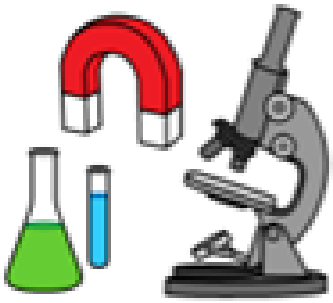
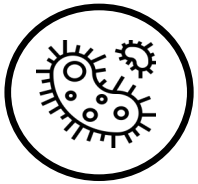
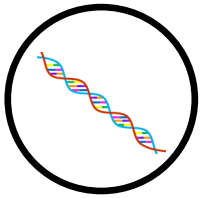
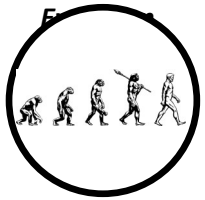
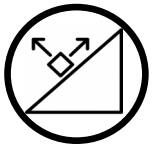
# Science Medium Term Planning

# Year 3

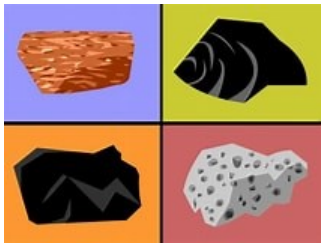
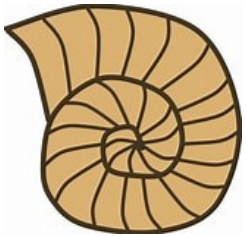
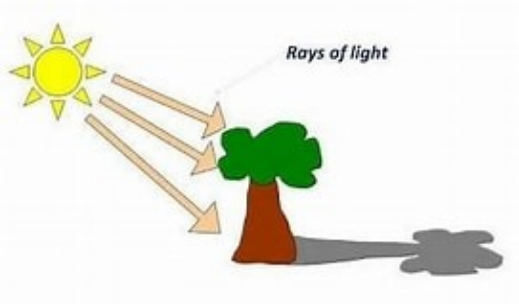


# Key Concepts Overview

| Key Concepts | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| ***Organisms require a supply of energy and materials.***  | **Seasonal Changes**<br>To know the four seasons and describe changes in the weather.<br>To describe how tree and plants change through the seasons. | **Seasonal Changes**<br>• Plants<br>• Habitats<br>• Animals | **Seasonal Changes**<br>• Plants<br>• Habitats<br>• Animals | **Seasonal Changes**<br>• Plants<br>• Habitats<br>• Animals | **Seasonal Changes**<br>• Plants<br>• Habitats<br>• Animals<br>• Earth and Space | **Seasonal Changes**<br>• Plants<br>• Habitats<br>• Animals |
| ***Organisms require a supply of energy and materials.*** | **Animals including humans**<br>To name different parts of the body - particularly those associated with the five senses.<br>To name and describe common animals.<br>To describe what food carnivores, herbivores and omnivores might eat. | **Animals including humans**<br>To explain what humans and animals need to survive and the importance of looking after our bodies - including the need for exercise, eating the right amount of food and hygiene.<br>Notice that animals, including humans, have offspring that grow into adults. | **Animals including humans**<br>To explain why we need food to keep us alive.<br>To describe the main functions of the skeleton and muscles. | **Animals including humans**<br>To explain the parts of the digestive system.<br>To know the different types of teeth.<br>To describe a variety of food chains. | **Animals including humans**<br>To describe how our bodies changes as we age. | **Animals including humans**<br>To identify the different parts of the circulatory system.<br>To recognise the impact of healthy lifestyles on our body.<br>To describe how nutrients and water are transported around our body. |
| ***Genetic information***  | | **Living things and their habitats**<br>To know the differences between living, dead and never lived.<br>To describe adaptations of animals in relation to their habitats.<br>Create simple food chains. | | **Living things and their habitats**<br>To use classification keys to group living things.<br>To recognise and explain the features of different environments. | **Living things and their habitats**<br>To describe the life cycles of different animal groups.<br>To describe how some animals and plants reproduce. | **Living things and their habitats**<br>To classify plants and animals and give reasons for their choices based on characteristics. |
| ***Organisms require a supply of energy and materials.*** | **Plants**<br>To name and describe the simple features of common plants and trees.<br>To name and describe the different parts of flowers and trees. | **Plants**<br>To know what plants need to grow and stay healthy. | **Plants**<br>To know the job of each part of the flower in the life cycle of a plant.<br>To know what different plants need to live and grow.<br>To describe how water is transported through a plant. | | | |
| ***E***  | | | | | | **Evolution and inheritance**<br>To explain that the kind of things on Earth now are different to millions of years ago.<br>Give examples of how living things have adapted.<br>Explain how living things produce offspring which is similar but not identical. |

