-Understand Strands

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| **Strand** | **Understanding Language**<br><br>This strand develops learners' understanding of how people make sense of language. It examines how vocabulary, grammatical structures and the organisation of texts help people understand spoken and written language across different contexts. | | | |
| **Third Level** | **Understand:** People use knowledge of vocabulary, grammar and context to understand texts. | | **Understand:** People understand texts by following how ideas and information are organised. | |
| | **Know:**<br>Vocabulary and grammar combine to show meaning and relationships between ideas in texts.<br><br>Verb forms or time markers refer to present, past or future in some languages.<br><br>Referencing features refer to people or ideas already mentioned.<br><br>Context, structure and prior knowledge support understanding unfamiliar simple language. | **Do:**<br>Recognise verb forms or time markers to show time reference, such as present, past or future.<br><br>Recognise reference to different people in texts containing simple language.<br><br>Use contextual and structural clues to work out meaning of unfamiliar simple language in texts. | **Know:**<br>Texts organise ideas and communicate purpose or viewpoint.<br><br>Sequencing words and phrases organises ideas and information.<br><br>Texts contain main ideas supported by additional detail.<br><br>Meaning develops across more than one sentence in texts.<br><br>Linking features connect ideas and information in texts. | **Do:**<br>Understand ideas and information in texts containing simple language.<br><br>Identify main ideas and supporting details in texts containing simple language.<br><br>Identify connected ideas and information in texts containing simple language. |
| | **Notes**<br>Time markers are features of language used to indicate when actions take place. They can include verb endings that show when things happen (past, present or future).<br><br>Referencing features are elements, such as pronouns, used to indicate subject or object.<br><br>Structural clues come from knowledge about the language used within a text. | | | |

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| **Strand** | **Using Language**<br><br>This strand develops learners' understanding of how people use language to create meaning. It focuses on how vocabulary, structures and language choices enable people to communicate information, ideas, opinions and feelings for different purposes, audiences and contexts. | | | | | |
| **Third Level** | **Understand:** People sequence language to describe experiences, explain ideas and express opinions. | | **Understand:** People adapt simple language to communicate new ideas in familiar contexts. | | **Understand:** People communicate successfully even when language is not complete or fully accurate. | |
| | **Know:**<br>Simple language is used to describe experiences, opinions and ideas.<br><br>Linking features are used to extend ideas, opinions and reasons in a text. | **Do:**<br>Describe people, things or activities in familiar contexts and link ideas using simple language.<br><br>Express preferences, opinions or feelings using simple reasons, justifications or explanations. | **Know:**<br>Simple language can be adapted and organised to express new ideas. | **Do:**<br>Adapt and organise simple language from familiar contexts to express new ideas. | **Know:**<br>Familiar language can be adapted or reused to maintain meaning when there are gaps in language.<br><br>Resources and strategies can help to maintain communication.<br><br>Tools, such as dictionaries, word banks, sentence frames or digital tools, can be used to check and improve language. | **Do:**<br>Maintain communication using simple language with support, as appropriate.<br><br>Check and improve language using tools such as dictionaries, word banks, sentence frames or digital tools as support. |
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<tr><td>Strand</td><td colspan="5">Language for Interaction<br><br>This strand develops learners' understanding of how communication is created through interaction with other people. It considers how shared meaning is built collaboratively through listening, responding, questioning and adapting language during interaction.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: People interact to exchange ideas, opinions and information to develop shared meaning.</td><td colspan="2">Understand: People manage interactions and use strategies to maintain shared meaning, even when there are gaps in language.</td><td colspan="2">Understand: Interaction reflects awareness of audience and context.</td></tr>
<tr><td>Know:<br>Interacting involves taking turns using simple language to exchange ideas, opinions and information.</td><td>Do:<br>Express opinions and share ideas or information using simple language across short conversations or exchanges.</td><td>Know:<br>Turn-taking can involve initiating, responding and extending interaction.<br><br>Language can be adapted during interaction to respond to others.<br><br>Repair phrases support clarification.</td><td>Do:<br>Ask for and give information using simple language, adding detail and asking follow-up questions to maintain interaction in familiar contexts.<br><br>Use simple language to agree, disagree or ask for clarification, help or repetition.<br><br>Adapt simple, familiar language or use strategies to express ideas differently to maintain interaction.</td><td>Know:<br>Language choice, interaction and transaction patterns vary depending on audience and context.</td><td>Do:<br>Select and use simple, familiar language for different situations and interactions.</td></tr>
<tr><td colspan="2">Notes<br>Shared meaning is understanding developed through interaction.</td><td colspan="2">Notes<br>Strategies are ways to support communication and understanding, such as using gesture, or repeating and rephrasing familiar language.<br><br>Repair phrases fix or support communication when meaning is unclear, such as asking for repetition.</td><td colspan="2">Notes<br>Audience describes the person or group communication is intended for.<br><br>Context refers to the setting of language interaction, such as topic or situation.</td></tr>
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<tr><td>Strand</td><td colspan="2">Identity and Belonging<br><br>This strand develops learners' understanding of how languages, relationships, communities and experiences contribute to identity and belonging. It recognises how language reflects who people are, how they see themselves and how they connect with others.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: People express identity and belonging in different ways across communities and cultures where a language is used.</td></tr>
<tr><td>Know:<br>People may express different aspects of their identity in different places or communities.<br><br>Stereotypes may not reflect people's individual identities or experiences.</td><td>Do:<br>Understand and describe identity and belonging through simple language in familiar contexts.<br><br>Describe and compare similarities and differences in identity across communities where a language is used.<br><br>Recognise and question stereotypes through discussion and comparison.</td></tr>
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| **Strand** | **Perspectives and Worldviews**<br><br>This strand develops learners' understanding of how experiences, cultures and values influence the way people interpret the world. It explores how language provides insight into different viewpoints and supports respectful engagement with the perspectives of others. | |
| **Third Level** | **Understand:** Experiences, communities and cultures can affect how people interpret the same situation. | |
| | **Know:**<br>Perspectives can vary within and across communities where a language is used.<br><br>People may interpret the same event or experience differently. | **Do:**<br>Understand and respond to other people's perspectives through simple language.<br><br>Identify how experiences, communities or cultures may shape perspectives.<br><br>Express and compare perspectives using simple language.<br><br>Identify and compare different interpretations of situations using texts and interaction. |
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| **Strand** | **Cultures and Traditions**<br><br>This strand develops learners' understanding of the cultures and traditions associated with the languages people use. It highlights how customs, beliefs and cultural practices reflect communities, evolve over time and contribute to cultural understanding. | |
| **Third Level** | **Understand:** Festivals, traditions and celebrations reflect the history, beliefs and ways of life of communities where a language is used. | |
| | **Know:**<br>Festivals, traditions and celebrations are reflected in language and connect to history, beliefs or everyday experiences.<br><br>Festivals, traditions and celebrations reflect local context and vary across places, groups or communities.<br><br>Festivals, traditions and celebrations can change over time. | **Do:**<br>Identify similarities and differences in festivals, traditions and celebrations across different contexts where a language is used. |
| | **Notes**<br>Change can include changes in celebrations, routines, clothing, food, language or activities across generations or communities. | |

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| **Strand** | **Pattern and Structure**<br><br>This strand develops learners' understanding of how languages are organised to create meaning. It examines how patterns and relationships within and across languages support understanding, communication and language learning. | |
| **Third Level** | **Understand:** People use pattern and structure to understand and express a range of ideas and opinions in texts and interactions. | |
| | **Know:**<br>Simple language patterns can be used to build sentences and communicate clearly.<br><br>Word forms can change to show time or grammatical relationships.<br><br>Linking features connect ideas across sentences to structure texts using simple language.<br><br>Simple patterns can be adapted to express different meanings. | **Do:**<br>Recognise, select and adapt patterns and structures in texts and exchanges to communicate with clarity.<br><br>Identify how changes in form affect meaning.<br><br>Use simple patterns to produce linked sentences.<br><br>Adapt familiar simple patterns to express new ideas. |
| | **Notes**<br>Word forms are versions of a word where spelling or pronunciation changes.<br><br>Grammatical relationships describe a connection between words, such as an adjective agreeing with a noun. | |

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| **Strand** | **Pronunciation and Writing Systems**<br><br>This strand develops learners' understanding of how pronunciation and writing systems represent language. It demonstrates how sounds, intonation, stress, orthography and other language-specific features contribute to meaning and clear communication. | | | |
| **Third Level** | **Understand:** People use knowledge about pronunciation and writing systems to communicate clearly and accurately. | | | |
| | **Know:**<br>Consistent use of features such as intonation, tone, stress or orthography helps people communicate clearly and accurately. | | **Do:**<br>Understand and use intonation, tone, stress or orthography to support clear and accurate communication in simple language.<br><br>Consistently review and adapt pronunciation or writing to be clear and accurate when using simple language. | |
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| **Strand** | **Language Learning Strategies**<br><br>This strand develops learners' understanding of the strategies, tools and approaches that support successful language learning. It emphasises how strategic thinking, reflection and the purposeful use of resources support independence, problem-solving and the transfer of learning across languages. | | | |
| **Third Level** | **Understand:** Planning language helps people organise and communicate their ideas in talking and writing. | | **Understand:** Grammatical knowledge is a tool that supports accuracy in sharing meaning. | |
| | **Know:**<br>Planning involves thinking about the words, phrases and structures needed for communicating.<br><br>People select, use and adapt language for different contexts and audiences. | **Do:**<br>Create plans for communicating in different contexts and audiences using familiar simple language.<br><br>Select and adapt language to communicate ideas to suit different contexts and audiences. | **Know:**<br>Grammatical terms and rules, such as for nouns, verbs and adjectives, help people understand how language works.<br><br>Reviewing the application of grammatical knowledge helps people to be accurate when using language. | **Do:**<br>Identify grammatical terms and rules to support understanding.<br><br>Use key grammatical terms and rules to support accuracy in communication.<br><br>Use dictionaries, word banks, sentence frames or digital tools to check function, meaning or form. |
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# Literacy and English Know-Do-Understand Strands

<table>
<tr><th>Strand</th><th colspan="2">Communicating and Interacting</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Skills in formal and informal discussions and interactions foster self-advocacy and extend learning.</td></tr>
<tr><td>Know:<br>Formal and informal interactions and collaborative activities, such as group presentations, role play, debates, class, group and paired discussions.<br><br>Elements of register that can be adapted for different purposes and contexts, including:<br>-word choice<br>-emotive language<br>-formality and informality<br>-tone.<br><br>Ways of responding appropriately to others, such as:<br>-agreeing and offering further supporting detail<br>-challenging ideas or disagreeing, providing clear reasons and supporting detail<br>-acknowledging disagreements (adapting ideas or summarising alternative views)<br>-self-advocating in response to disagreement or challenge.<br><br>Communication and interaction may be influenced by biased perspectives, such as assumptions and stereotypes.<br><br>Ways that evidence can support ideas and interactions, such as by using reliable statistics or experts, drawing on experience or observations.</td><td>Do:<br>Contribute to a range of formal and informal interactions and collaborative activities.<br><br>Work within a range of forms, for example, debate, paired discussion, group discussion.<br><br>Adapt register according to context, using techniques as appropriate to purpose.<br><br>Support collaboration in a range of ways, including:<br>-extending points in response to others<br>-challenging others by using supporting evidence<br>-responding to challenge/disagreement from others, for example, by adding detail, using alternative examples, restating a point of view or rephrasing a point of view.<br><br>Acknowledge and act on different views by:<br>-summarising different opinions<br>-adapting original ideas<br>-recognising differing opinions when reporting back.<br><br>Notice and discuss examples of bias in both formal and informal communication and interaction.<br><br>Use evidence to support ideas and opinions.<br><br>Support group dynamics by ensuring participants feel safe, included, respected and heard by:<br>-listening actively to all participants<br>-supporting ground rules<br>-encouraging other participants to contribute<br>-reflecting on and summarising others’ contributions.</td></tr>
<tr><td colspan="2">Notes<br>The variety of languages which young people bring to the setting can be used as a resource to enrich development of communicating and interacting. In all settings, young people and adults will speak a range of home languages, including Scots. Decisions around dialect diversity should be made at a local level, ensuring the educational benefits for young people are fully understood and embraced.<br><br>Practitioners should support all young people to develop knowledge and skills by enabling them to interact with others in ways that are best aligned to their individual strengths and needs. This can include the use of assistive technologies.<br><br>See glossary for definitions of the following terms: group dynamics, register.</td></tr>
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<tr><th>Strand</th><th colspan="4">Story and Identity</th></tr>
<tr><td rowspan="2">Third Level</td><td colspan="2">Understand: Stories, real and imagined, influence readers through their presentation of identities, experiences, communities and cultures, helping to develop a sense of connection to the world.</td><td colspan="2">Understand: Selecting and creating texts for personal purpose and enjoyment empowers and enriches understanding of ourselves, others and the wider world.</td></tr>
<tr>
<td>Know:<br>Stories in many forms, which reflect a variety of identities, voices and/or perspectives, such as:<br>-biographies and autobiographies<br>-documentaries<br>-journalistic articles<br>-graphic novels and picture books<br>-novels, poems and plays.<br><br>Perspectives and experiences in stories can support understanding of self, others and the wider world.<br><br>Stories from a range of cultures, communities, languages and historical contexts can explore similar ideas, experiences and themes.<br><br>Authors and creators of stories make deliberate choices to influence the representation of identities, voices and/or perspectives, such as through style, language, character, narrative structure, content.<br><br>Stories and other texts impact readers in different ways.</td>
<td>Do:<br>Engaging with texts (reading, listening, watching)<br>Share and discuss texts which reflect identities, experiences, perspectives, cultures and communities.<br><br>Discuss how identities, voices and/or perspectives are presented in stories and other texts and explore ways content and style support this.<br><br>Identify text features, including genre conventions, and analyse how they are used to influence readers’ responses to the representation of experiences, communities and cultures, such as:<br>-narrative point of view<br>-style<br>-mood<br>-word choice, imagery, sentence structure.<br><br>Make connections between stories and own experiences, identity and perspectives.<br><br>Notice when people, communities and cultures are foregrounded or excluded in stories and narratives.<br><br>Creating texts (writing, speaking, creating)<br>Create stories and other texts that reflect own identity in relation to interests, motivation, culture, background.<br><br>Explore own/others’ experiences, identity and/or perspectives, by creating texts such as:<br>-personal reflective<br>-persuasive<br>-poems, stories, plays<br>-speeches<br>-film shorts, animations, vlogs.<br><br>Create texts that take account of their impact on others.<br><br>When creating texts, make deliberate choices that support the presentation of a particular point of view through, for example, content, structure, style, language.</td>
<td>Know<br>Books, stories and other texts, aligned with evolving personal interests, chosen by the learner for purpose and enjoyment.<br><br>Strategies for selecting books and other texts for own purposes and enjoyment, such as:<br>-connection to evolving personal interests<br>-engagement with reviews<br>-peer recommendations.</td>
<td>Do:<br>Engaging with texts (reading, listening, watching)<br>Use strategies to select and engage with stories and other texts aligned with personal preferences and interests.<br><br>Share and discuss stories and other texts which are personally enjoyable and meaningful.<br><br>Creating texts (writing, speaking, creating)<br>Create stories and other texts alone and with others in ways which are personally enjoyable and meaningful.</td>
</tr>
<tr><td></td><td colspan="4">In planning learning and teaching, Story and Identity should be used alongside Tools for Reading Comprehension and Tools for Writing.</td></tr>
<tr><td></td><td colspan="4">Notes<br>Texts selected for the curriculum should reflect diversity including ethnicity; cultural and social backgrounds; positive reflections of disability; gender and family structure. They can also be presented in a variety of languages, including Scots. All learners should have the opportunity to see themselves and their own experiences reflected in texts and to learn about the experiences of a variety of identities, communities and cultures, building empathy and understanding.</td></tr>
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| | Learning and teaching can be planned to challenge, rather than reinforce biases.<br>Identities, voices and perspectives can be discerned in texts as representing the experiences or views of different kinds of people. For example, they can be traced in the words or behaviour of a character, or they may be implicit in selection of detail or in the language of the creator of the text. Exploring these concepts can allow learners to notice where some voices are foregrounded. This can also lead to exploration of which voices might be missing from texts. In turn, learners can play and experiment with voice in the texts that they create for themselves, for example, choosing to adopt a certain voice in order to entertain or challenge a particular audience.<br><br>The curriculum can support learners to develop positive identities as readers and writers. Reading and writing personally selected texts is important for reading and writing enjoyment, learning and wellbeing. Enjoyment of texts plays a role in developing skills and knowledge for reading and writing, at the same time as being a valuable end in itself.<br><br>Practitioners should support all young people to both engage with and create text forms that are best aligned to their individual strengths, needs and interests. This can include the use of assistive technologies. |

| Strand | How Texts Work | |
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| | **Understand:** People choose how they use language, style and genre conventions according to the form, purpose and audience of the text they are creating in order to convey ideas and themes. | |
| Third Level | **Know:**<br>Texts in different forms created for a range of purposes and audiences which can include:<br>-imaginative and creative texts, such as novels, poems, plays<br>-informative texts such as news reports, manuals and guides, keynote speeches<br>-argumentative/persuasive texts such as opinion pieces, campaign materials (e.g. environmental, community), promotional materials (e.g. advertisements, trailers)<br>-a range of texts which fulfil purposes such as discussing ideas, sharing opinions, taking a perspective (e.g. online blogs, journalistic articles, informative websites)<br>-texts in all forms created for a range of purposes and audiences.<br><br>A range of texts which fulfil purposes such as discussing ideas, sharing opinions or taking a perspective (online blogs, journalistic articles, informative websites).<br><br>Texts in all forms created for a range of purposes and audiences.<br><br>Structural features of written, spoken and other texts, such as introductions, conclusions, paragraphs, sequencing, topic sentences, linkage.<br><br>Common genres and their associated genre conventions, such as comedy, historical fiction, documentary or horror.<br><br>The main ideas and/or themes as they are explored in texts.<br><br>Examples of text features used across forms to convey ideas and themes such as:<br>-word choice<br>-sentence structure e.g. questions, lists, repetition<br>-imagery e.g. simile, metaphor, personification<br>-sound techniques e.g. alliteration, onomatopoeia, rhythm<br>-narrative techniques e.g. characterisation, setting, dialogue, point of view, build-up of tension/suspense<br>-persuasive techniques e.g. emotive language, use of direct address, facts and evidence (including data)<br>-tone and register (spoken texts)<br>-a range of other techniques and devices used in written, spoken and other types of texts.<br><br>In all forms of texts, language, structure and other features vary depending on the intended audience. | **Do:**<br>**Engaging with texts (reading, listening, watching)**<br>Identify purpose and audience for texts.<br><br>Identify and analyse text features, including genre conventions and how they are used to convey ideas and themes.<br><br>Explain the main ideas and themes of texts.<br><br>Respond at a personal level to the main ideas and themes of texts.<br><br>**Creating texts (writing, speaking, creating)**<br>Create written, spoken and other texts.<br><br>Create texts for different purposes such as:<br>-imaginative/creative (e.g. narrative fiction, personal reflective, poetry and drama in a range of genres)<br>-informative/procedural (e.g. reports and syntheses, such as investigations in social studies or sciences)<br>-persuasive/argumentative (e.g. articles, speeches, reviews).<br><br>Vary language, structure and other features depending on the intended audience.<br><br>Play and experiment with narrative techniques, genre conventions and style to contribute to overall impact of texts in written, spoken and other forms. |
| | In planning learning and teaching, How Texts Work should be used alongside Tools for Reading Comprehension and Tools for Writing. | |

**Notes**

As young people move from the earlier to the later stages of the level, the curriculum should offer a sequence of fiction and nonfiction texts that ensures progression through increasing breadth and challenge.

Texts selected for the curriculum should reflect diversity including ethnicity; cultural and social backgrounds; positive reflections of disability; gender and family structure. They can also be presented in a variety of languages, including Scots. All learners should have the opportunity to see themselves and their own experiences reflected in texts and to learn about the experiences of a variety of identities, communities and cultures, building empathy and understanding.

Texts presented in written or print form are central to developing understanding, knowledge and skills. In addition, other forms, including those central to young people's everyday lives, such as visual and digital texts, can be used to support development of conceptual understanding.

Practitioners should support all young people to both engage with and create text forms that are best aligned to their individual strengths, needs and interests. This can include the use of assistive technologies.

Creating written and spoken texts, such as solo talks, for real-life audiences can be engaging and motivating for young people. Audiences can include organisations in the local community, visitors to the setting/school or younger children.

See glossary for definitions of the following terms: **alliteration, characterisation, emotive language, metaphor, onomatopoeia, plot, register, setting, simile, tone and word choice.**

| Strand | Information Literacy | | | | | |
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| | **Understand:** Using information sources and search strategies and reflecting on the relevance of the information found improves the inquiry process. | | **Understand:** Evaluating information and verifying its reliability strengthens conclusions drawn. | | **Understand:** The responsible use of information sources ensures the credibility of created texts. | |
| Third Level | **Know:**<br>Research involves gathering different viewpoints and ensuring inquiry questions are impartial.<br><br>Well-planned and focused inquiry questions produce the best results.<br><br>Keywords used during digital research influence the relevance of the information and perspectives that are returned.<br><br>The use of parameters reduces the number and improves the relevance of internet search engine results.<br><br>Different sources of nonfiction texts, such as library catalogue searches, classification schemes and AI.<br><br>The relevance of generative AI responses is dependent on the quality of instructions and prompts inputted. | **Do:**<br>**Engaging with texts (reading, listening, watching)**<br>Design inquiry questions and choose keywords that are fair and impartial.<br><br>Broaden or narrow digital searches by adjusting keywords as appropriate to the information sought.<br><br>Use basic search parameters to refine internet results, such as quotation marks, asterisks, AND, OR.<br><br>Find nonfiction resources relevant to an inquiry question.<br><br>Use effective prompting strategies when using AI tools. | **Know:**<br>Information is trusted when it is supported by verifiable evidence that references its sources.<br><br>The difference between misinformation and disinformation and their impact on society, such as through social media and digital platforms.<br><br>Evaluation strategies to assess whether information and its sources are reliable, such as 'The '5 Ws' - Who created the information source? What is its content and purpose? When was the information published and last updated? Where did it come from? Why was the source created?<br><br>Information from AI generated content may contain inaccuracies, biases, omissions, hallucinations or outdated sources. | **Do:**<br>**Engaging with texts (reading, listening, watching)**<br>Corroborate information by checking it against other reliable sources.<br><br>Identify the use of information bias, such as claims unsupported by evidence; techniques used to manipulate or persuade people into believing unsubstantiated claims.<br><br>Evaluate information in terms of need, discarding what is irrelevant or unreliable.<br><br>Confirm or dispute generative AI responses by comparing them to other information sources. | **Know:**<br>Combining information from a number of sources creates a broader evidence base on which to draw conclusions.<br><br>Presenting relevant evidence-based arguments makes communications more credible and convincing.<br><br>Text creators have a responsibility to acknowledge where they have used the work and ideas of others.<br><br>Responsibilities around the ethical use of information in the creation of texts. | **Do:**<br>**Creating texts (writing, speaking, creating)**<br>Draw conclusions that are supported by a strong evidence base.<br><br>Identify patterns, themes and evidence across sources of information.<br><br>Communicate information as appropriate to audience and purpose, taking care to use own words.<br><br>Acknowledge sources of information and ideas that have been used in the creation of texts.<br><br>Consider the ethical implications of sharing information before doing so, for example, impact of deliberately misleading others through the selective presentation of information. |
| | In planning learning and teaching, Information Literacy should be used alongside Tools for Reading Comprehension and Tools for Writing. | | | | | |

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| | **Notes**<br>Young people progressively evaluate the relevance, reliability and credibility of information for a range of purposes, including creating new texts. Information sources include those central to young people's everyday lives, such as visual and digital texts. These can be used in addition to written sources such as books, newspapers and magazines to support the understanding of information literacy.<br><br>See glossary for definitions of the following terms: **AI hallucination, information bias, inquiry question, keywords, parameters.** |

| Strand | Tools for Reading Comprehension | | | |
|---|---|---|---|---|
| Third Level | **Understand:** Background knowledge, disciplinary knowledge and vocabulary support interpretation, inference and comprehension of written texts. | | **Understand:** Skilled readers monitor understanding and deploy strategies when meaning breaks down. | |
| | **Know:**<br>A range of existing and new knowledge across disciplines and curriculum areas.<br><br>Specialist disciplinary vocabulary.<br><br>Prefixes and suffixes.<br><br>Word origins and roots support understanding of vocabulary used across the disciplines. | **Do:**<br>Draw upon own existing and new disciplinary knowledge to support interpretation, inference and comprehension.<br><br>Broaden and deepen vocabulary through interactions, listening, watching and reading texts.<br><br>Use word roots (etymology), prefixes and suffixes (morphology) and their meanings in words to support reading comprehension. | **Know:**<br>Strategies which support monitoring and the repair of understanding of written texts, such as:<br>-activating background/topic/curricular knowledge<br>-making connections to own experiences<br>-making connections between texts<br>-predicting<br>-generating questions<br>-visualising<br>-summarising. | **Do:**<br>Make personal connections to text content.<br><br>Generate own questions before, during and after reading to deepen understanding.<br><br>Make predictions based on patterns and themes and seek textual evidence to challenge or justify.<br><br>Monitor understanding throughout reading.<br><br>Recognise when meaning breaks down and select from appropriate strategies to repair understanding.<br><br>Summarise main ideas, distinguishing essential from less relevant information. |
| | How Texts Work, Story and Identity and Information Literacy provide the contexts in which young people should develop their Tools for Reading Comprehension.<br><br>All learning contexts, curriculum areas and subject disciplines are also important contexts in which young people develop Tools for Reading Comprehension. | | | |
| | **Notes**<br>Background knowledge, built across curriculum areas, disciplines and personal experience improves vocabulary and makes an important contribution to young people's reading comprehension.<br><br>See glossary for definitions of the following terms**: etymology, morphology, prefix, suffix.** | | | |
| Third Level | **Understand:** The rules and conventions of grammar and punctuation, both when observed and when manipulated can affect meaning and create impact in written texts. | | **Understand:** Reading with accuracy and automaticity bridges word recognition and reading comprehension of written texts from across disciplinary areas, contributing to the reader's overall understanding. | |
| | **Know:**<br>Accurate use of the following punctuation:<br>-paragraphs<br>-apostrophes as contractions<br>-apostrophes for possession<br>-commas (listing, parenthesis, separation of main and subordinate clause)<br>-ellipses<br>-colons or semicolons.<br><br>Accurate punctuation of parenthesis and direct speech. | **Do:**<br>Recognise and use punctuation such as commas, ellipses, parentheses, speech marks, colons and semicolons to read with accuracy, automaticity and comprehension.<br><br>Recognise writers' use of different sentence structures in written texts, such as sequences of short simple sentences to build tension, or use of lists to emphasise volume.<br><br>Recognise writers' use of past, present and future tenses. | **Know:**<br>Written texts from across disciplinary areas. | **Do:**<br>Read unfamiliar words with accuracy and automaticity.<br><br>Read texts independently and with appropriate pace to develop understanding.<br><br>Show awareness of tone, volume or speed when reading aloud independently.<br><br>Notice and take account of punctuation including commas, ellipses, parentheses, speech marks, colons and semicolons, whilst reading aloud. |

| | | | | |
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| | A range of sentence types, such as simple, complex, non-sentences, lists and inversions.<br><br>A range of sentence openings.<br><br>Past, present and future tenses.<br><br>First, second and third-person point of view. | Recognise and comment on the effect of first, second and third person point of view.<br><br>Recognise and comment on the effect of writers' manipulation of the rules of grammar and punctuation, such as beginning a sentence with a conjunction, non-sentences without verbs and non-use of speech marks for dialogue. | | |
| | In planning learning and teaching, Tools for Reading Comprehension should be used alongside How Texts Work, Story and Identity and Information Literacy. | | | |
| | **Notes**<br>Between Third and Fourth Level, the sequence of texts offered should reflect increased complexity in vocabulary, syntax and grammatical structures. | | | |

| **Strand** | **Tools for Writing** | |
|---|---|---|
| **Third Level** | **Understand:** Writers use the processes of generating ideas, planning, drafting, editing and revising to create and refine written texts, improving their impact upon the intended audience. | |
| | **Know:**<br>Model texts in different forms created for a range of purposes and audiences which could include:<br>-imaginative and creative texts, such as short stories, poems, scripts<br>-informative texts such as news reports or guides<br>-argumentative/persuasive texts such as film/tv reviews; sports journalism; advertising.<br><br>Structural features of written texts, such as introductions, conclusions, paragraphs, sequencing, topic sentences, linkage.<br><br>Common genres and their associated genre conventions, such as comedy, historical fiction, documentary or horror. | **Do:**<br>Observe examples of writing skills and techniques in model texts and experiment with these in own writing.<br><br>Generate ideas for own written texts in response to stimuli.<br><br>Experiment with and develop preferences for planning approaches for writing, such as storyboarding, graphic organisers or note making.<br><br>Draft own written texts, varying language, structure, genre conventions and style (language techniques).<br><br>Select written texts to edit, revise and publish/share.<br><br>Edit texts to improve content/ideas and structure, grammar, punctuation and spelling.<br><br>Publish/share selected written texts with real-life audiences. |
| | How Texts Work, Story and Identity and Information Literacy provide the contexts in which young people should develop Tools for Writing.<br><br>All learning contexts, curriculum areas and subject disciplines are also important contexts in which young people develop Tools for Writing. | |
| | **Notes** | |

<table>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand:<br>Writers observe the rules of grammar and punctuation in order to communicate information and ideas to their intended audience with clarity.</td><td colspan="2">Understand:<br>Knowledge of letter patterns and word roots support spelling and written communication across disciplines.</td></tr>
<tr><td>Know:<br>Accurate use of the following punctuation:<br>-paragraphs<br>-apostrophes as contractions<br>-apostrophes for possession<br>-commas (listing, parenthesis, separation of main and sub-ordinate clause)<br>-ellipses<br>-colons<br>-semicolons.<br><br>Accurate punctuation of:<br>-parenthesis<br>-direct speech.<br><br>A range of sentence types e.g. simple and complex, lists.<br><br>A range of sentence openings.<br><br>Past, present and future tenses.<br><br>First, second and third person point of view.</td><td>Do:<br>Use a variety of sentence types and lengths, using accurate punctuation.<br><br>Select appropriate tense, according to the purpose of the written text.<br><br>Select appropriate person, according to the purpose of the written text.<br><br>Experiment with grammar, sentence structure and punctuation to achieve particular effects.</td><td>Know:<br>Specialist disciplinary vocabulary.<br><br>Words with multiple meanings or uses across the curriculum e.g. the word ‘solution’ is used differently in Mathematics, Art and Design and Sciences.<br><br>A prefix is a part of a word which is added at the start to change its meaning for example, un-happy = unhappy.<br><br>A suffix is a part of a word which is added at the end to change its meaning for example, help - ful = helpful.<br><br>Word origins and roots support understanding of vocabulary used across the curriculum.<br><br>Glossaries and dictionaries provide concise definitions of specialised terms.<br><br>Thesauruses outline words that have the same/similar meanings.<br><br>Word roots and their families for example, sign/signal/signature, heal/health.<br><br>Prefixes and suffixes which require changes to the root word for example, explain/explanation, separate/separation, calf/calves.</td><td>Do:<br>Use spelling knowledge to spell new words from across disciplinary areas.<br><br>Use knowledge of word origins and roots to support spelling of disciplinary vocabulary.<br><br>Use less common prefixes and suffixes, including those that require changes to the root words.<br><br>Apply spelling knowledge to a variety of word types e.g. letter/sound (grapheme/phoneme) relationships, morphemes, spelling rules/ patterns.</td></tr>
<tr><td colspan="3">How Texts Work, Story and Identity and Information Literacy provide the contexts in which young people should develop Tools for Writing.<br><br>All learning contexts, curriculum areas and subject disciplines are also important contexts in which young people develop Tools for Writing.</td></tr>
<tr><td colspan="3">Notes<br>See glossary for definitions of the following terms: apostrophe, colon, comma, direct speech, ellipses, etymology, first person, grapheme, inversion, non-sentence, parenthesis, phoneme, prefix, second person, semicolon, suffix, third person, verb tenses.</td></tr>
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# Literacy and Gàidhlig Know-Do-Understand Strands

