

Heinemann Explore New International Edition Science mapping

This document maps the iPrimary science curriculum to Heinemann Explore New International Edition Science. You may choose to teach some topics using our internationalised version of Science Bug in cases where the UK content is designed for a significantly different year group. These plans are available on our website.

Contact your local Pearson representative in order to purchase all of the required books for this course.

Year 1

Topic	iPrimary objective	Suggested Science Bug unit (individual lesson given if applicable)
Living things	B1.1A Know that animals and plants are living things. B1.1B Distinguish between living and non-living things. B1.1C Understand that animals and plants change as they grow.	Grade 1, Unit 1, I'm special! Grade 1, Unit 1, I'm special! Grade 1, Unit 1, We all grow Grade 1, Unit 2, Dead or Alive?, Plenty of plants
Myself	B1.2A Know that humans need food, water and air to stay alive. B1.2B Know the five senses and link these to the corresponding sense organ. B1.2C Understand that humans use sense organs to detect changes in their surroundings. B1.2D Identify external parts of the human body to include head, neck, limbs and digits, skin and other sense organs.	Grade 1, Unit 1, I'm special! Grade 1, Unit 1, Give me five senses Grade 1, Unit 1, Give me five senses Grade 1, Unit 1, I'm Special!

	<p>B1.2E Compare observable similarities and differences between humans.</p> <p>B1.2F Understand that humans grow and change as they grow older.</p>	<p>Grade 1, Unit 1, Who's tallest?</p> <p>Grade 1, Unit 1, Growing Older</p>
Animals	<p>B1.3A Describe the key observable features of common animals (vertebrates only).</p> <p>B1.3B Group animals by their observable external features.</p> <p>B1.3C Understand that movement is a life process and describe ways in which animals move.</p> <p>B1.3D Understand that growth is a life process and that all animals grow and change as they become older.</p> <p>B1.3E Describe different ways in which animals change as they grow older (vertebrates only).</p> <p>B1.3F Understand that nutrition is a life process and appreciate that different animals have different diets.</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>
Plants	<p>B1.4A Recognise examples of plants in the local and wider environment.</p> <p>B1.4B Know that plants have leaves, stems and roots.</p> <p>B1.4C Understand that some plants have flowers and these can be a variety of shapes and colours.</p> <p>B1.4D Recognise and name plant parts on familiar local examples.</p> <p>B1.4E Understand that plants can grow from seeds and bulbs.</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>

	<p>B1.4F Understand that plants need water, air and light to grow well.</p> <p>B1.4G Understand that plants can provide food for humans and other animals.</p>	
Sorting and grouping materials	<p>C1.1A Recognise that objects can be made from different materials.</p> <p>C1.1B Name and identify some common materials.</p> <p>C1.1C Understand that different materials have particular properties.</p> <p>C1.1D Describe simple properties of materials using senses.</p> <p>C1.1E Understand that materials can be sorted in a number of ways including colour, texture and hardness.</p>	<p>Grade 1, Unit 3, What's it like?</p> <p>Grade 1, Unit 3, A lot of materials & Common materials</p> <p>Grade 1, Unit 3, The properties of materials</p> <p>Grade 1, Unit 3, What's it like?</p> <p>Grade 1, Unit 3, What's it like?</p>
Light and dark	<p>P1.1A Understand that light comes from a source and that shiny objects are not sources of light.</p> <p>P1.1B Identify common sources of light and understand that they can vary in brightness.</p> <p>P1.1C Know that the Sun is the source of light for the Earth and compare differences between night and day.</p> <p>P1.1D Understand that we need light to see and that darkness is the absence of light.</p>	<p>Grade 2, Unit 3, Source of light</p> <p>Grade 2, Unit 3, Source of light</p> <p>Grade 2, Unit 3, Our Sun</p> <p>Grade 2, Unit 3, Using light</p>
Pushes and pulls	<p>P1.2A Observe and describe different ways of moving.</p> <p>P1.2B Know that pushes and pulls can make objects start or stop moving.</p>	<p>Grade 1, Unit 4, Moving around</p> <p>Grade 1, Unit 4, Moving things around, How far can you go?</p>