| Key Concepts | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| ***Energy***  | | | **Light**<br>To describe some sources of light.<br>To notice that light can be reflected from surfaces.<br>To describe some simple properties of light including shadows. | | | **Light**<br>To explain how light travels and how we see objects.<br>To describe why we see shadows. |
| | | | | **Sound**<br>To recognise sound is made by vibrations and describe how the size of these effect pitch and volume. | | |
| | | | **Electricity**<br>To construct, draw, label and make predictions about simple circuits.<br>To know some good conductors and insulators.<br>To identify some common appliances that run on electricity. | | **Electricity**<br>To explain the effect of the number of cells on lights and buzzers in a circuit.<br>To give reasons for variations in how different elements of a circuit function. | |
| ***Forces***  | | | **Forces and Magnets**<br>To understand the effect of friction and contact forces.<br>To describe magnetic and non-magnetic materials.<br>To describe a magnetic force. | | **Forces**<br>I understand the force of gravity.<br>I can identify the effects of air resistance.<br>I can use simple mechanisms. | |
| ***Materials***   ***States of Matter*** | **Materials**<br>To name and describe a variety of materials and their properties.<br>To group materials based on their properties. | **Materials**<br>To describe the properties and suitability of everyday materials. | **Materials (rocks)**<br>To group rocks according to simple properties.<br>To know how rocks and fossils are formed.<br>To know what soil is made from. | **States of matter**<br>To recognise the three common states of matter and understand how some materials can change state.<br>To identify the part played by condensation and evaporation in the water cycle. | **Materials**<br>To explain how to combine or separate mixtures and solutions.<br>To understand reversible and irreversible changes.<br>To compare and group materials based on more complex properties—including hardness, solubility, transparency, conductivity and response to magnets | |
| ***The Earth in relation to the universe***  **The Earth spins on its axis** | | | | | **Earth and Space**<br>To describe the movement of Earth, moon and sun and their relationship to each other and other planets. | |

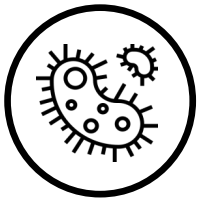
# Year 3 Science—Yearly Overview

| Autumn | Spring | Summer |
|---|---|---|
| **Our Changing World**<br>  | **Our Changing World**<br>  | **How does your garden grow?**<br>  |
| **Amazing Bodies**<br>   | **Rock detectives**<br>   | **The Power of Forces**<br>  |
| **Can you see me?**<br>  | **How does your garden grow?**<br>  | **Our Changing World**<br>  |

# Autumn Term

**Our Changing World**

**Biology**

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
|  *Organisms* | ***Written and oral expression*** | Lesson 1, 2 and 3 to be combined into one lesson. | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe how leaves and flowers change through the year.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |
| | | Lesson 4 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe the time of year that I am most likely to find particular berries and flowers.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |
| | | Lesson 5 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe the part flowers play in the life cycle of flowering plants.<br>I can observe how often insects visit flowering plants.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |

# Amazing Bodies

## Biology

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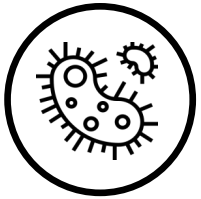
|---|---|
| *Prior Learning* | • Can pupils associate parts of their bodies with the senses?<br>• Can pupils explain what humans need in order to survive?<br>• Can pupils explain the importance of looking after our bodies? |
| *End Points* | • To explain why we need food to keep us alive.<br>• To describe the main functions of the skeleton and muscles. |
| *Vocabulary* | skeleton, muscles, skull, ribs, hips, carbohydrates, protein, fats, sugar, balanced |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
|  *Organisms* | ***Cause and Consequence*** | Lesson 2 | OO: 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.<br>LO: I can sort different types of foods into different categories.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | Grouping and Classifying | Local Restaurant Menus |
| | **Written and oral expression** | Lesson 3 | OO: 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.<br>LO: I can describe and explain the food an adventurer needs to stay healthy.<br>WS: I can gather, record, classify and present data in a variety of different ways to help answer questions. | Grouping and Classifying | No additional resources |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
| *Organisms* | ***Significance*** | Lesson 4 | OO: I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.<br>LO: I can explain and describe the differences between a vertebrate and an invertebrate.<br>WS: I can use straightforward scientific evidence to support my findings. | Grouping and Classifying | Access to the internet |
| | ***Written and oral expression*** | Lesson 6 | OO: I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.<br>LO: I can describe and explain the uses of some muscles in the human body.<br>I understand how muscles support the movement of our skeleton.<br>WS: I can gather, record, classify and present data in a variety of different ways to help answer questions. | Grouping and Classifying | Chicken leg<br>Large space<br>Small weights—bottles of water, bench<br>Access to the internet |
| | ***Responsibility*** | Lesson 7 | OO: I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.<br>LO: I am beginning to understand how the structure of the body affects how well we can do things.<br>WS: I can ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests. | Pattern Seeking | No additional resources |
| | ***Written and oral expression*** | Lesson 8 | OO: 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.<br>LO: I can compare a person's physical characteristics and their performance in certain activities.<br>WS: I can use results to draw simple conclusions, suggest improvements and ask new questions. | Pattern Seeking | Equipment for measuring—rulers, tape measures, metre sticks, trundle wheels, balls, beanbags, stop watch-es. |

# Can you see me?

## Physics

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|---|---|
| *Prior Learning* | • NEW LEARNING—NEW KEY CONCEPT<br>• Can pupils name any light sources? |
| *End Points* | • To describe some sources of light.<br>• To notice that light can be reflected from surfaces.<br>• To describe some simple properties of light including shadows. |
| *Vocabulary* | shadow, reflect, source, reflective, transparent, translucent, opaque, bright, dull |

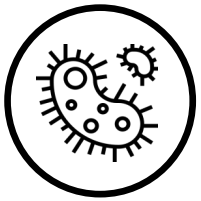
| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
| *Energy* | ***Responsibility*** | Lesson 1 | OO: I recognise and understand the properties of light.<br>LO: I understand that light is necessary in order for us to see objects.<br>WS: I can ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests. | Grouping and Classifying | A dark space—tent or den<br>A collection of objects of different colours—black, white, reflective—cut out pieces of card.<br>Boxes—with a removable lid . |
| | ***Written and oral expression*** | Lesson 2 | OO: I recognise and understand the properties of light.<br>LO: I recognise that light is reflected from surfaces.<br>WS: I can gather, record, classify and present data in a variety of different ways to help answer questions. | Grouping and Classifying | Mirrors<br>Torches<br>Pieces of black card<br>Selection of objects—tin foil, CD case, pieces of black and white card, shiny 2ps and old rusty 2ps |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
| *Energy* | ***Written and oral expression*** | Lesson 3 | OO: I recognise and understand the properties of light.<br>LO: I recognise that light is reflected from surfaces.<br>I recognise that we need light in order to see things and that dark is the absence of light.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Grouping and Classifying | A large selection of reflective and non-reflective materials—ribbon, tinsel, sequins, buttons, pieces of card, foil.<br>A lerge piece of paper—to draw the class chosen animal. |
| | | Lesson 5 | OO: I recognise that shadows are formed when the light from a light source is blocked by a solid object.<br>LO: I understand how a shadow is formed.<br>WS: I can gather, record, classify and present data in a variety of different ways to help answer questions. | Pattern Seeking | Torches<br>Pieces of card—with 5 slots cut in to make a comb shape<br>Objects—Perspex, clingfilm, laminating pouch, tracing paper, tissue paper and some opaque objects. |
| | | Lesson 6 | OO: I recognise that shadows are formed when the light from a light source is blocked by a solid object.<br>LO: I can explore patterns with shadows.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Pattern Seeking | Lolly sticks<br>Opaque objects—cut into simple shapes<br>Torches<br>Large sheets of paper—big enough to draw the outline of a year 3 child |
| | ***Cause and Consequence*** | Lesson 7 | OO: I can find patterns in the way that the size of shadows changes.<br>LO: I can describe and explain why the shape and size of a shadow might change.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | Pattern Seeking | 3D opaque shapes<br>Pieces of black card—cut into circles, triangles, squares<br>Torches<br>Mini whiteboards<br>Rulers<br>Tape measures |

