Stalyhill Infant School – Long term curriculum plan

Science

Our Science Principles:

- **We can question the world around us**
- **We are engaged in our learning**
- **We can be curious**
- **We can show resilience**
- **We can apply new skills and knowledge**
- **We can think like scientists**

Intent: To provide children with the skills and knowledge to understand and make sense of the world around them, developing a sense of curiosity and an enquiring mind that can be built upon throughout their lives.

	Reception
The World	• I can ask questions about aspects of my familiar world such as the place where I live or the natural world. • I can talk about some of the things I have observed such as plants, animals, natural and found objects. • I can talk about why things happen and how things work. • I can start to develop an understanding of growth, decay and changes over time. • I can show care and concern for living things and the environment.
Goal	• **I know about similarities and differences in relation to places, objects, materials and living things.** • **I can talk about the features of my own immediate environment and how environments might vary from one another.** • **I can make observations of animals and plants and explain why some things occur, and talk about changes.**

	Year 1	**Year 2**
Working Scientifically	• I can ask simple scientific questions. • I can use simple equipment to make observations. • I can carry out simple tests. • I can identify and classify things. • I can suggest what I have found out. • I can use simple data to answer questions	• I can ask simple scientific questions. • I can use simple equipment to make observations. • I can carry out simple tests. • I can identify and classify things. • I can suggest what I have found out. • I can use simple data to answer questions

Biology	**Plants** • I can name a variety of common wild and garden plants • I can name the petals, stem, leaf and root of a plant • I can name the roots, trunk, branches and leaves of a tree. **Animals, including humans** • I can name a variety of animals including fish, amphibians, reptiles, birds and mammals. • I can classify and name animals by what they eat (carnivore, herbivore and omnivore). • I can sort animals into categories (including fish, amphibians, reptiles, birds and mammals). • I can sort living and non-living things. • I can name the parts of the human body that I can see. • I can link the correct part of the human body to each sense.	**Plants** • I can describe how seeds and bulbs grow into plants. • I can describe what plants need in order to grow and stay healthy (water, light & suitable temperature). **Animals, including humans** • I can explain the basic stages in a life cycle for animals, including humans. • I can describe what animals and humans need to survive. • I can describe why exercise, a balanced diet and good hygiene are important for humans. **Living things and their habitats** • I can identify things that are living, dead and never lived. • I can describe how a specific habitat provides for the basic needs of things living there (plants and animals). • I can identify and name plants and animals in a range of habitats. • I can match living things to their habitat. • I can describe how animals find their food. • I can name some different sources of food for animals. • I can explain a simple food chain.
Chemistry	**Everyday materials** • I can distinguish between an object and the material it is made from. • I can explain the materials that an object is made from • I can name wood, plastic, glass, metal, water and rock. • I can describe the properties of everyday materials. • I can group objects based on the materials they are made from.	**Uses of everyday materials** • I can identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. • I can suggest why a material might or might not be used for a specific job. • I can explore how shapes can be changed by squashing, bending, twisting and stretching.
Physics	**Seasonal changes** • I can observe and comment on changes in the seasons • I can name the seasons and suggest the type of weather in each season.	No content

Knowledge, Skills and Understanding for Working Scientifically

	Year 1	Year 1 challenging	Year 2	Year 2 challenging
Observing closely	• Can they talk about what they see, touch, smell, hear or taste? • Can they use simple equipment to help them make observations?	• Can they find out by watching, listening, tasting, smelling and touching?	• Can they use what they see, touch, smell, hear or taste to help them answer questions? • Can they use some scientific words to describe what they have seen and measured? • Can they compare several things?	• Can they suggest ways of finding out through listening, hearing, smelling, touching and tasting?
Performing Tests	• Can they perform a simple test? • Can they tell other people about what they have done?	• Can they give a simple reason for their answers?	• Can they carry out a simple fair test? • Can they explain why it might not be fair to compare two things? • Can they say whether things happened as they expected? • Can they suggest how to find things out? • Can they use prompts to find things out?	• Can they say whether things happened as they expected and if not why not?
Identifying and Classifying	• Can they identify and classify things they observe? • Can they think of some questions to ask? • Can they answer some scientific questions? • Can they give a simple reason for their answers? • Can they explain what they have found out?	• Can they talk about similarities and differences? • Can they explain what they have found out using scientific vocabulary?	• Can they organise things into groups? • Can they find simple patterns (or associations)? • Can they identify animals and plants by a specific criteria, eg., lay eggs or not; have feathers or not?	• Can they suggest more than one way of grouping animals and plants and explain their reasons?
Recording findings	• Can they show their work using pictures, labels and captions? • Can they record their findings using standard units? • Can they put some information in a chart or table?	• Can they use ICT to show their working? • Can they make accurate measurements?	• Can they use text, diagrams, pictures, charts and tables to record their observations? • Can they measure using simple equipment?	• Can they use information from books and online information to find things out?

