

Science Key Assessment Criteria

Year 1

Working Scientifically

1. I can ask simple scientific questions
2. I can observe closely
3. I can carry out simple tests
4. I can gather and record data

Plants

1. I can name a variety of common wild and garden plants
2. I can name the petals, stem, leaf and root of a plant
3. I can name the roots, trunk, branches and leaves of a tree

Animals including humans

1. I can name a variety of animals' including fish, amphibians, reptiles and mammals
2. I can classify and name animals' by what they eat (carnivore, herbivore and omnivore)
3. I can sort animals into categories (fish, amphibians, reptiles and mammals)
4. I can sort living and non-living things
5. I can name the parts of the human body I can see
6. I can link the correct part of the human body to each sense

Everyday materials

1. I can distinguish between an object and the material it is made from
2. I can explain the materials that an object is made from
3. I can name wood, plastic, glass, metal, water and rock
4. I can describe the properties of everyday materials
5. I can group objects based on the materials they are made from

Seasonal changes

1. I can observe and comment on changes in the seasons
2. I can name the seasons and suggest the type of weather in each season

Year 2

Working Scientifically

1. I can ask simple scientific questions.
2. I can use simple equipment to make observations.
3. I can carry out simple tests.
4. I can identify and classify things.
5. I can suggest what I have found out.
6. I can use simple data to answer questions.

Living things and their habitats

1. I can identify things that are living, dead and never lived. ☐
2. I can describe how a specific habitat provides for the basic needs of things living there (plants ☐and animals). ☐
3. I can identify and name plants and animals in a range of ☐habitats. ☐
4. I can match living things to their habitat. ☐
5. I can describe how animals find their food. ☐
6. I can name some different sources of food for animals. ☐
7. I can explain a simple food chain.

Plants ☐

1. I can describe how seeds and bulbs grow into plants. ☒
2. I can describe what plants need in order to grow and stay healthy (water, light & suitable temperature).

Animals, including humans ☒

1. I can explain the basic stages in a life cycle for animals, including humans. ☒
2. I can describe what animals and humans need to survive. ☒
3. I can describe why exercise, a balanced diet and good hygiene are important for humans. ☒

Uses of everyday materials

1. I can identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. ☒
2. I can suggest why a material might or might not be used for a specific job. ☒
3. I can explore how squashing, bending, twisting and stretching can change shapes. ☒

Year 3

Investigating and Working scientifically

1. I can set up a simple, fair test and explain why it is fair.
2. I can make predictions with reasons.
3. I can collect and present findings using diagrams, keys, tables and bar charts.
4. I can ask relevant scientific questions. ☒
5. I can use observations and knowledge to answer scientific questions. ☒
6. I can explain what has happened in experiments using scientific language.
7. I can use results from experiments to draw simple conclusions
8. I can identify differences, similarities and changes related to an experiment.

Specific Topics

Plants

1. I can describe the function of different parts of flowering plants. ☒
2. I can explore and describe the needs of different plants for survival. ☒
3. I can explore and describe how water is transported within plants. ☒
4. I can draw and describe the plant life cycle.

Animals, including humans ☒

1. I can explain the importance of a nutritious, balanced diet. ☒
2. I can identify and name key bones in the human skeleton. ☒
3. I can describe the purpose of the skeleton in humans and animals.
4. I can explain why we need muscles to move. ☒

Rocks

1. I can compare and group rocks based on their appearance and physical properties.
2. I can describe how fossils are formed. ☒
3. I can explain how soil is made.
4. I can describe and explain the difference between sedimentary, metamorphic and igneous rock.

Light

1. I can describe what dark is.
2. I can explain that light is needed in order to see and give examples of light sources.
3. I can explain that light is reflected from a surface. ☒
4. I can explain how a shadow is formed. ☒
5. I can explain the danger of direct sunlight and describe how to protect my eyes from the sun.

Forces and magnets ☒

1. I can explore and describe how objects move on different surfaces. ☒
2. I can name different types of force.

3. I can predict whether objects will be magnetic and carry out an experiment to test this out.
4. I can sort magnetic and non-magnetic materials.
5. I can identify the poles of a magnet.
6. I can predict whether magnets will attract or repel.

Year 4

Investigating Y3 and 4

1. I can set up simple fair tests and explain why they are fair.
2. I can collect and present data from scientific experiments including tables and graphs.
3. I can take accurate measurements using a range of scientific apparatus.
4. I can use results from experiments to draw simple conclusions and suggest improvements.