	P1.2C Recognise pushes and pulls as forces and classify simple examples of each.	Grade 1, Unit 4, Pushes and pulls
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Year 2

Topic	iPrimary objective	Suggested Science Bug unit (individual lesson given if applicable)
Health and growth	<p>B2.1A Understand that humans need the correct amounts of water and food to stay alive.</p> <p>B2.1B Understand that there are many types of food and humans may have different diets.</p> <p>B2.1C Understand what is meant by a balanced diet.</p> <p>B2.1D Know the main food groups and be able to categorise food by type.</p> <p>B2.1E Understand the need for exercise to stay healthy.</p> <p>B2.1F Understand that human and animal offspring need differing types and amounts of parental care while they are growing.</p> <p>B2.1G Understand that personal and food hygiene is important to maintain health.</p> <p>B2.1H Understand why humans take medicines and recognise hazards associated with taking and storing medicines.</p>	We suggest following the internationalised Science Bug lesson planning for this topic.
Living things in the environment	<p>B2.2A Understand the term 'habitat' as being the place where animals and plants are found living.</p> <p>B2.2B Understand that within a habitat there may be smaller microhabitats.</p>	We suggest following the internationalised Science Bug lesson planning for this topic.

	<p>B2.2C Recognise that animals and plants may have features that best suit them to a particular habitat in order to survive.</p> <p>B2.2D Understand that living things may be interdependent.</p> <p>B2.2E Understand that environmental factors, such as availability of food, water, light and shelter, may affect the distribution of animals and plants.</p>	
Invertebrates	<p>B2.3A Identify a variety of common invertebrates using pictures and simple keys.</p> <p>B2.3B Describe the key observable features of common invertebrates.</p> <p>B2.3C Group invertebrates according to shared features.</p> <p>B2.3D Describe how some invertebrates change as they grow using simple life cycles.</p>	<p>Grade 4, Unit 2, Investigating invertebrates</p> <p>Grade 4, Unit 2, Investigating invertebrates</p> <p>Grade 4, Unit 2, Investigating invertebrates</p> <p>Grade 4, Unit 2, Investigating invertebrates</p>
Materials: properties and uses	<p>C2.1A Understand that the same object can be made from a variety of different materials.</p> <p>C2.1B Compare examples of materials that are naturally occurring with those that are not.</p> <p>C2.1C Understand that particular properties of materials can make them suitable for particular uses.</p> <p>C2.1D Distinguish between the terms 'hard'/'soft', 'stretchy'/'stiff', 'shiny'/'dull', 'rough'/'smooth' and 'bendy'/'not bendy'.</p> <p>C2.1E Group materials according to their properties.</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>

	<p>C2.1F Justify the use of a particular material for a particular purpose based on the properties of the material.</p> <p>C2.1G Compare properties of a variety of materials using comparative and fair tests.</p>	
Sound	<p>P2.1A Understand the term 'source' as the place where a sound originates.</p> <p>P2.1B Recognise and describe sounds made in different ways from a variety of sources.</p> <p>P2.1C Understand that loud sounds may damage hearing.</p> <p>P2.1D Understand that sounds travel from a source to our ears.</p> <p>P2.1E Explain how sounds can be made louder or quieter by changing the distance from the source.</p>	We suggest following the internationalised Science Bug lesson planning for this topic.
Space	<p>P2.2A Know that the Earth, Sun and Moon are part of our Solar System.</p> <p>P2.2B Describe how the shape of the Moon appears to change over time.</p> <p>P2.2C Know that the Sun is one of many stars in space and that stars can form constellations.</p> <p>P2.2D Understand the term 'astronaut' and describe simple aspects of living in space and space travel.</p>	We suggest following the internationalised Science Bug lesson planning for this topic.