# Spring Term

**Our Changing World**

**Biology**

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
|  *Organisms* | ***Written and oral expression*** | Lesson 1, 2 and 3 to be combined into one lesson. | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe how leaves and flowers change through the year.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |
| | | Lesson 4 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe the time of year that I am most likely to find particular berries and flowers.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |
| | | Lesson 5 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe the part flowers play in the life cycle of flowering plants.<br>I can observe how often insects visit flowering plants.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables.<br>I can make systematic and careful observations and record accurate measurements using standard units. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |

# Rock Detectives

## Chemistry

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|---|---|
| *Prior Learning* | • Can pupils name a range of materials?<br>• Can they identify some simple properties of materials? |
| *End Points* | • To group rocks according to simple properties.<br>• To know how rocks and fossils are formed.<br>• To know what soil is made from. |
| *Vocabulary* | permeable<br>impermeable<br>formation<br>sedimentary<br>organic<br>fossil<br>Granite<br>Chalk<br>Limestone<br>Marble<br>Igneous<br>Metamorphic |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
|  *Materials* | ***Written and oral expression*** | Lesson 1 | OO: I can compare and group together different kinds of rocks and soil on the basis of their appearance and simple physical properties.<br>LO: I can explore and describe the properties of rocks.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Grouping and Classifying | Collection of rocks<br>Magnifying glasses<br>Microscope<br>Weighing scales |
| | ***Responsibility*** | Lesson 2 | OO: I can compare and group together different kinds of rocks and soil on the basis of their appearance and simple physical properties.<br>LO: I can explore and describe the properties of rocks.<br>WS: I can ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests. | Grouping and Classifying | Collection of rocks |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
|  *Materials* | ***Written and oral expression*** | Lesson 3 | OO: I can compare and group together different kinds of rocks and soil on the basis of their appearance and simple physical properties.<br>LO: I can identify and describe some of the purposes of rocks in our local environment.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Grouping and Classifying | No additional resources |
| | | Lesson 6 | OO: I can compare and group together different kinds of rocks and soil on the basis of their appearance and simple physical properties.<br>LO: I can observe and describe changes in rocks over time.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over Time | Magnifying glasses |
| | ***Significance*** | Lesson 7 | OO: I can compare and group together different kinds of rocks and soil on the basis of their appearance and simple physical properties.<br>LO: I recognise that soils are made from rocks and organic material.<br>WS: I can use straightforward scientific evidence to answer questions and support findings. | Grouping and Classifying | Soil samples—sandy soil, heavy clay soil, chalky soil, local soil, compost<br>Magnifying glasses |
| | ***Cause and Consequence*** | Lesson 9 | OO: I can describe in simple terms how fossils are formed when things that have lived are trapped within rock.<br>LO: I can describe and explain what a fossil is.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | Grouping and Classifying | Fossil kit—replica fossils<br>Reference books/secondary sources of information<br>Magnifying glasses |
| | ***Cause and Consequence*** | Lesson 10 | OO: I can describe in simple terms how fossils are formed when things that have lived are trapped within rock.<br>LO: I can describe how fossils are formed.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | Research | Fossil kit—replica fossils<br>Reference books/secondary sources of information<br>Magnifying glasses<br>Sticky notes |