Working scientifically

1. I can ask relevant scientific questions.
2. I can use observations and knowledge to answer scientific questions.
3. I can make careful accurate observations, including the use of standard units.
4. I can use equipment, including thermometers and data loggers to make measurements.
5. I can gather, record, classify and present data in different ways to answer scientific questions.
6. I can use diagrams, keys, bar charts and tables and scientific language.
7. I can use findings to report in different ways, including oral and written explanations, presentation.
8. I can make a prediction with a reason.
9. I can identify differences, similarities and changes related to an enquiry.

Y4 Topics

Living things and their habitats

1. I can group living things in different ways.
2. I know what processes sustain life.
3. I can create and use classification keys to group, identify and name living things.
4. I can describe how changes to an environment could endanger living things.

Animals, including humans

1. I can identify and name the parts of the human digestive system.
2. I can describe the functions of the organs in the human digestive system.
3. I can identify and describe the different types of teeth in humans.
4. I can describe the functions of different human teeth.
5. I can use food chains to identify producers, predators and prey.
6. I can construct food chains to identify producers, predators and prey.

States of matter

1. I can group materials based on their state of matter (solid, liquid, gas).
2. I can describe how some materials can change state.
3. I can explore how materials change state.
4. I can measure the temperature at which materials change state.
5. I can describe the water cycle.
6. I can explain the part played by evaporation and condensation in the water cycle.

Sound

1. I can describe how sound is made.
2. I can explain how sound travels from a source to our ears.
3. I can explain the place of vibration in hearing.
4. I can explore the correlation between pitch and the object producing a sound.

5. I can explore the correlation between the volume of a sound and the strength of the vibrations that produced it.
6. I can describe what happens to a sound as it travels away from its source.

Electricity

1. I can identify and name appliances that require electricity to function.
2. I can construct a series circuit.
3. I can identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers).
4. I can draw a circuit diagram.
5. I can predict and test whether a lamp will light within a circuit.
6. I can describe the function of a switch in a circuit.
7. I can describe the difference between a conductor and insulators; giving examples of each.

Year 5

Investigation Objectives

1. Use different approaches to answer scientific questions
2. Carry out simple tests
3. Collect information to help to answer scientific questions
4. Use simple equipment for observations
5. Link ideas and answers to observations
6. Organise objects or materials into groups

Working scientifically

1. I can plan different types of scientific enquiry. ☒
2. I can control variables in an enquiry. ☒
3. I can measure accurately and precisely using a range of equipment. ☒
4. I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. ☒
5. I can use the outcome of test results to make predictions and set up a further comparative fair test. ☒
6. I can report findings from enquiries in a range of ways. ☒
7. I can explain a conclusion from an enquiry. ☒
8. I can explain causal relationships in an enquiry. ☒
9. I can relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory. ☒
10. Read, spell and pronounce scientific vocabulary accurately. ☒

Topics

Living things and their habitats

1. I can describe the life cycle of different living things, e.g. mammal, amphibian, insect bird. ☒
2. I can describe the differences between different life cycles. ☒
3. I can describe the process of reproduction in plants. ☒
4. I can describe the process of reproduction in animals.

Animals, including humans ☒

1. I can create a timeline to indicate stages of growth in humans.

Properties and changes of materials

1. I can compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets). ☒
2. I can describe how a material dissolves to form a solution; explaining the process of dissolving.

3. I can describe and show how to recover a substance from a solution. ☐
4. I can describe how some materials can be separated. ☐
5. I can demonstrate how materials can be separated (e.g. through filtering, sieving and evaporating). ☐
6. I know and can demonstrate that some changes are reversible and some are not. ☐
7. I can explain how some changes result in the formation of a new material and that this is usually irreversible. ☐
8. I can discuss reversible and irreversible changes. ☐
9. I can give evidenced reasons why materials should be used for specific purposes. ☐

Earth and space

1. I can describe and explain the movement of the Earth and other planets relative to the Sun.
2. I can describe and explain the movement of the Moon relative to ☐the Earth. ☐
3. I can explain and demonstrate how night and day are created. ☐
4. I can describe the Sun, Earth and Moon (using the term spherical). ☐Forces ☐
5. I can explain what gravity is and its impact on our lives. ☐
6. I can identify and explain the effect of air resistance. ☐
7. I can identify and explain the effect of water resistance. ☐
8. I can identify and explain the effect of friction. ☐
9. I can explain how levers, pulleys and ☐gears allow a smaller force to have a greater effect.

