GALLEY COMMON INFANT SCHOOL PROGRESSION OF SKILLS: SCIENCE

Our aims in teaching science include:

- building on children's natural curiosity and developing a scientific approach to problem solving;
- providing practical experiences to develop children's understanding of scientific skills and ideas;
- encouraging children to ask and answer scientific questions;
- giving children the experience of scientific processes;
- developing a positive attitude towards science;
- fostering concern about, and appreciation of, our environment.

Links to school aims (See policy for Teaching and Learning)

Within science we:

- provide a stimulating and interactive environment;
- encourage children to think creatively and critically;
- ensure there is appropriate differentiation to meet the needs of all children.
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Foundation Stage

In the Early Years Foundation Stage science is part of Understanding the World. Through our topics we make cross-curricular links within Understanding the World and with other areas of the curriculum. Children develop their scientific skills and knowledge through practical activities and investigations. We make use of all areas of the indoor and outdoor classroom. The outdoor classroom enables the children to learn about natural elements from first-hand experience, for example weather, growing and the seasons. We support the children in learning to record what they have found out through discussions, drawings, writing and simple graphs and tables. Science features heavily within the Characteristics of Effective Learning which are: playing and exploring, active learning and thinking critically.

Key Stage 1

In Key Stage 1 the team find cross-curricular links where possible and differentiate the tasks to ensure appropriate challenge for the more able and opportunities to consolidate knowledge and understanding for the less able.

YEAR R/1	Domain: Working Scientifically							
Process	**1) Planning investigations**		**2) Conducting experiments**		**3) Recording evidence**	**4) Reporting findings**	**5) Conclusions and predictions**	
Key Objective	Ask simple questions when prompted	Suggest ways of answering a question	Make relevant observations	Conduct simple tests, with support	With prompting, suggest how findings could be recorded	Recognise findings	Gather and record data	Use observations to suggest answers to questions
EM (YR)	Pupil can understand that questions can be answered by testing.	Pupil can, with prompting, offer way of gathering evidence to answer a question.	Pupil can examine objects, when prompted.	Pupil can recognise a simple scientific test.	Pupil can recognise the purpose of an experiment.	Pupil can, with prompting, identify key findings from an enquiry.	Pupil can collect data, when prompted.	Pupil can. with prompting, suggest answers to enquiry questions using data.
EXP	Pupil can, with prompting, ask simple questions that can be tested, e.g. about plants growing in their habitat.	Pupil can offer ways of gathering evidence to answer a question, e.g. by deciding on the best material to use for a particular application.	Pupil can examine objects to note key features, e.g. observe growth of plants they have planted.	Pupil can, with support, conduct simple tests, e.g. comparing the properties of different materials.	Pupil can, with prompting, identify what might usefully be recorded, e.g. drawing structures of plants or recording changing day length.	Pupil can identify key findings from an enquiry, e.g. noting how plants have changed over time.	Pupil can collect data, e.g. comparing and contrasting familiar plants.	Pupil can suggest answers to enquiry questions using data, e.g. describe how to group plants.
Greater Depth	Pupil can ask simple questions that can be tested.	Pupil can suggest different ways of answering question.	Pupil can examine carefully, e.g. using a hand lens.	Pupil can conduct simple tests.	Pupil can, with assistance, draw and label diagrams.	Pupil can identify and group key outcomes from an enquiry.	Pupil can collect data relevant to the answering of questions.	Pupil can answer enquiry questions using data and ideas.

YEAR 2	Domain: Working Scientifically							
Process	**1) Planning investigations**		**2) Conducting experiments**		**3) Recording evidence**	**4) Reporting findings**	**5) Conclusions and predictions**	
Key Objective	Ask simple questions	Recognise that questions can be answered in different ways-	Observe closely, using simple equipment	Perform simple tests	Record and communicate their findings in a range of ways and begin to use simple scientific language	Identify and classify	Gather and record data to help answer questions	Use their observations and ideas to suggest answers to questions
EM	Pupil can, with prompting, ask simple questions that can be tested.	Pupil can offer way of gathering evidence to answer a question.	Pupil can examine objects closely, e.g. pebbles.	Pupil can, with support, conduct simple tests.	Pupil can, with prompting, identify what might usefully be recorded.	Pupil can identify key findings from an enquiry.	Pupil can collect data.	Pupil can suggest answers to enquiry questions using data.
EXP	Pupil can ask simple questions that can be tested, e.g. about the local environment and how organisms depend on each other.	Pupil can suggest different ways of answering a question, e.g. testing the suitability of materials for different purposes.	Pupil can examine carefully, e.g. using a hand lens.	Pupil can conduct simple tests, e.g. setting up comparative tests to show that plants need water and light.	Pupil can, with assistance, draw and label diagrams, e.g. recording plants changing over time, starting from seed or bulb.	Pupil can identify and group key outcomes from enquiry, e.g. describing conditions in different habitats and how these affect the numbers and types of organisms.	Pupil can collect data relevant to the answering of questions, e.g. seeing how the shapes of some materials can be changed.	Pupil can answer enquiry questions using data and ideas, e.g. to help decide how the properties of certain materials make them suitable for certain applications.
Greater Depth	Pupil can, with support, develop relevant, testable questions.	Pupil can plan enquiry, such as a comparative or fair test.	Pupil can observe carefully and suggest useful measurements, e.g. examine a leaf and suggest measuring its length.	Pupil can conduct a series of simple tests.	Pupil can, with prompting, draw and label diagrams.	Pupil can, with prompting, suggest what an enquiry shows.	Pupil can recognise patterns that relate to scientific ideas, when prompted.	Pupil can, with support, use evidence to produce simple conclusion.