Knowledge, Skills and Understanding for Biology

	Year 1	Year 1 challenging	Year 2	Year 2 challenging
Plants	• Can they name the petals, stem, leaf, bulb, flower, seed, stem and root of a plant? • Can they identify and name a range of common plants and trees? • Can they recognise deciduous and evergreen trees? • Can they name the trunk, branches and root of a tree? • Can they describe the parts of a plant (roots, stem, leaves, flowers)?	• Can they name the main parts of a flowering plant?	• Can they describe what plants need to survive? • Can they observe and describe how seeds and bulbs grow into mature plants? • Can they find out & describe how plants need water, light and a suitable temperature to grow and stay healthy?	• Can they describe what plants need to survive and link it to where they are found? • Can they explain that plants grow and reproduce in different ways?
Animals including humans	• Can they point out some of the differences between different animals? • Can they sort photographs of living things and non-living things? • Can they identify and name a variety of common animals? (birds, fish, amphibians, reptiles, mammals, invertebrates) • Can they describe how an animal is suited to its environment? • Can they identify and name a variety of common animals that are carnivores, herbivores and omnivores? • Can they name the parts of the human body that they can see? • Can they draw & label basic parts of the human body? • Can they identify the main parts of the human body and link them to their senses? • Can they name the parts of an animal's body? • Can they name a range of domestic animals?	• Can they begin to classify animals according to a number of given criteria? • Can they point out differences between living things and non-living things? • Can they name some parts of the human body that cannot be seen? • Can they say why certain animals have certain characteristics? • Can they name a range of wild animals?	• Can they describe what animals need to survive? • Can they explain that animals grow and reproduce? • Can they explain why animals have offspring which grow into adults? • Can they describe the life cycle of some living things? (e.g. egg, chick, chicken) • Can they explain the basic needs of animals, including humans for survival? (water, food, air) • Can they describe why exercise, balanced diet and hygiene are important for humans?	• Can they explain that animals reproduce in different ways?

	• Can they classify animals by what they eat? (carnivore, herbivore, omnivore) • Can they compare the bodies of different animals?			
Living things and their habitats	No content	No content	• Can they match certain living things to the habitats they are found in? • Can they explain the differences between living and non-living things? • Can they describe some of the life processes common to plants and animals, including humans? • Can they decide whether something is living, dead or non-living? • Can they describe how a habitat provides for the basic needs of things living there? • Can they describe a range of different habitats? • Can they describe how plants and animals are suited to their habitat?	• Can they name some characteristics of an animal that help it to live in a particular habitat? • Can they describe what animals need to survive and link this to their habitats?

Knowledge, Skills and Understanding for Chemistry

	Year 1	Year 1 challenging	Year 2	Year 2 challenging
Everyday materials (Classifying and grouping)	• Can they distinguish between an object and the material from which it is made? • Can they describe materials using their senses? • Can they describe materials using their senses, using specific scientific words? • Can they explain what material objects are made from? • Can they explain why a material might be useful for a specific job? • Can they name some different everyday materials? e.g. wood, plastic, metal, water and rock • Can they sort materials into groups by a given criteria? • Can they explain how solid shapes can be changed by squashing, bending, twisting and stretching?	• Can they describe things that are similar and different between materials? • Can they explain what happens to certain materials when they are heated, e.g. bread, ice, chocolate? • Can they explain what happens to certain materials when they are cooled, e.g. jelly, heated chocolate?	• Can they describe the simple physical properties of a variety of everyday materials? • Can they compare and group together a variety of materials based on their simple physical properties?	• Can they describe the properties of different materials using words like, transparent or opaque, flexible, etc.? • Can they sort materials into groups and say why they have sorted them in that way? • Can they say which materials are natural and which are manmade?
Everyday materials (Changing materials)	No content	No content	• Can they explore how the shapes of solid objects can be changed? (squashing, bending, twisting, stretching) • Can they find out about people who developed useful new materials? (John Dunlop, Charles Macintosh, John McAdam) • Can they identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, cardboard for particular uses? • Can they explain how things move on different surfaces?	• Can they explain how materials are changed by heating and cooling? • Can they explain how materials are changed by bending, twisting and stretching? • Can they tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted?

Knowledge, Skills and Understanding for Physics

	Year 1	Year 1 challenging	Year 2	Year 2 challenging
Seasonal changes	• Can they observe changes across the four seasons? Can they name the four seasons in order? • Can they observe and describe weather associated with the seasons? • Can they observe and describe how day length varies?	• Can they observe features in the environment and explain that these are related to a specific season? • Can they observe and talk about changes in the weather? • Can they talk about weather variation in different parts of the world?	No content	No content