








STEM Glasgow Sciences Framework






The framework for Sciences has been organised by level and split by stage. Within each stage there are **suggested** bundles of Curriculum for Excellence Experiences and Outcomes. These E's & O's are then supported by:

SCN 1-06a Education Scotland Sciences Planning Tool

-  Suggested bundles
-  Benchmarks for Assessment
-  Resources to support learning
-  Exemplar IDL planners
-  Key documents

This framework is a working document and will be updated regularly. Please be flexible in your approach and keep up to date with developments to ensure you can best plan for excellent learning and teaching.

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Our Vision

“That our young people, practitioners and partners work collaboratively to support the development of STEM based knowledge, skills and opportunities, increasing the skills for life, learning and work of our young people and supporting Glasgow’s economic development.”





SCIENCES FRAMEWORK

How to Use Guide



FIRST LEVEL Level Overview					
Primary 2	Space By safely observing and recording the sun and moon at various times, I can describe their patterns of movement and changes over time. I can relate these to the length of a day, a month and a year. SCN 1-05a	Forces By investigating forces on toys and other objects, I can predict the effect on the shape or motion of objects. SCN 1-07a By exploiting forces exerted by magnets on other magnets and magnetic materials, I can contribute to the design of a game. SCN 1-08a	Vibrations and Waves By collaborating in experiments on different ways of producing sound from vibrations, I can demonstrate how to change the pitch of a sound. SCN 1-11a	Body Systems and Cells I have explored my senses and can discuss their reliability and limitations in responding to the environment. SCN 1-12b	Properties and Uses of Substances Through exploring properties and sources of materials, I can choose appropriate materials to solve practical challenges. SCN 1-15a
Primary 3	Biodiversity and Interdependence I can distinguish between living and non-living things. I can sort living things into groups and explain my decisions. SCN 1-01a	Biodiversity and Interdependence I can explore examples of food chains and show an appreciation of how animals and plants depend on each other for food. SCN 1-02a	Biodiversity and Interdependence I can help to design experiments to find out what plants need in order to grow and develop. I can observe and record my findings and from what I have learned I can grow healthy plants in school. SCN 1-03a	Body Systems and Cells I know the symptoms of some common diseases caused by germs. I can explain how they are spread and discuss how some methods of preventing and treating disease benefit society. SCN 1-13a	Inheritance By comparing generations of families of humans, plants and animals, I can begin to understand how characteristics are inherited. SCN 1-14a
Primary 4	Energy Sources and Sustainability I am aware of different types of energy around me and can show their importance to everyday life and my survival. SCN 1-04a	Processes of the Planet By investigating how water can change from one form to another, I can relate my findings to everyday experiences. SCN 1-05a	Electricity I can describe an electrical circuit as a continuous loop of conducting materials. I can combine simple components in a series circuit to make a game or model. SCN 1-09a	Body Systems and Cells By researching, I can describe the position and function of the skeleton and major organs of the human body and discuss what I need to do to keep them healthy. SCN 1-12a	Properties and Uses of Substances I can make and test predictions about solids dissolving in water and can relate my findings to the world around me. SCN 1-16a
Topical Science I have contributed to discussions of current scientific news items to help develop my awareness of science. SCN 1-20a					



Science Planning Tool



SCN 1-03a



SUGGESTED bundling of E's & O's for stage



Benchmarks for Assessment



Biodiversity and Interdependence

I can help to design experiments to find out what plants need in order to grow and develop. I can observe and record my findings and from what I have learned I can grow healthy plants in school.
SCN 1-03a



Topical Science

Should be taught at every stage & level



#STEMGlasgow

Linked resources



Exemplar IDL Planners





SCIENCES FRAMEWORK

Home



Early Level	Early Years	Primary 1	
First Level	Primary 2	Primary 3	Primary 4
Second Level	Primary 5	Primary 6	Primary 7
Third Level	1st Year	2nd Year	

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Early Years

Biodiversity and Interdependence

I have observed living things in the environment over time and am becoming aware of how they depend on each other.

SCN 0-01a



Energy Sources and Sustainability

I have experienced, used and described a wide range of toys and common appliances. I can say 'what makes it go' and say what they do when they work.

SCN 0-04a



Space

I have experienced the wonder of looking at the vastness of the sky, and can recognise the sun, moon and stars and link them to daily patterns of life.

SCN 0-06a



Forces

Through everyday experiences and play with a variety of toys and other objects, I can recognise simple types of forces and describe their effects.

SCN 0-07a



Body Systems and Cells

I can identify my senses and use them to explore the world around me.

