

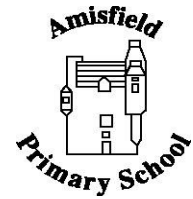
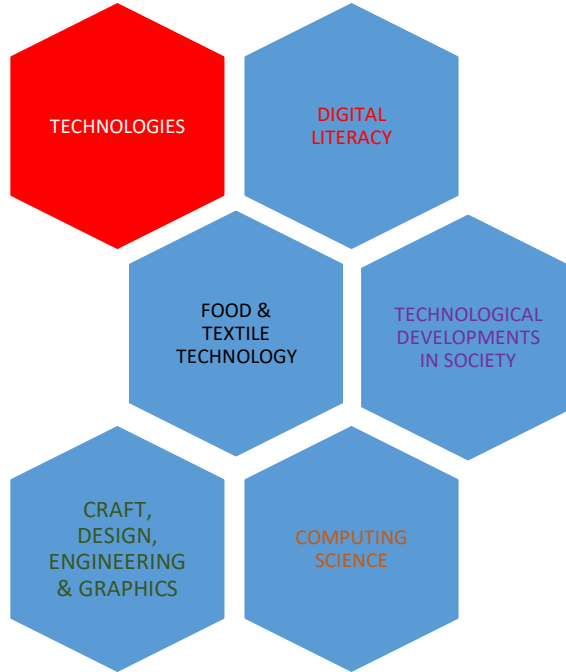


Dumfries High School Cluster



TECHNOLOGIES PROGRAMME OF LEARNING

DIGITAL LITERACY & COMPUTING SCIENCE



Date of Creation: October 14th 2022

By G Tennant supported by G McIlorum and C Cannon



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DIGITAL LITERACY & COMPUTING SCIENCE

DIGITAL
LITERACY

COMPUTING
SCIENCE

As we follow our Digital Learning and Teaching strategy for Scotland – ‘Enhancing Learning and Teaching Through the Use of Digital Technology’, Dumfries High School cluster schools – primaries and secondary - strive to follow the same vision, aims and objectives set out in this national document...

Our Vision

The Scottish Government is committed to improving education in Scotland and delivering the best possible life chances for all of our children and young people. The National Improvement Framework and Scottish Education Delivery Plan demonstrate this commitment. Our overarching vision for Scottish Education is therefore clear:

- excellence through raising attainment: ensuring that every child achieves the highest standards in literacy and numeracy, set out within Curriculum for Excellence levels, and the right range of **skills**, qualifications and achievements to allow them to succeed
- achieving equity: ensuring that every child has the same opportunity to succeed, with a particular focus on closing the poverty-related attainment gap.

Digital technology can make a substantial contribution to this improvement agenda by enriching education across all areas of Curriculum for Excellence. If used effectively and appropriately, digital technology can enhance learning and teaching, equip our children and young people with vital **digital skills** and crucially, it can lead to improved educational outcomes.

Digital technology is already embedded within Scottish education. It has a place within Curriculum for Excellence, Initial Teacher Education and the Professional Standards set by the General Teaching Council for Scotland (GTCS). Despite the pervasive nature of digital technology, its benefits are not always fully felt within our education establishments. This strategy aims to improve the current situation by creating the conditions to allow all of Scotland’s educators, learners and parents to take full advantage of the opportunities offered by digital technology in order to raise attainment, ambition and opportunities for all.

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Aim of the Strategy

In order to realise our vision, partners at both a national and local level must work together to achieve all four of the following essential and interrelated objectives that are central to successful digital learning, teaching and assessment:

- Develop the **skills** and confidence of educators in the appropriate and effective use of digital technology to support learning and teaching
- Improve access to digital technology for all learners
- Ensure that digital technology is a central consideration in all areas of curriculum and assessment delivery
- Empower leaders of change to drive innovation and investment in digital technology for learning and teaching

*'Enhancing Learning and Teaching Through the Use of Digital Technology – September 2016
– Scottish Government'*



<https://www.gov.scot/publications/enhancing-learning-teaching-through-use-digital-technology/>

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We are also planning for our learners' future as we believe that technology and digital skills should be recognised as a 'responsibility for all'. As we move through the 21st century, we need to plan ahead and base our focus on what the future will look like. To that end, we also look to the following document produced by Skills Development Scotland for inspiration – and to base our digital strategy on.

'Skills 4.0: A skills model to drive Scotland's future.'



https://www.skillsdevelopmentScotland.co.uk/media/44684/skills-40_a-skills-model.pdf

Appendix 1 in this document highlights the 'skills for the future: Meta skills' and splits into 'timeless, higher order skills that support the development of additional skills and promote success in whatever context the future brings'. It is split in to three areas: self-management, social intelligence and innovation. Our own programme of learning feeds into this and includes many of the skills mentioned.