<table>
<tr><th>Strand</th><th colspan="6">Feartan na Gàidhlig/Features of the Gaelic Language</th></tr>
<tr><td rowspan="4">Third Level</td><td colspan="2">Understand:<br>A varied Gaelic vocabulary supports communication and expression across a range of contexts.</td><td colspan="2">Understand:<br>Dialectal variation occurs across regions and affects how Gaelic is used and understood.</td><td colspan="2">Understand:<br>Grammatical patterns help speakers and writers communicate meaning accurately and consistently.</td><td colspan="2">Understand:<br>Idiomatic language enriches communication and expression.</td></tr>
<tr><td>Know:<br>A varied vocabulary across familiar and less familiar contexts.</td><td>Do:<br>Identify and understand vocabulary in familiar contexts.<br><br>Recall and apply vocabulary in familiar contexts.<br><br>Identify and understand vocabulary in familiar and less familiar contexts.<br><br>Recall and apply vocabulary in familiar and less familiar contexts.</td><td>Know:<br>Common dialectal variation in:<br><br>Frequently occurring vocabulary, for example air sgàth/o chionn/airson, toigh/caomh, sìde/aimsir.<br><br>Colloquial phrases, for example Là math/Madainn mhath, Beannachd leibh/Soraidh slàn/Tìoraidh.</td><td>Do:<br>Recognise dialectal variation of words and phrases.<br><br>Understand dialectal variation in words and phrases.<br><br>Use local dialectal variation of words and phrases. *</td><td>Know:<br>Grammar rules relating to:<br><br>Copula (past and present, positive and negative).<br><br>Past habitual tense, for example bhithinn.<br><br>Determinatives (nam, nad).<br><br>Dative/prepositional case.<br><br>Adjectival agreement in nominative/dative case.</td><td>Do:<br>Recognise grammatical forms.<br><br>Use knowledge of grammar to attempt error correction.<br><br>Recognise and explain grammatical forms.<br><br>Use knowledge of grammar to correct errors accurately.</td><td>Know:<br>A broad range of idiom and structures, for example:<br><br>Similes, for example cho rèidh ri dà cheann eich, cho fileanta ri bàrd.<br><br>Proverbs, for example Abair ach beagan ach abair gu math e.<br><br>Expressions with the copula and definite and indefinite nouns, for example ’S e ball-coise an spòrs as fheàrr leam, ’S e deagh spòrs a th’ ann an iomain.</td><td>Do:<br>Recognise idiomatic expressions.<br><br>Use idiomatic expressions, with preparation where necessary.<br><br>Use natural Gaelic language structures in familiar contexts.<br><br>Recognise and explain idiomatic expressions.<br><br>Apply idiomatic expressions with spontaneity.<br><br>Use natural Gaelic language structures in familiar and less familiar contexts.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Adult and peer modelling of high-quality Gaelic.<br>Contexts such as literature, media, culture and society (not exhaustive).<br>Effective dictionary use, checking for meaning.<br><br>Notes<br>NEW Stòrlann Gaelic Language Framework.<br>Advice on Gaelic Education – section ten.</td><td colspan="2">Includes, but not limited to<br>Exposure to a range of dialects to ensure comprehension of dialectal variation.<br>*Dependent on context, a focus on local dialects may be appropriate.</td><td colspan="2">Includes, but not limited to<br>Revisiting grammar points covered previously to support recall and consolidation.<br>Sensitive error handling and use of corrective feedback.<br><br>Notes<br>NEW Stòrlann Gaelic Grammar Framework.<br>Advice on Gaelic Education – section ten.</td><td colspan="2">Includes, but not limited to<br>Adult and peer modelling of idiom.<br>Natural language structures might include:<br>Prepositions to indicate emotions, needs and possession – tha fearg orm, tha feum agam.<br>Use of copula (is) for classification, identity and emphasis – is math sin, bu bheag air.<br><br>Notes<br>NEW Stòrlann Gaelic Language Framework.<br>Advice on Gaelic Education – section ten.</td></tr>
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<tr><td>Strand</td><td colspan="4">Conaltradh agus Leasachadh Cànain/Communication and Language Development</td></tr>
<tr><td rowspan="4">Third Level</td><td colspan="2">Understand:<br>Recognising social cues used in spoken Gaelic supports communication.</td><td colspan="2">Understand:<br>Focused listening allows meaning to be constructed from spoken Gaelic across contexts.</td></tr>
<tr><td>Know:<br>A wide range of explicit and implicit social cues that support interactions.</td><td>Do:<br>Recognise social cues during interactions.<br><br>Interpret social cues to support participation in different contexts.<br><br>Recognise and explain how social cues influence meaning and communication.<br><br>Interpret and respond appropriately to social cues in different contexts.</td><td>Know:<br>Strategies and tools to support comprehension of spoken Gaelic.</td><td>Do:<br>Listen to a range of spoken texts to interpret information.<br><br>Use contextual information and tools to comprehend spoken Gaelic.<br><br>Identify and interpret key vocabulary, idiom and grammatical structures.<br><br>Listen to a range of spoken texts to interpret detailed information.<br><br>Use a range of strategies and tools selectively to support comprehension.<br><br>Identify and interpret detailed vocabulary, idiom and grammatical structures.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Social cues - facial expression, body language, tone, gesture and visuals/signs/symbols.<br>Expectations aligned with learning strengths and needs.</td><td colspan="2">Includes, but not limited to<br>Contextual clues – prior knowledge, background/context, theme/topic, speaker perspective or intent, location, tone and register.<br>Identifying contextualised language and grammatical features and linking these to rules and principles, for example ‘Bhithinn’ - highlighting conditional form.<br>Dictionaries, word lists, transcripts and listening again.</td></tr>
<tr><td colspan="2">Understand:<br>Attention to style, ideas and implied meaning supports analysis of spoken texts.</td><td colspan="2">Understand:<br>Accurate and flexible language use, including self-correction, supports clarity in spoken communication.</td></tr>
<tr><td>Know:<br>Content, style and delivery influence the impact of spoken texts.</td><td>Do:<br>Describe main ideas and supporting detail.<br><br>Identify features of style and delivery.<br><br>Recognise how tone, pace and structure contribute to meaning.<br><br>Analyse main ideas and supporting detail.<br><br>Analyse features of style and delivery.</td><td>Know:<br>Language features and strategies to support clarity and accuracy in spoken Gaelic.</td><td>Do:<br>Use vocabulary and idiom to communicate ideas clearly.<br><br>Apply grammatical structures and pronunciation to convey meaning.<br><br>Use tone and pace to support clarity.<br><br>Use basic repair strategies and respond to feedback to improve spoken communication.</td></tr>
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<tr><td rowspan="5">Third Level</td><td></td><td>Describe the impact of tone, pace and structure and how they contribute to meaning.</td><td></td><td>Use vocabulary, including specialist language and idiom to communicate detailed ideas.<br><br>Apply grammatical structures and pronunciation accurately.<br><br>Adjust tone, pace, volume and register to maintain engagement and to emphasise key information.<br><br>Use repair strategies and respond to feedback to support accurate spoken communication.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>A range of spoken texts from diverse speakers and sources.<br>Contexts such as literature, media, culture and society (not exhaustive).<br>Focus on content – main ideas, supporting detail such examples, evidence and anecdotes.<br>Style and delivery - register, pace, tone and structure.</td><td colspan="2">Includes, but not limited to<br>Basic repair strategies might include rephrasing or self-correction with adult support.<br>Other repair strategies – independent self-correction, repetition, or rephrasing, acting on corrective feedback.<br><br>Notes<br>Repair strategies can be used during or after spoken communication and can be supported by adults and peers where appropriate.<br>NEW Stòrlann Gaelic Language Framework.</td></tr>
<tr><td colspan="2">Understand:<br>Purpose and audience of spoken Gaelic shape language choices, structure and delivery.</td><td colspan="2">Understand:<br>Engaging with a range of Gaelic texts introduces new ideas and shapes thinking.</td></tr>
<tr><td>Know:<br>Different purposes and contexts for spoken communication include conversing, discussing, presenting and collaborating.</td><td>Do:<br>Use prepared and spontaneous Gaelic in familiar or less familiar contexts.<br><br>Apply the conventions of the situation, style or genre with audience awareness.<br><br>Organise and link ideas, with justification for key points and views.<br><br>Maintain conversation by showing interest and responding to others.<br><br>Identify and incorporate key vocabulary, idiom and grammar.</td><td>Know:<br>A range of Gaelic texts across genres, forms and themes.</td><td>Do:<br>Explore and respond to a range of Gaelic texts, reflecting on ideas, perspectives and experiences.<br><br>Share opinions or connections to characters, themes or topics.<br><br>Select and read a wide range of Gaelic texts independently for personal interest.<br><br>Justify opinions or connections to characters, themes or topics.</td></tr>
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| | | Use prepared and spontaneous Gaelic in familiar or unfamiliar contexts.<br><br>Adapt structure, language and delivery to suit audience and purpose.<br><br>Develop and justify ideas, with reasoning, examples or evidence.<br><br>Build on the contributions of others and use conversational markers to support and sustain discussion.<br><br>Adapt key vocabulary, idiom and grammar to improve clarity. | | |
| | **Includes, but not limited to**<br>Contexts such as literature, media, culture and society (not exhaustive).<br>Formal, prepared pieces, for example, presentations and debates.<br>Informal or spontaneous speech, such as discussion and collaboration.<br>Conventions related to structure, use of language, development of ideas and participation in discussion.<br>Conversational markers, such as 'Seadh', 'Gu dearbh', 'Tha mi a' dol leat/leibh', 'Sin e dìreach…'<br>Sustain and support interaction by requesting clarification, confirming meaning, restating information and encouraging others.<br>Use of affirmative language, encouraging discussion and interjections.<br>Social conventions - ways of greeting and departing, use of polite/plural form, encouraging/acknowledging contributions from others. | | **Includes, but not limited to**<br>Themes and forms - novels/novellas, short stories, poetry, nonfiction and informal texts and themes of personal interest.<br>A wide variety of Gaelic texts aligned with strengths and needs.<br><br>**Notes**<br>Selecting texts with increasing independence will support progression of engagement.<br>Informal pieces might include appropriate texts from wider media sources.<br>See definition of a text. | |
| **Third Level** | **Understand:**<br>Recognising language patterns supports accurate reading of unfamiliar texts. | | **Understand:**<br>Critical reading reveals ideas and perspectives across a range of texts. | |
| | **Know:**<br>Features of orthography and language support understanding when reading. | **Do:**<br>Apply strategies to decode unfamiliar words.<br><br>Identify and interpret vocabulary, idiom and grammar in familiar or less familiar contexts. | **Know:**<br>A range of reading strategies including comprehension and analysis of texts. | **Do:**<br>Read texts to identify main ideas and supporting detail.<br><br>Apply reading strategies to analyse ideas and support understanding.<br><br>Describe key information and ideas within texts. |
| | | Apply strategies to decode and understand unfamiliar words.<br><br>Identify and interpret vocabulary, idiom and grammar in familiar or unfamiliar contexts. | | Read texts to identify detailed ideas and meaning, with justification.<br><br>Adapt reading strategies to analyse ideas and their effect on the reader.<br><br>Analyse information, viewpoints and messages within texts. |

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<tr><td></td><td colspan="2">Includes, but not limited to<br>Phonological patterns – broad and slender nouns and consonants, lenition, consonant clusters and vowel length.<br>Morphological patterns – prepositional pronouns, verb structures and patterns.<br>Etymological patterns – loanwords/adapted words, using word origins/roots to comprehend ‘ceann’ ⇒’ceannard’, ‘cuid’ ⇒ ‘mòr-chuid’.<br><br>Notes<br>Reading aloud may support decoding, as appropriate to learner needs.</td><td colspan="2">Includes, but not limited to<br>A wide variety of Gaelic texts aligned with strengths and needs.<br>Before reading - activating prior knowledge, previewing text and identifying key vocabulary.<br>During reading - skimming, scanning, using context clues and rereading.<br>Analytical approaches - author viewpoint, bias, use of language and techniques.<br>Post-reading strategies - summarising, responding to questions and discussion.<br><br>Notes<br>Reading aloud (individually where appropriate, paired or group).</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand:<br>Writing involves shaping language and content to achieve purpose and impact.</td><td colspan="2">Understand:<br>Reviewing and editing strengthens clarity, accuracy and coherence in writing.</td></tr>
<tr><td>Know:<br>A range of genres and stylistic devices and their associated conventions and purposes.</td><td>Do:<br>Write for a range of purposes using appropriate conventions.<br><br>Expand content by adding detail, description, examples and appropriate language.<br><br>Use writing techniques and stylistic devices to create interest and clarity.<br><br>Write for a range of purposes, adapting style and conventions to suit purpose and audience.<br><br>Develop content by expanding ideas, analysing facts or examples and adapting language.<br><br>Use a range of writing techniques and stylistic devices to sustain interest and achieve impact.</td><td>Know:<br>Language patterns and processes for ensuring clarity in written work.</td><td>Do:<br>Plan and prepare written texts, with guidance.<br><br>Communicate ideas using vocabulary and idiom.<br><br>Apply spelling patterns and grammatical structures to support clarity in written texts.<br><br>Use resources to check and improve writing.<br><br>Respond to feedback and redraft writing to make improvements to structure, clarity and content.<br><br>Select and apply planning strategies to develop written texts.<br><br>Use vocabulary, including specialist language and idiom to communicate detailed ideas.<br><br>Refine writing by correcting errors to improve accuracy.<br><br>Use resources selectively to support editing decisions.<br><br>Respond to feedback and redraft to improve depth of writing and effect on the reader.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Genres – non-fiction and fiction prose, modern or traditional poetry.<br>Writing techniques - simile, metaphor, punctuation, tone, poetic forms (including rhyme and meter).<br>Stylistic devices – rhetorical questions, direct address, emotive language, repetition and rhythm.<br><br>Notes<br>A range of stimuli to support writing, for example adult modelling and written or spoken model texts.<br>Gaelic Orthographic Conventions provide clarification on spelling.</td><td colspan="2">Includes, but not limited to<br>Planning methods, such as bullet points, story boards and mind maps.<br>Critical and judicious use of resources, such as online dictionaries and translators.<br>Feedback strategies and models, including responding to peer or teacher feedback, correction codes and marking schemes.<br><br>Notes<br>New Stòrlann Gaelic Grammar Framework.<br>New Stòrlann Gaelic Language Framework.</td></tr>
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<table>
<tr><th>Strand</th><th colspan="3">Compàirteachas agus Buintealas/Participation and Connecting with Others</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand:<br>Engagement with Gaelic culture shapes and deepens individual and collective identities.</td><td colspan="2">Understand:<br>Using Gaelic across a range of contexts strengthens connections, creates opportunities and broadens experiences.</td></tr>
<tr><td>Know:<br>Gaelic cultural forms and expressions and how they communicate identity and strengthen communities.</td><td>Do:<br>Describe personal experiences of Gaelic culture.<br><br>Engage with a range of Gaelic cultural forms and explain how they contribute to identity and communities.<br><br>Create texts that communicate personal identity and cultural understanding.</td><td>Know:<br>Contexts in which Gaelic is used and how these provide opportunities for communication, learning and participation.</td><td>Do:<br>Participate in Gaelic activities across cultural, social and digital contexts.<br><br>Use Gaelic to communicate and interact in different settings beyond the main learning setting.<br><br>Apply Gaelic in new contexts to share experiences and connect with others.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Cultural forms and expressions, such as music, literature, drama, media and sport.<br>Recognition that Gaelic identities are not uniform, for example mixed heritage, Highland, Island, urban and diaspora communities.<br>Links to wider Celtic identities (Irish, Manx, Welsh) and shared cultural traits.<br><br>Notes<br>Texts might include written or spoken texts - reflective, creative or personal.</td><td colspan="2">Includes, but not limited to<br>Contexts, such as cultural, social, educational, digital and community settings.<br>Activities, such as literature, sport, media, Mòd, Fèis and online events.<br>Gaelic communities, locally and globally, including digital platforms.<br>Explore education, careers and pathways linked to Gaelic.<br>Opportunities to explore Gaelic language growth through Learning for Sustainability.</td></tr>
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<tr><th>Strand</th><th colspan="2">Dualchas Cultarach agus Coimhearsnachd/Gaelic Cultural Heritage and Community</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand:<br>Gaelic cultural heritage is shaped by the relationship between people, place and community.</td></tr>
<tr><td>Know:<br>Features of Gaelic cultural heritage and how these reflect relationships.</td><td>Do:<br>Use Gaelic to participate in cultural traditions and practices with others.<br><br>Investigate and describe features of Gaelic heritage and connections to people and place.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Features of Gaelic cultural heritage - music, literature, festivals and local/national events.<br>Local heritage - place names, landscapes, stories and landmarks, where appropriate.<br>Alternatively, focus on national culturally significant aspects of Gaelic heritage.</td></tr>
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<tr><th>Strand</th><th colspan="4">Luachadh agus Tagrachd/Appreciation and Advocacy</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understanding:<br>The rights of Gaelic speakers are protected through policy to support equality, identity and access to language and education.</td><td colspan="2">Understand:<br>Being an advocate for Gaelic strengthens its status and sustainability in Scotland and beyond.</td></tr>
<tr><td>Know:<br>Ways in which Gaelic has been marginalised in Scotland and how these impact on the language today.<br><br>Key language rights and how they support the use and development of Gaelic.</td><td>Do:<br>Identify and explain key Gaelic language rights within national and international policy.<br><br>Analyse how these rights apply in school and community contexts.<br><br>Communicate information about Gaelic language rights to others.</td><td>Know:<br>Ways in which individuals can promote Gaelic through creative projects, community events and initiatives.</td><td>Do:<br>Use Gaelic to promote language and culture through participation in creative projects.<br><br>Communicate in Gaelic in and beyond main learning setting to engage with others.<br><br>Contribute to events and initiatives that support Gaelic and its community.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Examples of marginalisation as a result of legislation, social attitudes, economic factors, policies and practices provide an important context for framing contemporary developments.<br>UNCRC - articles 2, 28, 29, 30.<br>Scottish Languages Act - rights to education, provision of resources and educational standards.<br>Opportunities to explore Gaelic language growth through Learning for Sustainability.</td><td colspan="2">Includes, but not limited to<br>Local, national and online events.<br>Social Enterprise Academy and Youth Philanthropists Initiative opportunities where available.</td></tr>
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# Numeracy and Mathematics Know-Do-Understand Strands

<table>
<tr><td>Strand</td><td colspan="4">Quantity, Numbers and the Algebraic Properties of Number<br>The focus on quantity is to understand value and size. Determining quantities in the world around us often involves solving problems that draw on a range of mathematical concepts. Numbers help us count, order, compare and express values. Number sense contributes to mathematical fluency, building accuracy, flexibility and efficiency. The algebraic properties of number provide a lens through which learners can generalise how numbers and operations on numbers interact.</td></tr>
<tr><td></td><td colspan="4">Number systems and structures</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand:<br>The base ten number system extends infinitely in both directions, allowing increasingly large quantities and increasingly precise values to be represented, interpreted and communicated.</td></tr>
<tr><td>Know:<br>The sequence of place values beyond hundred thousands continues with millions, ten millions, hundred millions and billions.<br><br>The sequence of place values beyond thousandths is ten-thousandths, hundred-thousandths and so on.<br><br>Increasingly precise measurements require additional decimal places.</td><td>Do:<br>Read, write and represent whole numbers beyond one million using numerals, words and expanded notation.<br><br>Partition and recombine large numbers in multiple ways.<br><br>Read, write and represent decimal fractions beyond thousandths.<br><br>Identify the value of digits in decimal fractions to at least four decimal places. For example, in 4·2065 the<br>2 represents two tenths, the<br>6 represents six thousandths and the<br>5 represents five ten-thousandths</td><td>Know:<br><br>Equivalent decimal fractions can be written with different numbers of decimal places.<br><br>Adding or removing trailing zeros does not change the value of a decimal fraction.</td><td>Do:<br>Compare and order whole numbers beyond one million and justify comparisons using place value reasoning.<br><br>Round numbers beyond one million to an appropriate level of precision.<br><br>Estimate and check the reasonableness of solutions to problems involving large numbers.<br><br>Compare and order decimal fractions with different numbers of decimal places.<br><br>Identify equivalent decimal fraction, for example,<br>3·2 = 3·20 = 3·200</td></tr>
<tr><td colspan="4">Notes<br>Large numbers and precise decimals are used in science, technology, finance and measurement.<br>New key mathematical language (Learners)<br>billion, ten-thousandth, hundred-thousandth</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: For natural numbers greater than one, the number of factors a number has determines whether it is prime or composite.</td></tr>
<tr><td>Know:<br>Prime numbers are natural numbers which have exactly two factors, themselves and one.<br><br>Composite numbers are the product of two or more prime numbers.</td><td>Do:<br>Identify prime numbers using knowledge of factors.<br><br>Use the definition of prime numbers to reason about the classification of the number one.<br><br>Express composite numbers as a product of prime factors and use these to perform calculations efficiently.</td><td>Know:</td><td>Do:</td></tr>
<tr><td colspan="4">Notes<br>Natural numbers are the set of numbers 1, 2, 3, 4, 5, ...<br>Work initially with prime numbers to one hundred.<br>Counters and arrays may support the initial understanding of primes and composites, for example, prime numbers cannot be arranged as arrays with multiple rows and columns.<br>Composite numbers may or may not have composite factors but will always be able to be expressed in terms of prime factors only.<br>Discuss and investigate the use of prime numbers in real-life and mathematical contexts.<br>Digital tools exist for prime factorisation that may be useful to experience.<br>New key mathematical language (Learners)</td></tr>
</table>

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<table>
<tr><td></td><td colspan="4">natural number, prime, factor, composite</td></tr>
<tr><td rowspan="2">Third Level</td><td colspan="4">Understand: Index notation provides a compact way to express repeated multiplication, enabling the efficient calculation and generalisation of powers.</td></tr>
<tr><td>Know:</td><td>Do:</td><td>Know:<br>Index notation is an efficient way of expressing repeated multiplication.<br><br>There is an inverse relationship between powers and roots.</td><td>Do:<br>Express repeated multiplications using index notation, for example, $5 \times 5 \times 5 \times 5 = 5^4$.<br><br>Explain how squaring and cubing are related to square roots and cube roots through inverse operations, for example, as $4^3 = 64, \sqrt[3]{64} = 4$.<br><br>Apply these connections to evaluate whole number roots.</td></tr>
<tr><td colspan="4">Notes<br>Make connections between squared numbers, cubed numbers, square roots and cube roots and the area of squares, the volume of cubes and their dimensions in Shape, Space and Measurement.<br>Excludes<br>Negative roots are not required at this stage.<br>New key mathematical language (Learners)<br>index notation, power, root</td></tr>
</table>

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## Number relationships and operations

**Understand:** Place-value relationships and operation properties allow numbers of any magnitude or precision to be scaled, approximated and justified, supporting problem solving in a range of contexts.

### Third Level

**Know:**

Written and mental strategies, used to complete calculations with smaller numbers, generalise to larger numbers.

Two-digit multipliers can be decomposed into tens and ones.

Strategies used when multiplying and dividing whole numbers can be used when working with decimal fractions.

**Do:**

Solve addition and subtraction problems involving numbers beyond one million.

Multiply whole numbers by a two-digit number using efficient written methods. For example,

$$23 \times 35 = (23 \times 30) + (23 \times 5)$$
$$= 690 + 115$$
$$= 805$$

| × | 20 | 3 |
|---|---|---|
| **30** | 600 | 90 |
| **5** | 100 | 15 |

Multiply one-digit, two-digit and three-digit whole numbers and decimal fractions by powers of 10 to 1 000 000, for example, $7 \cdot 82 \times 10\,000 = 78\,200$

Multiply decimal fractions to one, two and three decimal places by a single-digit whole number, justifying solutions using manipulatives or pictorial approaches, for example, $9 \cdot 352 \times 6 = 56 \cdot 112$.

Multiply one-digit, two-digit and three-digit numbers by any number which is a product of a single-digit whole number and any whole number power of ten, for example, $3 \cdot 4 \times 400 = 3 \cdot 4 \times 4 \times 100$.

Divide decimal fractions to one and two decimal places by a single-digit whole number, initially using manipulatives and pictorial approaches, for example, $5 \cdot 58 \div 3 = 1 \cdot 86$.




Divide two-digit and three-digit whole numbers by a single-digit whole number where solutions are decimal fractions to one or two decimal places, initially using manipulatives and pictorial representations, for example, $124 \div 8 = 15 \cdot 5$.

Divide two-digit and three-digit numbers by any number which is a product of a single-digit whole number and 10, 100 or 1000 (whole number and exact decimal fraction answers only), for example, $240 \div 80 = 3$, $375 \div 50 = 7 \cdot 5$.

**Know:**

Digital technologies can improve efficiency and accuracy when working whole numbers and decimal fractions with many digits.

Solutions to calculations resulting in decimal fractions may need to be rounded or truncated depending on the context.

**Do:**

Solve multiplication and division problems involving large whole numbers using appropriate written and mental methods.

Calculate and verify solutions using calculators, spreadsheets and other digital tools.

Choose and justify the most appropriate method for calculations using mental, written or digital approaches.

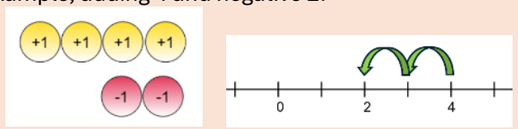
Estimate solutions to check whether technology-generated answers are reasonable.

Calculate, interpret and explain solutions to increasingly complex multi-step contextualised problems which use the four operations.

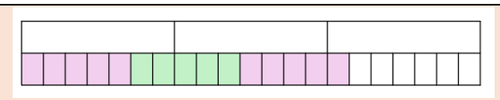
Round solutions which are decimal fractions to a given degree of precision.

Justify solutions which have been rounded or truncated. For example, the number of full 230 ml cups that can be poured from a two-litre bottle is 8, even though $2000 \div 230 = 8 \cdot 7$ (to one decimal place).

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<table>
<tr><td></td><td colspan="4">Notes<br>Appropriate manipulatives and pictorial representations include place value counters and bar models.<br>Make connections to money and measure across Shape, Space and Measurement and Finance.<br>New key mathematical language (Learners)<br>truncate</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Number relationships extend across zero to include positive and negative values, while equivalence, inverse relationships and operation properties remain consistent.</td></tr>
<tr><td>Know:<br>The additive inverse of a number is the number that is added to the original to give zero.<br><br>A positive unit and a negative unit that combine to make zero together is known as a zero pair.<br><br>Subtraction is addition of the additive inverse.<br><br>The properties of multiplication and division remain when working with negative integers.</td><td>Do:<br>Identify the additive inverse of given integers, for example, the additive inverse of 2 is -2, the additive inverse of -5 is 5.<br><br>Add and subtract integers using appropriate manipulatives, making use of zero pairs. Connect this to its spatial representation on a number line, for example, adding 4 and negative 2.<br><br><br><br>Multiply and divide integers by applying repeated addition, continuing patterns and applying the connections between multiplication and division (inverse operations).</td><td>Know:</td><td>Do:<br>Add and subtract integers using a number line to keep track as necessary.<br><br>Build fluency by applying multiplication and division strategies when working with integers.</td></tr>
<tr><td colspan="4">Notes<br>Appropriate manipulatives and pictorial representations include double sided counters and number lines.<br>New key mathematical language (Learners)<br>additive inverse, zero pair, positive/negative unit</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Fraction operations depend on equivalence and unit size, with common units supporting addition and subtraction and multiplicative relationships underpinning multiplication and division.</td></tr>
<tr><td>Know:<br><br>The smallest multiple that is shared by two or more numbers is called their lowest common multiple (LCM).<br><br>Expressing fractions with common denominators allows for efficient addition and subtraction.</td><td>Do:<br>Add and subtract fractions, including improper fractions, with common denominators, initially using a number line to keep track.<br><br>Add and subtract mixed numbers with common denominators, initially using pictorial approaches or a number line to keep track.<br><br>Identify the lowest common multiple of two or more numbers by listing their first few multiples. For example,<br>multiples of 6: 6, 12, 18, 24 ...<br>multiples of 4: 4, 8, 12, 16 ...<br>Therefore, the LCM of 6 and 4 is 12.<br><br>Add and subtract fractions with related denominators by finding equivalent fractions with common denominators (including improper fractions), initially justifying choice of denominator and solutions using pictorial approaches.</td><td>Know:<br>The highest number that is a factor of two or more numbers is called their highest common factor (HCF).</td><td>Do:<br>Identify the highest common factor of two or more numbers by listing their factors. For example,<br>factors of 32: 1, 2, 4, 8, 16, 32<br>factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48.<br>The HCF of 32 and 48 is 16.<br><br>Express fractions in their simplest form efficiently by first finding the highest common factor of their numerator and denominator.<br><br>Add and subtract mixed numbers with related and unrelated denominators, initially using manipulatives or pictorial approaches, expressing solutions in their simplest form.<br><br>Multiply a whole number by a fraction, using pictorial approaches and the commutative law, for example,<br>$\frac{5}{7} \times 3 = \frac{15}{7} = 2\frac{1}{7}$</td></tr>
</table>

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| | | | | |
|---|---|---|---|---|
| | Proper and improper fractions can be simplified by dividing the numerator and denominator by a common factor. A fraction is in its simplest form if the only common factor of its numerator and denominator is one.<br><br>Proportions of a whole can be expressed as equivalent fractions, decimal fractions and percentages. | For example, $\frac{2}{3}+\frac{1}{6}=\frac{4}{6}+\frac{1}{6}=\frac{5}{6}$.<br><br><br><br>Add and subtract fractions with unrelated denominators by finding equivalent fractions with any common denominators (including improper fractions), initially justifying choice of denominator and solutions using pictorial approaches.<br>For example, $\frac{2}{3}+\frac{1}{4}=\frac{8}{12}+\frac{3}{12}=\frac{11}{12}$.<br><br>Express fractions in their simplest form.<br><br>Solve contextualised problems by adding or subtracting fractions, expressing solutions in their simplest form.<br><br>Calculate and compare proportions, in context, expressing them in an appropriate form, for example, comparing the frequencies of outcomes in probability experiments. | Finding a fraction of a quantity is the same as multiplying the quantity by that fraction. | <br><br>Solve contextualised problems by multiplying a whole number by a fraction. |
| | **Notes**<br>Related denominators are denominators that are connected because one is a multiple of the other and they can easily be changed to match.<br>When simplifying fractions, connections can be made to the prime factors of the numerator and denominator.<br>**New key mathematical language (Learners)**<br>lowest common multiple, highest common factor, common denominator, simplify | | | |

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## Proportional reasoning

**Understand:** Proportional relationships involve quantities that are connected in a consistent way, so if one quantity is multiplied or divided by a given factor, the other quantity changes by the same factor.

### Third Level

**Know:**

Percentages of a quantity can be found by multiplying that quantity by the equivalent decimal fraction.

Two variables are directly proportional if they have a constant quotient. This algebraic relationship can be used to model real-life situations.

**Do:**

Find non-unit fractions of three-digit and four-digit whole numbers (whole number quotients only).

Find any percentage of any quantity, using a calculator or spreadsheet where appropriate.

Solve problems in real-life contexts by increasing or decreasing a quantity by a given percentage, for example, pay rises, interest or depreciation.

Recognise variables which are directly proportional to one another.

Model the multiplicative relationship between two variables which are directly proportional to one another to find the value of one variable given the other, for example,

| Scones | Grams of flour |
|---|---|
| 12 | 450 |
| 6 | 225 |
| 18 | 675 |

The constant quotient (rate) is 37·5 g per scone.

Interpret and use constant quotients as rates, for example, estimate, calculate and compare the cost of items in different currencies using current exchange rates.

**Know:**

A ratio can be used to compare two or more quantities expressed in terms of their relative sizes.