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	B3.2G Distinguish between the terms 'herbivore', 'omnivore' and 'carnivore'.	Grade 3, Unit 1, Animal food
Feeding relationships	<p>B3.3A Understand that food is a basic need and that the availability of food affects the size of animal populations and their distribution.</p> <p>B3.3B Distinguish between the terms 'producer' and 'consumer'.</p> <p>B3.3C Understand that plants make their own food but animals depend on plants and/or other animals as a food source.</p> <p>B3.3D Distinguish between the terms 'predator' and 'prey'.</p> <p>B3.3E Consider the inter-relationship between predators and prey.</p> <p>B3.3F Interpret and construct simple, linear food chains involving three or four organisms.</p> <p>B3.3G Identify producers, consumers, herbivores, carnivores, predators and prey in a variety of simple food chains and food webs.</p>	<p>Grade 4, Unit 4, Food chains</p> <p>Grade 4, Unit 4, Food chains</p> <p>Grade 3, Unit 1, I'm special</p> <p>Grade 4, Unit 4, Food chains</p> <p>Grade 4, Unit 4, Food chains</p> <p>Grade 4, Unit 4, Food chains</p> <p>Grade 4, Unit 4, Food chains</p>
Rocks and soils	<p>C3.1A Understand that different rocks have different physical properties and observable features.</p> <p>C3.1B Compare and contrast the properties and observable features of different rocks.</p> <p>C3.1C Identify different rocks using research, by comparing to samples and/or from information about their properties (such as a key).</p> <p>C3.1D Describe how sedimentary, igneous and metamorphic rocks are formed.</p>	<p>Grade 3, Unit 4, Types of rock</p> <p>Grade 3, Unit 4, Sorting rocks</p> <p>Grade 3, Unit 4, Sorting rocks</p> <p>Grade 3, Unit 4, Types of rock</p>

	<p>C3.1E Understand that the formation of different types of rocks affects whether they may contain fossils.</p> <p>C3.1F Explain that over time rocks can be broken down into smaller pieces by processes such as weathering.</p> <p>C3.1G Understand that soil contains small parts of rocks and organic matter.</p> <p>C3.1H Compare and contrast the different characteristics of soils such as colour, texture and drainage.</p> <p>C3.1I Identify different soils using research, by comparing to samples and/or from information about their properties such as a key.</p>	<p>Grade 3, Unit 4, Types of rock</p> <p>Grade 3, Unit 4, Types of rock</p> <p>Grade 3, Unit 4, Types of rock</p> <p>Grade 3, Unit 4, Types of soil</p> <p>Grade 3, Unit 4, Testing soils</p>
Using and changing materials	<p>C3.2A Compare a range of materials with different properties.</p> <p>C3.2B Describe how objects made from some materials can be altered by squashing, bending, twisting and squeezing.</p> <p>C3.2C Understand that some objects can be changed by physical forces but cannot be changed back easily.</p> <p>C3.2D Understand that some materials can change when they are heated and/or cooled and this can change their properties.</p> <p>C3.2E Distinguish between the terms 'melting', 'freezing', 'evaporating', 'condensing'.</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>

Light	<p>P3.1A Understand that we need light in order to see things and that dark is the absence of light</p> <p>P3.1B Understand that light comes from a source and know some sources of light</p> <p>P3.1C Understand that some materials block light and are Described as being opaque</p> <p>P3.1D Explain that, although some objects can reflect light, they are not light sources</p> <p>P3.1E Understand that, when light from a source is blocked by an opaque object, a shadow can form that is the same shape as the object</p> <p>P3.1F Understand patterns in the way that the size of shadows change</p> <p>P3.1G Distinguish between the terms transparent, translucent and opaque</p>	We suggest following the internationalised Science Bug lesson planning for this topic.
Forces	<p>P3.2A Understand that a force is needed to make objects move.</p> <p>P3.2B Describe and compare how a range of objects move on different surfaces and slopes.</p>	We suggest following the internationalised Science Bug lesson planning for this topic.
Friction	<p>P3.3A Describe friction as a contact force that acts between surfaces to slow down movement.</p> <p>P3.3B Describe some ways in which friction between solid surfaces can be increased and decreased.</p>	<p>Grade 3, Unit 6, What is friction?</p> <p>Grade 3, Unit 6, Slippery surfaces & Different forces</p>