As this is a working programme we always strive to use documents that will aid our schools development, progress our teaching and learning, and help us in our continual aim to improve. To that end we keep up to date with our partners at Education Scotland who are currently at draft stage of a new '**Teacher Digital Literacy Framework**' which will be published soon. We can hopefully take from this framework, parts that will 'fit' with this programme and benefit our educators and learners.

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The framework will outline the digital literacy skills, knowledge and understanding a teacher requires to deliver high-quality digital learning experiences for all children and young people. It will highlight the importance of highly-skilled staff who work with children, young people and others to ensure digital learning is motivating and meaningful.

The framework is based on the European Digital Competence Framework for Citizens (also known as DigComp2). DigComp2 has been developed with the contribution of a large number of experts, is endorsed at a European level and broadly meets the areas already set out in our digital vision diagrams for digital teacher which are widely used in Scottish schools.



<https://digital-skills-jobs.europa.eu/en/inspiration/research/digcomp-22-update-digital-competence-framework-citizens>

The **'Teacher Digital Literacy Framework'** will allow teachers to gather evidence for the following areas within the GTCS standards for career long professional learning:

2.1.1 Digital technologies to support learning;

2.1.3 The value of learning beyond curricular areas/ subject boundaries and of cross curricular subjects, e.g. literacy, numeracy, health and wellbeing, learning for sustainability and digital literacy;

2.1.3 The skills and competencies that comprise teaching digital literacy and know how to embed digital technologies to enhance teaching and learning;

3.2.1 Ensure that every learner has access to and are enabled to select from well-chosen/ designed resources including digital technologies

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As well as nationally, and at European level, globally the Digital Intelligence (DQ) Global Standards Report of 2019 contains a common framework for Digital Literacy, Skills and Readiness.



The DG framework offers a holistic set of digital competencies (highlighted above) with a systematic structure as a reference framework. The aim is to enable any organisation to adopt the framework to meet their needs. Any government, company or school can easily adapt the DQ framework and customise it to their own needs based on their educational aims and cultural background.



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These eight areas of digital life can be further differentiated by three different 'levels' of digital intelligence...

Digital Citizenship

The ability to use digital technology and media in a safe, responsible, and ethical ways.

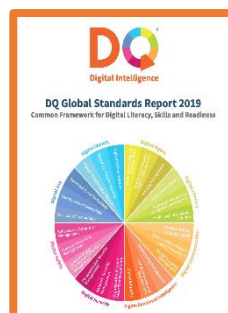
Digital Creativity

The ability to become part of the digital ecosystem, and to create new knowledge, technologies, and content to turn ideas into reality.

Digital Competitiveness

The ability to solve global challenges, to innovate, and to create new opportunities in the digital economy by driving entrepreneurship, jobs, growth and impact.

With three levels of DQ across eight areas, 24 competencies have been identified based on aggregation of 25 existing frameworks. To see the links between the eight areas of digital life, the three levels of digital intelligence, and the twenty-four digital competencies, click on the QR code below.



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DIGITAL LITERACY

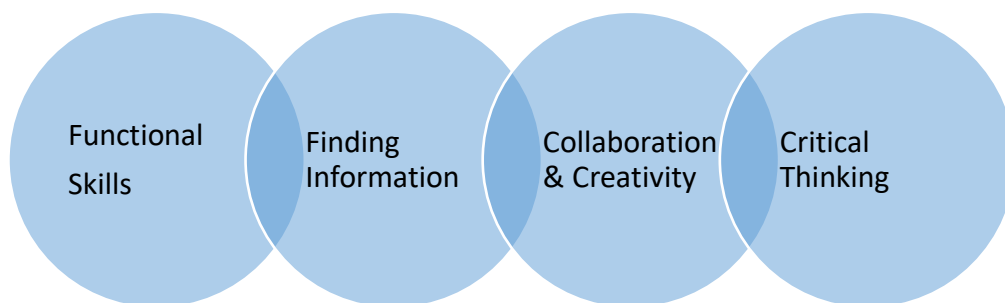
Considering these frameworks and following the digital vision of Education Scotland by way of digital vision diagrams...