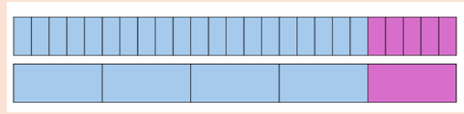
A ratio is in its simplest form if the only common factor of its terms is one.

Two variables are inversely proportional if they have a constant product. This algebraic relationship can be used to model real-life situations.

**Do:**

Express the relationship connecting sets of two or three quantities as a ratio. For example, if there are three blue counters and five red counters, the ratio of blue to red is 3:5 (three to five).

Express ratios in their simplest (whole number) form, using spatial representations where appropriate. For example, in a lucky dip there are twenty losing tickets and five winning tickets, the ratio of losing to winning simplifies from 20:5 to 4:1.



Find related quantities by using equivalent ratios and given quantities. For example, if the safety ratio of learners to adults is 12:1 and there are three adults in the group, they can safely look after up to 36 learners.

Recognise variables which are inversely proportional to one another.

Model the multiplicative relationship between two variables which are inversely proportional to one another to find the value of one variable given the other.
For example:

| Number of workers | Hours taken |
|---|---|
| 4 | 12 |
| 8 | 6 |
| 1 | 48 |

The constant product is 48 hours of work.

**Notes**
Real-life situations which demonstrate a directly proportional relationship include buying groceries, purchasing fuel, driving at constant speed, scaling up a recipe and hourly wages.
Proportion tables can be used to organise calculations.
When working with currency exchange, methods and locations for exchanging currencies could be explored, considering factors such as exchange rates available, convenience and any added fees - the effect of fluctuating exchange rates on real-life situations such as holidays and online purchases could also be explored.
Real-life situations which demonstrate an inversely proportional relationship include the length of time a fixed quantity of resource will last when used at a particular rate and how long a task will take given the number of workers assigned to it.
**New key mathematical language (Learners)**
direct/inverse proportion, quotient, ratio, exchange rate

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<table>
<tr><th></th><th colspan="4">Patterns and sequences</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Sequences of numbers that follow multiplicative rules can lead to patterns of rapid growth or decay.</td></tr>
<tr><td>Know:<br>Number sequences can be generated by applying the same multiplicative rule between successive terms.</td><td>Do:<br>Identify and describe the multiplicative rule within given growing number sequences and where appropriate, explain what the sequences represent in context, for example, describing how the number of bacteria in a dish doubles each hour:<br>10, 20, 40, 80, 160, ...<br><br>Continue sequences which have a multiplicative pattern.<br><br>Identify missing numbers and errors in number sequences based on multiplicative rules.</td><td>Know:</td><td>Do:<br>Identify and describe the multiplicative rule within given growing or decaying number sequences and where appropriate, explain what the sequences represent in context, for example, describing how a medicine breaks down in the body over time, if it halves every two hours: 600, 300, 150, 75, ...<br><br>Describe how the terms in multiplicative sequences change compared to additive ones.</td></tr>
<tr><td colspan="4">Notes<br>Examples of sequences which have multiplicative patterns include a sequence that starts with 2 and terms are multiplied by 3 each time or a sequence that starts with 13 and terms are divided by 10 each time.<br>Compare additive and multiplicative sequences, such as one which adds two each time to one which multiplies by 2 each time - explore the long-term behaviour of such sequences.<br>New key mathematical language (Learners)<br>multiplicative, rule, rapid growth/decay</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Rules describing sequences enable the efficient identification of the next term or any particular term based on its position.</td></tr>
<tr><td>Know:<br>A sequence can be described by its first term and the rule for finding the next term.<br><br>An arithmetic sequence is one where the difference between two consecutive terms is always the same (common difference).</td><td>Do:<br>Find the first few terms in number sequences given their first term and the rule for finding the next term, for example, starting with a first term 10, use the rule add 6 to find the next four terms in this sequence.<br><br>Identify whether a sequence is arithmetic by looking for a common difference.<br><br>In context, identify patterns that follow an arithmetic sequence. Describe these patterns in words and continue these sequences to solve related problems, for example, finding the number of blue dots in the 7th picture in this sequence.<br><br></td><td>Know:<br>A rule can be described to find a particular term in a sequence by using its position in the sequence. This is called an $n^{th}$ term formula.</td><td>Do:<br>Generate parts of sequences using their nth term formula (arithmetic sequences only). For example, T = 4n + 6 generates the sequence 10, 14, 18, ...<br><br>Describe the relationship between the $n^{th}$ term formula of arithmetic sequences and their common difference. For example, T = 4n + 6, the sequence has a common difference of four.<br><br>Describe the relationship between the $n^{th}$ term formula of arithmetic sequences and the sequence of multiples of their common difference. For example, for T = 4n + 6, all the terms in the sequence are six greater than a multiple of four.</td></tr>
<tr><td colspan="4">Notes<br>Geometric patterns such as mosaics from around the world could provide examples of geometric representations of numerical patterns.<br>New key mathematical language (Learners)<br>arithmetic, $n^{th}$ term formula, common difference</td></tr>
</table>

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<table>
<tr><th></th><th colspan="4">Expressions, equations and relationships</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Like terms combine to simplify expressions because each variable represents the same quantity.</td></tr>
<tr>
<td>Know:<br>Terms in an expression which contain exactly the same variable(s) and exponents are called like terms.<br><br>Like terms can be added and/or subtracted. This is known as collecting like terms.<br><br>Expressions can be simplified by collecting like terms into a single term.</td>
<td>Do:<br>Identify like terms within expressions. For example, in the expression $2x - 3y + 4a + 2y$ there are two like terms, $-3y$ and $2y$.<br><br>Simplify expressions by collecting like terms, initially using concrete or digital manipulatives.<br>For example,<br>$2x - 3y + 4 + 2y$<br>$= 2x - y + 4$<br><br></td>
<td>Know:</td>
<td>Do:<br>Simplify expressions algebraically by collecting like terms.<br><br>Simplify multi-variable expressions and justify why terms can or cannot be combined, for example,<br>$2x - 3xy + 4 + 6x - 7$<br>$= 8x - 3xy - 7$</td>
</tr>
<tr><td colspan="4">Notes<br>Constant terms, such as 4 and -7, are like terms that can be collected.<br>Appropriate manipulatives include algebra discs.<br>Online resources exist which provide digital manipulatives.<br>New key mathematical language (Learners)<br>like terms, collecting, simplify</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Equations and inequations can be solved using inverse operations and algebraic properties to determine values that satisfy equality or ranges of values that satisfy inequality.</td></tr>
<tr>
<td>Know:<br>An equivalent equation can be created by applying the same operation to each of its sides.</td>
<td>Do:<br>Solve one and two-step equations of the form $ax \pm b = c$ where $a, b$ and $c$ are whole numbers. Record working steps and solutions algebraically.</td>
<td>Know:<br><br><br><br><br>An inequation compares the values of two expressions using the symbols <, >, ≤, or ≥.<br><br>An inequation has a set of solutions for which the inequation is true.<br><br>The subject of a formula is the variable that is expressed in terms of the others.</td>
<td>Do:<br>Solve, by applying inverse operations, one and two-step equations of the form $ax \pm b = c$ where $a, b$ and $c$ are integers.<br><br>Model contextualised problems with one and two-step equations and solve them algebraically.<br><br>Solve algebraically a variety of one and two-step inequations and explain what the solutions mean.<br>For example,<br>$3x - 5 < 16$<br>$3x < 21$<br>$x < 7$<br>so, the inequation is true for any value of $x$ less than 7.<br><br>Change the subject of linear formulae using the same algebraic strategies as for solving equations algebraically (single-step examples only).</td>
</tr>
<tr><td colspan="4">Notes<br>Appropriate algebraic strategies include balancing approaches and using inverse operations - however manipulatives and/or pictorial approaches should still be used.</td></tr>
</table>

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Relevant contexts which could be modelled include for example, using the information that 5 tickets and a booking fee of £2 comes to a cost of £127 to find the cost of each ticket.
**Includes but is not limited to**
Examples where the position of the variable is varied.
**Excludes**
Equations with negative solutions initially.
**New key mathematical language (Learners)**
inequation

**Third Level**

**Understand:** The construction of expressions and formulae describe unambiguously the operations involved and what order they are carried out.

| **Know:** | **Do:** | **Know:** | **Do:** |
|---|---|---|---|
| Substitution is the process of replacing variables with specific values and can be used to evaluate an algebraic expression.<br><br>A formula is an equation that describes a relationship between two or more variables. | Substitute positive values to evaluate expressions and make use of known or given formulae. | | Substitute positive and negative values to evaluate expressions, including those with brackets.<br><br>Check solutions to equations using substitution. |
| Functions are often written as $f(x)$ where x is the input and $f(x)$ is the output. | Describe, using function notation, single-step and two-step functions represented pictorially as function machines, for example,<br>$f(x) = 2x - 3$<br><br>Calculate outputs for given inputs of single-step and two-step functions represented in function notation, for example, if<br>$f(x) = 3x + 5$,<br>$f(4) = 3 \times 4 + 5$<br>$= 17$ | | Calculate inputs for given outputs of single-step and two-step functions represented in function notation by establishing and solving an appropriate equation, for example, if<br>$f(x) = 3x + 5$ and $f(x) = 23$<br>So, $3x + 5 = 23$<br>$3x = 18$<br>$x = 6$ |

**Notes**
Examples of appropriate known or given formulae could include evaluating $a - 4b$ given positive values for $a$ and $b$, finding the area of a circle given its radius.
Encourage estimating to check the reasonableness of solutions.
**New key mathematical language (Learners)**
substitution, formula(e), function notation

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| | Finance | | | |
|---|---|---|---|---|
| | **Understand:** Effective financial planning involves balancing income and expenditure, making informed choices about products and services and considering risks, costs, and implications over time. | | | |
| | **Know:**<br>Income is the money people receive from different sources.<br><br>Expenditure is the money people spend on daily needs and personal choices.<br><br>Personal budgeting involves estimating income and expenditure over a set period of time.<br><br>Personal budgets are based on assumptions about income and expenditure and unexpected changes can create the need to adapt plans and to make informed decisions. | **Do:**<br>Identify and compare different sources of income.<br><br>Identify and describe everyday costs that are likely to feature in personal expenditure.<br><br>Create a monthly personal budget, real or imagined, using a budgeting tool such as a spreadsheet template, explaining the assumptions and decisions made.<br><br>Identify examples of unforeseen changes and one-off expenses that can impact personal budgets, for example, rising energy prices, reduced income, unexpected repairs, increased travel costs.<br><br>Model the impact of unforeseen changes or one-off expenses on a personal budget and identify possible responses. | **Know:**<br>The cost of living is a term used to describe how much is spent on everyday expenditure.<br><br>Inflation is the sustained increase in prices of goods and services over time and is commonly expressed as a percentage.<br><br>Some contracts (legal agreements) and services provide better value for money than others. | **Do:**<br>Explore the current prices of everyday items and how these have changed over recent years due to inflation.<br><br>Compare and evaluate services from different providers, identifying which provide the best options, considering value for money, relevant evidence and personal circumstances. |
| **Third Level** | Current accounts are for daily banking, allowing deposits, bill payments, cash withdrawals and debit card use.<br><br>Savings accounts earn interest and are usually used to store and grow savings.<br><br>A basic bank account offers only essential services, like payments and withdrawals, for customers who are unable open a standard account.<br><br>Online banking is a way of managing finances via secure apps and websites. | Discuss the factors that would influence the choice of bank account. Include, where appropriate, any personal experiences.<br><br>Analyse given financial scenarios to compare available savings options. Justify recommendations based on relevant financial information. For example, advising person A, who has saved £500 and would like this amount to grow over a two-year period.<br><br>Identify commonly used functions of banking apps. Explain, where appropriate, any personal experience of their use. | There are different types of savings accounts. These pay differing rates of return and access terms can vary.<br><br>Annual Equivalent Rate (AER) shows the true interest earned on savings over a year, taking account of how often the interest is paid.<br><br>A direct debit is an agreement that allows a company or organisation to take a varying amount of money directly from a person's bank account to pay for regular bills or services.<br><br>A standing order is an instruction a person gives to their bank to pay a fixed amount of money to another person or organisation on a regular basis. | Identify and compare different types of savings options that are available to consumers, including their AER, the incentives they bring and any terms and conditions attached.<br><br>Identify everyday situations where direct debits and standing orders are commonly used, including how they are set up and managed. Include, where appropriate, any personal experiences. Explain the benefits and any drawbacks of using these services. |
| | Some current accounts include the offer of an overdraft which allows borrowing up to an agreed limit. Banks often charge a fee or interest on overdrafts.<br><br>Loans can be used by individuals and businesses to borrow differing amounts of money, over a range of | Compare the rates of interest charged on a range of loan products, including overdrafts.<br><br>Discuss the advantages and risks associated with using an overdraft option on a current account.<br><br>Describe the factors which should be considered when making choices about taking out a loan. | Borrowing on credit or store cards usually incurs interest, fees and charges.<br><br>Buy now pay later (BNPL) services, allow payments to be delayed or split over a short period of time.<br><br>Annual percentage rate (APR) is the total cost of borrowing money over a year, expressed as a percentage. | Compare the actual costs associated with obtaining credit via credit cards, store cards and BNPL services.<br><br>Discuss the advantages and risks associated with different credit options.<br><br>Model and compare, using an online tool, the costs of different borrowing options over time using criteria such as affordability of monthly payments, repayment |

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|---|---|---|---|---|
| | time periods. Regular payments are made, usually monthly, to pay back the amount borrowed plus interest (debt). | | Borrowing decisions involve balancing immediate needs against future costs. | period and total cost. For example, exploring the effect of changing the repayment period on monthly payment and total cost. |
| | **Notes**<br>Sources of income include money earned from working or running a business, royalties from creative industry, payments from the government such as pensions or benefits.<br>Common types of expenditure could include, food, transport, entertainment, subscriptions, membership costs, housing (such as rent), bills, loan repayments.<br>Make connections to Proportional reasoning as inflation is a useful context for percentage increase calculations.<br>Considerations when choosing contracts and services could include overall and monthly costs, affordability, better terms and protections, customer service etc.<br>Comparisons could be made of mobile phone contracts on a price comparison website, considering monthly cost, data allowance, use overseas, length of contract etc.<br>A bank account is said to be in credit when it has a positive balance.<br>An account goes into overdraft (negative balance) when more money is spent or withdrawn from it than the funds which are available.<br>Factors for consideration when applying for a loan include the purpose of the borrowing, the terms and conditions of products available, the affordability of repayments, the duration of the loan agreement and the cost of borrowing.<br>Different types of savings accounts could include ISAs, instant access accounts, children's savings accounts etc.<br>Features of credit and store cards include minimum payments, charges for late payments and cash withdrawals and the benefit of paying off borrowed amounts in full.<br>Some BNPL schemes are interest-free for an agreed period.<br>A detailed knowledge of sources of income and financial products is not required, rather the focus is on developing awareness and identifying reliable sources of up-to-date information which can be accessed as the need arises. Sensitivity towards individual circumstances should always be exercised.<br>**New key mathematical language (Learners)**<br>income, expenditure, inflation, current/bank/savings account, withdrawals, overdraft, AER, direct debit, standing order, store card, APR | | | |

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<table>
<tr><td>Strand</td><td colspan="4">Shape, Space and Measurement<br>Ideas of shape and space support the development of visualisation skills, spatial reasoning, understanding the effects of transformations, recognising symmetry, and making sense of mathematical structures. Exploring position and movement provides a foundation for thinking spatially. Sorting, comparing and describing the properties of two-dimensional shapes and three-dimensional objects helps build geometric understanding. Coordinate geometry connects with algebra to provide meaning for critical ideas, such as linear models and proportional reasoning. Trigonometry builds on geometric principles by offering methods for calculating angles and distances.</td></tr>
<tr><td></td><td colspan="4">Position and movement</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Bearings determine direction relative to north, using angles, supporting precise navigation.</td></tr>
<tr><td>Know:</td><td>Do:</td><td>Know:<br>Direction of travel can be given in terms of three-figure bearings. These are given in degrees and describe the angle between north and the direction of travel, measured in a clockwise direction.</td><td>Do:<br>Plan and encode sequences of directions which include angles of turn or directions. For example, encoding the steps necessary for a programmable robot (actual or virtual) to follow a hexagonal path.<br><br>Describe and follow directions outdoors using three-figure bearings.<br><br>Create and interpret scale drawings which involve three-figure bearings.</td></tr>
<tr><td colspan="4">Notes<br>The three figures are used for clarity, for example for a bearing of 023 degrees said over the radio by a pilot, it is clear there has not been a digit missed off either at the beginning or the end of the communication.<br>A magnetic compass or digital tool can be used to give an idea of how bearings are given, measured and used in practice, indoors and outdoors.<br>Developing precise navigation skills using bearings is not a requirement, but might form part of inter-disciplinary work, for example, linked to map reading or orienteering.<br>New key mathematical language (Learners)<br>bearings</td></tr>
</table>

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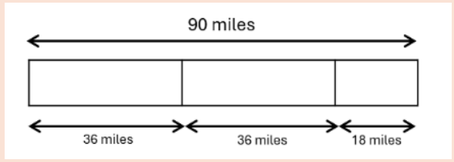
<table>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Known angle relationships can be used to determine unknown angles, while labels and notation enable clear communication about geometric properties.</td></tr>
<tr><td>Know:<br>The sum of the interior angles in a triangle is 180°.<br><br>Quadrilaterals can be split into two triangles and therefore the sum of the angles in a quadrilateral is 360°.<br><br>The sum of angles around a point is 360° (a full turn).<br><br>Vertices of 2D shapes are labelled using capital letters.<br><br>Angles within shapes are often identified using these labels.</td><td>Do:<br>Determine unknown angles in triangles, quadrilaterals and around a point using known angle sums.<br><br>Name and identify 2D shapes using the labels on their vertices. For example, ABC is a right-angled triangle.<br><br>Name and identify the interior or exterior angles of 2D shapes using the labels on their vertices and appropriate notation. For example, ∠ABC or reflex ∠ABC.</td><td>Know:<br>When any two straight lines intersect, two pairs of equal, vertically opposite angles are formed.<br><br>Interior and exterior angles are related through known angle sums and angles on a straight line.<br><br>Multiple angle relationships can be combined to determine unknown angles.</td><td>Do:<br>Calculate unknown angles formed by intersecting straight lines and explain the relationships used.<br><br>Determine unknown interior and exterior for triangles and quadrilaterals, justifying solutions using established angle relationships.<br><br>Communicate and justify reasoning using appropriate geometric notation and labels.</td></tr>
<tr><td colspan="4">Notes<br>New key mathematical language (Learners)<br>interior, exterior</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Positive and negative coordinates can be used to represent and locate positions in two-dimensional space.</td></tr>
<tr><td>Know:<br>Cartesian axes extend beyond zero to create four infinite quadrants.</td><td>Do:<br>Plot and describe (using coordinate notation) the location of points in 2D space, on paper or outdoors, on a grid across four quadrants.</td><td>Know:</td><td>Do:<br>Describe, using coordinate notation, the location of vertices of 2D shapes plotted on a four-quadrant grid, on paper or outdoors.<br><br>Visualise and identify the position of vertices of 2D shapes using known properties. For example, locating the position of the fourth vertex of a rectangle when the positions of the other three are known.<br><br>Solve problems in geometric contexts using known properties of 2D shapes. For example, visualising and finding the possible positions of the fourth vertex of a kite when the other three are known.</td></tr>
<tr><td colspan="4">Notes<br>An infinite 2D flat space, with no thickness can be described as a plane. Although it is an abstract idea, faces of 3D objects form part of a plane. Cartesian coordinates can be used to describe the position of a point on a plane.<br>Initially find the missing vertex of quadrilaterals where there is only one solution, before moving on to other polygons and examples which have more than one possible solution.<br>Describing the position of points in 3D space by introducing a third Cartesian axis ($z$-axis) and using sets of three coordinates could be discussed and visualised, for example, using the walls of a classroom as a frame of reference.<br>Make connections to the use of digital design tools in Design and Engineering (Technologies).<br>New key mathematical language (Learners)<br>quadrants</td></tr>
</table>

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<table>
<tr><td></td><td colspan="4">Properties of shapes and solids</td></tr>
<tr><td rowspan="4">Third Level</td><td colspan="4">Understand: Relationships between the properties of 2D shapes and 3D solids allow unknown measurements to be calculated and shapes to be represented, analysed and constructed.</td></tr>
<tr><td>Know:</td><td>Do:<br>Draw accurately equilateral, isosceles and scalene triangles using a ruler, compasses and a protractor, given the lengths of their sides and/or the sizes of their angles.</td><td>Know:<br>A prism is a 3D object with a uniform polygonal cross-section along its length.</td><td>Do:<br>Identify, from a collection of physical and drawn 3D objects and everyday items, which ones are prisms and explain why others are not prisms.<br><br>Identify, from a collection of nets, those which would fold to make cubes, cuboids and triangular prisms and connect this to packaging of everyday items.</td></tr>
<tr><td>Rotational symmetry is when a shape matches itself exactly when turned less than 360 degrees around a centre point.</td><td>Complete and create symmetrical designs with one and two diagonal lines of symmetry.<br><br>Visualise, predict and check the appearance of 2D shapes after 90 degree rotations clockwise and anticlockwise.</td><td>The order of rotational symmetry is the number of times a shape or design fits into its own outline during a full turn.</td><td>Describe the rotational properties of shapes, pictures and patterns, including the order of rotation.<br><br>Complete and create designs using rotational symmetry.</td></tr>
<tr><td colspan="4">Notes<br>The accurate construction of triangles is designed as an opportunity to explore and connect geometrical properties of triangles and measuring skills in a practical, open-ended way.<br>When an object is transformed by reflection or rotation, its ‘image’ is created. This language can be useful when describing reflections and rotations.<br>Include examples which do and do not have rotational symmetry.<br>A cylinder is not a prism as its cross-section is not a polygon.<br>An awareness of the five Platonic solids is not required. However, they may be a useful focus for enrichment activities given their historical significance, perfect symmetry and mathematical uniqueness.<br>New key mathematical language (Learners)<br>interior angles, rotational symmetry, prism, polygonal cross-section</td></tr>
</table>

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<table>
<tr><th></th><th colspan="4">Proportional reasoning</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Proportional relationships determine how quantities that scale together are modelled, represented and analysed.</td></tr>
<tr>
<td>Know:<br>A rate is a compound unit of measurement that connects proportionally two variables.<br><br>The distance an object travels in a given time is directly proportional to its average speed.</td>
<td>Do:<br>Model and solve practical problems involving rates in the context of measurement. Find values of variables which are directly proportional to another by using rates (such as average speed, cost per unit, pay per hour, flow rates and density) that link those variables. For example, finding the distance travelled in two and a half hours at an average of 36 miles per hour.<br><br>
<br><br>Or finding how much energy an appliance uses in six hours if it uses 2.5 kWh per hour<br><table><tr><th>Time (hrs)</th><th>Energy(kWh)</th></tr><tr><td>1</td><td>2.5</td></tr><tr><td>6</td><td>6 × 2·5 = 15</td></tr></table></td>
<td>Know:<br>A linear scale factor is a number which is used as a multiplier when scaling length.</td>
<td>Do:<br>Calculate scaled and life-size measurements in real-life contexts using a given linear scale factor. For example, using measurements made in school grounds to create a scaled plan.</td>
</tr>
<tr>
<td>Directly proportional relationships can be modelled graphically by plotting one variable against the other. These will take the form of straight lines that pass through the origin.</td>
<td>Interpret conversion graphs to find the value of one variable given another.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two variables are inversely proportional if they have a constant product.<br><br>The time taken to travel a given distance is inversely proportional to average speed.</td>
<td>Model and solve practical problems involving rates in the context of measurement. Find values of variables which are inversely proportional to another by using a pair of corresponding values that link those variables. For example, when a container can be filled in 12 minutes using a flow rate of 15 litres per minute finding the flow rate needed to fill the container in 10 minutes.<br><table><tr><th>Time (minutes)</th><th>Flow rate (litres per minute)</th></tr><tr><td>12</td><td>15</td></tr><tr><td>1</td><td>15 × 12 = 180</td></tr><tr><td>10</td><td>180 ÷ 10 = 18</td></tr></table>Required flow rate is 18 litres per minute.<br><br>Or, when a journey takes 4 hours if travelled at an average speed of 48 miles per hour, finding the</td>
</tr>
</table>

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| | | | | |
|---|---|---|---|---|
| | | | | average speed needed to be complete the journey in three and a half hours.<br>**Time (hours)** / **Average Speed (mph)**<br>4 / 48<br>1 / 48 × 4 = 192<br>3.5 / 192 ÷ 3.5 = 54.85… So just under 55 mph |

**Notes**
This section should be taught alongside proportional reasoning from Quantity, Numbers and the Algebraic Properties of Number.
The calculation of speed, distance and time is approached here as simply a particular case of proportional reasoning – the same reasoning that can be applied to any rate. These calculations are covered in more detail within the Forces section of The Physical World in Science.
Bar models provide a spatial representation of the behaviour of proportional variables and proportion tables can assist the organisation of thinking.
Proportion graphs can be used as ready reckoner to aid efficient calculation. Examples might include exchange rates, travel at a constant speed, cost of items based on a unit cost.
**New key mathematical language (Learners)**
rate, variables, linear scale factor, directly/inversely proportional, straight line, origin

## Measures

**Understand:** Relationships between dimensions determine how perimeter, area and volume are calculated and used to quantify spaces.

**Third Level**

| Know: | Do: | Know: | Do: |
|---|---|---|---|
| The areas of triangles and parallelograms are calculated using the product of their perpendicular dimensions.<br><br>The volume of cubes and cuboids can be calculated by finding the product of their perpendicular dimensions. This relationship can be described algebraically using the formula $V = lbh$ (Volume = length × breadth × height) | Calculate the area of triangles and parallelograms.<br><br>Solve contextualised problems involving the volume of cubes and cuboids.<br><br>Calculate the volume of composite 3D solids constructed from cubes and cuboids. | A volume of one cubic centimetre holds one millilitre. | Solve contextualised problems involving the perimeter of compound shapes made up of squares and rectangles.<br><br>Calculate the area of compound shapes involving squares, rectangles and triangles.<br><br>Model and solve contextualised problems involving the quantity of liquid, in millilitres and litres, in containers which take the form of cubes and cuboids. |

**Notes**
The areas of quadrilaterals can be approached through viewing them as compound shapes involving triangles or linking them with their surrounding rectangles. There are other connections that can be made, for example a rhombus is a compound shape made up of two (or four) identical triangles, but it is also a special case of a parallelogram.
Connect the algebraic approach to volume calculations with substitution and the use of formulae within Quantity, Numbers and the Algebraic Properties of Number.
One millilitre of water has a mass of one gram. This connection is not required knowledge but could be explored if appropriate.
**Includes but is not limited to**
Solving perimeter problems which include finding missing dimensions.
Finding the area of shapes which include negative spaces, for example, a rectangle with a square removed.
Calculations involving volume with dimensions given in differing units.
Calculating one dimension of a cuboid given its volume and the other two dimensions, or the volume and the area of one of its faces.
**New key mathematical language (Learners)**
perpendicular dimensions, compound shapes

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**Third Level**

**Understand:** Irrational numbers are needed to describe exactly the relationships between the radius, circumference and area of a circle, enabling calculations to be carried out with appropriate precision.

| Know: | Do: | Know: | Do: |
|---|---|---|---|
| Irrational numbers cannot be expressed as the ratio of two integers and take the form of decimal fractions that are never ending and do not repeat.<br><br>Irrational numbers can be expressed symbolically to indicate their exact value.<br><br>Pi ($\pi$) is the ratio of the circumference of any circle to its diameter and is an example of an irrational number.<br><br>Pi ($\pi$) is also the ratio of the area of any circle to the square of its radius. | Measure the circumference and diameter of a range of circular objects and calculate an approximation of the ratio of the of the circumference to the diameter in each case.<br><br>Explore the nature of the value $\pi$, the ratio $\frac{C}{D}$, where C represents the circumference and D represents the diameter of a circle.<br><br>Calculate the circumference of circles using the relationship $C = \pi D$.<br><br>Calculate the area of circles using relationship $A = \pi r^2$. | | Calculate the diameter or radius of circles given their circumference or area using the relationships $C = \pi D$ and $A = \pi r^2$.<br><br>Model and solve contextualised problems which involve calculating the circumference, area, radius or diameter of a circle. |

**Notes**
The historical, worldwide search to understand the relationships within circles, particularly the ratio of circumference to diameter pi ($\pi$), provides a meaningful context for exploring mathematics across cultures and time.
Attempts to find ever more accurate representations of pi ($\pi$) demonstrate the development of computational speed and power in more recent times.
Connect the algebraic approach to circle calculations with substitution and the use of formulae within Quantity, Numbers and the Algebraic Properties of Number .
Stress the effect of premature rounding or truncation on the precision of answers to calculations, for example, when using different approximations of pi ($\pi$).
**Excludes**
Formally changing the subject of the area formula, as this is a two-step rearrangement, however connections should be made to squares and square roots.
**New key mathematical language (Learners)**
irrational numbers, pi ($\pi$)

**Third Level**

**Understand:** Relationships between units of time can be used to estimate, calculate and reason about duration.

| Know: | Do: | Know: | Do: |
|---|---|---|---|
| Timetables and other sources of information can be used to plan and make decisions. | Make calculations involving time durations, to the nearest minute within the same day, extending to calculations across midnight, using a time line if required. For example, calculation the time duration between 07:32 and 15:13.<br><br>Make calculations involving time durations in months and days between pairs of dates using a calendar. For example, finding the date of the end of a period of 45 days which starts on the 23rd February in a given year.<br><br>Model, plan and evaluate the time management of events and journeys using timetables, calendars and other tools and schedules, for example, days out, workdays, multi-stage journeys. | | Make calculations involving lengths of time to an appropriate degree of accuracy within real-life contexts, for example, when planning a journey made up of different stages. |

**Notes**
Spatial approaches, such as using a time line, continue to be appropriate for calculations at this level.
A range of workplace contexts and everyday life situations where time management is particularly important could be explored, for example, construction projects, food production, travel planning.
**Includes but is not limited to**
Calculating durations, calculating the time that a duration ends and calculating the time that a duration begins.
**New key mathematical language (Learners)**
timetables, planning

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<table>
<tr><td>Strand</td><td colspan="4">Information, Data and Uncertainty<br>Information and data are everywhere. They influence our decisions and predictions, and help us analyse and interpret the world around us. Probability helps us navigate uncertainty and risk. By providing structured methods, mathematics allows us to collect, organise, analyse and represent information accurately and objectively. Statistics help us identify and make sense of patterns and trends, measure variation, and draw reliable conclusions.</td></tr>
<tr><td></td><td colspan="4">Data management</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="4">Understand: Representative samples reflect the characteristics of a wider population, supporting conclusions about that population.</td></tr>
<tr><td>Know:<br>In statistics, a population is the entire group of individuals or items that is being studied. A sample is a smaller group, drawn from a larger population. This is used to gather data and draw conclusions without needing to study the entire population.<br><br>The reliability of conclusions depend on both how data is collected and from whom it is collected.<br><br>Sample size can impact the reliability of the conclusions that can be drawn.<br><br>Technology can enable the efficient storage and organisation of large data sets.</td><td>Do:<br>Begin to develop an awareness of how the size of a sample can affect the reliability of conclusions drawn from data sets and the cost and time implications of collecting that data.<br><br>Examine surveys and identify how question design and sample selection may affect the reliability of conclusions.<br><br>Analyse how technology has been used to organise given data sets by describing the variables, identifying their data types and stating the number of data points.</td><td>Know:<br>A representative sample accurately reflects the key characteristics of a population.<br><br>Conclusions about a wider population are only reliable if a representative sample has been chosen.</td><td>Do:<br>Identify features of data collection scenarios that would be likely to make a sample more representative and explain why these features are important.<br><br>Identify examples where conclusions could be unreliable due to an unrepresentative sample being taken, explaining how this could affect decisions and actions, for example, where only former university students have been sampled when collecting data about average income of adults.</td></tr>
<tr><td colspan="4">Notes<br>When collecting data for specific purposes, sample size and representation should be kept in mind.<br>Examples of sampling could include opinion polls, environmental surveys, market research.<br>The difference between sample sizes, such as asking for the opinion of 10 people compared to 1,000 people should be discussed. The sample sizes used in adverts and opinion polls could be investigated.<br>Simple ways of making samples more representative could be including people of different ages and collecting environmental data from a range of outdoor locations.<br>Make connections to Evidence and Enquiry within in Social Studies, in particular the factors that influence the collection and presentation of evidence, for example, ways to ensure that the perspectives of relevant groups of people are considered and represented, ways to ensure that data collection methods are accessible for all, consideration of what data is included or omitted.<br>New key mathematical language (Learners)<br>statistics, sample, sample size, variables, data points, representative sample, conclusions, population</td></tr>
</table>

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**Third Level**

**Understand:** Different types of data require different forms of organisation and representation to communicate information.