Magnets	<p>P3.4A Describe magnets as having two poles, known as North and South.</p> <p>P3.4B Distinguish between the terms 'attract' and 'repel'.</p> <p>P3.4C Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>P3.4D Understand that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>P3.4E Identify materials that are magnetic and those that are non-magnetic and apply this to practical uses of magnets.</p>	<p>Grade 3, Unit 5, Magnetic forces</p> <p>Grade 3, Unit 5, Magnetic forces</p> <p>Grade 3, Unit 5, Magnetic forces</p> <p>Grade 3, Unit 5, Strength of magnets</p> <p>Grade 3, Unit 5, Magnetic materials</p>
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Year 4

Topic	iPrimary objective	Suggested Science Bug unit (individual lesson given if applicable)
Variation and classification	<p>B4.1A Explain how living things can be classified according to shared features.</p> <p>B4.1B Explore and use classification keys to help group, identify and name a variety of living things in the local and wider environment.</p> <p>B4.1C Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including plants and animals.</p> <p>B4.1D Identify the observable characteristics to classify a specific species of plant, for example, a buttercup.</p> <p>B4.1E Identify the observable characteristics to classify a specific species of animal, for example, an earthworm.</p>	<p>Grade 4, Unit 2, Grouping living things</p> <p>Grade 4, Unit 2, Using keys</p> <p>Grade 4, Unit 2, Grouping living things</p> <p>Grade 4, Unit 2, Using keys</p> <p>Grade 4, Unit 2, Using keys</p>
Growing plants	<p>B4.2A Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>B4.2B Use a simple dichotomous key to identify a variety of plants.</p> <p>B4.2C Group plants according to observable features.</p> <p>B4.2D Understand the way in which water is</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>

	<p>transported within plants.</p> <p>B4.2E Describe the pathway of water as being from the soil into a plant's roots and up through the stem through the plant to the leaves and other parts of the plant.</p> <p>B4.2F Understand that plants need the correct amount of water to grow well.</p> <p>B4.2G Understand that plants need the correct amount of light to grow well.</p> <p>B4.2H Understand that soil provides minerals to help plants grow and that fertilisers/organic matter can supplement this.</p>	
Skeleton and muscles	<p>B4.3A Understand that humans have internal skeletons that provide support and protection and allow movement.</p> <p>B4.3B Identify and locate the skull and rib cage and understand their function in protecting vital organs.</p> <p>B4.3C Understand the term 'joint' as a place where bones meet and describe the extent of movement of a variety of joints.</p> <p>B4.3D Understand the terms 'contract' and 'relax' in relation to antagonistic muscle action resulting in movement.</p> <p>B4.3E Know that bones are important for producing blood cells.</p> <p>B4.3F Explain the importance of exercise and diet in maintaining healthy muscles and bones.</p>	We suggest following the internationalised Science Bug lesson planning for this topic.

