



Sledmere and Wetwang Federation

Whole School Progression Map – Science

At Sledmere and Wetwang Federation our **intent** is to give children a Science curriculum which enables them to explore and discover the world around them.

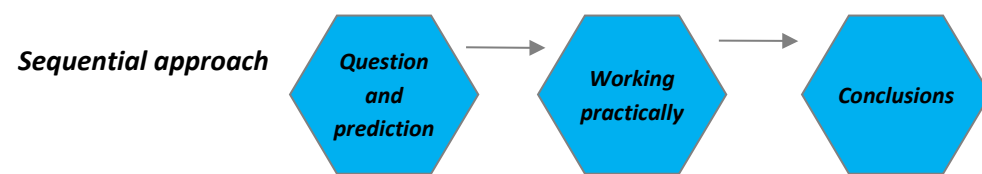
Our **intent** is that all children:

- Achieve their potential by having the highest expectations of their learning.
- Are inspired by our teaching.
- Develop understanding of the nature, processes and methods of Science through different types of enquiries.
- Are confident to ask questions, challenge themselves and extend their scientific knowledge.
- Develop the essential scientific enquiry skills to deepen their scientific knowledge.
- Use a range of methods to communicate their scientific information and present it in a systematic and scientific manner.
- Develop a respect for the materials and equipment they handle with regard to their own, and other children's safety.
- Understand the importance of Science in today's world and inspire them for their future.

We **implement** our Science curriculum through:

- In EYFS, we implement Science through enhancing provision for children to explore scientific concepts such as melting, freezing, floating and sinking. We promote children's independence to choose ways to do things and promote their curiosity. In EYFS, we encourage outside visitors to come and speak to the children to promote opportunities for awe and wonder!
- Science is taught weekly week.
- Working walls reflect what is being taught, vocabulary, relevant diagrams, photos and learning journeys.
- Books that are high quality and show a range of evidence. Teachers have the highest expectations and children are proud of their work!
- Weekly experiments focusing on scientific enquiry.
- A creative and innovative approach using a range of high quality resources and teaching methods
- Working scientifically skills are embedded into every lesson to ensure these skills are being developed throughout.
- Learning across the curriculum is sequentially planned to build on knowledge and skills.

The **impact** of our Science approach is that our children to demonstrate their scientific knowledge and skills. They are curious life-long learners who are eager to explore the world around them and find out how and why.





EYFS

The Natural World

To explore the natural world around them, making observations and drawing pictures of animals and plants.

To know some similarities and differences between the natural world sound them and contrasting environments, drawing on their experiences and what has been rea din class.

To understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Numerical patterns

To verbally count beyond 20, recognising the pattern of the counting system.

To compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

To explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Fine motor skills

To hold a pencil effectively in preparation for fluent writing.

To use a range of small tools, including scissors, paint brushes and cutlery.

To begin to show accuracy and care when drawing.

Speaking

To participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.

To offer explanations for why things might happen, making use of recently introduced vocabulary from stories and non-fiction texts when appropriate.

To express their ideas and feelings about their experiences using full sentences, including use of past, present, future tenses and making use of conjunctions with modelling and support from teacher

Creating with materials

To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

To share their creations, explaining the process they have used.

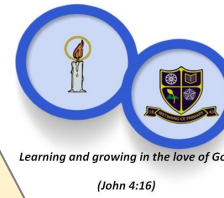
To make use of props and materials.

Sequential approach

**Question
and
prediction**

**Working
practically**

Conclusions



Year 1

Working scientifically

To ask simple questions and recognise that they can be answered in different ways.

To observe closely, use simple equipment.

To perform simple tests.

Animals, including humans

To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.

To identify and name a variety of common animals that are carnivores, herbivores and omnivores.

To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets).

To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Plants

To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.

To identify and describe the basic structure of a variety of common flowering plants, including trees.

Seasonal changes

To observe changes across the 4 seasons.

To observe and describe weather associated with the seasons and how day length varies.

Everyday materials

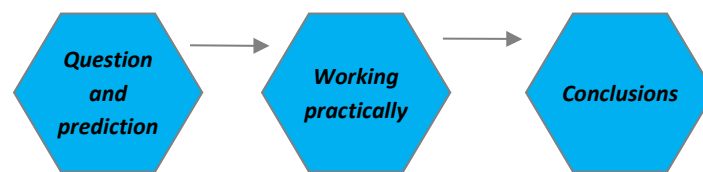
To distinguish between an object and the material from which it is made.