**Know:**
Compound line graphs can be used to compare trends in two or more numerical variables over time.

Frequency tables can be extended to include calculated proportions.

Pie charts can be used to show the relative proportions of categorical data.

**Do:**
Create compound line graphs, using a spreadsheet, to represent trends of two or three sets of related numerical data.

Collect and organise data sets using frequency tables which include calculated proportions. For example, having recorded how many times each colour appears in a spinner experiment, calculating the proportion for each.

| Colour | Tally | Frequency | Proportion |
|---|---|---|---|
| Red | 𝍸 𝍸 \| | 14 | $\frac{14}{28} = 50\%$ |
| Blue | 𝍸 \| | 8 | $\frac{8}{28} = 28.6\%$ |
| Green | 𝍸 | 6 | $\frac{6}{28} = 21.4\%$ |
| **Total** | | **28** | |

Create pie charts, using a spreadsheet, to show and describe the relative proportions of categorical data, for example, a pie chart showing the world's population by continent.

**Know:**
Bivariate data links two variables as an ordered pair.

Bivariate data can be plotted on a scatter graph to investigate the possible relationship between two variables.

**Do:**
Identify, from given data sets and representations, the variables included in bivariate data pairs. Discuss and predict in what way(s) the variables might be connected. For example, the age and height are recorded for each person in a group. For learners and younger people, their height could depend on their age.

Create scatter graphs to represent given and collected sets of bivariate data, initially by hand and moving on to using spreadsheets.

Identify the data types within collected and given data sets. Select and justify representations that best support interpretation and communication of that data.

**Notes**
Made connections to other curricular areas when choosing and creating representations of data, for example, graphing measurements collected over time in a science experiment in a line graph, presenting categorical data collected in a business themed survey using a bar chart, exploring the link between a country's Gross Domestic Product (GDP) per capita and their $CO_2$ emissions per capita by using bivariate data sourced online.

**New key mathematical language (Learners)**
compound line graphs, frequency tables, pie chart, proportion, categorical data, spreadsheet, trends, numerical data, bivariate data, scatter graph

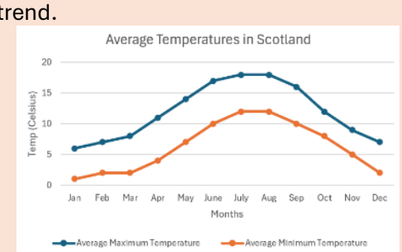
## Data analysis and interpretation

**Third Level**

**Understand:** Graphical representations reveal trends in data that support comparison and inform predictions.

**Know:**

**Do:**
Interpret given and created compound line graphs by describing the trends. For example, graphing the maximum and minimum average temperatures in Scotland and noting that the graph shows that both the maximum and minimum temperatures follow the same trend.




Interpret given and created pie charts describing the relative proportions of each category within a single data set. For example, over half the world's

**Know:**
Statistical correlation describes the strength and direction of the relationship between two variables. The existence of a correlation does not imply that a change in one variable causes a change in the other.

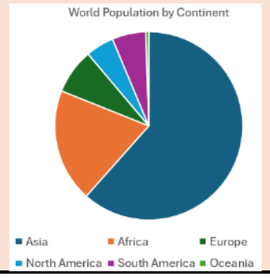
Where a correlation exists, a line of best fit on a scatter graph can be used to depict the linear relationship between two variables.

**Do:**
Identify and describe strong and weak positive and negative correlations from the spatial patterns within given and created scatter graphs and recognise when there is no apparent correlation. Reflect on how these match predictions made.

Describe correlations using appropriate language and consider whether causation is or is not likely. For example, there is a strong positive correlation between the number of hours learners spent revising and the marks learners achieved in a test. In general, the more they studied, the higher the marks they scored.

Where a strong positive or negative correlation is present, add a line of best fit by eye to given scatter graphs. Estimate expected values of one variable given the other using lines of best fit.

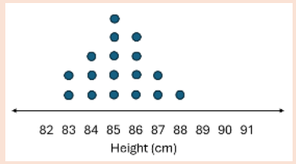
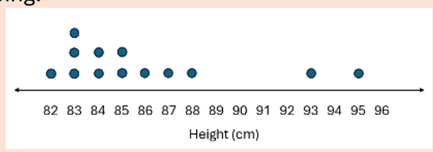
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| | | | | |
|---|---|---|---|---|
| | | population lives in Asia and the smallest proportion lives in Oceania.<br> | | |
| | **Notes**<br>The line of best fit is an estimation rather than a calculation. A common misconception is that lines of best fit must pass through the origin. Trend lines could be added to scatter plots created using spreadsheets for extra practice.<br>Make connections to other curricular areas and Probability experiments when looking at proportions in data sets, for example, charts displaying voting shares from an election, UK market shares in sales of certain technological devices, proportions of land used for different purposes in the local area, the proportions of each outcome in probability experiments.<br>Initial examples of pie charts should use clearly distinct proportions so that relative proportions can readily be identified and described.<br>**Excludes**<br>The equation of the line of best fit is not required.<br>Pie charts with too many categories – aim to use those with 5, 6 or 7 categories.<br>**New key mathematical language (Learners)**<br>compound line graphs, trends, pie chart, proportion, statistical correlation, line of best fit, scatter graph, causation | | | |
| **Third Level** | **Understanding:** The ways in which data is collected, selected and represented can influence interpretation and can clarify or distort the conclusions drawn. | | | |
| | **Know:**<br>Features such as scales, intervals, labels and choice of graph affect how data is interpreted.<br><br>Different graphical representations can illustrate different features of the same data. | **Do:**<br>Evaluate graphs and charts, explaining how their features support accurate interpretation or may create misleading impressions.<br><br>Compare different representations of the same dataset and explain how each supports or limits interpretation. | **Know:**<br><br><br>Data can be selectively presented to emphasise particular trends, patterns or conclusions.<br><br>The reliability of conclusions depends on both the data collected and the way it is represented. | **Do:**<br>Create different representations of the same dataset and justify which is most appropriate for a given purpose and audience.<br><br>Identify and explain sources of potential bias or misrepresentation within data displays.<br><br>Analyse different representations of data, including graphs and charts, and justify whether the conclusions drawn are supported by the data presented. |
| | **Notes**<br>At this level, comparisons could be made between frequencies and proportions through use of bar charts and pie charts, but the benefits and drawbacks of other types of visualisations could be discussed. | | | |

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**Third Level**

**Understand:** The distribution of numerical data influences which statistical measures best describe and compare data sets.

| Know: | Do: | Know: | Do: |
|---|---|---|---|
| The distribution of a data set describes how its data is spread out or arranged.<br><br>The distribution of a data set can be represented graphically.<br><br>The median of an even sized, ordered data set is the mean of the two central values.<br><br>The mean of a data set is affected by unusually low or high values. Where this is the case, the median provides a more reliable average of the data set. | Describe the distribution of numerical data sets given their spatial pattern shown by dot plots. For example, for this group of learners, their heights are grouped between 83 and 88 cm, with most heights being the central values of 85 to 86 cm.<br><br><br>For this group of learners, most of their heights are clustered between 82 and 88 cm, but there are two particularly tall learners that lie outside of this grouping.<br><br><br>Find the median of numerical data sets with any number of data items, by ordering the data and identifying the middle value(s).<br><br>Calculate the mean and median of data sets to investigate the impact unusually high or low values have on these averages.<br><br>Select, calculate and justify the most appropriate average for small data sets, for example, choosing to find the median number of steps walked in a day if one pupil records an unusually high step count. | Sets of data can be described in terms of their calculated average (mean or median), their mode and their spread (range).<br><br>Spreadsheets can be used to calculate averages and measures of spread. | Describe sets of data by calculating appropriate averages and measure of spread by numerical calculation and by using a spreadsheet.<br><br>Interpret data, including calculated averages and measures of spread in context, for example, the ages of learners using park equipment. |

**Notes**
Averages can be described as measures of central tendency. The range, as a measure of spread, is often (mistakenly) interpreted as an average.
**Exclude**
The terms normal, skewed and outlier.
**New key mathematical language (Learners)**
distribution of data, median, mean, dataset, numerical data, dot plot, spatial pattern, average

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| | Probability | | | |
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| Third Level | **Understand:** Experimental data informs estimates of probability, supporting predictions about future outcomes. | | | |
| | **Know:**<br>Outcomes of a single event are mutually exclusive if only one of them can happen at any one time.<br><br>For equally likely, mutually exclusive outcomes, the probability of a given event occurring is found by dividing the number of favourable outcomes by the total number of possible outcomes.<br><br>If the outcomes of an event are mutually exclusive, the sum of their probabilities is 1. | **Do:**<br>Identify mutually exclusive outcomes in a single event and represent these in a diagram, for example, creating a tree diagram to show that a card drawn from a standard pack of 52 playing cards must be from one of four possible suits.<br><br>Determine and justify the probability of an event using existing knowledge of possible outcomes, for example, finding the probability of selecting a blue counter from a bag containing counters of different colours.<br><br>Check calculated probabilities of mutually exclusive outcomes of events by using the fact that the probabilities of all these possible outcomes should add to 1.<br><br>Calculate probabilities of mutually exclusive outcomes by using the total probability of 1, for example, if the probability of winning is 0·2 then the probability of not winning is 0·8. | **Know:**<br>Relative frequency is the proportion of times a specific event occurs compared to the total number of observations.<br><br>The probabilities of more unpredictable events are more difficult to calculate and can be determined through experimental trials where the relative frequency of events is measured.<br><br>Once known or calculated, probability can be used to estimate the expected frequency of an event happening. | **Do:**<br>Explain why some probabilities are difficult to calculate due to the number of affecting factors, for example, the insurance risk of a particular driver or the risk of a construction project going over budget.<br><br>Estimate, using experimental data, probabilities through relative frequency, noticing how increasing the number of trials increases the likely accuracy of these estimates, for example, recording which way a loaded dice lands.<br><br>Estimate expected frequencies using calculated probabilities and interpret what this suggests about likely outcomes, for example, using the probability of matching three balls in the National Lottery to estimate the likely number of winners given the number of entries. |
| | **Notes**<br>Make connections between relative frequency and a proportion shown on a pie chart.<br>Experiments with unknown probabilities could include, dropping a drawing pin to land pin up or pin down, predicting the nature of an incomplete deck of cards by observing the number of red and black cards drawn at random or dropping a small item to see if it lands inside, outside or on a circular target.<br>**New key mathematical language (Learners)**<br>mutually exclusive outcomes, mathematical modelling, relative frequency | | | |

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# Religious Education Roman Catholic Know-Do-Understand Strands

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| **Strand** | **Seeking God's Presence in Our Lives**<br>***"Finding God in all things" - St Ignatius***<br>God is present throughout creation and creation is continually drawn towards its Creator. Although the misuse of human freedom has introduced sin and suffering into the world, salvation through Jesus Christ enables us to know, love and serve God in this life and to share eternal life with Him. | |
| **Third Level** | **Understand:** The wonder of our creation and the mystery of the trinity are signs of God's invitation to relationship. | |
| | **Know:** In scripture *, Jesus teaches us about wonder and mystery in life and points us to a personal relationship with God (Father, Son and Holy Spirit).<br><br>Our gifts and talents reveal God's presence in our lives and help us to discern our vocation. | **Do:**<br>Reflect prayerfully on God's presence in our lives using Scripture, the Catechism and the example of faith witnesses.<br><br>Ask meaningful questions about how Saints and Holy people understood their gifts and talents and put them into action to fulfil God's work.<br><br>Discern how our own gifts and talents will be used now and in our own future. |
| | **Notes**<br>***** See Third Level Scripture text. | |

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| **Strand** | **Knowing we are made in God's Image**<br>***"Our Lord does not come down from Heaven every day to lie in a golden ciborium. He comes to find another heaven which is infinitely dearer to Him - the heaven of our souls, created in His Image" -St Therese of Lisieux***<br>Created in the image and likeness of God, every person possesses equal dignity, unique gifts and a personal vocation to live life to the full. Although original sin inclines humanity towards sin, the Holy Spirit strengthens and guides us to overcome it and grow towards full communion with God through Jesus Christ. | |
| **Third Level** | **Understand:** Human dignity, conscience and vocation shape how Christians live as disciples and serve the Kingdom of God. | |
| | **Know:** Human dignity comes from being created by God and that God desires a relationship with every person as His equal in dignity and worth.<br><br>When I respect God's creation, including myself, others and the planet, I am growing in the likeness of Jesus.<br><br>True fulfilment and happiness can only be found in responding to God's call.<br><br>Every human person is unique, with God-given gifts and talents, and equal in dignity as a son or daughter of God. *<br><br>God calls every person to a particular vocation through which they build the Kingdom of God.<br><br>Each of us is inclined to sin which is a misuse of freedom. | **Do:**<br>Explore and respond to the Christian belief that God has created all human beings in the image and likeness of Himself*.<br><br>Interpret Old Testament passages* to identify characteristics of God and explain how these are reflected in humanity as God's image and likeness.<br><br>Reflect on the image of God as Father and describe what it means to be called to be a son/daughter of God, through Christ.<br><br>Identify and appreciate the gifts and talents God has given myself and others and how these can be used to respect God's creation or to offend it.<br><br>Describe my personal response to the Christian understanding of vocation as 'God's plan' for us.<br><br>Reflect on how we can use our body, mind and soul in the hope of achieving eternal happiness with God and how this understanding should affect a Christian's life and action.<br>Identify examples of discrimination today and demonstrate how, like Jesus, our gifts and talents can be used to actively challenge this.<br><br>Explore the ways in which we need others to develop in both body and spirit (CCC1936).<br><br>Explain how conscience informs how we use our gifts and talents to benefit and to protect the dignity of others. |
| | **Notes**<br>***** See Third Level Scripture texts. | |

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| **Strand** | **Believing in One God revealed to us**<br>***Faith is to believe what you do not yet see; the reward for this faith is to see what you believe." – St Augustine***<br>God reveals Himself throughout history as Father, Son and Holy Spirit, inviting humanity into relationship with Him. This revelation reaches its fullness in Jesus Christ, and the Church, guided by the Holy Spirit, continues to proclaim and deepen our understanding of God's truth. | | |
| **Third Level** | **Understand:** God reveals His loving and saving nature through key people, events, and covenants in the Old and New Testament and how these deepen understanding of the nature of the Trinity. | | |
| | **Know:**<br>God reveals Himself to humanity though creation and relationships in the Old Testament and New Testament.<br><br>*Christians read Old Testament considering Christ crucified and risen.<br><br>Key events in the New Testament* that reveal God as Father, Son, and Holy Spirit. | **Do:**<br>Explore instances of revelation and explain in your own words how these reveal the Loving and Saving nature of God.<br><br>Pray and reflect on these events to develop a relationship with God as Father, Son and Holy Spirit. | |
| | **Notes**<br>***See Third Level Scripture texts. | | |

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| **Strand** | **Encountering the life, death and resurrection of Jesus Christ**<br>***"The Cross is the school of love"- St Maximillian Kolbe***<br>Jesus Christ is fully divine and fully human, revealing God's love through His life, death and resurrection. Through Baptism, believers enter into God's life and share in Christ's mission. In raising Jesus from the dead, God conquers sin and death, offering humanity redemption and the hope of eternal life as His sons and daughters. | | | | | |
| **Third Level** | **Understand:** Jesus is truly human and truly divine; Our Saviour who brings the New Covenant and what that means for us. | | **Understand:** The connection between the ministry, passion, death and resurrection of Jesus culminate in the Paschal Mystery. | | **Understand:** Studying the world 2,000 years ago helps us truly understand who Jesus was, why His message was so unexpected, and how His life still transforms ours today. | |
| | **Know:**<br>The divine nature of Jesus cannot be separated from his humanity.<br><br>The Titles of Jesus as Son of God/Son of Man.<br><br>Mary was preserved from Original Sin and redeemed from the moment of her Immaculate Conception.<br><br>Mary was assumed bodily into heaven and into the glory of the resurrection. | **Do:**<br>Explain why Jesus is the "Saviour who brings the New Covenant".<br><br>Pray and reflect on Jesus as God and Saviour.<br><br>Explore the inseparability of Jesus' human and divine nature in key Scripture* passages.<br><br>Explain Mary's unique role in salvation history.<br><br>Honour Mary through prayer and devotion. | **Know:**<br>The connection between the Ministry, Passion, Death and Resurrection of Jesus.<br><br>The presence of the Holy Spirit in the Ministry, Passion and Death of Jesus and the beginning so of the Church.<br><br>The mysteries of Christ's life culminate in the Paschal Mystery. | **Do:**<br>Explore and explain key events during the Ministry, Passion, Death and Resurrection of Jesus.<br><br>Identify the influence of the Holy Spirit in key events in the life and passion of Jesus and the beginnings of the Church.<br><br>Explain how the Holy Spirit strengthened Christ followers after his death.<br><br>Explore how this belief influences our own life and relationship with God. | **Know:**<br>What life was like for a Jewish family living at the time of Jesus.<br><br>The social, political and religious situation in Palestine at the time of Jesus.<br><br>The meaning of Jesus as Messiah.<br><br>John the Baptist prepared the way for Jewish people to understand Jesus as Messiah. | **Do:**<br>Research and describe aspects such as family life, geography of the land, tension between religious groups.<br><br>Explain how these factors influenced the lives of Jewish people at the time.<br><br>Explore Old Testament scripture passages* that reference the Messiah.<br><br>Assess the importance of John the Baptist's role and message reflecting on Old and New Testament passages*. |
| | **Notes**<br>* See Third Level Scripture texts. | | **Notes**<br>*See Third Level Scripture texts. | | **Notes**<br>*See Third Level Scripture texts. | |

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<table>
<tr><td>Strand</td><td colspan="3">Nurturing faith through Church and the Sacraments<br><br>“Our redeemer’s visible presence has been passed into the Sacraments.” - St Leo the Great<br><br>The Church proclaims and teaches the faith, nurturing believers in their relationship with God. Through the seven Sacraments, established by Christ and entrusted to His Church, believers encounter Christ and participate in the mystery of His death and resurrection, receiving the grace to grow in faith and live as His disciples.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="3">Understand: The Church continues Christ's mission through Word, Sacraments and service.</td></tr>
<tr><td>Know:<br>The sacraments provide important encounters with Christ throughout life.<br><br>The Church makes Jesus’ presence in the world visible through its actions.</td><td colspan="2">Do:<br>Reflect on the significance and effects the sacraments have on my own life and faith development. *<br><br>Consider and express how I can participate more fully in the sacraments.<br><br>Explain how the sacraments help us to understand God’s gift and message of transforming and saving love.<br><br>Describe the way in which God communicates through the signs and symbols used in the Sacraments and the Church.<br><br>Explain how the Holy Spirit guides the Church to continue the mission of Jesus as: The People of God, The mystical Body of Christ and The Temple of the Holy Spirit*<br><br>Describe how the Church helps to support and nurture communities in their faith and everyday life through parishes, dioceses and organisations.<br><br>Explore the role and witness of the Church through Church teaching on vocation, marriage and family.<br><br>Reflect on the ways I can use my gifts and talents to participate in the life of the Church.</td></tr>
<tr><td colspan="3">Notes<br>* See Third Level Scripture Texts<br><br>*See stage specific core learning relating to the Seven Sacraments:<br><br>S1: Detailed focus on Sacraments of Initiation<br><br>S2: Detailed focus on Sacraments of Service<br><br>S3: Detailed focus on Sacraments of Healing</td></tr>
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<tr><td>Strand</td><td colspan="4">Exploring the Word of God:<br><br>“Ignorance of Scripture is ignorance of Christ.”–St Jerome<br><br>Inspired by the Holy Spirit, Sacred Scripture reveals God's plan of salvation and speaks to His people in every age. United with Sacred Tradition, the Word of God nourishes and strengthens faith, leading us to a deeper understanding of God's mystery and guiding Christian life.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: The literary forms, context and purpose of Scripture help reveal God's message more deeply.</td><td colspan="2">Understand: God speaks through Scripture, calling people to witness, discipleship and mission today.</td></tr>
<tr><td>Know:<br>The Bible reveals God's love and His plan for humanity.<br><br>The Old Testament tells of God's covenant with His people, and the New Testament reveals the New Covenant in Jesus Christ.<br><br>God acted in and through the writers of the Bible through inspiration of the Holy Spirit.</td><td>Do:<br>Develop an awareness of literary forms which gives me a deeper insight into the meaning of the texts*.<br><br>Describe the literary forms found in the Synoptic Gospels.<br><br>Reflect and pray with Scriptural texts* to better understand the nature of God and his Covenant.</td><td>Know:<br>God spoke to people in the past and continues to guide us through Scripture today.<br><br>Scholars believe St Mark was influenced by St Peter's preaching and wrote his Gospel for persecuted Christians in Rome.<br><br>A central theme of St Mark's Gospel is that Jesus is both fully divine and fully human.</td><td>Do:<br>Explore key Biblical texts* to discover ways in which God ‘spoke’ or communicated His will to people in the Old and New Testaments*.<br><br>Explore and evaluate how the Saints and holy men and women have ‘heard’ God through Scripture.</td></tr>
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| | The Scriptures are preserved and handed on by the faith of the members of the Church in both written and oral forms ("Traditio"). | Explain the role of the Church in interpreting the Scriptures.<br><br>Describe how Scripture nurtures faith.<br><br>Reflect and pray using Scripture and Tradition to guide me in life. | Scholars suggest that St. Luke was a convert to Christianity (from a non-Jewish background) and wrote his Gospel for all people, especially non-Jews.<br><br>The main theme of St. Luke's Gospel is that Jesus brings God's saving love for everyone. | Evaluate the purpose and value of reading about the life, death and Resurrection of Jesus and the development of the early Church in the New Testament.<br><br>Explain why it is important to understand the background to the Gospels of St. Mark and St. Luke.<br><br>Describe a personal response to the message of St. Luke's Gospel.<br><br>Explore and evaluate the relevance of the New Testament in contemporary life and how Christians can discern how Jesus might respond to contemporary issues.<br><br>Pray using passages from the New Testament. |
| | **Notes**<br>* See Third Level Scripture Texts. | | **Notes**<br>* See Third Level Scripture Texts.<br><br>New Testament relevance to contemporary life: learners should research organisations or communities who explicitly link New Testament passages to contemporary issues e.g. Irish Jesuits website | |

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| **Strand** | **Responding through Prayer, devotion and Liturgy**<br><br>***You have made us for yourself O Lord and our heart is restless until it rests in you"-St Augustine***<br><br>Prayer, sacred spaces and liturgy nurture our relationship with God and enable us to respond in praise and worship to the Father, Son and Holy Spirit. Through the Liturgy, Christ's saving work is made present, most fully in the Eucharist, where Christ's sacrifice unites the prayer, work and lives of the faithful. | |
| **Third Level** | **Understand:** Prayer, liturgy, and the Sacraments help us encounter God, reflect on our lives, and respond to Christ. | |
| | **Know:**<br>The Prayer of the Church has various forms, planned moments and ways to pray that build our relationship with God.<br><br>The meaning of the Church as a "pilgrim people" and the place and importance of prayer in pilgrimage.<br><br>Mary's place in the Church's liturgy and prayer life of Christians.<br><br>The Mass is both a sacred meal and a sacrifice in which Christ is present.<br><br>The roles of the participants at Mass and the meaning of ritual and symbol used within the Sacred Liturgy of the Church.<br><br>The cycle of the liturgical calendar celebrates all of Christ's life, death resurrection and future coming. | **Do:**<br>Participate in the different forms of the Prayer of the Church including certain prayers and devotional practices**.<br><br>Describe the importance of prayer in the liturgical life of the Catholic Church and how prayer strengthens my faith.<br><br>Assess how the use of common language for prayers strengthens communion of the universal Church.<br><br>Interpret some of Mary's titles, feast days and Scripture passages* and explain how these teach us about her role and the life and mission of Jesus.<br><br>Articulate the significance of aspects of Church buildings being dedicated to Mary.<br><br>Reflect on the place of Mary in liturgy by exploring scriptural passages and prayers referring to Mary within liturgy.<br><br>Explain the significance of the Mass for human salvation.<br><br>Prepare for, lead and participate in liturgies, Sacraments, worship and prayer throughout the liturgical year using symbols and rituals appropriately.<br><br>Explored the liturgies from Holy Week, Easter, Advent and Christmastide and can explain their importance for Christians. |
| | **Notes**<br>*See Third Level Scripture Texts. | |

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<tr><td>Strand</td><td colspan="6">Journeying to Holiness through Christian Living<br><br>“If you are who God meant you to be then you will set the world aflame.” – St Catherine of Sienna<br><br>Christians are called to holiness and to participate in building God's Kingdom of justice, love and peace. Grounded in the Beatitudes, this calling begins with conversion of heart and bears fruit in self-giving love, reconciliation and compassionate service of those in need.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: The teachings of Christ challenge us to transform the world.</td><td colspan="2">Understand: Our experience of wisdom and compassion affect how we live.</td><td colspan="2">Understand: Forgiveness and reconciliation restore our relationship with God and others.</td><td colspan="2">Understand: Church teaching moral decisions and actions.</td></tr>
<tr><td>Know:<br>The importance of Jesus summarising the Ten Commandments as “love of God and love of others”.<br><br>Charity is one of the fruits of the Holy Spirit.</td><td>Do:<br>Explain, using scripture what Jesus meant by the term "The Reign (or Kingdom) of God"* and how the Beatitudes and the new commandment of love* are central to this.<br><br>Research the witness of one or more Saints whose lives were transformed by the Gospel.<br><br>Using Scripture*, prayerfully reflect on responses which I and others can make to the gift of faith.<br><br>Describe ways in which Christian organisations have responded to the promptings of the Holy Spirit to show love for the poor and the oppressed.<br><br>Evaluate what impact this learning will have on your actions and apply Jesus’ teaching through faith witness with local and international charities.</td><td>Know:<br>The meaning of compassion.<br><br>Jesus’ suffering and death are the greatest example of compassion.<br><br>How Scripture* describes wisdom and what it means to be wise.</td><td>Do:<br>Explore parables* as a model of compassion.<br><br>Explain the work of a Christian charity who care for the sick and dying or have responded to Church teaching on the respect for life.<br><br>Put into practice Jesus’ example* to meet the spiritual and material needs of others.<br><br>Treat every person with respect and dignity.<br><br>Give examples of how we can hare what we have, including gifts and talents, for the common good as the first Christians did.<br><br>Explore how my vocation is good for me and good for others.</td><td>Know:<br>Why the seven deadly sins are known as Capital Sins.<br><br>The Church continues Christ’s mission of forgiveness and reconciliation<br><br>Forgiveness and reconciliation in our own life prepares us for eternal life with God.</td><td>Do:<br>Recall previous learning of the different kinds of sin.<br><br>Describe how forgiveness of sins and reconciliation are central to the kingdom of God by reflecting on Jesus’ life and teaching*.<br><br>Link this learning to the practice of prayer, fasting and almsgiving.<br><br>Participate in the Sacrament of Reconciliation, Penitential Rite of Mass and/or an examination of conscience.<br><br>Demonstrate forgiveness and reconciliation in my own life.</td><td>Know:<br>We have free will and conscience and can choose to do right or wrong.<br><br>The Beatitudes express the basis of Christian morality and inform decisions which pose moral challenge in life.<br><br>What the cardinal and theological virtues are.<br><br>The works of mercy and how these inform Christian action.</td><td>Do:<br>Explore and express how Jesus calls his followers to act against wrongdoing, even if it causes them to suffer. *<br><br>Explain what “situations of moral challenge mean”; give examples from today’s world; link these to social justice; describe how Christians should respond to these using examples from Church teaching.<br><br>Describe how you and others, including organisations, have responded to injustice.<br><br>Explain how awareness and enaction of these virtues can develop a deeper relationship with God.<br><br>Participate in prayer and reflection for all who are suffering from injustice and for those who support them.</td></tr>
<tr><td colspan="2">Notes<br>*See Third Level Scripture Texts<br>**See Third Level Prayer Grid</td><td colspan="2">Notes<br>*See Third Level Scripture Texts<br>**See Third Level Prayer Grid</td><td colspan="2">Notes<br>*See Third Level Scripture Texts<br>**See Third Level Prayer Grid</td><td colspan="2">Notes<br>*See Third Level Scripture Texts<br>**See Third Level Prayer Grid</td></tr>
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<tr><td>Strand</td><td colspan="2">World Religions<br>(To explore the principles and theology guiding the teaching of world religions, please consult This Is Our Faith, which outlines our Catholic approach to interfaith understanding.)<br>Fosters an understanding of major world religions through the lens of Catholic teaching on interreligious dialogue. Encouraging pupils to recognise and respect the sincere search for truth that takes place in other faith communities, it promotes constructive dialogue, mutual trust, and shared understanding.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: A “sense of the sacred" influences moral choices and worship enriching our respect for human dignity across all faiths.</td></tr>
<tr><td>Know:<br>Major world religions shape moral attitudes toward issues like human life, marriage, justice, and family.<br><br>The historical origins, timing, and meaning behind key customs and ceremonies of selected world religions.</td><td>Do:<br>Explore a world religion other than Christianity, researching what its followers hold sacred.<br><br>Compare and contrast the moral responses of other world religions with Catholic moral teaching on specific issues.<br><br>Analyse the roots and expressions of non-Christian ceremonies and customs.<br><br>Reflect on how learning about different faiths deepens respect for others and enhances understanding of our own Catholic beliefs.</td></tr>
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# Religious, Moral and Philosophical Studies Know-Do-Understand Strands