Solids, liquids and gases	<p>C4.1A Identify materials as solids, liquids and gases and distinguish between them.</p> <p>C4.1B Describe some common properties of solids, liquids and gases.</p> <p>C4.1C Understand that solids consisting of very small particles can behave as liquids in some ways.</p> <p>C4.1D Understand that temperature is a measure of how hot or cold something is and is measured in degrees Celsius (°C) using a thermometer.</p> <p>C4.1E Understand that water exists in three states and changes from one to another at different temperatures.</p> <p>C4.1F Understand that different substances change state at different temperatures.</p>	<p>Grade 4, Unit 4, Properties of materials</p> <p>Grade 4, Unit 4, Properties of materials</p> <p>Grade 4, Unit 4, Solids and liquids</p> <p>Grade 4, Unit 4, Changing materials</p> <p>Grade 4, Unit 4, Heating and cooling</p> <p>Grade 4, Unit 4, Heating and cooling</p>
Making and changing sounds	<p>P4.1A Explain that sounds come from a source and can travel through solids, liquids and gases.</p> <p>P4.1B Understand that vibrations from sounds travel through a medium to the ear.</p> <p>P4.1C Understand that some materials are effective in preventing vibrations from sound sources reaching the ear.</p> <p>P4.1D Understand that 'volume' refers to how loud a sound is and that the volume of sounds can be changed.</p> <p>P4.1E Know that the volume of sounds can be measured with a sound meter (data logger) and the unit is a decibel (dB).</p>	<p>Grade 4, Unit 7, Making sounds</p> <p>Grade 4, Unit 7, How sound travels</p> <p>Grade 4, Unit 7, Making sounds</p> <p>Grade 4, Unit 7, Muffling sound</p> <p>Grade 4, Unit 7, Different instruments</p>

	<p>P4.1F Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>P4.1G Recognise that there are high and low pitched sounds and that the pitch of sounds can be changed.</p> <p>P4.1H Identify and describe features of an object that can be changed to alter its pitch, for example, length of tube, length of string, tension of string.</p> <p>P4.1I Find patterns between the pitch of a sound and features of the object that produced it.</p>	<p>Grade 4, Unit 7, Pitch and volume</p> <p>Grade 4, Unit 7, Changing pitch</p> <p>Grade 4, Unit 7, Different instruments</p> <p>Grade 4, Unit 7, Changing pitch</p>
Electricity: everyday uses and simple circuits	<p>P4.2A Understand some uses of electricity and identify common appliances that use electricity.</p> <p>P4.2B Understand that some devices use batteries that supply electricity.</p> <p>P4.2C Describe dangers associated with mains electricity.</p> <p>P4.2D Construct simple working series circuits from simple instructions or drawings.</p> <p>P4.2E Identify and name components in a simple series circuit.</p> <p>P4.2F Understand that a circuit needs a power source to work.</p> <p>P4.2G Understand that a complete circuit is needed for a device to work and that a switch can be used to break a circuit.</p> <p>P4.2H Understand that some materials conduct electricity better than others using the terms electrical 'conductor' and 'insulator'.</p>	<p>Grade 4, Unit 6, Simple circuits</p> <p>Grade 4, Unit 6, Conductors and insulators</p> <p>Grade 4, Unit 6, Investigating circuits</p> <p>Grade 4, Unit 6, Investigating circuits</p> <p>Grade 4, Unit 6, Investigating circuits</p> <p>Grade 4, Unit 6, Conductors and insulators</p> <p>Grade 4, Unit 6, Conductors and insulators</p>

	P4.2I Understand the use of common electrical conductors and insulators, for example, contrast the use of plastic and copper in electrical cables and household appliances.	Grade 4, Unit 6, Conductors and insulators
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Year 5

Topic	iPrimary objective	Suggested Science Bug unit (individual lesson given if applicable)
Plant adaptations	<p>B5.1A Understand that different habitats and microhabitats have different environmental conditions.</p> <p>B5.1B Understand that plants obtain water via their roots and that the availability of water may affect the pattern of root growth.</p> <p>B5.1C Understand that both plants and animals require oxygen from the air for respiration.</p> <p>B5.1D Understand that plants require light and that the availability of light affects their distribution.</p> <p>B5.1E Describe ways in which plants are suited to the environment in which they are found.</p> <p>B5.1F Compare features of plant adaptations in two contrasting habitats.</p> <p>B5.1G Predict the likely habitat of a variety of plants from the adaptations that they show.</p>	<p>Grade 6, Unit 1, Healthy plants</p> <p>Grade 6, Unit 1, Healthy plants</p> <p>Grade 6, Unit 1, Plant producer</p> <p>Grade 6, Unit 1, Adapting to a habitat</p> <p>Grade 6, Unit 1, Healthy plants</p> <p>Grade 6, Unit 1, Healthy plants</p> <p>Grade 6, Unit 1, Healthy plants</p>
Living things in danger	<p>B5.2A Understand that environments can change and that this can sometimes pose dangers to living things.</p> <p>B5.2B Understand that environments can be changed in positive ways, for example, the creation of nature reserves, and in negative ways, for example, deforestation.</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>