Year 6

Investigation Objectives

1. Use different approaches to answer scientific questions
2. Carry out simple tests
3. Collect information to help to answer scientific questions
4. Use simple equipment for observations
5. Link ideas and answers to observations
6. Organise objects or materials into groups

Working scientifically

1. I can plan different types of scientific enquiry. ☐
2. I can control variables in an enquiry. ☐
3. I can measure accurately and precisely using a range of equipment. ☐
4. I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. ☐
5. I can use the outcome of test results to make predictions and set up a further comparative fair test. ☐
6. I can report findings from enquiries in a range of ways. ☐
7. I can explain a conclusion from an enquiry. ☐
8. I can explain causal relationships in an enquiry. ☐
9. I can relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory. ☐
10. Read, spell and pronounce scientific vocabulary accurately. ☐

Y6 Topics

Living things and their habitats

1. I can classify living things into broad groups according to observable characteristics and based on similarities & differences. ☐
2. I can describe how living things have been classified. ☐
3. I can give reasons for classifying plants and animals in a specific way.

Animals, including humans ☒

1. I can identify and name the main parts of the human circulatory system. ☒
2. I can describe the function of the heart, blood vessels and blood. ☒
3. I can discuss the impact of diet, exercise, drugs and life style on health. ☒
4. I can describe the ways in which nutrients and water are transported in animals, including humans.

Evolution and inheritance ☒

1. I can describe how the earth and living things have changed over time. ☒
2. I can explain how fossils can be used to find out about the past. ☒
3. I can explain about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents). ☒
4. I can explain how animals and plants are adapted to suit their environment. ☒
5. I can link adaptation over time to evolution. ☒
6. I can explain evolution. ☒

Light

1. I can explain how light travels. ☒
2. I can explain and demonstrate how we see objects. ☒
3. I can explain why shadows have the same shape as the object that casts ☒them. ☒
4. I can explain how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.
5. Electricity ☒
6. I can explain how the number & voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer. ☒
7. I can compare and give reasons for why components work and do not work in a circuit. ☒
8. I can draw circuit diagrams using correct symbols.

Y6 Teacher Assessment Framework

Working at the Expected Standard

Working scientifically: this must be taught through, and clearly related to, the teaching of substantive science content in the programme of study.

1. The pupil can describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources.
2. The pupil can ask their own questions about the scientific phenomena they are studying, and select and plan the most appropriate ways to answer these questions, or those of others, recognising and controlling variables where necessary - including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests, and finding things out using a wide range of secondary sources of information.
3. The pupil can use a range of scientific equipment to take accurate and precise measurements or readings, with repeat readings where appropriate.
4. The pupil can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
5. The pupil can present findings and draw conclusions in different forms, and raise further questions that could be investigated, based on their data and observations.

Science content:

1. The pupil can use appropriate scientific language and ideas from the national curriculum to explain, evaluate and communicate their methods and findings.

2. The pupil can name, locate and describe the functions of the main parts of the digestive, musculoskeletal, and circulatory systems, and can describe and compare different reproductive processes and life cycles, in animals.
3. The pupil can describe the effects of diet, exercise, drugs and lifestyle on how their bodies function.
4. The pupil can name, locate and describe the functions of the main parts of plants, including those involved in reproduction and transporting water and nutrients.
5. The pupil can use the observable features of plants, animals and micro-organisms to group, classify and identify them into broad groups, using keys or in other ways.
6. The pupil can construct and interpret food chains.
7. The pupil can explain how environmental changes may have an impact on living things.
8. The pupil can use the basic ideas of inheritance, variation and adaptation to describe how living things have changed over time and evolved; and describe how fossils are formed and provide evidence for evolution.
9. The pupil can group and identify materials, including rocks, in different ways according to their properties, based on first-hand observation; and justify the use of different everyday materials for different uses, based on their properties.
10. The pupil can describe the characteristics of different states of matter and group materials on this basis; and can describe how materials change state at different temperatures, using this to explain everyday phenomena, including the water cycle.
11. The pupil can identify, and describe what happens when dissolving occurs in everyday situations; and describe how to separate mixtures and solutions into their components.
12. The pupil can identify, with reasons, whether changes in materials are reversible or not.
13. The pupil can use the idea that light from light sources, or reflected light, travels in straight lines and enters our eyes to explain how we see objects, and the formation, shape and size of shadows.
14. The pupil can use the idea that sounds are associated with vibrations, and that they require a medium to travel through, to explain how sounds are made and heard.
15. The pupil can describe the relationship between the pitch of a sound and the features of its source; and between the volume of a sound, the strength of the vibrations and the distance from its source.
16. The pupil can describe the effects of simple forces that involve contact (air and water resistance, friction), and others that act at a distance (magnetic forces, including those between like and unlike magnetic poles; and gravity).
17. The pupil can use simple apparatus to construct and control a series circuit, and describe how the circuit may be affected when changes are made to it; and use recognised symbols to represent simple series circuit diagrams.
18. The pupil can describe the shapes and relative movements of the sun, moon, earth and other planets in the solar system; and explain the apparent movement of the sun across the sky in terms of the earth's rotation and that this results in day and night.