<https://blogs.glowscotland.org.uk/glowblogs/digilearn/digital-vision/>

...we have created a programme of learning to follow, focusing on digital skills that are child friendly and manageable in terms of planning, tracking and assessing. The following diagram shows the areas that makes up the programme in terms of digital literacy -



Planning



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By having the choice of whether or not to use the plans associated with this programme, these four skills can be incorporated into each school's planning format – as to what way suits which particular setting. An example of this would be to slot the skills into IDL topic bundles across a rolling plan. By evaluating each skill, decisions can be made about whether some 'functional' and 'finding information' skills could be included in specific bundles over specific years and could be revisited. (See example: Appendix 1)

Some skills could be used consistently across all bundles and the rest of the curriculum. (See example: 2nd page of Appendix 1)

It was also evident that all of the 'collaboration and creativity' skills and 'critical thinking' skills are digital skills covered 'every day' across all curricular areas, as well as some of the 'functional' and 'finding information' skills. (See example: Appendix 2)

Tracking

The method in which a school could track the progression of each learner's skills, and the teaching coverage of these skills can be maintained by updating spreadsheets for the four skills. (Available on our DHS Cluster Digital Teams page) This could be trialled in a way that suits each school's setting, and agreed by all staff on how to do this. Depending on the school, each learner across each stage could be tracked individually or as part of a group. An example of doing this would be to track both 'functional' skills and 'finding information' skills by...

- Filling the cell green if the learner/group has achieved this skill and/or
- Taking note of when a particular skill/set of skills is being taught (coverage)

To track the 'collaboration and creativity' skills and 'critical thinking' skills we recognised that they should be tracked by coverage rather than level of skill. These skills can be monitored termly but lend themselves to being taught across both digital literacy and computing science.

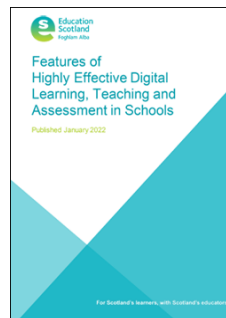


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Assessing

When assessing our digital literacy skills, we have the option of following the Education Scotland 'Features of Highly Effective Digital Learning, Teaching and Assessment in Schools' document...



<https://education.gov.scot/media/cxwnqrma/nih312-features-of-highly-effective-digital-learning-and-teaching-01-22.pdf>

Each teacher across the cluster is expected to use their own level of skills to choose appropriate assessment strategies mentioned in the above document, across the curriculum. The document focuses on three specific areas...

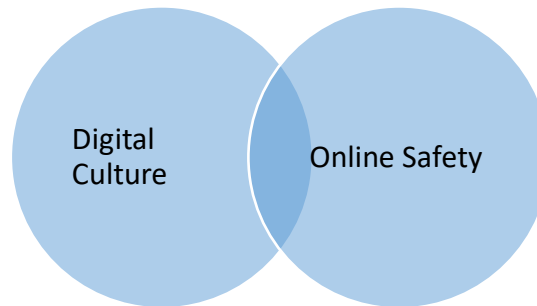
- Assessment approaches are enhanced by the use of accessible digital tools and platforms. These are matched to the needs of learners in order to support them in progressing their learning.
- Digital technology is used to support and simplify the process of assessment and reporting, effectively informing improvements in learning and teaching, based on data that can be accessed and shared when required.
- Digital tools are used to enhance the high-quality feedback received by learners, from their teachers and peers, to gain a deeper understanding of their learning and what they need to do to improve.

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To have a 'digital culture' is to not to see digital literacy skills as a separate area or aspect of the curriculum, but to reach the point where they are embedded throughout our curriculum across all subjects. They should be used as second nature – to inform, create, evaluate, analyse and be purposeful in their use.

Online Safety is taught continually throughout each pupil's life at primary school, focusing on subjects and lessons relative to each stage they are working at. These skills are taught in reference to the Health and Wellbeing SHANARRI indicator – Being Safe...

For me this could be –

- I have regular contact with adults I trust
- I can work out where there is a risk and make the right choices
- I am able to cope when things go wrong
- I feel confident about myself
- I have the confidence to tell an adult if I have been harmed, feel scared or threatened
- I feel part of my local school
- I feel safe at school

Examples of this in action –

- Self-evaluation process which ensures the establishment knows itself and its community well
- Strong culture of partnership working, shared intelligence and joint planning across the learning community
- Providing opportunities for children and young people to develop their resilience and assess risk
- Consistent adult who knows children or young people well
- Regular, timetabled opportunities for 1:1 dialogue
- Regular time created for staff to discuss children or young people's needs

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We cover Cyber Resilience and Internet Safety Experiences and Outcomes through a variety of teaching methods...

- Individual Health and Wellbeing stand-alone lessons.
- In conjunction with specific IDL topics across the curriculum.
- When online for a variety of purposes.
- Cluster transition events based on cyber resilience and internet safety.