	<p>B5.2C Recognise ways in which living things and the environment need protection, both locally and globally.</p> <p>B5.2D Understand the term 'conservation' and describe examples of ways in which humans can reduce the effects of environmental change.</p> <p>B5.2E Distinguish between the terms 'endangered' and 'extinct'.</p> <p>B5.2F Explain in simple terms how fossils are formed when things that have lived, or parts of living things, are trapped within rock.</p> <p>B5.2G Understand how fossils provide evidence of organisms that are now extinct and information about when/where they may have lived.</p>	
Diet and digestion	<p>B5.3A Understand that to stay healthy humans need a balanced diet containing the correct amounts of a range of nutrient groups.</p> <p>B5.3B Describe, in outline only, the main benefits of each food group, with examples.</p> <p>B5.3C Understand the relationship between diet, lifestyle (for example, sleep), exercise and health.</p> <p>B5.3D Sequence the process of digestion in humans as ingestion, swallowing, digestion, absorption and egestion.</p> <p>B5.3E Describe the simple functions of the basic parts of the digestive system involved in the sequence of digestion.</p>	<p>Grade 5, Unit 2, Keeping fit</p> <p>Grade 5, Unit 2, Keeping fit</p> <p>Grade 5, Unit 2, Keeping fit</p> <p>Grade 6, Unit 3, Digestion</p> <p>Grade 6, Unit 3, Digestion</p>

<p>Mixing and separating materials</p>	<p>C5.1A Understand that solids can be mixed and that sieving may be used to separate some mixtures.</p> <p>C5.1B Explain how filtration may be used to separate some solids from a liquid.</p> <p>C5.1C Understand that when a solid dissolves in water it forms a solution that cannot be separated by filtration.</p> <p>C5.1D Describe ways in which simple substances such as sugar and salt can be dissolved more quickly.</p> <p>C5.1E Explain that when a solution is left exposed to the air the liquid will evaporate into the air, leaving the dissolved solid behind.</p> <p>C5.1F Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including by sieving, using a magnet, filtering and evaporating.</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>
<p>Earth and space</p>	<p>P5.1A Understand that the Sun is a star and is at the centre of our Solar System</p> <p>P5.1B Understand that the Earth, Sun and Moon are part of the Solar System and that Earth is a planet with one Moon</p> <p>P5.1C Understand that planets may be different sizes and some have more than one moon</p> <p>P5.1D Describe the position and the movement of the Earth, and other planets, relative to the Sun in our Solar System</p>	<p>Grade 5, Unit 6, Our solar system</p> <p>Grade 5, Unit 6, The Earth, Sun and Moon</p> <p>Grade 5, Unit 6, Our solar system</p> <p>Grade 5, Unit 6, The Earth, Sun and Moon</p>