<table>
<tr><th>Strand</th><th colspan="4">Religion & Worldviews</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understanding: There is diversity of belief across religion and worldviews.</td><td colspan="2">Understanding: There is diversity of belief within religion and worldviews.</td><td colspan="2">Understanding: The practices and traditions that religion and worldviews engage in express their beliefs, ideas, and identities in a range of ways.</td></tr>
<tr><td>Know:<br>Religion and worldviews can have differences and similarities in their beliefs.<br><br>These differences and similarities may be the result of a range of factors.</td><td>Do:<br>Describe and explain some of the key beliefs of religion and worldviews.<br><br>Explain some of the differences and similarities of belief across religion and worldviews.<br><br>Describe some of the possible reasons for the similarities and differences in beliefs across religion and worldviews.</td><td>Know:<br>There are differences of belief within religion and worldviews.<br><br>Differences of belief within religion and worldviews may be the result of a variety of factors.</td><td>Do:<br>Identify some of the differences of belief within a religion and a worldview.<br><br>Explain why there are differences of beliefs within a religion and a worldview.</td><td>Know:<br>Examples of how culture, geography and social influences shape practices and traditions engaged in by religion and worldviews.</td><td>Do:<br>Compare and contrast practices and traditions that have been shaped in different ways by culture, geography and social influences.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Organised religion: Buddhism, Christianity, Hinduism, Islam, Judaism, Sikhism. Including denominations, sects/schools, traditions within these.<br><br>Diverse spiritual approaches to life e.g. Paganism; Indigenous religions and belief systems.<br><br>Organised worldviews e.g. Humanism, philosophical perspectives and traditions.<br><br>Some differences and similarities of belief across religions/worldviews e.g. beliefs about life after death, the value of life or meaning and purpose in life.<br><br>Factors which have led to these differences/similarities e.g. historical developments - schisms and separations/cultural merging.<br><br>The importance of cultural influences on religion and worldviews in forming beliefs.<br><br>Recognising differences and similarities in beliefs across religion/worldviews, with increasing subtlety and nuance.<br><br>The potential impact of cultural influences on the beliefs of religion/worldviews.</td><td colspan="2">Includes, but not limited to<br>Organised religion: Buddhism, Christianity, Hinduism, Islam, Judaism, Sikhism. Including denominations, sects/schools, traditions within these.<br><br>Diverse spiritual approaches to life e.g. Paganism; Indigenous religions and belief systems.<br><br>Organised worldviews e.g. Humanism, philosophical perspectives and traditions.<br><br>Some differences of belief within a religion and a worldview e.g. beliefs about gender roles, the value of life, the origins of the universe, or the existence of God/gods.<br><br>How these differences arise e.g. historical factors, changing interpretations of sources and teachings of key figures, or emerging evidence.<br><br>The importance of cultural influences on the differences within a religion and a worldview.<br><br>Divisions in religion e.g. denominations, schools, sects.<br><br>Recognising differences of belief within a religion and a worldview, with increasing subtlety and nuance.<br><br>Becoming more aware that while there may be some beliefs shared by all adherents of a religion/worldview, there may also be differences based on different individual understandings, sects/denominations/schools of thinking.</td><td colspan="2">Includes, but not limited to<br>Organised religion: Buddhism, Christianity, Hinduism, Islam, Judaism, Sikhism. Including denominations, sects/schools, traditions within these.<br><br>Diverse spiritual approaches to life e.g. Paganism; Indigenous religions and belief systems.<br><br>Organised worldviews e.g. Humanism, philosophical perspectives and traditions.<br><br>Celebrations/festivals/rites of passage and other traditions.<br><br>Intersectionality; lived experience; food choices, clothing, communal and individual actions; worship; rituals; cultural and geographical influences and adaptations; influence of social pressure (e.g. conformity/resisting conformity).<br><br>Ways in which possible prejudice and discrimination might lead to adherents of religion and worldviews adapting ways in which they celebrate traditions.<br><br>Recognising further ways in which adherents of religion and worldviews express their identity through observing practices and traditions and how this can be influenced by a range of factors.<br><br>Ways in which celebrating traditions and engaging in practices can both support and challenge adherents of religion and worldviews and the society in which they live.</td></tr>
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<tr><th>Strand</th><th colspan="4">Morality, Ethics and Values</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understanding: There are different views across religion, worldviews and philosophical perspectives about what is right and wrong in relation to moral issues.</td><td colspan="2">Understanding: Religion, worldviews and philosophical perspectives reach conclusions about moral issues in different ways.</td></tr>
<tr><td>Know:<br>That there are a range of moral issues in contemporary society.<br><br>There are different views held across religion, worldviews and philosophical perspectives about moral issues.</td><td>Do:<br>Describe ways in which society is changing and the moral issues this presents.<br><br>Explain how religion, worldviews and philosophical perspectives respond to these changes and moral issues.<br><br>Apply teachings and ideas from religion, worldviews and philosophical perspectives to moral issues.</td><td>Know:<br>The different bases for moral and ethical views within religion, worldviews and philosophical perspectives.<br><br>Some conclusions reached on moral issues by religion, worldviews and philosophical perspectives.</td><td>Do:<br>Explain the conclusions reached on moral issues by religion, worldviews and philosophical perspectives, with reference to sources.<br><br>Express personal responses to the teachings and ideas of religion, worldviews and philosophical perspectives on moral issues.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Key moral teachings and ideas from religion, worldviews and philosophical perspectives.<br><br>Ethical views can be generalisations, with some reference to sources, from religion, worldviews and philosophical perspectives. For example, the importance of not killing; the importance of taking care of those in need.<br><br>At least one religious and at least one worldview or philosophical perspective on each moral issue.<br><br>Increasingly diverse and increasingly nuanced moral issues that involve a range of views on what is right and wrong.</td><td colspan="2">Includes, but not limited to<br>Different approaches to moral decision making e.g. rules-based, values-based, outcome-based and divine command theory.<br><br>Different sources of knowledge used to inform moral decision making.</td></tr>
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<table>
<tr><th>Strand</th><th colspan="2">Questions, Arguments and Sources</th></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understanding: Religion, worldviews and philosophical perspectives use sources to ask, explore and reach conclusions about religious and philosophical questions.</td></tr>
<tr><td>Know:<br>Conclusions reached by religion, worldviews and philosophical perspectives about some religious and philosophical questions.<br><br>Some different ways religion, worldviews and philosophical perspectives interpret and use sources to engage with religious and philosophical questions.<br><br>Agreement, connections and disagreement across religion, worldviews and philosophical perspectives about religious and philosophical questions.</td><td>Do:<br>Identify conclusions reached by religion, worldviews and philosophical perspectives about religious and philosophical questions.<br><br>Show how different approaches to engaging with sources leads to agreement, connection and disagreement across religion, worldviews and philosophical perspectives about religious and philosophical questions.<br><br>Express informed views on the different approaches religion, worldviews and philosophical perspectives take to engaging with sources on religious and philosophical questions and the conclusions they reach.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>Symbolic and literal interpretations of sources and teachings.<br><br>Textual analysis; exegesis; reflection on/ interpretations of teachings; gathering and analysing evidence in response to questions.<br><br>Applying sources/ teachings from one perspective or historical context to a contemporary question.<br>The sources used by religion, worldviews and philosophical perspectives and the range of conclusions the use of these sources can lead to across religion, worldviews and philosophical perspectives.<br>Increasingly challenging questions and explicit links between responses given by religion, worldviews and philosophical perspectives.<br>The diversity in responses within religion, worldviews and philosophical perspectives.</td></tr>
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# Sciences Know-Do-Understand Strands

Being Scientific: Building Our Skills

| Strands | Scientific Investigation | | Interpreting and Analysing | | Evaluation in Science | | Scientific Communication and Review | |
|---|---|---|---|---|---|---|---|---|
| Third Level | **Understand:** Scientific investigations are planned by identifying variables, considering risks and using repeatable methods to produce reliable findings. | | **Understand:** Interpreting and analysing data helps to make comparisons, show relationships and identify patterns, helping us to form conclusions and build scientific knowledge. | | **Understand:** Evaluating scientific practice involves considering the strengths and limitations of the method, results, and conclusion, supporting more accurate and reliable findings in future investigations. | | **Understand:** Scientists select appropriate graphs, and units to share their findings in a consistent way, enabling evidence and findings to be communicated and accessed effectively. | |
| | **Know:**<br>Science investigations can have risks associated with them, which can be anticipated and planned for.<br><br>A variable is something in an experiment that can change.<br><br>A control variable is something that is kept the same to ensure a fair test.<br><br>A method describes the variables and steps taken in an experiment in enough detail so it can be repeated.<br><br>Repeating an investigation increases the reliability of the results. | **Do:**<br>Plan an investigation including forming an aim and hypothesis.<br><br>Identify hazards, assess risks and take steps to reduce or control the risks.<br><br>Carry out practical hands-on science investigations safely.<br><br>Collect data by making accurate observations and measurements using standard units.<br><br>Use scientific vocabulary: variable. | **Know:**<br>**Processing information**<br>Processing data helps to make comparisons, show relationships and spot patterns and trends in results.<br><br>A trend can show whether data is increasing, decreasing or remaining unchanged.<br><br>Scientific conclusions relate to the aim and are based on the interpretation of data gathered during an investigation.<br><br>Scientific knowledge may change over time as new evidence emerges.<br><br>**Systems thinking**<br>Systems involve interacting parts that affect one another and can change over time. | **Do:**<br>**Processing information**<br>Process data using the most appropriate method.<br><br>Identify trends, patterns and relationships in data.<br><br>Use evidence to form conclusions in relation to the aim.<br><br>Use scientific vocabulary: trends, patterns, relationship.<br><br>**Systems thinking**<br>Analyse connections within a system and predict how a change could affect other parts or the whole system. | **Know:**<br>Scientific findings can be evaluated by identifying strengths and limitations of the method, data and conclusions.<br><br>Reliability means getting similar results when an investigation is repeated in the same way. | **Do:**<br>Evaluate strengths and limitations of scientific methods, data and conclusions.<br><br>Justify suggested improvements.<br><br>Use scientific vocabulary: reliability. | **Know:**<br>Engagement between scientists and the public helps share knowledge and ideas, supports collaboration and contributes to addressing societal challenges.<br><br>Scientific reports follow a common structure, for example, title, aim, hypothesis, method, results, conclusion and evaluation, so findings can be clearly communicated and understood.<br><br>Scientific measurements are recorded as data using appropriate units, allowing results to be compared and interpreted.<br><br>Graphs are chosen based on the scientific data recorded, so that information is represented clearly and can be analysed and interpreted.<br><br>References acknowledge sources of information and can help assess reliability. | **Do:**<br>Communicate scientific findings for different audiences and purposes.<br><br>Record and present scientific data using appropriate scientific units.<br><br>Select and construct appropriate tables and graphs to communicate findings.<br><br>Write a scientific report using an appropriate structure.<br><br>Reference sources of information accurately. |
| | **Excludes**<br>• Dependent and independent variables are introduced at Fourth Level. However, these can also be introduced at Third Level where more appropriate for the learners or context. | | **Includes, but not limited to**<br>• Systems that can be referenced include those featuring in content in Our Scientific Knowledge.<br>• Examples of feedback loops in systems: | | | | **Includes, but not limited to**<br>• Types of graphs at this level: bar charts, line graphs and scatter graphs.<br>• Referencing at this level may include multiple sources each with title of resource, name of author, type of resource (webpage, book, | |

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| | **Notes**<br>• A scientific investigation is a systematic process used to answer questions by collecting, analysing and interpreting evidence from practical work or existing data.<br>• A hazard is anything with the potential to cause harm.<br>• A risk is the likelihood and possible impact of harm from a hazard.<br>• The word 'variable' has a different scientific meaning to its everyday use, for example, if the weather is variable. | - sounds become louder when a microphone is near a speaker<br>- rising global temperatures melt Arctic ice. Less ice means less sunlight is reflected back into space, so more heat is absorbed by the Earth. This causes temperatures to rise further, leading to even more ice melting<br><br>**Notes**<br>• Scientific conclusions – where data is conflicting – 'no conclusion drawn' is a suitable conclusion. | | newspaper), and page number if relevant. Also important to highlight that even if something is referenced it still needs to be assessed for reliability etc. |

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Our Scientific Knowledge: What we know so far

# The Connected World

| Strand | The Connected World | | | | | |
|---|---|---|---|---|---|---|
| | **Nature and Earth's resources** | | | | | |
| | **Nature** | | **Food and interdependence** | | **Materials and their properties** | |
| | **Understand:** The environment consists of a variety of ecosystems, and scientific monitoring helps identify environmental change to enable nature-focused solutions. | | **Understand:** Soil health, climate and pollinators play an essential role in the survival of living things, including plant growth, food web stability and food security. | | **Understand:** Metals and plastics are materials that are chosen for particular uses, taking account of their impacts on people, other living things and the environment. | |
| **Third Level** | **Know:**<br>**The environment**<br>An ecosystem is made up of living things that interact with each other and with the non-living parts of their environment.<br><br>The environment provides the conditions that support a variety of ecosystems.<br><br>Monitoring the health of the environment helps to identify changes and actions that are needed to protect and improve ecosystems and human health.<br><br>Human activities can cause changes in ecosystems that affect the living things within them. | **Do:**<br>Identify different ecosystems and their key features.<br><br>Select and use appropriate techniques to investigate an ecosystem.<br><br>Identify how human activity affects ecosystems and evaluate the relative impacts of nature-focused solutions.<br><br>Use scientific vocabulary: ecosystem. | **Know:**<br>**Food sources**<br>Horticulture is the practice of growing plants.<br><br>Healthy soil is vital to ecosystems. Soil conditions such as pH and moisture, support plant growth, while decomposers recycle nutrients, ensuring plants can thrive and sustain food webs.<br><br>Fertilisers can be natural or manufactured and contain nitrogen, phosphorous and/or potassium, which are important plant nutrients.<br><br>**Interdependence**<br>Food webs represent interconnecting food chains, with arrows indicating the direction of energy transfer between organisms.<br><br>Photosynthetic organisms capture energy from the Sun and form the base of food webs as primary producers.<br><br>Changes in the number of one type of organism can affect the numbers of other organisms and the availability of food within a food web. | **Do:**<br>Evaluate and justify how natural processes and human activities affect food production and the environment.<br><br>Predict the effects of changes in the number of organism(s) on a food web.<br><br>Use scientific vocabulary: horticulture, decomposers, pollination, photosynthetic. | **Know:**<br>**Properties and uses of materials**<br>Some metals are found uncombined in the Earth's crust. These are known as native metals.<br><br>Most metals are found combined with other elements in compounds known as ores, and have to be extracted for use.<br><br>Heating occurs when energy is transferred from a warmer object or place to a cooler one because of a difference in temperature.<br><br>Metal elements are usually good conductors of heat and electricity, where non-metals are usually not. Both have useful applications in everyday life.<br><br>Energy can be transferred from warmer to cooler areas by conduction, convection and radiation.<br><br>In solids, energy can be transferred from warmer to cooler regions by conduction.<br><br>In liquids and gases, energy can be transferred from warmer to cooler regions by convection, through the movement of the liquid or gas.<br><br>Energy can be transferred by radiation without the need for a material medium.<br><br>Density describes how much mass there is in a given volume. | **Do:**<br>Investigate and compare conductivity in different materials.<br><br>Evaluate and justify which materials are most suitable for energy efficiency.<br><br>Compare the density of objects and liquids in relation to floating and sinking.<br><br>Identify which objects will float or sink in different liquids.<br><br>Make informed decisions about the use of and impact of plastics and metals.<br><br>Use scientific vocabulary: ore, conduction, convection, radiation. |

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| | | | | | Density depends on how closely particles are packed together.<br><br>Objects float when they are less dense than the liquid they are in.<br><br>Many plastics are durable and biodegrade very slowly, so they can persist in the environment and form microplastics.<br><br>New materials with particular properties have been developed to meet specific needs and challenges.<br><br>**Responsible use of materials**<br>Extracting metals provides materials that society depends on, but it can harm the environment and affect communities.<br><br>Plastics pose environmental, health and social challenges.<br><br>Decisions about using materials require evaluation of environmental, social and ethical impacts. | |
| | **Includes, but not limited to**<br>• Ecosystems can be large such as oceans or rainforests, or small, such as a garden or rock pool.<br>• Non-living parts of an ecosystem include environmental factors such as light intensity, temperature, pH, soil moisture.<br>• Environmental monitoring techniques include measuring light, pH and moisture, and sampling organisms using quadrats and pitfall traps.<br><br>**Excludes**<br>• The wider physical and chemical components of the environment (beyond ecosystems) are not covered at this level.<br><br>**Notes**<br>• Progression from Second Level on human activity:<br>- climate change and human activities, such as deforestation and burning fossil fuels, can negatively impact on ecosystems.<br>- human activities such as conservation efforts and effective policies can positively support ecosystems, helping to protect and increase biodiversity<br>• Link to Our Scientific Knowledge: The Living World – Digestive, respiratory and circulatory systems.<br>• Link to Science in Action: Taking Scientific Action. | | **Includes, but not limited to**<br>• Regenerative farming improves soil and restores the environment using natural and sustainable practices such as crop rotation.<br><br>**Excludes**<br>The learning below does not need to be covered at this level.<br>• The role of nitrogen, potassium and phosphorus in plant growth.<br>• The process of eutrophication.<br>• The study of pesticides and plant diseases.<br><br>**Notes**<br>• The term 'transfer of energy' should be used instead of 'energy flow' for scientific accuracy.<br>• Human actions impacting on food security might include:<br>- positive: regenerating land, polyculture growing, agroforestry<br>- negative: over-tilling of the soil, overuse of pesticides which harm pollinators, overuse of fertilisers<br>• Link to Our Scientific Knowledge: The Chemical World – Elements<br>• Link to Science in Action: Informed and Responsible Decision making<br>- Ethical food production and sustainable living | | **Includes, but not limited to**<br>• Examples of applications based on conductivity include: building insulation, cooking utensils, insulation in wires.<br>• Density, mass, volume, floating and sinking in familiar liquids.<br><br>**Notes**<br>• Radiation is not to be confused with radioactivity.<br>• Link to Science in action: science around me.<br>- New materials such as Kevlar (strong), biopol (soluble), composite materials (carbon fibre and plywood), and high-performance sportswear, amongst others, can be explored in the contexts of performance, cost, sustainability and ethics. | |

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| Strand | The Connected World | | | |
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| Sub-strand | Energy in society | | | |
| | Energy sources and security | | Energy and climate change | |
| | **Understand:** Electricity is produced, transferred, stored and managed in different ways to meet changing demand, so societies can maintain reliable and sustainable energy supplies. | | **Understand:** Using less energy sources from non-renewable sources and using alternatives such as renewable energy sources can reduce greenhouse gas emissions, supporting the journey to net zero. | |
| Third Level | **Know:**<br>**Energy sources**<br>Electricity is produced when energy from fuels or renewable sources is used to turn turbines. Electricity can also be produced by photovoltaic cells.<br><br>Turbines spin the moving parts of a generator, producing electricity.<br><br>Energy cannot be created or destroyed. It can be transferred between energy stores within a system or to the surroundings.<br><br>A battery contains chemicals that store energy and can supply an electrical current when connected in a complete circuit.<br><br>The National Grid is supplied by a changing mix of energy sources, allowing electricity supply and demand to be balanced.<br><br>Micro-renewables are small-scale systems that produce electricity locally for nearby users.<br><br>Energy security is having access to a reliable supply of energy to meet current and future societal needs.<br><br>**Electricity**<br>Electricity use is often measured in kilowatt-hours (kW h).<br><br>Some electrical appliances can have energy efficiency ratings.<br><br>Technology can help people monitor and manage electricity use. | **Do:**<br>Identify the energy efficiency of common electrical appliances.<br><br>Analyse energy bills and compare tariffs.<br><br>Identify ways to reduce electricity use.<br><br>Evaluate the advantages and limitations of different energy sources in relation to reliability, sustainability and environmental impact.<br><br>Use scientific vocabulary: turbines, generators, photovoltaic cells, energy security. | **Know:**<br>**Climate change**<br>The land and the oceans on Earth absorb energy from the Sun and emit infrared radiation. Some of the radiation is absorbed and re-emitted by greenhouse gases in the Earth's atmosphere.<br><br>Human activities are increasing the amount of greenhouse gases in the atmosphere, causing more infrared radiation from the Earth to be absorbed and re-emitted.<br><br>The increasing amounts of greenhouse gases in the atmosphere are slowing the rate at which energy is transferred into space, causing the Earth to warm and contributing to changes in weather patterns and climate.<br><br>Combustion is the scientific term for burning – a chemical reaction in which a substance reacts with oxygen.<br><br>Fossil fuels are carbon-based compounds.<br><br>The reaction of carbon-based compounds with oxygen produces carbon dioxide, which is one of the greenhouse gases.<br><br>Some natural environments are important carbon stores (maintains constant amount of carbon) and carbon sinks (takes in more carbon than it emits).<br><br>Using renewable energy reduces greenhouse gas emissions compared to the use of fossil fuels.<br><br>**Journey to net zero**<br>Reducing greenhouse gas emissions requires changes to the way society operates and uses energy resources.<br><br>Net zero is when the level of greenhouse gases absorbed and released into the environment is equal. | **Do:**<br>Compare renewable and non-renewable sources used to generate electricity.<br><br>Evaluate evidence to make informed decisions about the most effective actions to reduce greenhouse gas emissions.<br><br>Use scientific vocabulary: combustion, peatlands, renewable energy, fossil fuels, infrared radiation, emit. |

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| | **Includes, but not limited to**<br>• Technologies used to monitor electricity consumption include smart meters and apps.<br>• Micro-renewables include solar panels, small wind turbines and micro-hydro.<br>• Heat pumps are classed as micro-renewables because they draw on energy from natural sources such as air or the ground, although they require electricity to operate.<br><br>**Notes**<br>• The word 'energy' is widely encountered in society, for example, 'I have loads of energy'. This can result in it being understood and applied in ways that are not completely scientific.<br>• It is best to avoid referring to different 'forms' or 'types' of energy. It is better to refer to the 'transfer' of energy, or 'energy stores', rather than the 'transformation' of energy from one 'form' to another.<br>• Electricity consumption may be explored using real or simulated energy data, including kilowatt-hours (kWh) and appliance ratings.<br>• Link to Our Scientific Knowledge: The Physical World - Electricity.<br>- building circuits using electrical components | **Includes, but not limited to**<br>• Possible sources of energy to compare include fossil fuels, nuclear, wind, solar, hydroelectric, geothermal, wave/tidal, hydrogen, biomass.<br>• Comparing non-renewable and renewable resources might include evaluating environmental impact and sustainability of materials.<br>• Natural environments that are important carbon stores include wetlands (including peatlands), forests, oceans and coastal ecosystems, such as seagrass meadows.<br><br>**Excludes**<br>• Description of fossil fuels as hydrocarbons, or specific naming and drawing of these, does not need to be covered at this level.<br><br>**Notes**<br>• Nuclear energy is currently classified as a non-renewable energy source because it relies on finite fuels such as uranium. However, electricity produced by nuclear power produces very low greenhouse gas emissions.<br>• Link to Our Scientific Knowledge: The Connected World - Energy sources and security.<br>- linking the science of climate change to responsible use of energy resources |

| **Strand** | **The Connected World** | |
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| | **Space** | |
| **Third Level** | **Understand:** Gravitational forces cause objects in space to move in predictable orbits and patterns, helping to explain observations of the Solar System and wider Universe. | |
| | **Know:**<br>**Solar System and the Universe**<br>Lunar and solar eclipses are caused by the relative positions of the Earth, Moon and Sun.<br><br>Seasons are caused by the Earth's tilted axis as it orbits the Sun, which changes the angle and duration of sunlight throughout the year.<br><br>Gravitational forces pull objects towards each other, keeping the Earth and Moon in orbit and affecting tides on Earth.<br><br>A galaxy is a large group of stars, gas and dust held together by gravitational forces.<br><br>The Universe is vast and contains billions of galaxies and is expanding.<br><br>Earth lies within the Sun's habitable 'Goldilocks' Zone, where temperatures can allow liquid water to exist. The atmosphere of Earth contains breathable gases, enabling life.<br><br>**Exploring space**<br>Satellites and space technologies are used for a variety of purposes including environmental and climate monitoring, research and astronomy.<br><br>Space exploration and technology can have environmental impacts and raise ethical questions. | **Do:**<br>Interpret and compare information collected using satellites and space technologies.<br><br>Identify and evaluate how space technologies are used to monitor Earth, weather, climate and environmental change.<br><br>Compare and evaluate the challenges of living and working in space.<br><br>Use scientific vocabulary: gravity, orbit, lunar, solar, eclipse, satellite, Goldilocks Zone, Universe. |
| | **Includes, but not limited to**<br>• Space technologies include satellites, probes, telescopes and spacecraft and space stations.<br><br>**Notes**<br>• Scientists study organisms called extremophiles, which can survive in extreme conditions such as high temperature, pressure or low oxygen, to help understand if and where life might exist beyond Earth. | |

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| | • Different planetary conditions and atmospheres can be explored when discussing the 'Goldilocks' Zone.<br>• Living in low gravity can affect muscles, bones and body systems.<br>• Satellites may be explored in relation to communication, navigation, weather forecasting and environmental monitoring.<br>• Link to Science in Action: Science Around Me.<br>- connection of innovation in science and technologies with how this aids people and communities on planet Earth<br>• Link to Our Scientific Knowledge: The Physical World - Forces.<br>- connection related to understanding of gravity |

| Strand | The Connected World | |
|---|---|---|
| | **Health and disease** | |
| Third Level | **Understand:** Public health strategies, such as vaccination and responsible antibiotic use, reduce the transmission of infectious diseases and help limit antimicrobial resistance, protecting individuals and populations. | |
| | **Know:**<br>**Health and disease**<br>Infectious diseases in plants, humans and other animals can be caused by pathogens.<br><br>A pathogen is a microorganism or other infectious agent that can cause disease.<br><br>A pandemic occurs when an infectious disease spreads across many countries or large parts of the world.<br><br>Vaccination programmes aim to increase immunity in the population, reducing outbreaks and preventing future pandemics.<br><br>Immunity means the body has resistance to a particular infectious disease.<br><br>Herd immunity occurs when enough people are immune to a disease (through vaccination or prior infection). This reduces the spread of a disease and helps to protect vulnerable individuals.<br><br>Vaccine hesitancy is the delay in acceptance or refusal of vaccines despite the availability of vaccination services.<br><br>**Antimicrobial resistance (AMR)**<br>Antimicrobial resistance occurs when microorganisms (such as bacteria, viruses, fungi and parasites) change over time and no longer respond to medicines, making infections harder to treat and increasing the risk of disease spread.<br><br>Misuse and overuse of antibiotics can lead to antimicrobial resistance.<br><br>Public health messages around antibiotics.<br>- don't share antibiotics with others: taking leftover antibiotics can be dangerous and could make the problem of antibiotic resistance worse<br>- wash your hands regularly: help stop the spread of antibiotic-resistant infection<br>- follow your vet's instructions when giving your pets antibiotics: protect animals from the threat of antibiotic resistance<br>- take unused medicines back to the pharmacy: throwing antibiotics in bins, sinks, or toilets can harm the environment<br>- prevent pollution, reduce resistance: keeping pollutants such as medicines and disinfectants out of the environment can help slow the spread of antimicrobial resistance | **Do:**<br>Identify different diseases caused by pathogens.<br><br>Evaluate the potential impact of vaccine hesitancy.<br><br>Evaluate the impact of antimicrobial resistance.<br><br>Use scientific vocabulary: pathogens, immunity, antibiotics, antibiotic resistance, antimicrobial, herd immunity, fungi, parasites. |

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| | **Excludes**<br>• Knowledge of viruses, fungi and parasites are not required.<br><br>**Notes**<br>• Disease-causing microorganisms are also known as pathogens.<br>• Medicine (drug)-resistant microorganisms can be found naturally in people, animals, food and in the environment.<br>• Link to Our Scientific Knowledge: The Living World - Concept of life; Genetic variation. |

## The Living World

| **Strand** | **The Living World** | | | |
|---|---|---|---|---|
| **Sub-strand** | **Survival of living things** | | | |
| | **Concept of life** | | **Genetic variation** | |
| **Third Level** | **Understand:** Living things are made of cells whose structures enable them to carry out the functions needed for life | | **Understand:** Genetic information can vary and be inherited, creating differences and adaptations between organisms that can affect their chances of survival. | |
| | **Know:**<br>**Cells**<br>Cells are the basic building blocks of life and vary in structure and complexity.<br><br>A specialised cell is a cell that has a specific structure and function to perform a particular job.<br><br>Bacteria and yeast are examples of living organisms that are made up of only one cell (unicellular).<br><br>Plants, humans and other animals are made up of many different types of cells (multicellular).<br><br>Typical animal and plant cells contain a nucleus, cytoplasm and a cell membrane.<br><br>A typical plant cell also includes a cell wall and chloroplasts.<br><br>The nucleus stores most of the genetic information (DNA) and helps control cell activities.<br><br>Chloroplasts are the site of photosynthesis. | **Do:**<br>Use a microscope to observe a prepared slide.<br><br>Prepare a slide using plant material.<br><br>Identify the main parts of plant and animal cells.<br>Identify cell structures and relate these to associated cell functions and processes, where appropriate.<br><br>Use scientific vocabulary: cells, nucleus, chloroplasts, cytoplasm, cell membrane, cell wall. | **Know:**<br>**Genetic variation and inheritance**<br>DNA is the structure that carries the genetic information.<br><br>This genetic information determines characteristics such as eye colour and leaf shape.<br><br>Variation in genetic information can lead to adaptations that affect an organism's chance of survival.<br><br>Inheritance is the process by which this genetic information is passed from parents to offspring.<br><br>Offspring are organisms produced by parents.<br><br>**Adaptation**<br>An adaptation is an inherited characteristic that makes an organism well suited to its environment. | **Do:**<br>Recognise and identify DNA in diagrams and models.<br><br>Extract and observe DNA from a plant source.<br><br>Identify adaptations in organisms.<br><br>Identify the ways in which adaptations increase an organism's chance of survival in its environment.<br><br>Use scientific vocabulary: DNA, inheritance, offspring, adaptation. |
| | **Includes, but not limited to**<br>• Further exploration of cell structures might include:<br>- the cytoplasm is the site of chemical reactions<br>- the cell membrane controls the movement of substances in to and out of the cell<br>- the cell wall provides strength, support and structure to a plant cell<br><br>**Excludes** | | **Excludes**<br>• The structure of DNA does not need to be covered at this level.<br><br>**Notes**<br>• Link to Our Scientific Knowledge: The Living World - Reproductive system in humans and other animals. | |

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| | • Other cells structures that contain DNA.<br><br>**Notes**<br>• The words 'DNA' and 'genetic information' are defined in the Genetic variation sub-strand – the use of them here is related to applying them to the context of cell structure.<br>• Rest of DNA is found in chloroplasts and mitochondria.<br>• The word 'cell' has a different scientific meaning to its everyday use.<br>• Link to Our Scientific Knowledge: The Living World - Genetic variation; Plant systems: The Connected World – Food production. | |

<table>
<tr><td>Strand</td><td colspan="3">The Living World</td></tr>
<tr><td>Sub strand</td><td colspan="3">Systems for survival</td></tr>
<tr><td></td><td colspan="2">Animal bodies and skeletons</td><td>Nervous system and the senses</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand:</td><td>Understand: The brain and nerves work together in the central nervous system to process sensory information, enabling coordinated responses to changes in the environment.</td></tr>
<tr><td>Know:</td><td>Do:</td><td>Know:<br>Processing sensory information<br>Sense organs detect stimuli from the environment and convert this information into electrical impulses that travel along nerves to the brain.<br><br>The brain processes this information and sends electrical impulses back along nerves to parts of the body, enabling a response to stimuli.<br><br>The central nervous system (CNS) comprises the brain and spinal cord.<br><br>Do:<br>Use models to describe how sensory information is processed in the central nervous system.<br><br>Use models to describe how sensory information is processed in the central nervous system.<br><br>Use scientific vocabulary: stimuli, electrical impulses, nerves, central nervous system.</td></tr>
<tr><td colspan="2"></td><td>Includes, but not limited to<br>• Study of how information from the eye, ear or skin is detected and processed.<br><br>Excludes<br>• Areas of the brain do not need to be covered at this level.<br>• Reflex arcs and reflex actions do not need to be covered at this level.<br><br>Notes<br>• Link to The Physical World: Electricity.</td></tr>
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| Strand | The Living World | | | | | |
|---|---|---|---|---|---|---|
| Sub-strand | Systems for survival | | | | | |
| | **Digestive, respiratory and circulatory systems** | | **Reproductive systems in humans and other animals** | | **Plant systems** | |
| | **Understand:** The digestive, respiratory and circulatory systems depend on each other to provide the conditions needed for life. | | **Understand:** Sexual reproduction produces genetic variation within a population, which can help species survive and adapt to changing environments. | | **Understand:** Plant root and shoot systems depend on each other to transport substances needed for photosynthesis, growth and survival. | |
| **Third Level** | **Know:**<br>**Body systems**<br>Body systems play a role in transporting, absorbing and exchanging materials such as oxygen and nutrients to keep the body functioning.<br><br>The digestive, respiratory and circulatory systems depend on each other.<br><br>In the digestive system, nutrients are absorbed in the small intestine, and water is absorbed in the large intestine with both passing into the bloodstream.<br><br>In the respiratory system, the lungs are the site of gas exchange. During breathing air, oxygen is absorbed into the bloodstream, and carbon dioxide is removed from the bloodstream in the lungs.<br><br>The circulatory system transports blood, delivering oxygen and nutrients to cells through arteries and carrying waste products, such as carbon dioxide, away through veins for removal. | **Do:**<br>Identify ways in which the circulatory, respiratory and digestive systems work together. | **Know:**<br>**Sexual reproduction**<br>Hormones are chemical messengers carried in the bloodstream that affect different parts of the body.<br><br>Sex hormones differ for males and females.<br><br>Sexual reproduction is the biological process in which new life is formed from two parents.<br><br>In females, eggs (sex cells) are produced in the ovaries, and travel to the uterus via the oviducts.<br><br>In males, sperm (sex cells) are produced in the testes.<br><br>During sexual reproduction, sperm are ejaculated into the vagina and swim through the reproductive system to the egg.<br><br>Fertilisation occurs when the nucleus of a sperm fuses with the nucleus of an egg to form a zygote and takes place in the oviduct.<br><br>The zygote divides repeatedly to form a ball of cells called an embryo.<br><br>The embryo travels to the uterus and implants in the uterus lining where it develops further.<br><br>After about eight weeks, the developing embryo is called a foetus because its main body structures have formed.<br><br>The placenta is an organ that develops in the uterus during | **Do:**<br>Use scientific vocabulary: hormones, reproduction, fertilisation, foetus, embryo, zygote, gestation, pregnancy. | **Know:**<br>**Plant processes**<br>Photosynthesis is the process by which plants make their own food, and this occurs in the chloroplasts of cells.<br><br>During photosynthesis, carbon dioxide and water react to produce glucose and oxygen in when light is present.<br><br>The rate of photosynthesis can be affected by light intensity, temperature and carbon dioxide concentration.<br><br>The root system and shoot system work together to transport water to the leaves for photosynthesis.<br><br>After photosynthesis, glucose is transported from the leaves in the shoot system to other parts of the plant, including the root system, where it is used for respiration, growth and repair or stored as starch. | **Do:**<br>Identify the requirements for photosynthesis (limiting factors).<br><br>Use a simple word equation to describe the process of photosynthesis.<br><br>Use scientific vocabulary: photosynthesis, glucose, chloroplasts, starch. |