Cyber Resilience and Internet Safety Experience and Outcomes

I can explore, play and communicate using digital technologies safely and securely. (TCH 0-03a)

I can extend my knowledge of how to use digital technology to communicate with others and I am aware of ways to keep safe and secure. (TCH 1-03a)

I can explore online communities demonstrating an understanding of responsible digital behaviour and I'm aware of how to keep myself safe and secure. (TCH 2-03a)

Implementation

The focus for implementing the teaching of digital literacy skills across the cluster, in each class and stage, is left for each individual teacher to organise and deliver themselves. We have decided not to be prescriptive, but instead to target each skill using a variety of platforms, websites, programs and apps that we are comfortable using. As we progress, we will continue to learn through collegial sessions and upskilling our staff as and when is appropriate and manageable.

We have the option to work in partnership as cluster schools and now have an evolving bank of ideas and on-line 'go-to' guide that targets the skills on which we are focusing. These guides provide each teacher with help to deliver lessons – linked to E's and O's, skills, benchmarks and available resources and links to websites or programs that can be used. They have also been linked with the following document created by Education Scotland, which has examples of digital literacy, and computing science learning, giving examples of what digital learning might look like in our classrooms.

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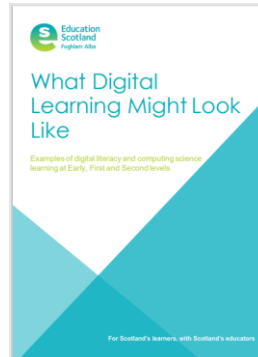
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‘What Digital Learning Might Look Like’



<https://education.gov.scot/media/uh2jebbs/nih158-what-digital-learning-might-look-like.pdf>

COMPUTING SCIENCE

Looking at the three organisers of Computing Science:

- Understanding the world through computational thinking
- Understanding and analysing computing technology
- Designing, building and testing computing solutions

Along with Digital Literacy, we have created a bank of go-to planning and learning activities for each school to use as they think best. This could be incorporated into a rolling programme being taught as an individual subject area, or combined with IDL bundles/topics that suit each skill. We feel that Computing Science and Digital Literacy sit as separate entities, but the Digital Literacy skills feed in to Computing Science, especially the collaboration and creativity, critical thinking, and most importantly – functional skills.

We hope that by having the choice of using this programme: planning and assessing with the assistance of the ‘go to help guides’, and tracking learner’s progress, will allow each school in the cluster to apply for their various digital schools awards, if they do not already have them. Using the self-evaluation toolkit associated with the awards will enable each school to decide whether they can validate their claim and gain each award.

<https://www.digitalschoolsawards.com/>

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Appendix 1

Historical People

Early	First	Second
I have explored how people lived in the past and have used imaginative play to show how their lives were different from my own and the people around me. SOC 0-04a	I can compare aspects of people's daily lives in the past with my own by using historical evidence or the experience of recreating an historical setting. SOC 1-04a	I can compare and contrast a society in the past with my own and contribute to a discussion of the similarities and differences. SOC 2-04a
	Having selected a significant individual from the past, I can contribute to a discussion on the influence of their actions, then and since. SOC 1-06a	I can discuss why people and events from a particular time in the past were important, placing them within a historical sequence. SOC 2-06a
I can use digital technologies to explore how to search and find information. TCH 0-02a	Using digital technologies responsibly I can access, retrieve and use information to support, enrich or extend learning in different contexts. TCH 1-02a	I can use digital technologies to search, access and retrieve information and am aware that not all of this information will be credible. TCH 02-02a
I explore ways to design and construct models. TCH 0-09a	I can design and construct models and explain my solutions. TCH 1-09a	I can extend and enhance my design skills to solve problems and can construct models. TCH 2-09a
Chosen context •		
Literacy Focus – please tick		
Scripts	Letters	Creative
Personal	Reports	Free writing
Scot's Language	Poetry	Instructions
Writer's craft	Persuasive	Explanation
Biographies	Recounts	Note-taking
Digital Literacy Focus		
When I search for information I can find information relevant to what I am searching for. (E/F)		
I can use more than one website or source combined to find useful information on the same subject (F/S)		
I can use graphics effectively. (F/S)		
I know how to narrow the search down by asking more specific questions in a search engine. (F/S)		
I know if a source is up to date or from a long time ago. (F/S)		
Skills Focus – please highlight		
LEARNING	LIFE	WORK
Remembering	Literacy	Managing Time
Understanding	Numeracy	Planning & Organising
Applying	Health and Wellbeing	Communicating
Analysing	Enterprise	Solving Problems
Evaluating	Learning for sustainability	Undertaking tasks at short notice
Creating	Digital Literacy	Working with others
	Creativity	Thinking critically & creatively
		Taking responsibility for own development
		Managing & Being Managed

