



What does being at the National Standard look like in relation to different year groups?

Science

Science

By the end of Year 1 - learners should be able to:

A year 1 scientist			
<p>Working scientifically (Y1 and Y2)</p> <ul style="list-style-type: none"> • Ask simple scientific questions. • Use simple equipment to make observations. • Carry out simple tests. • Identify and classify things. • Suggest what has been found out. • Use simple data to answer questions. 	<p>Biology</p> <p><u>Plants</u></p> <ul style="list-style-type: none"> • Name a variety of common wild and garden plants. • Name the petals, stem, leaf and root of a plant. • Name the roots, trunk, branches and leaves of a tree. <p><u>Animals, including humans</u></p> <ul style="list-style-type: none"> • Name a variety of animals including fish, amphibians, reptiles birds and mammals. • Classify and name animals by what they eat (carnivore, herbivore and omnivore). • Sort animals into categories (including fish, amphibians, reptiles, birds and mammals). • Sort living and non-living things. • Name the parts of the human body that I can see. • Link the correct part of the human body to each sense. 	<p>Chemistry</p> <p><u>Everyday materials</u></p> <ul style="list-style-type: none"> • Distinguish between an object and the material it is made from. • Explain the materials that an object is made from. • Name wood, plastic, glass, metal, water and rock. • Describe the properties of everyday materials. • Group objects based on the materials they are made from. 	<p>Physics</p> <p><u>Seasonal changes</u></p> <ul style="list-style-type: none"> • Observe and comment on changes in the seasons. • Name the seasons and suggest the type of weather in each season.

Science

By the end of Year 2 - learners should be able to:

<p>A year 2 scientist</p> <p>Working scientifically (Y1 and Y2)</p> <ul style="list-style-type: none"> • Ask simple scientific questions. • Use simple equipment to make observations. • Carry out simple tests. • Identify and classify things. • Suggest what has been found out. • Use simple data to answer questions. 	<p>Biology</p> <p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> • Identify things that are living, dead and never lived. • Describe how a specific habitat provides for the basic needs of things living there (plants and animals). • Identify and name plants and animals in a range of habitats. • Match living things to their habitat. • Describe how animals find their food. • Name some different sources of food for animals. • Explain a simple food chain. <p><u>Plants</u></p> <ul style="list-style-type: none"> • Describe how seeds and bulbs grow into plants. • Describe what plants need in order to grow and stay healthy (water, light & suitable temperature). <p><u>Animals, including humans</u></p> <ul style="list-style-type: none"> • Explain the basic stages in a life cycle for animals, including humans. • Describe what animals and humans need to survive. • Describe why exercise, a balanced diet and good hygiene are important for humans. 	<p>Chemistry</p> <p><u>Uses of everyday materials</u></p> <ul style="list-style-type: none"> • Identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. • Suggest why a material might or might not be used for a specific job. • Explore how shapes can be changed by squashing, bending, twisting and stretching. 	<p>Physics</p> <p>No content</p>
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Science

By the end of Year 3 - learners should be able to:

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 flowering 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.

Science

By the end of Year 4 - learners should be able to:

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

By the end of Year 5 - learners should be able to:

A year 5 scientist

Working scientifically (Y5 and Y6)

- Plan different types of scientific enquiry.
- Control variables in an enquiry.
- Measure accurately 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

By the end of Year 6 - learners should be able to:

A year 6 scientist Working scientifically (Y5 and Y6)	Biology	Chemistry	Physics
<ul style="list-style-type: none"> 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. 	<p>Biology</p> <p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> 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. <p><u>Animals, including humans</u></p> <ul style="list-style-type: none"> 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. <p><u>Evolution and inheritance</u></p> <ul style="list-style-type: none"> 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. 	<p>Chemistry</p> <p>No content</p>	<p>Physics</p> <p><u>Light</u></p> <ul style="list-style-type: none"> 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. <p><u>Electricity</u></p> <ul style="list-style-type: none"> 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.