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| | | | pregnancy and allows oxygen and nutrients to pass from the female's blood to the foetus, while removing waste products such as carbon dioxide.<br><br>During pregnancy, menstruation typically stops because hormonal changes maintain the uterus lining to support foetal development.<br><br>Gestation is the period during which offspring develop inside a female's body before birth.<br><br>Birth is the process by which a foetus leaves the female's body through the uterus and vagina, followed by the delivery of the placenta. | | | |
| | **Excludes**<br>• The process of cellular respiration does not need to be covered at this level.<br><br>**Notes**<br>• Air is composed of approximately 78% nitrogen, 21% oxygen, and other gases (including carbon dioxide).<br>• Blood is carried in blood vessels and is made up of:<br>- plasma<br>- red blood cells<br>- white blood cells<br>- platelets<br>• Link to Our Scientific Knowledge: The Connected World - Health and disease. | | **Includes, but not limited to**<br>• Hormones affect many systems and are not exclusive to the reproductive system.<br>• A zygote is the term given to a fertilised egg.<br>• Harmful substances such as alcohol can also cross the placenta.<br>• The testicles (plural: testes) are contained within the scrotum and are considered external reproductive organs.<br><br>**Excludes**<br>• The endocrine system, and the names of specific hormones associated with the reproductive system, do not need to be covered at this level. | | **Includes, but not limited to**<br>• Other organisms, such as algae, can also photosynthesise, whereas fungi cannot photosynthesise.<br><br>**Notes**<br>• Chloroplasts contain the green pigment chlorophyll that absorbs light.<br>• Link to Our Scientific Knowledge: The Connected World - Food and interdependence; The Living World - Concept of life. | |

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# The Chemical World

<table>
<tr><td>Strand</td><td colspan="3">The Chemical World</td></tr>
<tr><td>Sub-strand</td><td colspan="3">Physical changes</td></tr>
<tr><td></td><td colspan="2">States of matter</td><td>Mixtures</td></tr>
<tr><td rowspan="2">Third Level</td><td colspan="2">Understand: Matter is made of tiny particles called atoms, and the way these particles are arranged determines the properties and behaviour of different states of matter, influencing how materials can be used.</td><td>Understand: A solution forms when a solute dissolves in a solvent, and differences in solubility help to explain how substances interact and how mixtures can be separated into useful components.</td></tr>
<tr><td>Know:<br>Model of matter<br>Matter is anything that has mass and takes up space.<br><br>All matter is made of particles called atoms, which are the building blocks of all things and are held together by attractive forces.<br><br>The particle model explains the different properties of solids, liquids and gases.<br><br>Expansion happens because particles move further apart.<br><br>Contraction happens because particles move closer together.<br><br>Properties of matter<br>Particles in solids are packed tightly together and can barely vibrate, which is why solids have a fixed shape and volume.<br><br>Particles in liquids are close together but can move around, which allows liquids to flow.<br><br>Particles in gases are far apart and move very quickly, which is why gases have no fixed volume or shape.<br><br>Diffusion is the movement of a substance from an area of high concentration to an area of lower concentration. Diffusion occurs in liquids and gases due to the spaces between particles. This happens when their particles collide randomly and spread out.<br><br>Changes of state<br>Particles gain energy when heated, which overcomes the attractive forces between them. This explains the changes of state that occur during condensation, evaporation, freezing, melting.<br><br>Temperature is related to the movement of particles in a substance.</td><td>Do:<br>Use a particle model to illustrate the properties of matter and changes in state and expansion and contraction.<br><br>Use scientific vocabulary: particles, atoms, attractive forces, expansion, contraction, vibrate, melting point, boiling point.</td><td>Know:<br>Making mixtures (solutions)<br>When a solution forms between a solid and a liquid, the solid is referred to as the solute and the liquid is referred to as the solvent.<br><br>Concentration is a measure of the quantity of solute dissolved in a given volume of solvent.<br><br>The greater the quantity of solute in a solution, the higher the concentration.<br><br>Water is a common solvent used to make solutions.<br><br>Substances which are insoluble in water may dissolve in other solvents.<br><br>A saturated solution is one in which no more solute will dissolve.<br><br>Solubility is a measure of a substance’s ability to dissolve. The solubility of most solids increases with temperature.<br><br>Separating mixtures<br>Mixtures can be separated using different techniques based on their solubility.<br><br>Insoluble solids can be separated from liquids by filtering.<br><br>Soluble solids can be separated from liquids by evaporation.</td><td>Do:<br>Investigate how temperature affects solubility.<br><br>Select the appropriate technique to separate mixtures.<br><br>Use scientific vocabulary: solute, solvent, solubility, concentration, saturated.</td></tr>
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| | The specific temperature at which a solid becomes a liquid is known as its melting point. For water this occurs at 0°C.<br><br>The specific temperature at which a liquid becomes a gas is known as its boiling point. For water this occurs at 100°C. | | | |
| | **Includes, but not limited to**<br>• Energy transfer and temperature.<br>• Particle models might include drawing diagrams to show the arrangement of particles on solids, liquids and gases.<br>• Melting and boiling points of water at normal atmospheric pressure.<br><br>**Excludes**<br>• Structure of the atom.<br>• Energy types or terminology related to measurement of energy.<br>• Specific types of attractive forces/ chemical bonds.<br>• Sublimation.<br><br>**Notes**<br>• The difference between evaporation and boiling can be explained in terms of temperature, energy and speed.<br>• Evaporation can happen at any temperature, requires less energy and happens slowly.<br>• Boiling happens at a fixed temperature (boiling point), requires more energy and happens fast.<br>• The word 'matter' has a different scientific meaning to its everyday use.<br>• Use diffusion to reinforce models of matter, that is, the reason it can diffuse in liquids or gases.<br>• Link to Our Scientific Knowledge: The Connected World – Materials and their properties.<br>• Link to Science in Action: Taking Scientific Action; Science Around Me.<br>– innovations in footwear materials to be durable, flexible, properties of liquids help cooling systems in industry, compression of gases for transport and use of fuels. | | **Includes, but not limited to**<br>• Variables to change when dissolving might include changing the type of solvent, temperature, mass of solute, particle size.<br>• Use of appropriate scientific apparatus to carry out separating techniques.<br><br>**Excludes**<br>• Supersaturation does not need to be covered at this level.<br>• Concentration can be measured in grams per litre ($gl^{-1}$) but this is not essential knowledge at this level.<br><br>**Notes**<br>• A mixture is where two or more substances are mixed but not chemically joined.<br>• The words 'mixture', 'solution', 'saturated' and 'concentration' have a different scientific meaning to their everyday use.<br>• Link to Our Scientific Knowledge: The Chemical World - Acids and bases; The Connected World – Materials and their properties. Nature; Energy and climate change; Food and interdependence.<br>• Link to Science in Action: Taking Scientific Action; Science Around Me.<br>– finding the right solvents for medicines and/or vitamin supplements; Ensuring the active ingredients in skincare can be absorbed by skin. | |

| **Strand** | **The Chemical World** | | | | | |
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| **Sub-strand** | **Chemical changes** | | | | | |
| | **Chemical reactions** | | **Rates of reaction** | | **Acids and bases** | |
| | **Understand:** In a chemical reaction, reactants are transformed into products (which have different properties from the reactants), enabling the creation of new substances that can be useful for specific purposes. | | **Understand:** The rate of a chemical reaction can be controlled, allowing reactions to be carried out safely and efficiently. | | **Understand:** pH measures how acidic or alkaline a substance is, and understanding pH helps identify substances, predict their behaviour, determine their uses and ensure they are handled safely. | |
| **Third Level** | **Know:**<br>**Signs of a chemical reaction**<br>Evidence that new substances have been formed include formation of a solid, an energy change, the production of a gas, or a colour change. | **Do:**<br>Observe and identify the signs of a range of different types of chemical reactions.<br><br>Construct word equations for reactions. | **Know:**<br>**Controlling the rate of reaction**<br>The rate of a chemical reaction can be controlled by changing the temperature, concentration, surface area of reactants, or by adding a catalyst. | **Do:**<br>Compare how different variables affect reaction rates.<br><br>Relate how reactions are controlled in everyday life to changes in variables. | **Know:**<br>**pH scale**<br>An indicator can be used to tell if something is an acid, alkali or neutral.<br><br>The colour of the indicator shows whether something is an acid, alkali or neutral. | **Do:**<br>Identify hazards associated with different substances by the symbols and take necessary precautions to mitigate these risks.<br><br>Determine the pH value of a range of substances. |

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| | The new substances formed can be elements or compounds.<br><br>**Reactants and products**<br>Reactants are the substances present at the start of a chemical reaction.<br>Products are the new substances formed during the reaction.<br><br>The change from reactants to products during a chemical reaction can be written as a word equation. | Use scientific vocabulary: element, compound, reactants, products, word equation. | A catalyst is a substance that speeds up a chemical reaction without being used up.<br><br>Factors that increase the rate of reaction:<br>- increasing temperature<br>- increasing concentration<br>- increasing surface area (making particles smaller)<br>- adding a catalyst | Use scientific vocabulary: temperature, concentration, surface area, catalyst. | Some acids and alkalis have specific hazards associated with them shown by symbols.<br><br>The pH scale can be used to measure how acidic or alkaline a substance is.<br><br>An indicator can be used to estimate the pH of an acid or alkali.<br><br>Substances with a pH less than 7 are acidic, and the lower the value, the more acidic.<br><br>Substances with a pH greater than 7 are alkaline, and the higher the value, the more alkaline.<br><br>Substances with a pH of 7 are neutral.<br><br>Neutralisation is where an acid and an alkali react to form a substance that moves towards pH7.<br><br>Adding water to an acid or alkali results in the pH moving closer to 7. This is known as dilution. | Identify where neutralisation reactions are helpful in everyday life.<br><br>Use scientific vocabulary: acid, alkali, neutral, pH, neutralisation, dilution. |
| | **Includes, but not limited to**<br>• Chemical reactions may include precipitation (solid forming), combustion, neutralisation.<br>• Construct word equations involving two elements combining to form a compound e.g. iron + sulfur à iron sulfide.<br><br>**Excludes**<br>• Explanations of the different types of chemical reactions and why they occur.<br>• Structure of the atom, chemical bonding.<br><br>**Notes**<br>• The words ‘element’ and ‘compound’ are defined in the Elements and compounds sub-strand. The use of them here is related to applying them to the context of a chemical reaction.<br>• The words ‘products’ and ‘compound’ have a different scientific meaning to their everyday use.<br>• Atoms are not destroyed or created during a chemical reaction – they simply rearrange themselves.<br>• Link to Our Scientific Knowledge: The Connected World - Materials and their properties. Nature; Energy sources and security; Energy and climate change.<br>• Link to Our Scientific Knowledge: The Chemical World - Acids and bases. | | **Excludes**<br>• Equilibrium, pressure is not essential knowledge at this level.<br><br>**Notes**<br>• Controlling reactions in everyday life might include:<br>- chopping potatoes smaller to help them cook faster<br>- keeping milk in the fridge to slow down spoiling<br>- using yeast to make bread<br>• The word ‘concentration’ has a different scientific meaning to its everyday use.<br>• Comparing how different variables affect reaction rates should involve practical investigation.<br>• Link to Our Scientific Knowledge: The Connected World - Energy sources and security.<br>- hydrogen reaction with oxygen is explosive, hydrogen for use as a fuel has associated dangers<br>• Link to Science in Action: Taking Scientific Action; Science Around Me.<br>• Exploring how and why reactions are controlled in industrial processes. | | **Includes, but not limited to**<br>• Both everyday acids and alkalis as well as laboratory acids and alkalis.<br>• Everyday examples of neutralisation: fizzy drinks are acidic; toothpaste is alkali to prevent tooth decay; indigestion tablets are alkali to remedy excess acid produced in stomach etc.<br>• Hazards associated with acids and alkalis – corrosive, irritant, harmful to the environment.<br>• Ways to mitigate the hazards include wearing eye protection, gloves; washing with plenty of water if in contact with skin.<br><br>**Notes**<br>• The word ‘neutral’ has a different scientific meaning to its everyday use.<br>• Link to Our Scientific Knowledge: The Connected World – Materials and their properties. Nature; Energy sources and security; Energy and climate change.<br>• Link to Science in Action: Taking Scientific Action; Science Around Me.<br>- what are the best ways to get rid of indigestion?<br>- how can we stop acid rain?<br>- what’s the best way to help people if they get a bee or a wasp sting? | |

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| | • Link to Science in Action: Taking Scientific Action.<br>- how can chemical reactions help keep water safe and clean to drink? How can chemical reactions help remove pollutants from waterways or the ground? | | |

<table>
<tr><td>Strand</td><td colspan="4">The Chemical World</td></tr>
<tr><td>Sub-strand</td><td colspan="4">Elements and compounds</td></tr>
<tr><td></td><td colspan="2">Elements and the periodic table</td><td colspan="2">Compounds</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: The periodic table organises all known elements in a logical way, and the patterns it contains help understand the properties and relationships of the building blocks that make up the world.</td><td colspan="2">Understand: Elements combine chemically to form compounds, creating the vast range of substances in the Universe, and the names of compounds help identify their composition and properties.</td></tr>
<tr><td>Know:<br>Elements<br>Elements are substances made of only one type of atom.<br><br>Elements are represented by symbols and have a number associated with them called the atomic number.<br><br>Symbols are written as capital and lower case.<br><br>The periodic table<br>Elements are arranged in the periodic table based on their properties.<br><br>The periodic table is organised into vertical columns called groups and horizontal rows called periods.<br><br>Elements in the same group have similar chemical properties (reactivity).<br><br>The periodic table can be used to predict how elements will react.<br><br>Group 1 elements are known as the alkali metals, and these are very reactive.<br><br>Group 7 elements are known as the halogens, and these are very reactive non-metals.<br><br>Group 0 elements are known as the noble gases, and these are very unreactive.</td><td>Do:<br>Use the atomic number and symbol to identify elements on the periodic table.<br><br>Relate the properties of elements to their position on the periodic table, their reactivity and use.<br><br>Use scientific vocabulary: element, atomic number, periodic table, alkali metals, halogens, noble gases.</td><td>Know:<br>Compounds<br>Compounds are substances made up of two or more types of atoms.<br><br>The properties of the compound are different to the properties of the constituent elements.<br><br>Naming compounds<br>Compounds containing two elements can be named from the constituent elements using the suffix of -ide.<br><br>Compounds containing three or more elements can be named from the constituent elements using the suffixes -ate, -ite.</td><td>Do:<br>Compare the properties of a compound to those of its constituent elements.<br><br>Relate the name of a compound to the elements it contains.<br><br>Use scientific vocabulary: compounds.</td></tr>
<tr><td colspan="2">Notes<br>• Link to Our Scientific Knowledge: The Connected World – Materials and their properties.<br>• The word ‘element’ has a different scientific meaning to its everyday use.</td><td colspan="2">Includes, but not limited to<br>Compounds with properties different to constituent elements might include water (liquid as a compound, gases as elements) and iron sulfide (iron is magnetic as an element, not magnetic when part of compound).<br>Relating the name of a compound might include naming the elements found in a compound or might involve constructing the name of two-element or three-element compounds.<br><br>Notes<br>• The word ‘compound’ has a different scientific meaning to its everyday use.<br>• Link to Our Scientific Knowledge: The Connected World – Materials and their properties.</td></tr>
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# The Physical World

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<tr><td>Strand</td><td colspan="3">The Physical World</td></tr>
<tr><td>Sub-strand</td><td colspan="3">Electricity</td></tr>
<tr><td></td><td colspan="2">Electrical circuits</td><td>Static electricity and electromagnetism</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Electrical circuits are systems in which components work together, allowing charge to flow when the circuit pathway is complete.</td><td>Understand: Electric charge can create interactions at a distance, and moving charge can create magnetic effects that can be used in everyday technologies.</td></tr>
<tr><td>Know:<br>Circuits<br>A circuit is a complete loop.<br><br>Charge only flows when the loop is closed with no gaps.<br><br>Electric current is the movement of electric charge through a complete circuit.<br><br>Conductors allow electric charge to flow; insulators reduce or prevent the flow of electric charge.<br><br>A battery or power supply provides the voltage that causes charge to flow. In a series circuit, all parts are connected in one loop. Adding or removing components changes how the electrical system behaves.<br><br>Mains electricity can be dangerous due to:<br>- high voltage which can cause electrocution<br>- high current flow which can cause fire<br><br>Electrical circuits are drawn clearly as circuit diagrams where components are represented by symbols.</td><td>Do:<br>Build simple series circuits from given circuit diagrams.<br><br>Relate the addition or removal of components to changes in circuit behaviour.<br><br>Test materials to find out whether they allow current to pass.<br><br>Draw circuit diagrams using symbols.<br><br>Use scientific vocabulary: current, charge, voltage, circuit, conductor, insulator.</td><td>Know:<br>Charge transfer and interactions<br>Electric charge can move from one material to another when materials are rubbed or come into contact.<br><br>Static electricity involves a transfer of charge between materials.<br><br>Like charges repel and unlike charges attract.<br><br>Electromagnetism<br>A coil of wire with current flowing through it can act as an electromagnet.<br><br>Motors, generators and transformers use electromagnetism to transfer and convert energy.<br><br>Electromagnets can attract and move objects when current flows through the coil.</td><td>Do:<br>Relate changes in current and number of turns on a coil to the strength of electromagnets.<br><br>Identify ways in which electromagnets are used in everyday technologies.<br><br>Use scientific vocabulary: charge, static electricity, attract, repel.</td></tr>
<tr><td colspan="2">Includes, but not limited to<br>• Measurement of current and voltage.<br>• Components for series circuits could include:<br>- cells, switches, lamps or LEDs<br>- ammeter (could be multimeter set to measure current)<br>- voltmeter to measure voltage<br><br>Other components may include:<br>- motor<br>- buzzer<br>- low or high power rating variable resistor or resistance wire<br><br>Notes<br>• Insulating electrical materials reduces the risk of electrocution and fires.<br>• The words ‘circuit’, ‘current’, ‘conductor’ and ‘cells’ have a different scientific meaning to their everyday use.<br>• Link to Our Scientific Knowledge: The Connected World - Energy sources and security.</td><td colspan="2">Includes, but not limited to<br>• Everyday use of electromagnets includes cranes, switches and bells.<br><br>Notes<br>• Electric charge can move between materials and create interactions at a distance.<br>• Learners may think charged objects need to touch to interact. Reinforce that electrostatic forces can act at a distance.<br>• The word ‘charge’ has a different scientific meaning to its everyday use.<br>• Link to Our Scientific Knowledge: The Connected World - Energy sources and security.</td></tr>
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| Sub-strand | Forces | | | |
| | Motion | | Forces and interactions | |
| | **Understand:** Speed is a measure of how fast an object travels and can be determined using distance and time, helping us compare and predict motion. | | **Understand:** Forces can be measured and represented, allowing us to explain the motion of objects and the interaction of forces. | |
| **Third Level** | **Know:**<br>**Calculating motion**<br>Speed describes how distance changes over time.<br><br>Speed can be calculated by dividing the distance travelled by the time taken,<br>$v = \frac{d}{t}$<br>where $v$ is speed in metres per second (m $s^{-1}$)<br>$d$ is distance in metres (m)<br>$t$ is time in seconds (s) | **Do:**<br>Calculate speed from measurements of distance and time in everyday contexts.<br><br>Use scientific vocabulary: speed, metres per second. | **Know:**<br>**Forces**<br>When two objects interact, each object experiences a force from the other (a Newton pair).<br><br>Forces can act in different directions on an object.<br><br>More than one force can act on an object at the same time.<br><br>**Balanced and unbalanced forces**<br>Balanced forces occur when forces acting on an object are equal and opposite, resulting in no change in motion.<br><br>Unbalanced forces occur when the combined forces acting on an object are not equal and opposite, causing motion to change.<br><br>**Representing and measuring forces**<br>Forces can be represented using force arrows.<br><br>The direction of an arrow shows the direction of a force. Forces are measured in newtons (N).<br><br>A Newton balance can be used to measure the size of a force.<br><br>**Mass and weight**<br>Mass is a measure of how much matter an object contains and is measured in kilograms (kg).<br><br>The mass of an object does not change when it is moved to different locations.<br><br>Weight is the force on an object caused by a gravitational field.<br><br>**Air resistance and forces in liquids**<br>Air resistance and water resistance are forms of friction.<br><br>The shape of an object affects air resistance, and more streamlined shapes reduce air resistance. | **Do:**<br>Represent forces acting on moving or stationary objects using diagrams with arrows.<br><br>Measure forces using a newton balance.<br><br>Relate air resistance to its effect on moving objects.<br><br>Use scientific vocabulary: mass, weight, gravitational field strength, balanced and unbalanced forces. |

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| | **Includes, but not limited to**<br>• Speed calculations using familiar contexts.<br><br>**Excludes**<br>• Re-arranging of equation for speed, distance and time is not required at this stage.<br>• Acceleration does not need to be introduced at this level.<br><br>**Notes**<br>• Link calculations to everyday examples of motion.<br>• Where learners calculate distance or time, the rearranged relationship should be provided. | **Excludes**<br>• The introduction of Newton's Laws is not required at this level.<br><br>**Notes**<br>• Learners may think only one object 'has' the force. This comes from focusing on one object in isolation. Reinforce that forces always occur as interactions between two objects.<br>• Learners may misinterpret force arrows as showing movement rather than force. Clarify that arrows represent direction and size of force only.<br>• Learners may think balanced forces mean no forces are acting. Focus on how forces affect speed, direction and stability.<br>• The words 'force' and 'weight' have a different scientific meaning to their everyday use. |

| **Strand** | **The Physical World** | | | |
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| **Sub-strand** | **Waves** | | | |
| | **Sound** | | **Light** | |
| | **Understand:** Sound is a wave that has properties such as pitch, loudness, frequency and amplitude which make sound useful for different purposes. | | **Understand:** Light can be reflected or absorbed by materials in predictable ways, helping us explain what we see and how reflection is used in everyday technologies. | |
| **Third Level** | **Know:**<br>**How sound is made and moves**<br>Sound is produced by a vibrating source, and sound waves transfer energy away from the source.<br><br>Sound waves cannot travel through empty space (vacuum) because they need a material (medium) to move through.<br><br>**Frequency and amplitude**<br>Frequency describes how many vibrations happen each second and is measured in hertz (Hz). A higher frequency produces a higher pitch and a lower frequency produces a lower pitch.<br><br>Amplitude describes the size of a vibration or wave. Larger amplitudes produce louder sounds.<br><br>An audio waveform can represent frequency and amplitude.<br><br>**Frequency and range of hearing**<br>Humans and animals can hear different ranges of sound.<br><br>Humans can hear only a limited range of sound frequencies, approximately 20 hertz to 20 000 hertz.<br><br>Infrasound is a sound wave with a frequency too low for humans to hear and can be used to detect storms and volcanic eruptions.<br><br>Ultrasound is a sound wave with a frequency too high for humans to hear and can be used for medical imaging and sonar. | **Do:**<br>Identify and compare sounds in terms of frequency and amplitude.<br><br>Recognise high/low, loud/quiet sounds from waveform traces.<br><br>Use scientific vocabulary: frequency, amplitude and ultrasound. | **Know:**<br>**How light behaves – reflection**<br>Light can be reflected by surfaces.<br><br>Light travels from a source to an object, then reflects from a surface into our eyes.<br><br>A normal is an imaginary line perpendicular to a point on the reflecting surface.<br><br>The angle of incidence is the angle between the incoming ray and the normal.<br><br>The angle of reflection is the angle between the reflected ray and the normal.<br><br>The Law of Reflection states that the angle of incidence is equal to the angle of reflection.<br><br>Light can be absorbed by materials, transferring energy to them.<br><br>**Using light in science and technology**<br>The reflection of light including mirrors is used in many devices and applications.<br><br>All colours on a display screen are made by controlling the relative brightness of the red, green and blue parts of its pixels. | **Do:**<br>Identify when reflection is taking place in different materials.<br><br>Identify ways in which white light can be separated into different colours.<br><br>Interpret diagrams showing reflection.<br><br>Use scientific vocabulary: reflection, angle of incidence, angle of reflection and normal. |

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| | **Notes**<br>• The words ‘frequency’ and ‘wave’ have a different scientific meaning to their everyday use. | **Includes, but not limited to**<br>• Examples of where mirrors are used include:<br>- periscopes<br>- disco balls<br>- dentists' viewers<br>- kaleidoscopes<br>- reflector telescopes<br>- solar furnaces<br><br>**Notes**<br>• Reflection allows us to see objects and images in mirrors.<br>• Learners may think, mistakenly, that mirrors produce light rather than reflect it.<br>• The word ‘reflection’ has a different scientific meaning to its everyday use. |

| **Strand** | **The Physical World** | | | |
|---|---|---|---|---|
| **Sub-strand** | **Waves** | | | |
| | **Wave properties** | | **Electromagnetic radiation** | |
| **Third Level** | **Understand:** Waves transfer energy from one place to another and play an important role in processes such as hearing and sight. | | **Understand:** Visible light is part of a wider electromagnetic spectrum, with the different types of radiation within the spectrum having a wide variety of uses in everyday life. | |
| | **Know:**<br>**Waves transfer energy**<br>Waves transfer energy from one place to another, for example, when sound travels from a source to our ears.<br><br>**How waves travel**<br>Waves can travel through different media (materials), such as sound travelling through air.<br><br>Some waves can travel through space, such as light travelling from the Sun to Earth.<br><br>**Wave properties**<br>Amplitude describes the size of a wave and relates to the amount of energy transferred by the wave.<br><br>Increasing amplitude increases the energy transferred by a wave. | **Do:**<br>Identify and measure amplitude.<br><br>Identify ways in which wave properties are used in everyday technologies.<br><br>Use scientific vocabulary: amplitude. | **Know:**<br>**Electromagnetic spectrum**<br>Visible light is part of a wider range of electromagnetic waves known as the electromagnetic spectrum.<br><br>The electromagnetic spectrum includes radio waves, microwaves, infrared radiation, visible light, ultraviolet radiation, X-rays and gamma rays. | **Do:**<br>Identify different types of electromagnetic radiation and their uses in everyday technologies and systems.<br><br>Identify ways in which electromagnetic radiation can affect living things and the environment.<br><br>Use scientific vocabulary: electromagnetic spectrum, radiation, X-rays, radio waves, infrared, ultraviolet, microwaves, gamma rays. |
| | **Notes**<br>• The word ‘wave’ has a different scientific meaning to its everyday use.<br>• Focus on qualitative relationships between wave properties before introducing formal wave equations. | | **Notes**<br>• At Third Level the focus should be on recognising and comparing different types of electromagnetic radiation and their uses. | |

Science in Action: Be the Change

| Strands | Taking Scientific Action | | Science Around Me | | Informed and Responsible Decision-making | |
|---|---|---|---|---|---|---|
| | **Understand:** Applying scientific evidence helps to make informed decisions, recognise the consequences of actions, and improve solutions to everyday problems. | | **Understand:** Responsible scientific innovation develops through the collaboration of people from diverse cultures and communities, helping to create jobs and new industries in Scotland. | | **Understand:** Scientific evidence can be evaluated and compared, helping to identify misinformation, disinformation and bias to justify decisions. | |
| **Third Level** | **Know:**<br>**Identify and plan**<br>Evaluating scientific evidence for quality and reliability helps make informed decisions.<br><br>Structured action plans include goals, tasks, required resources, timescales and ways to measure impact.<br><br>**Take scientific action**<br>Many environmental and societal issues are influenced by interacting factors within and between systems.<br><br>Actions can have intended and unintended consequences.<br><br>People may experience the impact of the same action in different ways.<br><br>**Collaborate and communicate**<br>Collaboration with people who have different knowledge, skills and perspectives can strengthen action.<br><br>Working collaboratively with others to achieve a goal develops transferrable skills for life and work.<br><br>**Evaluate and improve**<br>Evidence and success criteria are needed to evaluate impact.<br><br>Evidence can be used to make ongoing changes to improve and refine an action or solution. | **Do:**<br>**Identify and plan**<br>Investigate science-related issues affecting people, other living things and the environment, locally and nationally.<br><br>Gather, analyse and interpret data to take evidence-informed action.<br><br>Combine ideas from different sources to develop innovative responses to problems.<br><br>Use evidence-informed decision making and stakeholder perspectives to evaluate options for action.<br><br>Create a structured action plan.<br><br>**Take scientific action**<br>Take science-informed action on local and national issues.<br><br>Be willing to take the lead and responsibility for tasks.<br><br>Consider fairness and diverse perspectives.<br><br>Consider possible intended and unintended consequences of proposed actions.<br>• Persevere with tasks and adapt approaches when required.<br><br>**Collaborate and communicate**<br>Facilitate aspects of teamwork and decision-making.<br><br>Share constructive feedback and reach agreement through compromise. | **Know:**<br>**Science in our lives**<br>Scientific ideas, inventions and innovations (now and in the past) are strengthened by the knowledge, experiences and perspectives of people from diverse cultures and communities.<br><br>Responsible innovation considers how a solution will be used, who or what will be affected by it, its intended benefits, possible risks and unintended effects.<br>Artificial intelligence is accelerating the pace of scientific discovery and problem-solving.<br><br>Access to science opportunities is not always equal and can be influenced by social and environmental factors.<br><br>Choices made about scientific innovation can affect future outcomes.<br><br>Science is a human endeavour. Scientists can be influenced by their experiences, assumptions, and the society in which they live. Scientific methods, critical evaluation of evidence and scrutiny by others can help identify and reduce bias.<br><br>**Science at work**<br>There are different pathways into science and STEM-related jobs.<br><br>Science and STEM-related industries vary in size, skills requirements and job availability.<br><br>Diverse representation benefits science and STEM-related industries and enables them to | **Do:**<br>**Science in our lives**<br>Evaluate the contribution made by historic and contemporary scientists from diverse cultures and communities and their impact on people, other living things and the environment.<br><br>Evaluate the extent to which an innovation has been developed responsibly.<br><br>Use imagination to develop and refine scientific innovation ideas, considering how they can responsibly benefit people, other living things and the environment.<br><br>**Science at work**<br>Identify the requirements for, and pathways into, a particular science-related job.<br><br>Compare how the science skills and knowledge required differs depending on the job. | **Know:**<br>Scientific knowledge and informed views can change in response to new evidence or improved methodologies.<br><br>It is important that different sources of evidence are compared to strengthen explanations.<br><br>Bias is when results or conclusions are unfairly influenced by personal opinions or expectations instead of evidence.<br>Scientific evidence is gathered and evaluated using methods designed to reduce bias, but evidence can have limitations and uncertainty.<br><br>Scientific evidence can be used to identify misinformation and disinformation that can affect public understanding of science.<br><br>Scientific scepticism means questioning claims and evaluating evidence before deciding whether they should be accepted.<br><br>Artificial intelligence is a tool that supports analysis of evidence and decision-making. However, it can make mistakes and contain biases so its outputs needs to be checked carefully. | **Do:**<br>Evaluate scientific evidence from different sources and justify an informed decision.<br><br>Identify examples of scientific misinformation and disinformation. |