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Digital Literacy Skills Used Across all IDL Bundles

Functional Skills and Finding Information Skills

Early Level

- I can identify and use images and key words when searching for specific information. (EB)

First/Second Level

- I can highlight text and change size, font and style. (F)
- I can use copy, cut and paste in a word processing program. (F)
- I can copy and paste in a graphics program. (F)
- I can use proportional text sizes to make a contrast.(F/S)
- I understand the concept of proportion when using text. (F/S)
- I know that I can use the information that I find but I must change it slightly to make it my own. (F/S)

Second Level

- I can format texts. (S)
- I can store, share and collaborate using an online cloud based service, for example: GLOW or other platforms. (SB)
- I know that the information I find is of a trusted source. (S)
- I can demonstrate an understanding of usage rights and can apply these within a search, for example: creative commons. (SB)



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Appendix 2.

Every Day Coverage of Digital Literacy Skills

Early/First Level

Functional Skills

- I can start a program using a mouse. (E)
- I can move the mouse and point to a desired location. (E)
- I can open an app by touching the screen in the right place. (E)
- I can identify the mouse and explain how it works on a computer and a laptop. (E)
- I can point and click using the mouse. (E)
- I can select and de-select an icon using the mouse. (E)
- I can explain the basics of how a device works. (E)
- I can identify and consistently use the close icon. (EB)
- I can open and close a pre-saved file. (EB)
- I can start and log on to a preferred device with a given username and password. (EB)
- I can identify the key components of different types of digital technology. (EB)
- I recognise the different types of digital technology. (EB)
- I can identify icons for different applications (EB)
- I can print a document by using the print feature. (E/F)
- I can identify icons and open a program by clicking. (E/F)
- I treat devices with respect. (E/F)
- I understand the dos and don'ts of using an electronic device. (E/F)
- I can log off or shut down a device properly and close all apps that are open. (E/F)

Finding Information Skills

- I can demonstrate an understanding of appropriate behaviour and language in a digital environment. (EB)
- I can demonstrate an understanding of how information can be found on websites as text, audio, images and video. (EB)
- I can demonstrate an understanding of how I should not use materials owned by others without permission. (EB)



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First/Second Level

Functional Skills

- I can open and save a file to and from a specific location. (FB)
- I understand that I can save work as a file on a computer/laptop, and I know how to do so. (F)
- I can click and drag the mouse (F)

Finding Information Skills

- I understand that information I find on the internet is someone else's property. (F)
- I can show patience when I don't find the information I am looking for straight away. (F/S)

Second Level

Functional Skills

- I can find files in folders by searching properly. (S)
- I can select the most appropriate digital software to perform a task. (SB)
- I can save files using an organised filing system (SB)
- I can identify and save in a range of standard file formats (SB)
- I can identify the key features of input, output and storage devices. (SB)

Finding Information Skills

- I can use social networks to gather information that is relevant to my purpose. (S)
- If I am on social networks, I know what to share and what not to share. (S)
- I can access website and use navigation skills to retrieve information for a specific task. (SB)



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Critical Thinking & Collaboration and Creativity Skills

(These are not in levels)

Critical Thinking

- I can think for myself
- I can analyse information
- I can evaluate information
- I can see patterns and connections
- I can identify information that is important and what is not important
- I can produce meaningful information
- I can apply my thinking to a real-world context
- I can ask questions about the information I research and read
- I can understand the ideas given in information
- I can determine the importance and relevance of arguments and ideas
- I can recognise, build and assess arguments
- I can identify things that are not quite correct or not consistent
- I can approach problems in a consistent and systematic way

Collaboration and Creativity Skills

Collaboration...

- I can empathise with others
- I can feel what others feel
- I can recognise what others need, to get the best out of them
- I allow everyone to join in
- I can provide feedback to myself and others
- I can work on my own as well as other people to come up with ideas
- I can organise myself and others in a way that we will produce the best output for the task set
- I can start discussions to gain opinions and ideas

Creativity...

- I can be creative
- I can think in different ways and directions
- I can bring new ideas to life
- I can explore the problem
- I can define the point of view

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- I can select the direction to go in
- I can give detailed ideas
- I can elaborate on an idea
- I can decide on the most appropriate direction to take
- I can use my imagination to create something
- I can think about the purpose of my creation and adapt to suit
- I can combine resources such as pens, paper, art material and digital technologies with my knowledge of a subject to create something