

## Year 3 Science

### Working Scientifically

3.WS1 - Asking relevant questions and using different types of scientific enquiries to answer them

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS2 - Setting up simple practical enquiries, comparative and fair tests

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS3 - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS4 - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS5 - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS6 - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS7 - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS8 - Identifying differences, similarities or changes related to simple scientific ideas and processes

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.WS9 - Using straightforward scientific evidence to answer questions or to support their findings.

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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Pupils in years 3 and 4 should be given a range of scientific experiences to enable them to raise their own questions about the world around them. They should start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions; recognise when a simple fair test is necessary and help to decide how to set it up; talk about criteria for grouping, sorting and classifying; and use simple keys. They should begin to look for naturally occurring patterns and relationships and decide what data to collect to identify them. They should help to make decisions about what observations to make, how long to make them for and the type of simple equipment that might be used. They should learn how to use new equipment, such as data loggers, appropriately. They should collect data from their own observations and measurements, using notes, simple tables and standard units, and help to make decisions about how to record and analyse this data.

With help, pupils should look for changes, patterns, similarities and differences in their data in order to draw simple conclusions and answer questions. With support, they should identify new questions arising from the data, making predictions for new values within or beyond the data they have collected, and finding ways of



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improving what they have already done. They should also recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.

Pupils should use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences.

These opportunities for working scientifically should be provided across years 3 and 4 so that the expectations in the programme of study can be met by the end of year 4. Pupils are not expected to cover each aspect for every area of study.

## Year 3 Science

### Plants

3.P1 - Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.P2 - 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

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.P3 - Investigate the way in which water is transported within plants

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.P4 - Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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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 3 Science

### Animals

3.A1 - 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

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.A2 - Identify that humans and some other animals have skeletons and muscles for support, protection and movement

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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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 2 Science

### Rocks

3.R1 - Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.R2 - Describe in simple terms how fossils are formed when things that have lived are trapped within rock

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.R3 - Recognise that soils are made from rocks and organic matter

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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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 3 Science

### Light

3.L1 - Recognise that they need light in order to see things and that dark is the absence of light

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.L2 - Notice that light is reflected from surfaces

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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3.L3 - Recognise that light from the sun can be dangerous and that there are ways to protect their eyes

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3.L4 - Recognise that shadows are formed when the light from a light source is blocked by an opaque object

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3.L5 - Find patterns in the way that the size of shadows change

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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 3 Science

### Forces and Magnets

#### 3.FM1 - Compare how things move on different surfaces

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#### 3.FM2 - Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance

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#### 3.FM3 - Observe how magnets attract or repel each other and attract some materials and not others

Not Met	Shallow	Emerging	Developing	Deepening	Functional
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#### 3.FM4 - 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

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#### 3.FM5 - Describe magnets as having 2 poles

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#### 3.FM6 - Predict whether 2 magnets will attract or repel each other, depending on which poles are facing

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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 to 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.