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| | | Communicate effectively and with confidence through a variety of means.<br><br>Access support, advice and resources from others as required when taking scientific action.<br><br>**Evaluate and improve**<br>Use evidence, feedback and given success criteria to evaluate the impact of an action and make ongoing changes to improve the action or solution. | develop better solutions for society as a whole. | | | |
| | **Includes, but not limited to**<br>• Transferrable skills may include: critical thinking, communication, working with others, problem-solving, digital literacy, numeracy, adaptability, time-management.<br><br>**Notes**<br>• Taking Scientific Action is an essential component of the Sciences curriculum. | | **Includes, but not limited to**<br>• Scientific ideas, inventions and innovations originating from the Global South and indigenous communities.<br>• Career pathways include apprenticeships, college, university or workplace learning. It is important for learners to be aware that all pathways are equally valid and that not all science or STEM jobs require an academic degree.<br>• Identifying requirements and pathways should include detail about the qualifications needed or gained, top skills required, entry routes, for example, apprenticeships, college, university or workplace learning, and the demand for that job in Scotland. | | **Includes, but not limited to**<br>• Examples of evidence or sources to look at may include social media posts, manipulated graphs, artificial intelligence-generated content, climate misinformation or false health claims.<br><br>**Notes**<br>• Link to Being Scientific: Evaluation in Science. | |

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# Social Studies Know-Do-Understand Strands

| Strand | **Causation**<br><br>Causation explains why events and issues happen and what happens as a result. | | | | | |
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| **Sub-strand** | **Geography** | | **History** | | **Modern Studies** | |
| **Third Level** | **Understand:** Causes and consequences can happen over different timescales. | | **Understand:** Causes and consequences can happen over different timescales. | | **Understand:** Causes and consequences can happen over different timescales. | |
| | **Know:**<br>Geographical events and changes may have short and long-term causes and consequences for people, places and environments. | **Do:**<br>Explain short and/or long-term causes of geographical events and changes.<br><br>Describe short and/or long-term consequences for people, places and environments. | **Know:**<br>Historical events and issues may have had short and long-term causes and consequences for people and societies. | **Do:**<br>Explain short and/or long-term causes of historical events and issues.<br><br>Describe short and/or long-term consequences for people and societies. | **Know:**<br>Contemporary events and issues have short and long-term causes and consequences that affect people, communities and societies. | **Do:**<br>Explain short and/or long-term causes of contemporary events and issues.<br><br>Describe short and/or long-term consequences for people, communities and societies. |
| | **Notes**<br>• Causes may develop over different timescales with some arising over longer periods and others occurring more immediately.<br>• Long-term causes create underlying conditions and short-term causes can act as triggers.<br>• Short and long-term consequences may be positive or negative and affect different people and places in different ways.<br>• Consequences may be immediate, delayed or develop over time.<br>• Sequencing and chronology can help explain how events are connected and how causes and consequences develop over time, with some happening sequentially and others simultaneously. | | **Notes**<br>• Causes may develop over different timescales with some arising over longer periods and others occurring more immediately.<br>• Long-term causes create underlying conditions and short-term causes can act as triggers.<br>• Short and long-term consequences may be positive or negative and affect different people and societies in different ways.<br>• Consequences may be immediate, delayed or develop over time.<br>• Sequencing and chronology can help explain how events are connected and how causes and consequences develop over time, with some happening sequentially and others simultaneously. | | **Notes**<br>• Causes may develop over different timescales with some arising over longer periods and others occurring more immediately.<br>• Long-term causes create underlying conditions and short-term causes can act as triggers.<br>• Short and long-term consequences may be positive or negative and affect different people and societies in different ways.<br>• Consequences may be immediate, delayed or develop over time.<br>• Sequencing and chronology can help explain how events are connected and how causes and consequences develop over time, with some happening sequentially and others simultaneously. | |

| Strand | **Conflict**<br><br>Conflict is a disagreement, tension or struggle within or between people, groups, societies, ideas or environments. | | | | | |
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| **Sub-strand** | **Geography** | | **History** | | **Modern Studies** | |
| **Third Level** | **Understand:** Conflict develops from competing factors, leading to short and long-term consequences. | | **Understand:** Conflict develops from competing factors, leading to short and long-term consequences. | | **Understand:** Conflict develops from competing factors, leading to short and long-term consequences. | |
| | **Know:**<br>Conflict develops from competing demands over how places or resources are used, leading to land-use, environmental or resource conflicts, resulting in short and/or long-term consequences. | **Do:**<br>Explain why conflict develops over how places or resources are used.<br><br>Describe the conflict.<br><br>Explain the short and/or long-term consequences of the conflict. | **Know:**<br>Conflict in the past, including wars, rebellions, revolutions and genocide, developed from multiple causes, resulting in short and/or long-term consequences. | **Do:**<br>Explain the causes of a conflict in the past.<br><br>Describe key events and turning points of the conflict.<br><br>Explain the short and/or long-term | **Know:**<br>Conflict, including disputes, wars and genocide, develops from competing factors between people, groups or countries, resulting in short and/or long-term consequences. | **Do:**<br>Explain the causes of the conflict.<br><br>Describe the conflict.<br><br>Explain the short and/or long-term consequences of the conflict. |

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| | | Describe ways the conflict has been or could be managed or resolved. | | consequences of the conflict.<br><br>Describe how the conflict was addressed or resolved. | | Describe ways the conflict has been or could be addressed. |
| | **Notes**<br>• Not all conflict is violent.<br>• Land-use conflicts happen when people or groups want to use the same land in different ways and may include disagreements over housing, farming, tourism, transport, energy, industry or recreation.<br>• Environmental conflicts may arise from climate change, environmental pressures, conservation, sustainability issues or competing demands on environments and natural resources.<br>• Resource conflicts occur when people, groups or countries compete for access to or control of resources such as water, energy, food, minerals or land.<br>• Consequences may be immediate, delayed or develop over time.<br>• Short-term consequences may include disruption to daily life, shortages of resources, environmental damage, displacement or pressure on local services and environments.<br>• Long-term consequences may include changes to land use, pressure on resources, environmental change, inequality, migration or ongoing tensions between groups or countries.<br>• Attempts to manage conflict may include negotiation, planning, regulation, conservation measures or sustainable management approaches.<br>• Responses to conflict may reduce, escalate or prolong conflict, although some conflicts may remain unresolved or ongoing.<br>• People's experience of conflict differs. Practitioners should be mindful of children and young people's lived experiences of conflict (e.g. domestic abuse, displacement due to war) and provide support as appropriate. | | **Notes**<br>• Not all conflict is violent.<br>• Wars are organised, armed conflicts between groups or countries and may include civil wars, international wars or proxy wars.<br>• A rebellion is an organised attempt to challenge authority, leadership or control.<br>• A revolution is a significant change in political or social systems, often involving conflict or attempts to remove existing power structures.<br>• Genocide is the deliberate attempt to destroy a national, ethnic, racial or religious group.<br>• Turning points are events or developments that significantly change the direction or outcome of a conflict.<br>• Consequences may be immediate, delayed or develop over time.<br>• Short-term consequences may have included death, destruction, displacement, shortages, political instability or disruption to daily life.<br>• Long-term consequences may have included political or social change, migration, economic inequality, changes to borders or ongoing tensions between groups or countries.<br>• Ways that conflicts were addressed or resolved may have included agreements, treaties, political change, negotiation or the ending of fighting.<br>• Attempts to address or resolve conflict may have reduced, reshaped or prolonged conflict. Some conflicts, however, were not resolved.<br>• People's experience of conflict differs. Practitioners should be mindful of children and young people's lived experiences of conflict (e.g. domestic abuse, displacement due to war) and provide support as appropriate. | | **Notes**<br>• Not all conflict is violent.<br>• A dispute is a serious disagreement between people, groups or countries.<br>• Wars are organised, armed conflicts between groups or countries and may include civil wars, international wars or conflicts over territory, ideology or resources.<br>• Genocide is the deliberate attempt to destroy a national, ethnic, racial or religious group.<br>• Conflicts may involve hate speech, intimidation, violence or acts of terrorism.<br>• Consequences may be immediate, delayed or develop over time.<br>• Short-term consequences may include injury, death, displacement, destruction, fear, shortages of resources or disruption to daily life.<br>• Long-term consequences may include migration, political change, economic inequality, trauma, changes to borders or ongoing tensions between groups or countries.<br>• Ways of addressing or responding to conflict may include protests, strikes, negotiation, peace agreements, international intervention or humanitarian support.<br>• Responses to conflict may reduce, escalate or prolong conflict, although some conflicts may remain unresolved or ongoing.<br>• People's experience of conflict differs. Practitioners should be mindful of children and young people's lived experiences of conflict (e.g. domestic abuse, displacement due to war) and provide support as appropriate. | |

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<table>
<tr><td>Strand</td><td colspan="4">Cooperation<br><br>Cooperation is the process of working together to achieve goals or address challenges.</td></tr>
<tr><td>Sub-strand</td><td colspan="2">Geography</td><td colspan="2">History</td><td colspan="2">Modern Studies</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Cooperation requires compromise, negotiation and balancing different interests.</td><td colspan="2">Understand: Cooperation requires compromise, negotiation and balancing different interests.</td><td colspan="2">Understand: Cooperation requires compromise, negotiation and balancing different interests.</td></tr>
<tr><td>Know:<br>People, groups and countries can have different interests in how environments and resources are used, managed and protected, requiring compromise and negotiation.</td><td>Do:<br>Identify different interests relating to the use, management or protection of environments and resources.<br><br>Describe how people, groups or countries negotiate or compromise when interests differ.<br><br>Explain what can be achieved through negotiation and compromise in managing environments and resources.</td><td>Know:<br>People, groups and countries in the past often had different interests or priorities, which required compromise and negotiation to achieve shared outcomes.</td><td>Do:<br>Identify different interests or priorities of people, groups or countries in the past.<br><br>Describe how people, groups or countries negotiated, compromised or reached agreements.<br><br>Explain what was achieved through negotiation and compromise in the past.</td><td>Know:<br>People, groups and countries can have different interests and priorities when responding to issues affecting people, communities and societies, requiring compromise and negotiation.</td><td>Do:<br>Identify different interests and priorities relating to issues affecting people, communities or societies.<br><br>Describe how people, groups or countries negotiate or compromise when priorities differ.<br><br>Explain what can be achieved through negotiation and compromise when responding to issues affecting people, communities and societies.</td></tr>
<tr><td colspan="2">Notes<br>• Interests may relate to land use, energy production, housing, tourism, industry, conservation, sustainability or resource management.<br>• Different groups may agree that an issue needs to be addressed but disagree about how that should happen.<br>• Negotiation involves discussing different views and interests to reach an agreement.<br>• Compromise involves balancing different interests to achieve a shared outcome and examples may include:<br>  ○ agreeing how shared water, energy or natural resources should be used.<br>  ○ agreeing how land should be used by different groups or communities.<br>  ○ balancing housing development with the protection of green spaces.<br>  ○ balancing renewable energy developments with environmental or community concerns.<br>  ○ balancing tourism with the protection of environments and landscapes.<br>  ○ balancing industrial or economic development with conservation priorities.<br>• Outcomes may not benefit all people, groups or countries equally and may reflect whose interests were prioritised.</td><td colspan="2">Notes<br>• Interests may have been related to trade, territory, power, resources, security, political influence or economic prosperity.<br>• Agreements, alliances, treaties and partnerships were often used to achieve shared outcomes.<br>• Different groups may have agreed that an issue needed to be addressed but disagreed about how that should happen.<br>• Negotiation involves discussing different views and interests to reach an agreement.<br>• Compromise involves balancing different interests to achieve a shared outcome.<br>• Historical examples may include:<br>  ○ countries forming military alliances during times of conflict.<br>  ○ negotiating treaties or agreements between countries or international organisations.<br>  ○ trade agreements between countries or trading groups.<br>  ○ political unions or agreements between kingdoms, states or nations.<br>  ○ governments and campaigners negotiating social or political reforms.<br>  ○ workers and employers negotiating pay and working conditions.<br>• Outcomes may not have benefitted all people, groups or countries equally, and may have reflected whose interests were prioritised.</td><td colspan="2">Notes<br>• Interests may relate to rights, needs, political priorities, economic interests, public opinion or the interests of different groups in society.<br>• Groups involved may include governments, charities, pressure groups, trade unions, businesses, international organisations or countries.<br>• Different groups may agree that an issue needs to be addressed but disagree about how that should happen.<br>• Negotiation involves discussing different views and priorities to reach an agreement.<br>• Compromise involves balancing competing interests to achieve a shared outcome and examples may include:<br>  ○ countries sharing resources, information, expertise or aid in response to global challenges with each other or through international organisations.<br>  ○ cooperation to address international conflicts, security issues or global challenges.<br>  ○ countries negotiating trade agreements.<br>  ○ governments, public services and community organisations responding to social issues.<br>  ○ pressure groups, trade unions and campaign organisations influencing decisions and policy.</td></tr>
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| | | | • Outcomes may not benefit all people, groups and organisations equally and may reflect whose interests were prioritised. |

| Strand | **Enquiry**<br>Enquiry is the process of asking questions, gathering information and using findings to develop knowledge and understanding and reach conclusions. | | | | | |
|---|---|---|---|---|---|---|
| **Sub-strand** | **Geography** | | **History** | | **Modern Studies** | |
| **Third Level** | **Understand:** Enquiry requires selecting methods and information to answer questions. | | **Understand:** Enquiry requires selecting methods and information to answer questions. | | **Understand:** Enquiry requires selecting methods and information to answer questions. | |
| | **Know:**<br>Enquiry in Geography requires the selection, processing and use of information from observations, maps, fieldwork and other sources to answer questions about people, places and environments. | **Do:**<br>Ask questions about people, places and environments and possible futures.<br><br>Select and use methods and sources to gather information.<br><br>Process and use information to describe and explain findings and answer questions. | **Know:**<br>Enquiry in History requires the selection and use of information from primary and secondary sources to answer questions about people, events and societies in the past. | **Do:**<br>Ask questions about people, events and societies in the past.<br><br>Select and use primary and secondary sources to gather information.<br><br>Use information to describe and explain findings and answer questions. | **Know:**<br>Enquiry in Modern Studies requires the selection and use of information from surveys, interviews, media and other sources to answer questions about contemporary issues, people and societies. | **Do:**<br>Ask questions about contemporary issues, people and societies and possible futures.<br><br>Select and use methods and sources to gather information.<br><br>Use information to describe and explain findings and answer questions. |
| | **Notes**<br>• Questions about possible futures may consider what might happen, what could change or what people might do in response.<br>• The questions asked should help determine which information is relevant and useful to the enquiry.<br>• Selecting means children and young people identifying and choosing methods and sources that are relevant to the question or enquiry.<br>• Observations involve gathering information by looking at populations, places and environments.<br>• A variety of map types, including physical, political and OS maps, can be used to locate places and identify geographical features and patterns.<br>• Fieldwork involves gathering information and data directly from people, places and environments.<br>• Other sources may include atlases, graphs, surveys, interviews, photographs, satellite imagery, radar, statistical data and digital sources such as Geographic Information Systems (GIS) and Artificial Intelligence (AI).<br>• Findings may be communicated through maps, diagrams, charts, reports, presentations or digital formats. | | **Notes**<br>• The questions asked should help determine which information is relevant and useful to the enquiry.<br>• Selecting means children and young people identifying and choosing sources that are relevant to the question or enquiry.<br>• Primary sources were created during the time being studied and may include artefacts, photographs, buildings, oral accounts and documents such as letters, diaries, speeches or newspaper articles.<br>• Secondary sources were created after the time being studied and may include textbooks, documentaries, books, articles or digital sources including Artificial Intelligence (AI).<br>• Findings may be communicated through discussion, timelines, reports, presentations or digital formats. | | **Notes**<br>• Questions about possible futures may consider what might happen, what could change or what people might do in response.<br>• The questions asked should help determine which information is relevant and useful to the enquiry.<br>• Selecting means children and young people identifying and choosing methods and sources that are relevant to the question or enquiry.<br>• A survey gathers information by asking questions to groups of people. This may include a survey that children and young people create or a survey from another source.<br>• An interview gathers information through discussion with an individual or group. This may include an interview that children and young people conduct or an interview from another source.<br>• Media sources may include print media, television, radio, websites and social media.<br>• Other sources may include photographs, graphs, data, digital sources including Artificial Intelligence (AI), reports, polls, or leaflets and posters.<br>• Findings may be communicated through discussion, reports, presentations or digital formats. | |

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<tr><td>Strand</td><td colspan="4">Environments<br>Environments are the natural and human-made conditions and surroundings that shape, and are shaped by, people's lives and actions.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Human actions affect environments.</td><td colspan="2">Understand: Human actions affect environments.</td><td colspan="2">Understand: Human actions affect environments.</td></tr>
<tr><td>Know:<br>The ways in which humans use the land can influence and change environments.</td><td>Do:<br>Explain how the ways in which humans use the land can influence and change environments.<br><br>Describe how environmental changes can affect people and places.</td><td>Know:<br>People in the past changed environments through settlement, agriculture, industry and transport.</td><td>Do:<br>Explain how settlement, agriculture, industry and/or transport changed environments in the past.<br><br>Describe how changes to environments affected people and societies.</td><td>Know:<br>People, groups and societies can influence the environments in which they live.</td><td>Do:<br>Explain how people, groups and societies can influence their environments.<br><br>Describe actions taken to address issues affecting people, groups and societies.</td></tr>
<tr><td colspan="2">Notes<ul><li>Land use refers to the ways land is used by people. This may include housing, farming, industry, commerce, transport, tourism, recreation and conservation.</li><li>Resource use refers to how people obtain and use natural resources, such as water, forests, minerals, energy sources and land.</li><li>Tourism involves people travelling to places for leisure, recreation or cultural experiences and can affect environments in different ways.</li><li>Human activities such as housing developments, farming, forestry, renewable energy projects, visitor attractions or industrial or commercial developments can change the characteristics and use of environments over time, including through their impact on pollution and air and water quality.</li><li>Sustainable practices can help reduce negative impacts on environments and help protect them for the future. Sustainable practices may include reducing waste, reusing and recycling materials, saving water and energy, reducing pollution, improving air and water quality, protecting habitats and wildlife and using resources responsibly.</li></ul></td><td colspan="2">Notes<ul><li>Landscapes and environments can provide evidence of how people lived and worked in the past.</li><li>Settlement refers to places where people live, such as villages, towns and cities.</li><li>Agriculture, or farming, is the growing of crops and rearing of animals for food and resources.</li><li>Industry refers to activities involved in producing goods, materials and energy.</li><li>Transport is the movement of people or goods between places using routes and different forms of transport.</li><li>The effects of environmental change may have been experienced differently by different groups, presenting opportunities and/or challenges for people and the societies in which they lived.</li></ul></td><td colspan="2">Notes<ul><li>Environments in Modern Studies can refer to the social, economic and community settings in which people live, including their family circumstances, neighbourhoods, communities and access to resources and services.</li><li>People can influence environments through their actions, choices and participation in community and civic life.</li><li>Groups and communities can work together to raise awareness, campaign for change, provide support or improve conditions for others.</li><li>Pressure groups, charities, community organisations and activists may seek to influence decisions, policies and public opinion.</li><li>People, groups and communities may seek to address issues such as poverty, housing, education, healthcare, environmental issues, inequality, discrimination, human rights and women's rights.</li><li>Different groups may have different priorities, perspectives and approaches to achieving change.</li></ul></td></tr>
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<tr><td>Strand</td><td colspan="5">Equality<br><br>Equality is the state of being equal, especially in status, rights or access to opportunities, with equity helping to address different needs and barriers.</td></tr>
<tr><td>Sub-strand</td><td colspan="2">Geography</td><td colspan="2">History</td><td>Modern Studies</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Barriers can prevent people and groups from experiencing equality.</td><td colspan="2">Understand: Barriers can prevent people and groups from experiencing equality.</td><td>Understand: Barriers can prevent people and groups from experiencing equality.</td></tr>
<tr><td>Know:<br>Location, transport and natural features can create barriers to equality.</td><td>Do:<br>Describe how location, transport and natural features create barriers to equality.<br><br>Explain how barriers can affect people’s opportunities and quality of life.<br><br>Describe ways barriers created by location, transport and natural features can be reduced.</td><td>Know:<br>Discrimination, prejudice and unequal rights created barriers to equality for different people and groups in the past.</td><td>Do:<br>Describe barriers to equality experienced by people and groups in the past.<br><br>Explain how barriers affected people’s rights and opportunities.<br><br>Describe how people and groups challenged barriers to equality.</td><td>Know:<br>People and groups experience barriers to equality because of discrimination, prejudice and poverty.</td><td>Do:<br>Describe barriers to equality experienced by people and groups.<br><br>Explain how barriers affect equality in society.<br><br>Describe how laws, organisations and campaigns can help reduce barriers to equality.</td></tr>
<tr><td colspan="2">Notes<br>• Equity involves recognising or addressing barriers that can prevent people and groups from experiencing equality.<br>• Barriers make it more difficult for people to access services, resources or opportunities. These barriers can affect access to healthcare, education, employment and other opportunities.<br>• Barriers due to location may include living in remote or rural communities.<br>• Transport barriers may include limited public transport or long travel distances.<br>• Natural features which can create barriers may include mountains, islands, rivers or extreme weather.<br>• Barriers can be reduced through improvements such as transport links, digital connectivity and local services.<br>• Reducing barriers can improve equality by increasing access to opportunities, services and resources, although structural inequality still exists.<br>• Structural inequality refers to inequalities that are created or maintained by the way systems, institutions and society are organised.</td><td colspan="2">Notes<br>• Equity involves recognising or addressing barriers that can prevent people and groups from experiencing equality.<br>• Barriers could affect education, employment, healthcare, participation in society and quality of life.<br>• Discrimination means treating people unfairly because of factors such as age, disability, sex, gender, race, religion, sexual orientation, wealth or social status.<br>• Prejudice means making unfair judgements and sometimes acting on assumptions about people or groups, often based on stereotypes. Stereotyping means assuming all people in a group are the same.<br>• Unequal rights meant some people and groups had fewer freedoms, protections or opportunities than others.<br>• Some people experienced multiple forms of disadvantage and discrimination based on their diverse identities.<br>• People and groups challenged barriers through actions such as campaigns, protests or reform movements.<br>• Reducing barriers may have helped improve equality for different people and groups, although structural inequality may still have existed.<br>• Structural inequality refers to inequalities that are created or maintained by the way systems, institutions and society are organised.</td><td>Notes<br>• Equity involves recognising or addressing barriers that can prevent people and groups from experiencing equality.<br>• Barriers can affect education, employment, healthcare, participation in society and quality of life<br>• Discrimination means treating people unfairly because of factors such as age, disability, sex, gender, race, religion, sexual orientation, wealth or social status.<br>• Prejudice means making unfair judgements and sometimes acting on assumptions about people or groups, often based on stereotypes. Stereotyping means assuming all people in a group are the same.<br>• Poverty can create barriers by limiting people's opportunities and access to services.<br>• Some people experience multiple forms of disadvantage and discrimination based on their diverse identities. This is sometimes described as intersectionality.<br>• Laws, public services, charities and campaign groups work in different ways to reduce barriers and promote equality.<br>• Reducing barriers can help people participate more equally in society, although structural inequality still exists.<br>• Structural inequality refers to inequalities that are created or maintained by the way systems, institutions and society are organised.</td></tr>
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<table>
<tr><td>Strand</td><td colspan="6">Evidence<br>Evidence is information used to answer questions and support, challenge or develop explanations and conclusions.</td></tr>
<tr><td>Sub-strand</td><td colspan="2">Geography</td><td colspan="2">History</td><td colspan="2">Modern Studies</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Evidence may be influenced by the way it is gathered, created or presented.</td><td colspan="2">Understand: Evidence may be influenced by the way it is gathered, created or presented.</td><td colspan="2">Understand: Evidence may be influenced by the way it is gathered, created or presented.</td></tr>
<tr><td>Know:<br>Evidence in Geography can be influenced by scale, location, timing, purpose, perspective, bias and the way information is presented.</td><td>Do:<br>Identify and explain how the following factors influence evidence:<br>Scale<br>Location<br>Timing<br>Purpose<br>Perspective<br>Bias<br>Presentation</td><td>Know:<br>Evidence in History can be influenced by type, timing, purpose, perspective, bias, exaggeration and omission.</td><td>Do:<br>Identify and explain how the following factors influence evidence:<br>Type<br>Timing<br>Purpose<br>Perspective<br>Bias<br>Exaggeration<br>Omission</td><td>Know:<br>Evidence in Modern Studies can be influenced by type, perspective, bias, exaggeration, purpose, timing and the way information is presented.</td><td>Do:<br>Identify and explain how the following factors influence evidence:<br>Type<br>Perspective<br>Bias<br>Exaggeration<br>Purpose<br>Timing<br>Presentation</td></tr>
<tr><td colspan="2">Notes<ul><li>The relevance of influencing factors will vary depending on the evidence, but each should be encountered across Third Level.</li><li>Scale refers to the sample size or the amount of evidence used and whether it is sufficient to support the findings.</li><li>Location refers to where evidence was gathered, observed or produced. Evidence gathered from different locations may highlight different characteristics, patterns, experiences or perspectives.</li><li>Timing refers to when evidence was produced. Events, circumstances or developments at that time may have influenced the information provided.</li><li>Purpose refers to the reason evidence was created, such as to inform, persuade, influence opinion, justify a decision or promote a particular message.</li><li>Perspective is the way people understand and interpret the world based on who they are and where they come from. Evidence and representations of the world reflect the choices and perspectives of those who create them.</li><li>Bias occurs when information is presented in a way that favours a particular perspective or outcome.</li><li>Some information may be inaccurate or misleading. This may happen by mistake (misinformation) or deliberately (disinformation).</li><li>Presentation refers to how information is communicated, including the language, images, statistics or formats used. Maps and atlases, photographs, Geographic Information Systems (GIS) and data may emphasise different features or patterns.</li></ul></td><td colspan="2">Notes<ul><li>The relevance of influencing factors will vary depending on the evidence, but each should be encountered across Third Level.</li><li>Type may include letters, diaries, speeches, newspapers, photographs, artefacts or official records. Different types of sources may have different purposes or perspectives, or provide different information or levels of detail.</li><li>Timing refers to when evidence was produced. Events, circumstances or developments at that time may have influenced the information provided.</li><li>Purpose refers to the reason evidence was created, such as to inform, persuade, influence opinion, justify a decision or promote a particular message.</li><li>Perspective is the way people understand and interpret the world based on who they are and where they come from. Evidence and representations of the world reflect the choices and perspectives of those who create them.</li><li>Bias occurs when information is presented in a way that favours a particular perspective or outcome.</li><li>Exaggeration occurs when information is overstated, emphasised or distorted to create a stronger impression.</li><li>Omission occurs when relevant information, evidence or perspectives are left out, intentionally or unintentionally, and may affect understanding of an issue.</li><li>Some information may be inaccurate or misleading. This may happen by mistake (misinformation) or deliberately (disinformation).</li></ul></td><td colspan="2">Notes<ul><li>The relevance of influencing factors will vary depending on the evidence, but each should be encountered across Third Level.</li><li>Type may include speeches, newspapers, photographs, official records, statistics, opinion polls, interviews or social media posts. Different types of sources may have different purposes or perspectives, or provide different information or levels of detail.</li><li>Perspective is the way people understand and interpret the world based on who they are and where they come from. Evidence and representations of the world reflect the choices and perspectives of those who create them.</li><li>Bias occurs when information is presented in a way that favours a particular perspective or outcome.</li><li>Exaggeration occurs when information is overstated, emphasised or distorted to create a stronger impression.</li><li>Some information may be inaccurate or misleading. This may happen by mistake (misinformation) or deliberately (disinformation).</li><li>Purpose refers to the reason evidence was created, such as to inform, persuade, influence opinion, justify a decision or promote a particular message.</li><li>Timing refers to when evidence was produced. Events, circumstances or developments at that time may have influenced the information provided.</li><li>Presentation refers to how information is communicated or reported, including the language, images, statistics or formats used.</li></ul></td></tr>
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<table>
<tr><td>Strand</td><td colspan="4">Perspective<br><br>Perspective is the way people understand and interpret the world based on who they are and where they come from.</td></tr>
<tr><td>Sub-strand</td><td colspan="2">Geography</td><td colspan="2">History</td><td colspan="2">Modern Studies</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: People's perspectives can be shaped by their experiences, identities and contexts.</td><td colspan="2">Understand: People's perspectives can be shaped by their experiences, identities and contexts.</td><td colspan="2">Understand: People's perspectives can be shaped by their experiences, identities and contexts.</td></tr>
<tr><td>Know:<br>Perspectives in Geography can be influenced by location, environment, human activity and/or scale.</td><td>Do:<br>Identify and explain how location, environment, human activity and/or scale influence perspectives on people and places.</td><td>Know:<br>Perspectives in History can be influenced by experiences, identity, values, media and/or time.</td><td>Do:<br>Identify and explain how experiences, identity, values, media and/or time influence perspectives on people, events and societies in the past.</td><td>Know:<br>Perspectives in Modern Studies can be influenced by experiences, identity, values, interests and/or the media.</td><td>Do:<br>Identify and explain how experiences, identity, values, interests and/or the media influence perspectives on contemporary issues, people and society.</td></tr>
<tr><td colspan="2">Notes<br>• The relevance of influencing factors will vary depending on the context, but each should be encountered across Third Level.<br>• Location refers to where people live, work or spend time and how this may influence their understanding of places and environments.<br>• Environments are natural and human-made conditions and surroundings that shape, and are shaped by, people's lives and actions.<br>• Human activity refers to the ways people use, change and interact with places and environments.<br>• Scale refers to whether an issue is considered at a local, regional, national or global level.</td><td colspan="2">Notes<br>• The relevance of influencing factors will vary depending on the context, but each should be encountered across Third Level.<br>• Perspectives can come from people living at the time, while others come from people interpreting the past later. Past perspectives may differ from those held today.<br>• Experiences refer to how people's lives can shape their perspective on events and societies. This may also be influenced by their access to information.<br>• Identity refers to how individuals and groups see themselves and others and their place within society. This may be influenced by culture, nationality, ethnicity, religion, belief, sexual orientation, sex, gender, disability, class or economic status.<br>• Values refer to what people consider important.<br>• Media refers to how information is communicated and may influence how events and issues are understood.<br>• Time refers to the period in which people live and how the attitudes, knowledge and conditions of that time influence how people, events and societies are understood.</td><td colspan="2">Notes<br>• The relevance of influencing factors will vary depending on the context, but each should be encountered across Third Level.<br>• Experiences refer to how people's lives can shape their perspective on events and issues. This may also be influenced by their access to information.<br>• Identity refers to how individuals and groups see themselves and others and their place within society. This may be influenced by culture, nationality, ethnicity, religion, belief, sexual orientation, sex, gender, disability, class or economic status.<br>• Values refer to what people consider important.<br>• Interests refer to what people or groups want, need, support or oppose in relation to an issue.<br>• Media refers to how information is communicated and may influence how events and issues are understood.</td></tr>
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<table>
<tr><td>Strand</td><td colspan="4">Power<br><br>Power is the ability to influence, control or cause change.</td></tr>
<tr><td>Sub-strand</td><td colspan="2">Geography</td><td colspan="2">History</td><td colspan="2">Modern Studies</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Power is not fixed.</td><td colspan="2">Understand: Power is not fixed.</td><td colspan="2">Understand: Power is not fixed.</td></tr>
<tr><td>Know:<br>Natural processes including tectonic activity, erosion, transportation and deposition have the power to shape and change landscapes and environments in different ways and at different rates.</td><td>Do:<br>Describe how different natural processes shape and/or change landscapes and environments.<br><br>Explain how natural processes can operate at different rates.</td><td>Know:<br>Power in the past was gained, maintained and challenged in different ways.</td><td>Do:<br>Explain how people, groups or countries gained and/or maintained power in the past.<br><br>Describe how power in the past may have been challenged.</td><td>Know:<br>Power in society can change as people, groups, institutions and countries gain, maintain or lose influence in different ways.</td><td>Do:<br>Explain how people, groups, institutions, countries gain and/or maintain influence.<br><br>Describe ways people, groups, institutions and/or countries can influence or challenge power.</td></tr>
<tr><td colspan="2">Notes<br>• Tectonic activity refers to movement within the Earth’s crust, which can cause earthquakes, volcanoes, mountain building and land movement.<br>• Erosion is the wearing away of rock, soil or land by water, ice, wind or waves.<br>• Transportation is the movement of eroded material from one place to another by water, ice, wind or waves.<br>• Deposition is when transported material is dropped or laid down, forming or changing features such as beaches, floodplains, deltas or riverbanks.<br>• Some natural processes cause rapid change, such as earthquakes, volcanic eruptions, landslides or flash flooding.<br>• Other natural processes cause slower change, such as the deepening and widening of a river valley, coastal erosion, glacier movement or the build-up of deposited material.<br>• The same natural process can have different effects depending on the place, landscape, climate and level of human activity.<br>• Landscapes and environments are not fixed because natural processes continue to shape and change them over time.</td><td colspan="2">Notes<br>• Power may have been gained through inheritance, wealth, religion, military strength, leadership, political influence or public support.<br>• Power may have been maintained through laws, government systems, military force, control of resources, religious influence or social structures.<br>• Power may have been challenged through protest, resistance, rebellion, revolution, war, reform, political opposition or social movements.<br>• Changes in power may have happened gradually over time (e.g. reforms) or rapidly during significant events (e.g. revolutions).<br>• Historical events may demonstrate shifts in power between people, groups and countries. Examples may include monarchs and parliaments, governments and citizens, landowners and workers, and colonisers and indigenous peoples.</td><td colspan="2">Notes<br>• People, groups and institutions such as governments, political parties, pressure groups, campaign groups, businesses, trade unions and the media may influence decisions and change.<br>• Power may be gained through authority, public support, wealth, military strength, expertise, representation or control of resources.<br>• Power may be maintained through laws, institutions, public support, military force, economic influence, access to information or control of resources.<br>• Power may be challenged through campaigning, petitions, protests, lobbying, activism, voting, collective action, political opposition, social movements or war.<br>• Public opinion can increase or reduce the influence of individuals, groups and institutions.<br>• Changes in power may happen gradually over time or rapidly in response to significant events, campaigns, social movements or public action.</td></tr>
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<table>
<tr><td>Strand</td><td colspan="5">Society<br><br>Society is how people organise themselves and share ways of life.</td></tr>
<tr><td>Sub-strand</td><td colspan="2">Geography</td><td colspan="2">History</td><td colspan="2">Modern Studies</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Societies are diverse.</td><td colspan="2">Understand: Societies are diverse.</td><td colspan="2">Understand: Societies are diverse.</td></tr>
<tr><td>Know:<br>Population and settlement patterns vary between places and environments.</td><td>Do:<br>Describe different population and settlement patterns.<br><br>Explain factors that influence population and settlement patterns.<br><br>Describe how these differences affect people, places and environments.</td><td>Know:<br>People in past societies belonged to diverse social groups with different roles, responsibilities and status.</td><td>Do:<br>Describe different social groups in a past society.<br><br>Describe the roles, responsibilities and/or status of the different social groups.<br><br>Explain how differences in roles, responsibilities and/or status influenced people’s lives.</td><td>Know:<br>People in society have diverse identities and backgrounds, and participate in different ways.</td><td>Do:<br>Describe different groups within society.<br><br>Describe how people and groups participate in society.<br><br>Explain how diversity influences societies.</td></tr>
<tr><td colspan="2">Notes<ul><li>Population characteristics refer to features of a population, such as size, density and age structure.</li><li>Population distribution describes how people are spread across an area. Some places are densely populated, while others are sparsely populated.</li><li>Settlement patterns describe where settlements are located and how they are distributed. Patterns may be dispersed, nucleated (clustered) or linear, and settlements vary in size, function and population.</li><li>Population and settlement patterns differ because of physical and human factors, including climate, landscape, natural resources, transport links and employment opportunities.</li><li>Differences in population and settlement patterns influence access to housing, employment, transport, education, healthcare and other services.</li></ul></td><td colspan="2">Notes<ul><li>Social groups are groups of people with different roles, responsibilities and status within a society.</li><li>Status may refer to social standing and/or class.</li><li>Roles and responsibilities describe the work, duties and expectations associated with different social groups. These varied between societies and time periods.</li><li>The organisation of society influenced people's opportunities and experiences, including the work they did, where they lived, the rights they had, the decisions they could make and how they participated.</li></ul></td><td colspan="2">Notes<ul><li>Identity refers to how individuals and groups see themselves and others and their place within society. This may be influenced by culture, nationality, ethnicity, religion, belief, sexual orientation, sex, gender, disability, class or economic status.</li><li>Background refers to the experiences and circumstances that influence people's lives. These may include where people live, family history, education, social class, culture or community.</li><li>People and groups participate in society in different ways through work, volunteering, community organisations, cultural activities, sport, the arts and public service.</li><li>Diversity refers to the variety of people, identities, backgrounds and cultures within a society. Diverse societies include people with different experiences, traditions and perspectives.</li></ul></td></tr>
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<table>
<tr><td>Strand</td><td colspan="4">Systems<br><br>Systems are ways in which people, places and natural processes are connected and interact with each other.</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="2">Understand: Systems function in ways that affect people, places and processes.</td><td colspan="2">Understand: Systems function in ways that affect people, places and processes.</td><td colspan="2">Understand: Systems function in ways that affect people, places and processes.</td></tr>
<tr><td>Know:<br>Interactions within the climate system create weather and climate patterns that vary across the world.</td><td>Do:<br>Describe how weather and climate patterns vary across the world.<br><br>Explain how interactions within the climate system contribute to these patterns.</td><td>Know:<br>Systems in the past, including communication systems and trade and migration networks, enabled the movement of people, goods and information, affecting people and societies.</td><td>Do:<br>Describe how communication systems, trade networks and/or migration networks functioned in the past.<br><br>Explain how communication systems, trade networks and/or migration networks affected people and societies in the past.</td><td>Know:<br>Government and justice systems have different roles that affect people’s rights and responsibilities in society.</td><td>Do:<br>Describe the roles of government and/or justice systems.<br><br>Explain how government systems and/or justice systems affect people’s rights and responsibilities.</td></tr>
<tr><td colspan="2">Notes<ul><li>Weather patterns vary over time and between places.</li><li>Climate describes long-term patterns of weather.</li><li>The climate system includes interactions between the atmosphere, oceans, land, ice and living organisms, including the movement of heat and moisture.</li><li>Weather and climate patterns may vary in temperature, precipitation, wind and seasonality.</li></ul></td><td colspan="2">Notes<ul><li>Communication systems may include postal, print, telegraph, telephone, radio and digital communication systems and networks, as well as other ways of sending and sharing information.</li><li>Trade networks are connections between people and places through which goods, resources and information are exchanged.</li><li>Migration networks may include voluntary and forced movements of people within and between countries, including migration linked to work, conflict, persecution and enslavement.</li><li>Systems and networks may develop and change over time, affecting patterns of movement, trade, communication and settlement.</li><li>The development of systems and networks may have affected societies in different ways, including economic activity, population and connections between places.</li></ul></td><td colspan="2">Notes<ul><li>Government systems may include democratic and non-democratic systems. They may include different institutions or levels of government, elected or unelected representatives, laws, policies and decision-making processes.</li><li>Justice systems may include laws, courts, police, legal processes and prisons.</li><li>The roles and responsibilities of government and justice systems vary between countries and political systems.</li><li>Government and justice systems can protect, restrict, define or change people’s rights and responsibilities.</li><li>How rights and responsibilities are affected can differ between societies and political systems. This may include democratic and non-democratic systems.</li><li>Examples may include voting and political participation, freedom of expression, equality, protest, access to justice, responsibilities under the law and restrictions on individual freedoms.</li></ul></td></tr>
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# Technologies Know-Do-Understand Strands

