

Primary Science Skills Progression

These tables are taken from the science skills outlined in Education Scotland's Science Benchmarks document and are intended as a helpful guide to the scientific skills to be developed within the sciences at Early, First and Second Level. You can find the [Education Scotland Science Benchmarks](#) here.

The science skills are broken down into the three areas

- Inquiry & Investigative Skills
- Scientific Analytical Thinking
- Skills and Attributes of Scientifically Literate Citizens

Inquiry and Investigative Skills			
	Early Level	First Level	Second Level
Plans and designs scientific investigations and enquiries	Explores and observes through play	Collaborates with others to identify questions to find out more about a specific scientific concept, idea or issue.	Formulates questions and predictions (hypotheses), with assistance, based on observations and information.
	Asks questions arising from play activities		
	Makes simple predictions about what might happen	Makes predictions about the scientific investigation/enquiry being planned.	Identifies the independent, dependent and controlled variables, with assistance.
	Makes suggestions about what to do to answer the selected question	Contributes to the design of procedures for carrying out scientific investigations.	Anticipates some risks and hazards.
Carries out practical activities within a variety of learning environments	Discusses obvious risks and takes appropriate steps to protect themselves and others.	Identifies risks and hazards and ensures safe use of all tools, equipment and procedures.	Applies appropriate safety measures.
	Uses their senses to acquire information.	Collaborates to undertake investigations.	Contributes to carrying out all the procedures.
	Measures using simple equipment and non-standard units.	Observes and collects information and makes measurements using appropriate equipment and units.	Makes observations and collects information and measurements using appropriate devices and units. Manages identified controlled variables to ensure validity of results.
Analyses, interprets and evaluates scientific findings	Presents and sorts data/information, for example, using displays, photographs, simple charts and drawings.	Records and presents data/information using a range of methods including tables, charts and diagrams, using labelling and scales.	Selects appropriate methods to record data/information.
	Provides oral descriptions of what was done and what happened.	Organises data and information and identifies significant patterns and relationships.	Identifies relationships between the independent and dependent variables.
	Recognises similarities, patterns and differences in the findings and links these to the original question.	Interprets findings and discusses links to the original question.	Makes links to original questions or predictions.

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	Discusses , with support, how the experiment might be improved.	Reports on limitations of their investigation and possible improvements.	Evaluates the investigation and suggests one way of improving it if it was to be repeated
	Relates findings to everyday experiences.	Relates findings to their wider experiences of the world around them.	Relates findings to the wider world.
	Identifies and discusses new knowledge and understanding.	Identifies and discusses additional knowledge or understanding gained.	Draws basic conclusions consistent with findings.
			Identifies and discusses additional knowledge and understanding gained.
			Recognises anomalous results and suggests possible sources of error.
	Presents scientific findings	Communicates findings to others verbally and through drawings, photographs, displays and simple charts.	Presents data/information using a range of methods including tables, charts and diagrams, using labels and scales.
Responds to questions about their investigation.		Reports in writing, orally or visually using a variety of media.	Reports collaboratively and individually using a range of methods.
		Structures a presentation or report, with support, to present findings in a coherent and logical way.	Collates, organises and summarises findings, with assistance, using headings or questions to provide structure for presentations.
			Uses appropriate scientific vocabulary and acknowledges sources, with assistance.

Scientific analytical thinking skills		
Early Level	First Level	Second Level
Demonstrates natural curiosity and shows development of basic skills of analysis in simple and familiar contexts, for example, through asking questions, experimenting and making predictions .	Applies learning in the sciences.	Applies scientific analytical thinking skills , with assistance, working with less familiar (or familiar but more complex) contexts.
Demonstrates creative thinking by offering suggestions and solutions to everyday problems.	Provides creative solutions to scientific issues and problems.	Applies understanding , and a combination of more than one science concept, to solve problems and provide solutions.
	Demonstrates reasoning skills and draws on understanding of science concepts to make and test predictions	Demonstrates further development of creative thinking including through the engineering processes of design, construction, testing and modification.
Demonstrates reasoning skills by explaining choices and decisions .	Contributes to the design processes and uses components to make models	
	Provides explanations which are supported by evidence.	

Skills and attributes of scientifically literate citizens		
Early Level	First Level	Second Level <i>At Second Level, it is anticipated that learners will be able to demonstrate the skills below with assistance.</i>
Talks about science, showing developing understanding of risks and benefits, and listens to the views of others.	Expresses informed views of scientific issues, both orally and in writing, and respects the views of others.	Presents a reasoned argument based on evidence, demonstrating understanding of underlying scientific concepts, and engages with the views of others.
Demonstrates awareness of the importance of respecting living things and the environment and of managing the Earth's resources responsibly.	Makes connections between science and their own health and wellbeing.	Demonstrates understanding of the relevance of science to their future lives and the role of science in an increasing range of careers and occupations.
Demonstrates a developing understanding of science in the world around them.	Demonstrates awareness of their own impact on the world.	
Explores the ways in which people use science and science skills as part of their job.	Demonstrates awareness of how people use science in their everyday lives and in a variety of jobs and careers.	Demonstrates increased awareness of creativity and inventiveness in science, the use of technologies in the development of sciences and the impact of science on society
	Discusses science topics in real-life contexts including those appearing in the media	Expresses informed views about scientific and environmental issues based on evidence.