YEAR 1	Domain: Biology						
PROCESS	**PLANTS**			**ANIMALS**		**HUMAN BODY**	
Key Objective	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Identify and describe the basic structure of a variety of common flowering plants, including trees	Explore and compare the differences between things that are living, dead, and things that have never been alive	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Identify and name a variety of common animals that are carnivores, herbivores and omnivores	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense
EM (YR)	Identify and name a limited range of plants.	Identify and describe the basic structure of a common flowering plant.	Sort items into 'once living' and 'never lived'.	Identify and name a limited number of common animals.	Recognise the difference between carnivores, herbivores and omnivores.	Identify key features of one or two common animals.	Describe each of the human senses.
EXP	Identify a range of local plants.	Name parts of a range of familiar plants.	Compare and contrast a collection of items, sorting into categories: 'living', 'dead' and 'things that have never been alive'.	Name a variety of common animals.	Identify and group a range of familiar animals.	Identify key features of a range of common animals.	Relate each of the human senses to organs.
Greater Depth	Identify and notice similarities between various local plants.	Identify and notice similarities in the structure of various local plants.	Research further examples to add to the categories: 'living', 'dead' and 'things that have never been alive'.	Identify common features of the main groups of vertebrates.	Suggest whether an unfamiliar animal might be a carnivore, herbivore or omnivore.	Compare key features of familiar and unfamiliar animals.	Suggest how the senses are used in an activity such as eating.

YEAR 2	Domain: Biology							
	HABITATS				PLANTS	ANIMALS		HUMAN BODY
Key Objective	Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other	Identify and name a variety of plants and animals in their habitats, including micro-habitats	Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food	Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	Observe and describe how seeds and bulbs grow into mature plants	Notice that animals, including humans, have offspring which grow into adults	Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
EM	Identify that a habitat supplies living things with what they need.	Identify a limited range of living things in their habitats.	Identify a predator–prey relationship.	Find out one thing that plants need to grow and stay healthy.	Identify that seeds and bulbs grow into mature plants.	Recognise that all animals, including humans, have offspring.	Identify the basic needs of animals, including humans, for survival (water, food and air).	Recognise the importance to humans of exercise, diet and hygiene.
EXP	Explain how, for a named animal or plant, it gets what it needs from its habitat and other living things that are there.	Identify a range of living things in habitats of various sizes.	Construct a simple food chain and identify what is eating what.	Explore and identify what plants need to thrive.	Describe stages of development of a full grown plant.	Describe the relationship between adult animals and their offspring.	Identify human's basic needs.	Describe the importance of a healthy diet and exercise.
Greater Depth	Explain why there may be a limit as to how many of a certain living thing can live in a particular area.	Identify a range of living things and suggest why they may be found in that habitat.	Suggest, within a simple food chain, what might happen if one of the living things becomes scarce.	Identify the effects of a shortage of each of the things that plants need to grow and stay healthy	Compare and contrast the growth patterns of different types of plants.	Compare and contrast adults and their offspring for different animals.	Suggest how the basic needs of different animals influences their choice of habitat.	Suggest effects of poor diet and hygiene.

YEAR 1	Domain: Chemistry and Physics					
	CHEMISTRY: MATERIALS				PHYSICS : SEASONS/WEATHER	
Key Objective	Distinguish between an object and the material from which it is made	Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock	Describe the simple physical properties of a variety of everyday materials	Compare and group together a variety of everyday materials on the basis of their simple physical properties	Observe changes across the four seasons	Observe and describe weather associated with the seasons and how day length varies
EM (YR)	Identify the material from which an object has been made.	Identify and name a limited range of materials.	Recognise that a material has properties.	Compare and contrast two everyday materials.	Recognise that there are seasonal changes.	Recognise that day length alters in different seasons.
EXP	Correctly identify both object and material.	Identify and name a range of materials.	Describe a range of properties of a variety of materials.	Classify a variety of materials into groups based on physical properties.	Describe seasonal changes.	Relate weather patterns and day length to seasons.
Greater Depth	Compare the same object made from different materials in terms of its effectiveness.	Identify typical uses of a range of materials.	Compare the physical properties of different everyday materials.	Use simple physical properties to suggest classification of materials.	Recognise changes within seasons as well as between seasons.	Make and test predictions relating to changing day length and weather patterns.

YEAR 2	Domain: Chemistry (No Physics)	
	CHEMISTRY: COMPARING MATERIALS	CHEMISTRY: PROPERTIES OF MATERIALS
Key Objective	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
EM	Identify that the shape of some objects can be changed.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
EXP	Describe changes achieved by applying forces in different directions.	Select and justify a material for a particular use.
Greater Depth	Identify that some changes to shapes are permanent and others are temporary, and that this can influence their uses.	For particular materials in particular uses, identify limitations as well as suitability.