	<p>P5.1E Describe the movement of the Moon relative to Earth, and Earth and other planets relative to the Sun, correctly using the term 'orbit'</p> <p>P5.1F Understand that ideas about the Solar System have changed and developed over time</p> <p>P5.1G Explain that Earth spins on its axis causing some parts of Earth to be in daylight when other parts are in darkness.</p> <p>P5.1H Understand how shadow length changes during the course of a day</p> <p>P5.1I Use the idea of Earth's rotation to explain the apparent movement of the Sun across the sky</p>	<p>Grade 5, Unit 6, The Earth, Sun and Moon</p> <p>Grade 5, Unit 6, Our solar system</p> <p>Grade 5, Unit 6, Our turning Earth</p> <p>Grade 5, Unit 6, Our turning Earth</p> <p>Grade 5, Unit 6, Night and day</p>
Seeing and reflecting	<p>P5.2A Understand that light comes from a source and appears to travel in straight lines.</p> <p>P5.2B Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</p> <p>P5.2C Use the idea that light appears to travel in straight lines to explain that objects are seen because they give out or reflect light into our eyes.</p> <p>P5.2D Understand that light can be reflected from shiny surfaces and, when reflected, the light changes direction.</p> <p>P5.2E Understand that smooth and shiny surfaces reflect light well but light is more scattered when it is reflected off a dull surface.</p> <p>P5.2F Recognise and give simple explanations for differences between shadows and reflections.</p>	<p>Grade 5, Unit 4, Light sources</p> <p>Grade 5, Unit 4, How we see things</p> <p>Grade 5, Unit 4, How we see things</p> <p>Grade 5, Unit 4, Reflection</p> <p>Grade 5, Unit 4, Reflection</p> <p>Grade 5, Unit 4, Sunlight and shadows</p>

Year 6

Topic	iPrimary objective	Suggested Science Bug unit (individual lesson given if applicable)
Micro-organisms	<p>B6.1A Know the term micro-organisms and that these can be bacteria, viruses or microscopic fungi.</p> <p>B6.1B Describe ways in which some micro-organisms can be useful and others can be harmful.</p> <p>B6.1C Explain that micro-organisms grow and reproduce on food and explain some simple food hygiene precautions.</p> <p>B6.1D Understand the role of decomposers in food chains and the recycling of materials.</p>	<p>Grade 5, Unit 1, Microbes and you</p> <p>Grade 5, Unit 1, Using microbes</p> <p>Grade 5, Unit 1, Using microbes</p> <p>Grade 5, Unit 1, Investigating microbes</p>
Plant life cycles	<p>B6.2A Understand that some plants have flowers, which produce seeds that grow into new plants.</p> <p>B6.2B Sequence the life cycle of a typical flowering plant using the terms 'germination', 'flowering', 'pollination', 'fertilisation' and 'seed dispersal'.</p> <p>B6.2C Understand conditions required for the germination of seeds.</p> <p>B6.2D Explain why seeds need to be dispersed and the ways in which this can occur.</p> <p>B6.2E Define 'pollination' as the transfer of pollen from the anther to the stigma on the same or a different flower.</p> <p>B6.2F Distinguish between the processes of insect and wind pollination.</p>	<p>Grade 5, Unit 3, New life</p> <p>Grade 5, Unit 3, New life</p> <p>Grade 5, Unit 3, Germinating seeds</p> <p>Grade 5, Unit 3, Investigating seed shapes</p> <p>Grade 5, Unit 3, New life</p> <p>Grade 5, Unit 3, Investigating seed shapes</p>

