

Science Curriculum – Year 3

Working scientifically (Skills objectives across all units):

- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- Using straightforward scientific evidence to answer questions or to support their findings.

Plants

Learning Objectives:

- I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- I can 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
- I can investigate the way in which water is transported within plants
- I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Challenge:

- I know that photosynthesis happens in plants to make their energy for growth.
- I can explain the life cycle of plants.
- I can confidently use vocabulary such as pollination, fertilisation and germination.

Investigation ideas:

- How long does it take for water to travel up a plant? (Investigating Xylem - flowers and celery -microscope to see the xylem)
- What factors affect plant growth? (Cress seeds in different amounts of light)
- What do plants grow best in? (Comparing soil, sand, cotton wool, paper etc - Grass seeds and cress seeds)
- Designing a seed to fly far from the tree?

Resources you may need:

- Seeds
- Seedlings
- outside planting areas
- Tools and watering cans.
- Measuring tools

Animals including humans

Learning Objectives:

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

Challenge:

- I can describe the structure and functions of the human skeleton
- I can explain the interaction between skeleton and muscles
- I can describe the function and actions of major muscle groups

Investigation ideas:

- How do human skeletons compare with those of other animals?
- Which crisps have the highest salt/fat content? Analyse data from food packaging, draw graphs and demo burning of each type of crisp to compare observations with findings (Risk Assessment Required)

Resources you may need:

- Skelton Model
- Images of different skeletons
- Selection of animal bones
- Rubber bands, string, straws and card for model making

Rocks

Learning Objectives:

- I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
- I can describe in simple terms how fossils are formed when things that have lived are trapped within rock
- I can recognise that soils are made from rocks and organic matter.

Challenge:

- I can describe the rock cycle and explain how different types of rocks were formed.
- I can describe and identify sedimentary, igneous and metamorphic rocks.
- I understand why some rocks are porous.

Investigation ideas:

- Which type of rock soaks up the most water?
- Challenge - Which type of rock is the heaviest? (Introduce the idea of density)
- Which type of soil does water flow through the quickest?

Resources you may need:

- BBC website - video clips and simulations to find out about how different types of rocks are formed and to investigate rocks.
Rock samples
- Magnifying glasses
- Accurate balance
- Pipettes and petri dishes
- Scales for weighing

Light

Learning Objectives:

- I can recognise that they need light in order to see things and that dark is the absence of light
- I can notice that light is reflected from surfaces
- I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- I can recognise that shadows are formed when the light from a light source is blocked by a solid object
- I can find patterns in the way that the sizes of shadows change.

Investigation ideas:

- Where is the light brightest in our school?
Data logging investigation to investigate our local environment.
- What is white light made from? (Prisms)
- What factors affect the size of a shadow?
Making shadow sticks and measuring shadow size.
- Which sunglasses will protect our eyes best?
Data logging investigation looking at light intensity.
- How does the size/length of a shadow change during different parts of the day.

Resources you may need:

Computer simulation to learn about reflection

http://www.bbc.co.uk/bitesize/ks2/science/physical_processes/light/play/

Light and Shadows Simulation

http://www.bbc.co.uk/schools/scienceclips/ages/7_8/light_shadows.shtml

Torches
Prisms
Sunglasses
Data Loggers/Light sensors
Opaque materials

Forces and magnets

Learning Objectives:

- I can compare how things move on different surfaces
- I can notice that some forces need contact between two objects, but magnetic forces can act at a distance
- I can observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles
- I can predict whether two magnets will attract or repel each other, depending on which poles are facing.
- I can 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

Investigation ideas:

- Which materials will stick to magnets?
- How far will a toy car go on different surfaces?
- How many layers of card can you place between a magnet and a paperclip before it won't attract?
- How close will a paperclip get to different magnets before it attracts?
- Which magnet is the strongest?

Resources you may need:

- Variety of magnets - bar, ball, horseshoe, lodestone, button and ring
- Rulers/measuring tapes
- Variety of magnetic and non-magnetic materials
- Cardboard
- Paper clips
- Ramps of different surfaces - carpet, lino, wood, corrugated card, plastic
- Toy cars
- Stopwatches