SCN 0-12a



Primary 1

Biodiversity and Interdependence

I have helped to grow plants and can name their basic parts. I can talk about how they grow and what I need to do to look after them.

SCN 0-03a



Processes of the Planet

By investigating how water can change from one form to another, I can relate my findings to everyday experiences.

SCN 0-05a



Electricity

I know how to stay safe when using electricity. I have helped to make a display to show the importance of electricity in our daily lives.

SCN 0-09a



Vibrations and Waves

Through play, I have explored a variety of ways of making sounds.

SCN 0-11a



Properties and Uses of Substances

Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes.

SCN 0-15a



Topical Science

I can talk about science stories to develop my understanding of science and the world around me. **SCN 0-20a**





EARLY LEVEL Benchmarks for Assessment

Early Level

Biodiversity and Interdependence

I have observed living things in the environment over time and am becoming aware of how they depend on each other. **SCN 0-01a**

Explores living, non-living and once living objects.

Sorts objects as living, non-living or once living.

Describes characteristics of living things.

Explains how living things depend on each other for food.

Give examples of animals that eat plants.

Biodiversity and Interdependence

I have helped to grow plants and can name their basic parts. I can talk about how they grow and what I need to do to look after them. **SCN 0-03a**

Discusses the basic needs of plants.

Explores what they need to grow including water, heat, sunlight and soil.

Observes plants growing.

Demonstrates an understanding that plants grow from seeds.

Energy Sources and Sustainability

I have experienced, used and described a wide range of toys and common appliances. I can say 'what makes it go' and say what they do when they work. **SCN 0-04a**

Asks questions about what 'makes things go'.

Describe and give examples of 'what make things go' e.g. batteries, wind-up toys and sunlight.

Identify toys and common appliances.

Discuss what toys/common appliances do when they work e.g. produce heat, light, movement or sounds.

Processes of the Planet

By investigating how water can change from one form to another, I can relate my findings to everyday experiences. **SCN 0-05a**

Investigates the different properties of water.

Shares their discoveries with others.

Gives examples of water in nature.

Discuss how water influences their everyday lives.

Identifies the 3 main states of water (ice, water & steam).

Use scientific vocabulary such as melting, freezing & boiling.

Describes the changes of state using scientific vocabulary.

Space

I have experienced the wonder of looking at the vastness of the sky, and can recognise the sun, moon and stars and link them to daily patterns of life. **SCN 0-06a**

Describes that the Earth rotating around the sun gives us day and night.

Describes the pattern of night and day.

Explains how the pattern changes over the course of a year.

Forces

Through everyday experiences and play with a variety of toys and other objects, I can recognise simple types of forces and describe their effects. **SCN 0-07a**

Explores toys and objects that need to be pushed.

Explores toys and objects that need to be pulled.

Sorts toys into groups based on whether they need pushed or pulled.

Investigates how the size of the force affects movement of an object.

Investigates how the weight of an object affects the objects movement.

Measures, using simple equipment, the movement of an object in relation to the size of a force or weight of the object.

Demonstrates how a force can make an object stay still or move.

Demonstrates how force can make an object speed up or slow down.

Demonstrates how force can make an object change shape.





EARLY LEVEL Benchmarks for Assessment

Early Level

Electricity

I know how to stay safe when using electricity. I have helped to make a display to show the importance of electricity in our daily lives.

SCN 0-09a

Identifies objects that use electricity from main electrical sockets.

Identifies objects that use electricity from alternative sources such as batteries and solar cells.

Groups objects based on their electricity source.

Gives examples of how electricity is used in everyday life.

Discusses the importance of electricity.

Identifies the risks that electricity can cause.

Recognises how to stay safe.

Vibrations and Waves

Through play, I have explored a variety of ways of making sounds. **SCN 0-11a**

Predicts ways in which sounds can be made louder and quieter.

Investigates ways to make sounds louder and quieter.

Identifies different sources of sound.

Body Systems and Cells

I can identify my senses and use them to explore the world around me. **SCN 0-12a**

Identifies the different senses.

Match senses to specific parts of the body.

Uses their senses to describe the world around them.

Gives examples of what they see, hear, smell, taste and feel.

Properties and Uses of Substances

Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes.

SCN 0-15a

Explores the different properties of materials.

Sorts materials by property; strong, smooth, rough and if they float or sink.

Selects appropriate materials for different uses.

Justifies selection based on their physical properties.

Topical Science

I can talk about science stories to develop my understanding of science and the world around me. **SCN 0-20a**

Discusses the science they encounter in everyday life.

Role-plays a variety of science related jobs.

Explores the science skills used in a variety of jobs.

