Science Assessment

Year 6

A year 6 scientist

Working scientifically (Y5 and Y6)

- Plan different types of scientific enquiry.
- Control variables in an enquiry.
- Measure accurate and precisely using a range of equipment.
- Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use the outcome of test results to make predictions and set up a further comparative fair test.
- Report findings from enquiries in a range of ways.
- Explain a conclusion from an enquiry.
- Explain causal relationships in an enquiry.
- Relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.
- Read, spell and pronounce scientific vocabulary accurately.

Biology

Living things and their habitats

- Classify living things into broad groups according to observable characteristics and based on similarities & differences.
- Describe how living things have been classified.
- Give reasons for classifying plants and animals in a specific way.

Animals, including humans

- Identify and name the main parts of the human circulatory system.
- Describe the function of the heart, blood vessels and blood.
- Discuss the impact of diet, exercise, drugs and life style on health.
- Describe the ways in which nutrients and water are transported in animals, including humans.

Evolution and inheritance

- Describe how the earth and living things have changed over time.
- Explain how fossils can be used to find out about the past.
- Explain about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents).
- Explain how animals and plants are adapted to suit their environment.
- Link adaptation over time to evolution.
- Explain evolution.

Chemistry

No content

Physics

Light

- Explain how light travels.
- Explain and demonstrate how we see objects.
- Explain why shadows have the same shape as the object that casts them.
- Explain how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.

Electricity

- Explain how the number & voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.
- Compare and give reasons for why components work and do not work in a circuit.
- Draw circuit diagrams using correct symbols.

Science Assessment

Year 5

A year 5 scientist

Working scientifically (Y5 and Y6)

- Plan different types of scientific enquiry.
- Control variables in an enquiry.
- Measure accurate and precisely using a range of equipment.
- Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use the outcome of test results to make predictions and set up a further comparative fair test.
- Report findings from enquiries in a range of ways.
- Explain a conclusion from an enquiry.
- Explain causal relationships in an enquiry.
- Relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.
- Read, spell and pronounce scientific vocabulary accurately.

Biology

Living things and their habitats

- Describe the life cycle of different living things, e.g. mammal, amphibian, insect bird.
- Describe the differences between different life cycles.
- Describe the process of reproduction in plants.
- Describe the process of reproduction in animals.

Animals, including humans

- Create a timeline to indicate stages of growth in humans.

Chemistry

Properties and changes of materials

- Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, (electrical & thermal), and response to magnets).
- Describe how a material dissolves to form a solution; explaining the process of dissolving.
- Describe and show how to recover a substance from a solution.
- Describe how some materials can be separated.
- Demonstrate how materials can be separated (e.g. through filtering, sieving and evaporating).
- Know and can demonstrate that some changes are reversible and some are not.
- Explain how some changes result in the formation of a new material and that this is usually irreversible.
- Discuss reversible and irreversible changes.
- Give evidenced reasons why materials should be used for specific purposes.

Physics

Earth and space

- Describe and explain the movement of the Earth and other planets relative to the Sun.
- Describe and explain the movement of the Moon relative to the Earth.
- Explain and demonstrate how night and day are created.
- Describe the Sun, Earth and Moon (using the term spherical).

Forces

- Explain what gravity is and its impact on our lives.
- Identify and explain the effect of air resistance.
- Identify and explain the effect of water resistance.
- Identify and explain the effect of friction.
- Explain how levers, pulleys and gears allow a smaller force to have a greater effect.

Science Assessment

Year 4

A year 4 scientist

Working scientifically (Y3 and Y4)

- Ask relevant scientific questions.
- Use observations and knowledge to answer scientific questions.
- Set up a simple enquiry to explore a scientific question.
- Set up a test to compare two things.
- Set up a fair test and explain why it is fair.
- Make careful and accurate observations, including the use of standard units.
- Use equipment, including thermometers and data loggers to make measurements.
- Gather, record, classify and present data in different ways to answer scientific questions.
- Use diagrams, keys, bar charts and tables; using scientific language.
- Use findings to report in different ways, including oral and written explanations, presentation.
- Draw conclusions and suggest improvements.
- Make a prediction with a reason.
- Identify differences, similarities and changes related to an enquiry.

Biology

Living things and their habitats

- Group living things in different ways.
- Use classification keys to group, identify and name living things.
- Create classification keys to group, identify and name living things (for others to use).
- Describe how changes to an environment could endanger living things.

Animals, including humans

- Identify and name the parts of the human digestive system.
- Describe the functions of the organs in the human digestive system.
- Identify and describe the different types of teeth in humans.
- Describe the functions of different human teeth.
- Use food chains to identify producers, predators and prey.
- Construct food chains to identify producers, predators and prey.

Chemistry

States of matter

- Group materials based on their state of matter (solid, liquid, gas).
- Describe how some materials can change state.
- Explore how materials change state.
- Measure the temperature at which materials change state.
- Describe the water cycle.
- Explain the part played by evaporation and condensation in the water cycle.

Physics

Sound

- Describe how sound is made.
- Explain how sound travels from a source to our ears.
- Explain the place of vibration in hearing.
- Explore the correlation between pitch and the object producing a sound.
- Explore the correlation between the volume of a sound and the strength of the vibrations that produced it.
- Describe what happens to a sound as it travels away from its source.

Electricity

- Identify and name appliances that require electricity to function.
- Construct a series circuit.
- Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers).
- Draw a circuit diagram.
- Predict and test whether a lamp will light within a circuit.
- Describe the function of a switch in a circuit.
- Describe the difference between a conductor and insulators; giving examples of each.

Science Assessment

Year 3

A year 3 scientist

Working scientifically (Y3 and Y4)

- Ask relevant scientific questions.
- Use observations and knowledge to answer scientific questions.
- Set up a simple enquiry to explore a scientific question.
- Set up a test to compare two things.
- Set up a fair test and explain why it is fair.
- Make careful and accurate observations, including the use of standard units.
- Use equipment, including thermometers and data loggers to make measurements.
- Gather, record, classify and present data in different ways to answer scientific questions.
- Use diagrams, keys, bar charts and tables; using scientific language.
- Use findings to report in different ways, including oral and written explanations, presentation.
- Draw conclusions and suggest improvements.
- Make a prediction with a reason.
- Identify differences, similarities and changes related to an enquiry.

Biology

Plants

- Describe the function of different parts of flowing plants and trees.
- Explore and describe the needs of different plants for survival.
- Explore and describe how water is transported within plants.
- Describe the plant life cycle, especially the importance of flowers.

Animals, including humans

- Explain the importance of a nutritious, balanced diet.
- Explain how nutrients, water and oxygen are transported within animals and humans.
- Describe and explain the skeletal system of a human.
- Describe and explain the muscular system of a human.
- Describe the purpose of the skeleton in humans and animals.

Chemistry

Rocks

- Compare and group rocks based on their appearance and physical properties, giving a reason.
- Describe how fossils are formed.
- Describe how soil is made.
- Describe and explain the difference between sedimentary and igneous rock.

Physics

Light

- Describe what dark is (the absence of light).
- Explain that light is needed in order to see.
- Explain that light is reflected from a surface.
- Explain and demonstrate how a shadow is formed.
- Explore shadow size and explain.
- Explain the danger of direct sunlight and describe how to keep protected.

Forces and magnets

- Explore and describe how objects move on different surfaces.
- Explain how some forces require contact and some do not, giving examples.
- Explore and explain how objects attract and repel in relation to objects and other magnets.
- Predict whether objects will be magnetic and carry out an enquiry to test this out.
- Describe how magnets work.
- Predict whether magnets will attract or repel and give a reason.