	<p>B6.2G Identify the parts of an insect-pollinated flower and explain the function of each part.</p> <p>B6.2H Distinguish between pollination and fertilisation.</p> <p>B6.2I Describe different mechanisms by which seeds are dispersed.</p>	<p>Grade 5, Unit 3, New life</p> <p>Grade 5, Unit 3, New life</p> <p>Grade 5, Unit 3, Investigating seed shapes</p>
Heart, lungs and circulation	<p>B6.3A Describe the heart as an organ that pumps blood as part of the circulatory system.</p> <p>B6.3B Understand that water and nutrients are transported around our bodies in blood.</p> <p>B6.3C Describe the circulatory system as comprising the heart and blood vessels containing blood.</p> <p>B6.3D Understand how pulse rate changes with exercise and explain the reason for the change in terms of transporting oxygen and nutrients to muscles.</p> <p>B6.3E Describe the lungs as being located in the thorax and as the organs used for breathing.</p> <p>B6.3F Understand that air is a mixture of gases, including oxygen.</p> <p>B6.3G Understand that blood picks up oxygen from the lungs and transports it through blood vessels to organs of the body.</p> <p>B6.3H Distinguish between and correctly use the terms breathing (ventilation of the lungs) and respiration (how oxygen is used by the body once it reaches organs).</p>	<p>Grade 5, Unit 2, Your heart</p> <p>Grade 5, Unit 2, Pumping blood</p> <p>Grade 5, Unit 2, Pumping blood</p> <p>Grade 5, Unit 2, Investigating pulse rate</p> <p>Grade 6, Unit 3, Breathing in and out</p> <p>Grade 6, Unit 3, Breathing in and out</p> <p>Grade 5, Unit 2, Pumping blood</p>

<p>Reversible and irreversible change</p>	<p>C6.1A Explain, with examples, that mixtures can be separated using a sieve or filter</p> <p>C6.1B Understand the terms 'dissolving', 'solution', 'solvent' and 'solute'</p> <p>C6.1C Explain how a solute can be recovered from a solution by evaporating the solvent</p> <p>C6.1D Understand that melting, freezing, evaporation and condensation are changes of state</p> <p>C6.1E Explain that changes of state require changes of temperature</p> <p>C6.1F Describe the role of evaporation and condensation in the water cycle</p> <p>C6.1G Understand that dissolving, mixing and changes of state are reversible changes</p> <p>C6.1H Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible</p> <p>C6.1I Describe simple irreversible changes</p> <p>C6.1J Describe observable changes when acid and bicarbonate of soda are mixed as evidence that new materials are formed</p>	<p>Grade 6, Unit 5, Making new materials</p> <p>Grade 6, Unit 5, Evaporation</p> <p>Grade 6, Unit 5, Evaporation</p> <p>Grade 6, Unit 5, Evaporation</p> <p>Grade 6, Unit 5, Making new materials</p> <p>Grade 6, Unit 5, Evaporation</p> <p>Grade 6, Unit 5, Irreversible change</p> <p>Grade 6, Unit 5, Irreversible change</p> <p>Grade 6, Unit 5, Irreversible change</p> <p>Grade 6, Unit 5, Making new materials</p>
<p>Forces in air and water</p>	<p>P6.1A Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>P6.1B Understand that weight is a force and forces are measured in newtons (N).</p> <p>P6.1C Understand that more than one force can act on an object at the same time.</p> <p>P6.1D Know how friction acts on moving objects to slow them down.</p>	<p>We suggest following the internationalised Science Bug lesson planning for this topic.</p>

	<p>P6.1E Understand how friction can be used to improve how well an object grips to a surface.</p> <p>P6.1F Understand that friction can act between solid surfaces and air and water.</p> <p>P6.1G Understand that air resistance and water resistance are forces that reduce the speed at which objects move.</p> <p>P6.1H Identify the effects of air resistance, water resistance and friction acting between moving surfaces.</p> <p>P6.1I Describe how the shape of objects can be used to reduce the effects of water and air resistance, including the term streamlined.</p>	
Electricity: changing circuits	<p>P6.2A Understand the need for universally recognised symbols for electrical components</p> <p>P6.2B Draw and identify recognised electrical component symbols for a bulb, buzzer, battery (cell), wire, switch and motor</p> <p>P6.2C Use and interpret recognised symbols for components when drawing or designing simple series circuits</p> <p>P6.2D Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>P6.2E Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers, the on/off position of switches and the speed of motors</p>	<p>Grade 6, Unit 7, Electrical circuits</p> <p>Grade 6, Unit 7, Electrical circuits</p> <p>Grade 6, Unit 7, Electrical circuits</p> <p>Grade 6, Unit 7, Testing wires</p> <p>Grade 6, Unit 7, Testing wires</p>