<table>
<tr><td>Strand</td><td colspan="5">Identify, Define, Explore and Articulate (IDEAs)</td></tr>
<tr><td>Sub-Strand</td><td colspan="2">Business</td><td colspan="2">Design and Engineering</td><td colspan="2">Computing Science</td></tr>
<tr><td rowspan="3">Third Level</td><td colspan="6">Understand: Ideas are developed through an iterative process of analysing needs, generating solutions, testing outcomes and refining designs based on evidence.</td></tr>
<tr>
<td>Know:<br>Entrepreneurial thinking is about identifying opportunities to create or improve products, services or processes.<br><br>A business pitch is a presentation used to share an idea and gain support or gather feedback.<br><br>Entrepreneurs evaluate the success of an enterprise by gathering feedback and identifying areas for improvement.<br><br>Branding enables an organisation to stand out and be recognised in the marketplace such as through the name, logo, design or slogan.<br><br>Marketing and promotion methods, such as advertising, are used by organisations to attract, persuade and inform.</td>
<td>Do:<br>Work with others to solve an identified problem or respond to a brief within an enterprise activity or event planning context.<br><br>Organise resources, such as materials, people, time and equipment, to carry out the enterprise activity.<br><br>Make changes to a product, service or process as needed based on feedback received.<br><br>Evaluate the outcomes of the enterprise activity, what worked well and what could be improved.<br><br>Reflect on personal skills and qualities developed while taking part in enterprise.<br><br>Prepare a business pitch for the idea, initiative or solution.<br><br>Develop a suitable brand for a product or service.<br><br>Develop a promotional strategy for the idea, initiative or solution using different ways to attract, persuade and inform possible users.</td>
<td>Know:<br>Briefs identify opportunities and constraints to a scenario or situation.<br><br>Effective analysis involves breaking down a situation into different elements to understand any requirements more clearly.<br><br>Design ideas can be generated using different approaches and techniques.<br><br>Design ideas can be improved through cycles of testing and refinement.<br><br>Different forms of modelling are used for communicating and testing.<br><br>Critique should be constructive and evidence based.<br><br>Existing designs can be used to identify useful features, limitations and opportunities for improvement.</td>
<td>Do:<br>Identify design requirements based on the brief and research.<br><br>Follow a strategy to complete design activities.<br><br>Use idea-generation techniques to produce initial ideas.<br><br>Use physical and digital modelling techniques to generate, explore and test ideas.<br><br>Critique existing products, services or systems against criteria.</td>
<td>Know:<br>Development processes are iterative and may require revisiting previous stages.<br><br>Analysis identifies requirements, constraints and resources needed to develop a solution.<br><br>Problem-solving strategies include decomposition, abstraction, pattern recognition and algorithmic thinking.<br><br>Prototypes are used to test ideas and gather feedback before implementation.<br><br>Algorithms use sequence, selection, repetition and complex conditions.<br><br>Testing is a planned process used throughout development.<br><br>Usability and performance can be used to evaluate the effectiveness of a solution.</td>
<td>Do:<br>Analyse problems and identify requirements, constraints and resources.<br><br>Create prototypes to communicate and test ideas.<br><br>Compare alternative solutions and justify choices using criteria.<br><br>Build solutions based on designs and requirements.<br><br>Test solutions against success criteria.<br><br>Improve solutions using feedback and evidence.<br><br>Evaluate usability and performance.</td>
</tr>
<tr>
<td colspan="2">Includes, but not limited to<br>Enterprise activities that include problem solving and creative initiatives that build an entrepreneurial mindset, such as:<ul><li>coming up with new product or service ideas in response to a brief</li><li>taking part in an enterprise activity or organising a fund-raising event</li><li>taking part in established national enterprise programmes</li><li>project-based learning</li></ul></td>
<td colspan="2">Includes, but not limited to<br>Idea-generation techniques, such as mood boards, lifestyle boards, biomimicry, creative toolkits (for example, kits, building blocks), brainstorming, artefact analysis.</td>
<td colspan="2">Notes<br>Computational thinking underpins the development process.</td>
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| Strand | Make It Happen | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sub-Strand | Business | | Design and Engineering | | Computing Science | | Cyber | |
| Third Level | **Understand:** Reliable solutions are created through the skilled use of tools, processes and resources within a design and development process. | | | | | | | |
| | **Know:**<br>Software applications can be used to create, edit, format content and communicate ideas and information to different users and audiences.<br><br>A range of tools and formats can be used to lay out text, images and other media in different ways to create functional, professional and visually attractive documents.<br><br>Software applications have help features to support users.<br><br>Digital platforms can be used to communicate and collaborate with others.<br><br>Frontier technologies are new or developing technologies that can help solve problems and change how people learn, live and work. | **Do:**<br>Independently create content for a purpose and for different users.<br><br>Enter and edit text and insert graphics, choosing the right tools and features to format and edit documents.<br><br>Use templates and design features to support layout and presentation.<br><br>Troubleshoot basic problems using help features.<br>Safely collaborate with others by sharing files, feedback and ideas using digital platforms.<br><br>Identify examples of new and powerful technologies and explore how they can be used by organisations and individuals. | **Know:**<br>Drawings can be used for different purposes and audiences.<br><br>Graphic layout decisions influence how information is read, interpreted and prioritised.<br><br>Illustrations use line quality, tone, colour, texture and proportion to enhance understanding and visual communication.<br><br>Information is communicated visually using standardised conventions, symbols and scales such as BSI standards and conventions.<br><br>2D and 3D models can be created using digital applications.<br><br>Digital design and making integrates tools and processes to represent and produce virtual or physical products.<br><br>Materials have classifications that describe their origins or properties<br><br>The choice of material is influenced by its properties, intended function, environment, cost and sustainability. | **Do:**<br>Create a promotional graphic to meet a brief.<br><br>Create orthographic views in third-angle projection of simple shapes.<br><br>Create a pictorial view to clearly explain design ideas.<br><br>Use shading, colour and texture to make a pictorial drawing look realistic.<br><br>Create a 2D or 3D model using digital tools from given dimensions.<br><br>Navigate a digital asset library to find, select and insert components into a digital model<br><br>Demonstrate methods for fixing two or more pieces of material permanently and non-permanently.<br><br>Prepare materials and use finishes to protect or improve the look of materials.<br><br>Demonstrate the safe use of common tools and machines identify potential risks of misuse. | **Know:**<br>Programs are built using branching selection, repetition, complex conditions with logical operators and predefined functions.<br><br>Selection includes branching using IF/THEN/ELSE statements.<br><br>Complex conditions combine two or more conditions in a single decision.<br><br>Logical operators are used to join conditions (AND, OR).<br><br>Variables can have different types, such as string or integer, which affect how they behave.<br><br>Predefined functions are built-in commands that perform tasks.<br><br>Interactive computing solutions work by following a sequence. An event or trigger occurs, a rule or condition is checked, and then an action is carried out.<br><br>Debugging techniques include checking expected and actual outcomes, testing and tracing step by step, changing one thing at a time and using outputs or | **Do:**<br>Develop a computing solution to solve a problem.<br><br>Use tools to structure, organise and display data and information.<br><br>Configure rules/conditions to respond to inputs or changes and/or control behaviour.<br><br>Use a variety of techniques to identify and debug errors in computing solutions.<br><br>Use iterative prompting to create an AI prototype. | **Know:**<br>Passive reconnaissance is the process of gathering information from publicly available sources without directly contacting or accessing a system.<br><br>Open-Source Intelligence (OSINT) is about finding useful information from publicly available sources such as websites, news articles, social media or satellite images to identify vulnerabilities.<br><br>Active reconnaissance is the process of collecting information by directly communicating with a system or network such as scanning a network for devices and identifying open ports.<br><br>Security testing is when an organisation hires someone, for example an ethical hacker, to try to break into the system to discover weaknesses and strengthen security.<br><br>Security testing should be carried out regularly as new vulnerabilities and threats continue to emerge and evolve<br><br>Security testing is legal and ethical when a tester has permission to hack into the system, there are | **Do:**<br>Safely and ethically carry out passive reconnaissance to gather information on a system.<br><br>Use OSINT to gather information on a person, organisation or computer system. |

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| | | | Tools and machines are designed for specific making processes that, when used correctly, can improve consistency and precision. | | feedback to identify and fix errors.<br><br>Generative AI tools can be used to create high-fidelity prototypes. | | clear boundaries in place and there is a defensive purpose. | |
| | **Includes, but not limited to**<br>Word-processing, desktop publishing, presentation and other multimedia software.<br><br>**Notes**<br>Common digital platforms or virtual learning environments, that are used to connect users, share resources and work collaboratively, may vary between Local Authorities. | | **Includes, but not limited to**<br>Using the anatomy of the page and layout features supports the design including orientation, layout, flow text, cropped images and hierarchy of information.<br><br>Simple geometric forms include cuboids and cylinders. Complexity can be added by using additional profiles and addition and subtraction.<br><br>Permanent methods include glueing, riveting and welding.<br><br>Temporary methods include screws, bolts, knock-down fittings, tack-stitching and pinning.<br><br>This could include common finishes such as wax, stain, dyes and dip-coating. | | **Includes, but not limited to**<br>Computing solutions:<br>• Block-coding, programming or web development environments where young people can write, test, debug and improve their code.<br><br>• No-code or low-code solutions, such as interactive dashboards, apps, websites, interactive prototypes, simple games or AI or data solutions.<br><br>• Physical computing solutions where the code created controls inputs, outputs, and behaviour in physical systems (see Systems strand).<br><br>**Exclude**<br>Nested or highly complex conditional structures.<br><br>Writing custom functions.<br><br>**Notes**<br>Young people use the PRIMM approach to coding by first predicting, running, investigating and modifying existing programs before making their own. | | **Notes**<br>Hacking techniques can be explored safely through online educational network simulations, cyber security labs and ethical hacking exercises. | |

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| Strand | Systems | | | | | | | |
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| Sub-Strand | Business | | Design and Engineering | | Computing Science | | Cyber | |
| Third Level | **Understand:** The behaviour and performance of a system are influenced by the interaction of its people, processes and resources. | | | | | | | |
| | **Know:**<br>Prosperity is when people in a country have the resources, opportunities and support they need to live happy, healthy and successful lives.<br><br>Industrial and economic activity in Scotland is grouped into primary, secondary and tertiary sectors based on the products produced, the services provided or the stage in the production process.<br><br>Demand refers to the quantity of a product or service that consumers are willing and able to buy at different prices over a period of time.<br><br>Supply refers to the quantity of a product or service that producers are willing and able to offer for sale at different prices, over a period of time.<br><br>Demand and supply interact to determine market price and quantity of products and services.<br><br>Accounting statements support an organisation to plan and report on financial performance by showing income, outgoings and what is owned and owed. | **Do:**<br>Explore what prosperity means to the people of Scotland.<br><br>Identify examples of businesses operating in the primary, secondary and tertiary sectors of industry and explain their contribution to Scotland's economy.<br><br>Explore how and why demand for products and the supply of products change over time and start to consider the impact of these changes.<br><br>Use financial documents to assess business performance and identify ways to improve it. | **Know:**<br>A system, such as a machine, is a group of interacting, interdependent parts that work together to achieve a specific purpose.<br><br>A subsystem is a smaller, independent system that operates as a distinct part of a larger, more complex system, such as a mechanism.<br><br>Energy transfer is the movement of energy from one place, object or system to another.<br><br>Energy transformation, or energy conversion, is the process of changing energy from one form to another. | **Do:**<br>Draw a systems diagram.<br><br>Identify subsystems within a more complex system.<br><br>Identify the forms of energy used in a system and describe how energy is transferred or transformed between components. | **Know:**<br>Computer systems represent all data and instructions using binary code.<br><br>Computer systems consist of interacting hardware components, including processors, memory and storage, whose combined performance affects system behaviour, such as speed, responsiveness and multitasking.<br><br>Data collected by sensors can be used to control how a system behaves and responds to changes in its surroundings.<br><br>Data storage is measured using standard units, for example, bits, bytes, kilobytes, megabytes and gigabytes.<br><br>Data centres house large numbers of high-performance computers, servers and networking equipment that store, process and manage data that users access remotely.<br><br>Networks use hardware such as switches, routers, wireless access points and repeaters to connect devices and transmit data between them. | **Do:**<br>Explain the role of the components of a system, including the processor, memory and storage.<br><br>Build physical computing systems that that respond to real-world conditions and integrate multiple inputs, processes and outputs.<br><br>Set up two or more devices to communicate by sending and receiving data using simple code or network rules.<br><br>Trace the journey of data through a network and explain how packets are created, transmitted and reassembled.<br><br>Identify the network hardware that connects devices and enables data to travel across a network.<br><br>Identify the factors affecting system and network performance. | **Know:**<br>Cyber security is about keeping data and systems safe from cyber threats, such as malware, hacking and viruses.<br><br>Malware (malicious software) is any software or program designed to harm, disrupt or gain unauthorised access to a computer system, network or device.<br><br>Social engineering is an attack that tricks people into giving up information or access to systems.<br><br>Defensive cyber security is used to protect users and computer systems. | **Do:**<br>Outline the measures that can be used to reduce the effects of cyber threats.<br><br>Describe the different types of malware.<br><br>Describe how social engineering can be used to gain access to a computer system.<br><br>Identify signs that an email, message, website or request may be suspicious.<br><br>Outline steps that could be taken when an account, device or data has been compromised. |

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| | | | | | Networked devices have a unique Internet Protocol (IP) address to identify them.<br><br>Protocols are the rules that devices follow to communicate with each other across a network.<br><br>Data is broken into packets and sent across a network.<br><br>Network performance depends on bandwidth, number of users and connection type. | | | |
| | **Excludes**<br>Market equilibrium diagrams.<br><br>**Includes, but not limited to**<br>At this level, knowledge of only one type of account is required.<br>• period end financial statements<br>• budgets<br>• costing (job costing, break-even)<br>• inventory monitoring<br><br>**Notes**<br>ICT could be used to access, edit or produce financial statements. | | **Includes but not limited to**<br>Engineering, digital, manufacturing and graphical systems.<br><br>**Notes**<br>Depending on the type of system studied, feedback could include sensor data, quality control data or user feedback. | | **Excludes**<br>Binary to decimal conversions. | | **Includes, but not limited to**<br>Malware types include viruses, trojans, worms, spyware, botnet malware and ransomware. | |

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| Strand | People and Planet | | | | | | | |
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| Sub-Strand | Business | | Design and Engineering | | Computing Science | | Cyber | |
| Third Level | **Understand:** Technology and innovation decisions require balancing the needs of people, communities and the environment. | | | | | | | |
| | **Know:**<br>Ethical marketing is the practice of promoting products, services or brands in a way that is honest, fair and respectful of consumers, society and the environment.<br><br>Marketing activity may increase consumption by encouraging consumers to replace products more often.<br><br>In a circular economy, products are made to last longer and materials are reused, repaired, refurbished and recycled. This reduces the need for new raw materials and produces less waste.<br><br>A social enterprise is an organisation that aims to achieve social or environmental goals while also generating revenue. | **Do:**<br>Recognise ethical and unethical marketing practices.<br><br>Distinguish between persuasive and misleading messages in marketing materials.<br><br>Explore the effects on the environment of increasing consumption of products.<br><br>Consider the benefits to the environment, to the organisations and to individuals of adopting a circular economy approach.<br><br>Investigate an example of a Scottish social enterprise, considering its goals, how it generates revenue and the effect it has on the local or wider community. | **Know:**<br>A circular life cycle is a regenerative economic and manufacturing model designed to eliminate waste.<br><br>A circular life cycle keeps products, parts and materials in use for as long as possible through continuous reuse, repair, remanufacturing, and recycling.<br><br>The right to repair enables users to repair products or replace components rather than replace the whole product.<br><br>The Rs of sustainability include recycle, reduce, refuse, renew, repair, repurpose, rethink and reuse.<br><br>Green technology contributes to industrial activity in Scotland. | **Do:**<br>Discuss the social and environmental effects of circular and linear life cycle products, low-cost products and changes in technology.<br><br>Consider the Rs of sustainability when critiquing an existing product. | **Know:**<br>Human-centred design of AI and data systems are designed around the needs, experiences and wellbeing of people.<br><br>Digital and AI systems use data and algorithms to personalise content, meaning different users may receive different information and experiences.<br><br>AI can improve inclusivity by adapting services, information and technologies to meet the needs of diverse users and increase accessibility.<br><br>Networks, digital infrastructure and data centres depend on energy and limited natural resources, such as water, to function.<br><br>Frontier technologies are new and advanced technologies that are made possible by improvements in computing power, data processing and connectivity. | **Do:**<br>Describe possible consequences of targeted or personalised content for users.<br><br>Identify the reasons why frameworks exist to regulate data and AI systems.<br><br>Consider how AI can be used to improve accessibility for a diverse range of users.<br><br>Consider the environmental effects of networks, digital infrastructure and data centres.<br><br>Explore how frontier technologies, such as AI, machine learning, robotics, automation and IoT devices, can affect how people live and work in Scotland. | **Know:**<br>Older devices that have become obsolete or are replaced with new versions can be vulnerable to cyber threats because they often no longer receive security updates or patches.<br><br>Failing to wipe an old device properly could expose sensitive data, such as personal, financial or organisation details.<br><br>Cyber attacks often target sensitive information such as customer or employee data and intellectual property. | **Do:**<br>Consider measures that can be taken to ensure older devices remain secure.<br><br>Explore how data and devices are securely disposed of.<br><br>Explore real-life examples of cyber attacks and consider the effects on individuals. |
| | **Notes**<br>The Advertising Standards Authority (ASA) lays out the rules and guidance for marketing including the Committee of Advertising Practice (CAP) Code and UK Code of Broadcasting Advertising (BCAP Code). | | **Includes, but not limited to**<br>The study of the effect of low-cost products might include factors, such as workforce exploitation and child labour, materials, pollution, natural resources and supply chains.<br><br>Green technology is environmentally friendly innovation designed to reduce pollution, conserve | | | | | |

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| | | natural resources and promote sustainable development. | | |

| **Strand** | **A Data Rich World** | | | | | | | |
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| **Sub-Strand** | Business | | Design & Engineering | | Computing Science | | Cyber | |
| | **Understand:** Data has value and decisions become more informed when data sources, quality and patterns are critically analysed. | | | | | | | |
| **Third Level** | **Know:**<br>Primary and secondary methods of market research can be used to gather data to identify gaps and opportunities and understand the needs of customers.<br><br>Primary market research, or field research, gathers first-hand information which has been collected for a specific purpose.<br><br>Secondary market research, or desk research, is when the business collects and uses information from published sources. It has been produced by someone else for a different purpose.<br><br>Critical evaluation of online sources reduces the risk of misinformation.<br><br>AI prompts are the input or instruction, given to an artificial intelligence system, to tell it what task to perform and how to respond.<br><br>Data analysis software is used to record, process and analyse numerical data for a range of administrative purposes.<br><br>Numerical data and | **Do:**<br>Exploring different ways market research can be gathered.<br><br>Identify reliable and unreliable sources of information when researching online. Check and verify results considering authorship, evidence, bias and purpose.<br><br>Use AI tools to generate summaries or gather information and verify this information using other sources.<br><br>Edit and perform calculations by selecting appropriate functions, formatting and formulae in data analysis software.<br><br>Explore tools and functions that help to present data and information visually.<br><br>Write and execute simple queries, for example, on one or two criteria, to elicit data to solve a problem.<br><br>Amend and update data management structures, for example, changing data type or field labels. | **Know:**<br>Designers use multiple forms of data to guide every choice from the start to the finish of a design.<br><br>Primary data collection methods include taking measurements, undertaking surveys, testing, observation and experimentation.<br><br>Secondary data collection methods include internet searches and the use of existing sources of information such as books, journals, technical data sheets, catalogues, standards, reports and data sets.<br><br>Quantitative data is any information that can be counted, measured and written down with numbers.<br><br>Qualitative data is information that tells us what something is like. It describes people's thoughts, feelings, opinions or observations using words instead of numbers. | **Do:**<br>Identify where primary and secondary data are used throughout the design of a product or system.<br><br>Gather and use quantitative data to make design decisions.<br><br>Gather and use qualitative data to make design decisions. | **Know:**<br>Data can be collected in different ways, for example, volunteered data (given by users) or captured data (collected automatically).<br><br>Data types such as number, text, date, image, audio, determine how data is encoded, stored and used.<br><br>Data can be stored in different formats depending on its use.<br><br>A database stores related data in a structured way, allowing users and applications to add, retrieve and update information<br><br>Structured data relies on consistent formatting and fields to organise data.<br><br>Hierarchical structures organise data in levels, allowing it to be found using a path.<br><br>Digital systems use identifiers such as cell references, memory locations, IP addresses to locate data.<br><br>Retrieved data can be sorted and filtered. | **Do:**<br>Compare different sources of data and the value that this data has.<br><br>Select the most appropriate file format for a specific task.<br><br>Select appropriate data types for different kinds of data and adjust incorrect types when needed.<br><br>Identify and fix errors in a data set before using, ensuring it is clean for use.<br><br>Use digital tools to manipulate data sets to answer questions.<br><br>Use names, references or addresses to locate, compare and manipulate data.<br><br>Use paths or references to locate data within a hierarchical arrangement.<br><br>Train and test a machine learning model.<br><br>Improve an AI model's performance by adding more training data.<br><br>Explain the difference between training and test data. | **Know:**<br>UK General Data Protection Regulation (GDPR) helps protect people's personal data by requiring organisations to use cyber security measures and handle data responsibly.<br><br>Data is often the target of a cyber attack. Data such as personal information including bank details and company information is stolen for various reasons including identity theft, extortion, industrial spying or to sell data on to other criminals.<br><br>Data flowing through systems and networks can be intercepted or altered.<br><br>Encryption is the process of turning readable data into unreadable data to keep it secure. | **Do:**<br>Discuss different motives for a cyber attack that steals data.<br><br>Encrypt and decrypt data using a simple cipher |

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| | information can be presented in different digital displays, such as tables, charts, graphs and other visual tools.<br><br>Data management software enables users to store, manage, update and retrieve data for a range of administrative purposes.<br><br>Querying is the process of finding relevant information by using structured search techniques in data management software. | | | | Data cleaning before input improves accuracy of the output.<br><br>AI systems are developed by humans who control their design.<br><br>AI systems use data and algorithms (rules) to make decisions, predictions, or create content.<br><br>Machine learning is a type of AI where systems learn patterns from data instead of being given step-by-step instructions.<br><br>A data set is a collection of example data used to train an AI system.<br><br>How well an AI system works depends on the quality, size and balance of its training data.<br><br>Generative AI creates outputs by predicting what is most likely based on patterns in the training data and the prompt.<br><br>Some AI follows fixed rules where the same input produces the same answer. Other AI considers possibilities and chooses an answer based on what is most likely. | Recognise when an AI system gives the same or variable outputs. | | |
| | **Notes**<br>Digital tools can be used to support market research type activities.<br><br>**Includes, but not limited to**<br>Data analysis software could include spreadsheets, business intelligence (BI) systems or programming environments for statistical analysis. | | **Notes**<br>Knowledge and skills with data should be integrated into learning experiences within other strands, where they can be applied in authentic design and engineering contexts. | | **Includes, but not limited to**<br>Digital tools to manipulate data include simple querying using structure query language (SQL), preparing data for use within an AI system, using data in a spreadsheet application and interrogating a data set using a high-level language. | | **Includes, but not limited to**<br>Ciphers, coded messages and unplugged activities. | |

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## Declaration

The content of this document was written by the author, exercising full professional judgement. Education Scotland approved AI tools were used to support review, clarity and quality assurance. Education Scotland staff retain full responsibility and have reviewed and approved all content.

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## Version History

| Version | Date | Detail |
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| Version 1.0 | 4 November 2026 | First released |

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