To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.

To describe the simple physical properties of a variety of everyday materials.

To compare and group together a variety of everyday materials on the basis of their simple physical properties.

Sequential approach





Year 2

Working scientifically

To ask simple questions and recognise that they can be answered in different ways.

To observe closely, use simple equipment.

To perform simple tests.

Living Things and their Habitats

To explore and compare the differences between things that are living, dead, and things that have never been alive.

To 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.

To identify and name a variety of plants and animals in their habitats, including microhabitats.

To 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.

Plants

To observe and describe how seeds and bulbs grow into mature plants.

To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Uses of Everyday Materials

To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.

To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Animals, including humans

To notice that animals, including humans, have offspring which grow into adults.

To find out about and describe the basic needs of animals, including humans, for survival (water, food and air).

To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Sequential approach

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Year 3

Working scientifically

To ask relevant questions and use different types of scientific enquiries to answer them.

To set up simple practical enquiries, comparative and fair tests.

To make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.

To gather, record, classify and present data in a variety of ways to help in answering questions.

Plants

To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.

To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.

To investigate the way in which water is transported within plants.

To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Forces and Magnets

To compare how things move on different surfaces.

To notice that some forces need contact between two objects, but magnetic forces can act at a distance.

To observe how magnets attract or repel each other and attract some materials and not others.

To compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.

To describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing.

Rocks

To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.

To describe in simple terms how fossils are formed when things that have lived are trapped within rock.

To recognise that soils are made from rocks and organic matter.

Animals, including Humans

To identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.

To identify that humans and some other animals have skeletons and muscles for support, protection and movement.

Light

To recognise that they need light in order to see things and that dark is the absence of light.

To notice that light is reflected from surfaces.

To recognise that light from the sun can be dangerous and that there are ways to protect their eyes.

To recognise that shadows are formed when the light from a light source is blocked by an opaque object.

To find patterns in the way that the size of shadows change.

Sequential approach

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Year 4

Working scientifically

To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.

To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

To identify differences, similarities or changes related to simple scientific ideas and processes.

To use straightforward scientific evidence to answer questions or to support their findings.

Animals, including humans

To describe the simple functions of the basic parts of the digestive system in humans.

To identify the different types of teeth in humans and their simple functions.

To construct and interpret a variety of food chains, identifying producers, predators and prey.

Living Things and their Habitats

To recognise that living things can be grouped in a variety of ways.

To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.

To recognise that environments can change and that this can sometimes pose dangers to living things.

Sound

To identify how sounds are made, associating some of them with something vibrating.

To recognise that vibrations from sounds travel through a medium to the ear.

To find patterns between the pitch of a sound and features of the object that produced it.

To find patterns between the volume of a sound and the strength of the vibrations that produced it.

To recognise that sounds get fainter as the distance from the sound source increases.

Electricity

To identify common appliances that run on electricity.

To construct a simple series electrical circuit,

identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.

To identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.

To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.

To recognise some common conductors and insulators, and associate metals with being good conductors.

States of Matter

To compare and group materials together, according to whether they are solids, liquids or gases.

To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).

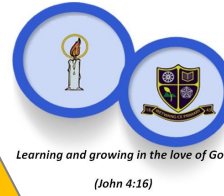
To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

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Year 5

Working scientifically

To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.

To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

Animals, including humans

To describe the changes as humans develop to old age

Living Things and their Habitats

To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.

To describe the life process of reproduction in some plants and animals.

Earth and Space

To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.

To describe the movement of the Moon relative to the Earth.

To describe the Sun, Earth and Moon as approximately spherical bodies.

To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Forces

To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

To identify the effects of air resistance, water resistance and friction, that act between moving surfaces.

To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Properties and Changes of Materials

To compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.

To know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.

To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

To demonstrate that dissolving, mixing and changes of state are reversible changes.

To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

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Year 6



Animals, including humans

To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.

To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.

To describe the ways in which nutrients and water are transported within animals, including humans.

Working scientifically

To use test results to make predictions to set up further comparative and fair tests.

To report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.

To identify scientific evidence that has been used to support or refute ideas or arguments.

Living Things and their Habitats

To describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.

To give reasons for classifying plants and animals based on specific characteristics.

Light

To recognise that light appears to travel in straight lines.

To use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.

To explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.

To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

Sequential approach