# How does your garden grow?

## Biology

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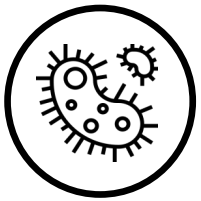
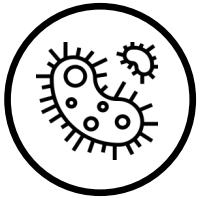
|---|---|
| *Prior Learning* | • Can pupils name and describe the simple features of plants and trees?<br>• Can pupils name the simple parts of flowers and trees?<br>• Can pupils name what a plant needs to grow and stay healthy? |
| *End Points* | • To know the job of each part of the flower in the life cycle of a plant.<br>• To know what different plants need to live and grow.<br>• To describe how water is transported through a plant. |
| *Vocabulary* | pollination, pollen, seed formation, nectar, seed dispersal, fertiliser, stamen, stigma |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
|  *Organisms* | ***Responsibility*** | Lesson 1 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>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.<br>LO: I can explain and describe the different parts of a flowering plant.<br>WS: I can ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests. | Research | A flowering plant in a pot<br>Sticky notes |
| | ***Cause and Consequence*** | Lesson 2 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>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.<br>LO: I can investigate and describe the function of leaves.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | Grouping and Classifying | Whiteboards<br>Pens<br>Sets of leaves—different sizes and shapes<br>Magnifying glasses |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
| *Organisms* | ***Responsibility*** | Lesson 3 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>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.<br>LO: I can investigate what would happen if a plant lost its leaves.<br>WS: I can ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests. | Comparative and Fair Tests | A range of plants |
| | ***Written and oral expression*** | Lesson 4 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can investigate and describe the properties of roots.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Grouping and Classifying | A plant in a pot which has had its roots removed.<br>A range of seedlings<br>Magnifying glasses |
| | | Lesson 5 | OO: I understand the way in which water is transported within plants.<br>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.<br>LO: I can describe how water is transported through a plant.<br>WS: I can use results to draw simple conclusions, suggest improvements and ask new questions. | Observation Over Time | Prepared carnations and celery<br>Magnifying glasses<br>Food colouring<br>Containers |
| | | Lesson 6 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>I understand the way in which water is transported within plants.<br>LO: I can investigate and describe the function of the stem.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation Over Time<br>Research | Celery, carnations and diagrams from lesson 5<br>Magnifying glasses<br>Sharp knife or implement<br>Large sheets of paper. |

# Summer Term

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
|  *Organisms* | ***Written and oral expression*** | Lesson 7 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.<br>LO: I can explain the main stages of the life cycle of a flowering plant.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Research | Apple<br>Sharp knife<br>Scissors<br>glue |
| | ***Cause and Consequence*** | Lesson 8 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can investigate and describe the different parts of a flower.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | Grouping and Classifying | Three different types of flower<br>Sticky notes<br>Magnifying glasses<br>Tweezers |
| | ***Written and oral expression*** | Lesson 9 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe the part that insects play in the life cycle of a flowering plant.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Research | Props for pollination role play—cut out and attach key parts to cardboard headbands<br>Small containers<br>Ping pong balls<br>Velcro dots<br>Milk bottle lids<br>Woolly hats |
| | ***Cause and Consequence*** | Lesson 10 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.<br>LO: I understand and can describe how seeds are dispersed.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | Research | Collections of seeds<br>Range of modelling materials—tubes, paper, card, fabric, feathers, pipe cleaners, balloons, plastic bags, bubble wrap, tape, glue, string, scissors |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
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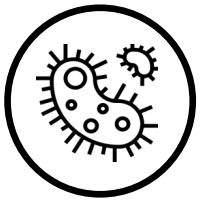
|  *Organisms* | ***Written and oral expression*** | Lesson 11 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.<br>LO: I can investigate what would happen if a plant lost its leaves.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Comparative and Fair Tests | Pens<br>Large paper<br>Log of observations<br>Plants from the experiment in Lesson 3 |
| | | Lesson 12 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can label and annotate a diagram of a flowering plant.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | N/A | Large piece of paper<br>Pens<br>Sticky notes |

