Plants

Statutory requirements

Pupils should be taught to:

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

♣ 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

♣ investigate the way in which water is transported within plants

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

Notes and guidance (non-statutory) Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. Note: Pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens. Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.

Year Group = 3

Opportunities to promote curiosity:

Seeds

Plants at various stages of life

Watering can

Plant poem

Books – The flower

AFL Questions:

- Can you record any changes as the seed grows into a plant?
- "Plants can grow in a dark room" Is this true? Explain your answer.
- What is the best way to record our findings?
- Are the optimal conditions for plant growth the same for every plant? Why/why not? Specify- would bananas grow in the UK? Etc.
- Why is wide seed dispersal important for many plants? What would the negative impact be if they did not have this ability?

Animals, including humans

Statutory requirements

Pupils should be taught 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

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

Notes and guidance (non-statutory)

Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.

Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy and design meals based on what they find out.

Year Group = 3

Opportunities to promote curiosity:

Human and animal bones

Skeletons

Identifying differences of skeletons.

AFL Questions:

- Can you name the main body parts?
- Which animals live in this environment and why?
- How could we find out which animals live _____ habitat?
- What is the same about these animals? What is different? Why? – Possible sorting (Venn diagram).
- What types of food are nutritious for humans? Would it still be nutritious if we only eat this one type of food?
- How do the muscles and the bones work together? Would we be able to function without one or the other? Why?

Rocks

Statutory requirements

Pupils should be taught to:

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

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

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

Notes and guidance (non-statutory)

Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment.

Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They can raise and answer questions about the way soils are formed.

Year Group = Y3

Opportunities to promote curiosity:

Rocks	Soils
Fossils	Books
Pictures	
Stone Age Boy Book.	

AFL Questions:

- Can you describe the properties of this rock to a friend? Use scientific vocab.
- What is a fossil? How do they help us learn about the past?
- What are soils made from? How could be investigate what type of soil it is?
- Why have rocks changed over time? How can we find out?
- What sort of rock would be suitable for this specific building project? Why? Is it the only option? Would any type of rock not be suitable? Why? What would it be suitable for?

Light

Statutory requirements

Pupils should be taught to:

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

♣ notice that light is reflected from surfaces

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

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

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

Notes and guidance (non-statutory)

Pupils should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.

Note: Pupils should be warned that it is not safe to look directly at the Sun, even when wearing dark glasses. Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.

Year Group = 3

Opportunities to promote curiosity:

Use of torches

Different materials to observe reflection, whether they are opaque, translucent or transparent.

Investigating shadows

Mirroring games – dance.

AFL Questions:

- What factors influence the size and shape of a shadow?
- Why is it important to protect our eyes around the sun?
- What is wrong with this shadow? (Facing the wrong direction, different size or shape).
- What is the difference between an opaque and transparent object?
- Is there anything we can do to impact the size of a shadow?
- Can you think of any real life examples of when reflection is beneficial to us? What about situations where reflection has a negative impact?

Forces and magnets

Statutory requirements

Pupils should be taught to:

♣ compare how things move on different surfaces

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

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

♣ 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

♣ describe magnets as having two poles

♣ predict whether two magnets will attract or repel each other, depending on which poles are facing.
Notes and guidance (non-statutory)

Pupils should observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They should explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe).

Pupils might work scientifically by: comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.

Year Group = 3

Opportunities to promote curiosity:

Magnetic games

Magnets and objects

Range of reading material from the library

Globe

AFL Questions:

- What does repel and attract mean? What real life situations can you think of where we use these forces to our advantage?
- Which materials attract/ do not attract magnets? Why?
- Which surfaces are easy to move something along? How can we test this?
- Do all magnets have the same magnetic force? How do we know this?
- How do high friction surfaces help us in real life?