# The power of forces

## Physics

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|---|---|
| *Prior Learning* | • NEW LEARNING—NEW KEY CONCEPT<br>• Can children explain what happens when they push or pull an object? |
| *End Points* | • To understand the effect of friction and contact forces.<br>• To describe magnetic and non-magnetic materials.<br>• To describe a magnetic force. |
| *Vocabulary* | poles, push, pull, distance, direct, contact, force, magnet, attract, repel |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
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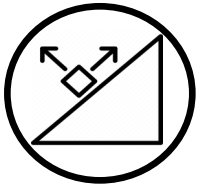
|  *Forces* | ***Cause and Consequence*** | Lesson 1 | OO: I notice contact and non-contact forces and recognise similarities and differences.<br>LO: I understand what makes an object move.<br>WS: I can identify differences, similarities or changes related to simple scientific ideas and processes. | N/A | Table tennis balls<br>Drinking straws<br>Cotton wool balls<br>Rubber bands<br>Sheets of strong card |
| | ***Responsibility*** | Lesson 2 | OO: I notice contact and non-contact forces and recognise similarities and differences.<br>LO: I am beginning to explain what makes an object move.<br>I am beginning to understand what a force is.<br>WS: I can ask relevant questions and use different types of scientific enquiry to answer them, including comparative and fair tests. | Comparative and Fair Testing | Four different windmills<br>Paper<br>Split pins<br>Wooden sticks<br>Stopwatches |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
| *Forces* | ***Written and oral expression*** | Lesson 3 | OO: I notice contact and non-contact forces and recognise similarities and differences.<br>LO: I can compare how things move on different surfaces.<br>WS: I can use results to draw simple conclusions, suggest improvements and ask new questions. | Comparative and Fair Testing | Ramps—covered in different materials<br>Rulers<br>Weights to slide down ramps |
| | | Lesson 4 | OO: I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet.<br>I can describe magnets as having two poles.<br>LO: I can recognise magnetic and non-magnetic materials.<br>WS: I can gather, record, classify and present data in a variety of different ways to help answer questions. | Grouping and Classifying | Sand or sawdust<br>Small magnetic objects<br>Small non-magnetic objects<br>Sorting circles<br>Large magnet<br>Magnetic fishing rod—large garden cane, magnet and string. |
| | | Lesson 5 | OO: I notice contact and non-contact forces and recognise similarities and differences.<br>I can describe how magnetic forces act at a distance.<br>LO: I can investigate the strength of magnet.<br>I understand that magnetic force acts at a distance.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Comparative and Fair Testing | Bar magnets<br>Paper clips<br>Rulers<br>Magnetic objects—keys, cutlery, scissors, cans<br>Paper<br>Measuring scales |
| | | Lesson 6 | OO: I can predict whether two magnets will attract or repel each other, depending on which poles are facing.<br>LO: I can investigate the strength of magnetic force.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables.<br>I can make systematic and careful observations and record accurate measurements using standard units. | Comparative and Fair Testing | Magnets of assorted strength<br>Paperclips<br>Rulers<br>Range of magnetic objects of different weights |

| Key Concept | Second Order Concepts | Lesson Sequence | Learning Objectives | Enquiry Type | Resources |
|---|---|---|---|---|---|
| | ***Continuity and Change*** | Lesson 7 | OO: I can predict whether two magnets will attract or repel each other, depending on which poles are facing.<br>I can describe magnets as having two poles.<br>LO: I understand and can describe what happens when magnets attract and repel each other.<br>WS: I can make systematic and careful observations and record accurate measurements using standard units. | Research | Range of different types of magnet<br>Iron filings<br>Petri dishes |

| Our Changing World<br>Biology | | | | | |
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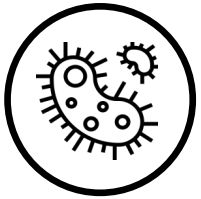
| **Key Concept** | **Second Order Concepts** | **Lesson Sequence** | **Learning Objectives** | **Enquiry Type** | **Resources** |
|  *Organisms* | ***Written and oral expression*** | Lesson 1, 2 and 3 to be combined into one lesson. | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe how leaves and flowers change through the year.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |
| | | Lesson 4 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe the time of year that I am most likely to find particular berries and flowers.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |
| | | Lesson 5 | OO: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>LO: I can describe the part flowers play in the life cycle of flowering plants.<br>I can observe how often insects visit flowering plants.<br>WS: I can record findings and present data using simple scientific language, written and oral explanations, diagrams, pictures, keys, bar charts and tables. | Observation over time | Photographs of trees<br>Photographs of gardens<br>Balls of string<br>Lolly sticks<br>Large hoops |