

EYFS

Understanding the world	
22–36 months	Learns that he/she has similarities and differences that connect him/her to and distinguish him/her from others
	Notices detailed features of objects in his/her environment
	Operates mechanical toys e.g. turns the knob on a wind-up toy or pulls back on a friction car.
30-50 months	Can talk about some of the things he/she has observed such as plants, animals, natural and found objects
	Comments and asks questions about aspects of his/her familiar world such as the place where he/she lives or the natural world
	Talks about why things happen and how things work
	Is developing an understanding of growth, decay and changes over time
	Shows care and concern for living things and the environment
40-60 months	Looks closely at similarities and differences in relation to places, objects, materials and living things
	Talks about the features of his/her own immediate environment and how environments might vary from one to another
	Knows about similarities and differences in relation to places, objects, materials and living things
	Makes observations of animals and plants and explains why some things occur, and talk about changes
40 – 60 months +	Describes some actions which people in his/her own community do that help to maintain the area he/she lives in
	Knows that the living environment and living things are influenced by human activity
	Knows the properties of some materials and can suggest some of the purposes they are used for
	Demonstrates familiarity with basic scientific concepts such as floating, sinking, experimenting

	ELG
	ELG Exc

Year 1

Year 1 – Knowledge and Understanding

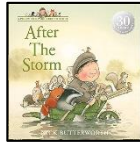
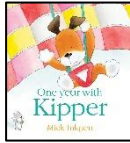
	Seasonal Changes	Materials	Plants	Animals inc. Humans
Year 1	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare & group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Identify & name a variety of common wild & garden plants, including deciduous & evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p>	<p>Group animals according to what they eat</p> <p>Identify, name, draw & label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p>
Vocab			<p>Plants Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud</p> <p>Animals Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves</p> <p>Senses Senses, touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue</p> <p>Materials Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through</p> <p>Seasons Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length, monsoon, khareef thunder storm</p>	

Year 1 - Suggested Linked Texts (Reading Across the Curriculum)

Tree: Seasons Come, Seasons Go
(Patricia Hegarty and Britta Teckentrup)

One Year with Kipper
(Mick Inkpen)

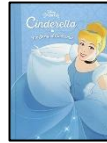
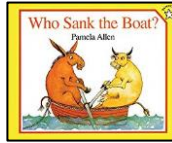
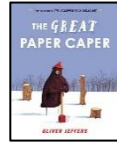
After the Storm
(Nick Butterworth)



The Great Paper Caper
(Oliver Jeffers)

Who Sank the Boat
(Pamela Allen)

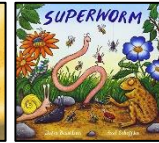
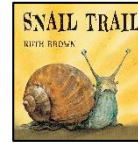
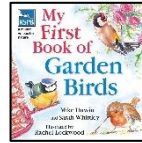
The Story of Cinderella
(Walt Disney)



RSPB: My First Book of Garden Birds
(Mike Unwin and Sarah Whittle)

Snail Trail
(Ruth Brown)

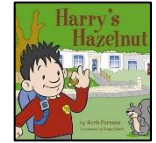
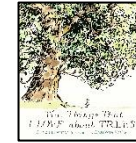
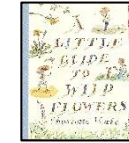
Superworm
(Julia Donaldson & Axel Scheffler)



A Little Guide to Wild Flowers
(Charlotte Voake)

The Things That I LOVE about TREES
(Chris Butterworth)

Harry's Hazelnut
(Ruth Parsons)



Year 2

Year 2 – *Knowledge and Understanding*

	Materials	Plants	Animals inc. Humans	Plants	Living Things & their Habitats
Year 2	<p>Identify & compare the suitability of a variety of everyday materials, including wood, metal, plastics, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Describe how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Describe how plants need water, light and a suitable temperature to grow and stay healthy, and describe the impact of changing these</p>	<p>Understand that animals, including humans, have offspring which grow into adults.</p> <p>Describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p> <p>Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats</p>

Vocab	Living things and habitats	Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats e.g. under logs, in bushes etc.
	Plants	As for year 1 plus - light, shade, sun, warm, cool, water, grow, healthy, germinate
	Animals and humans	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)
	Materials	Names of materials – increased range from year 1 Properties of materials - as for year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/puling, twist/twisting, squash/squashing. Bend/bending, stretch/stretching

Year 2 - Suggested Linked Texts (Reading Across the Curriculum)

	<p>The Tin Forest (Helen Ward)</p> <p>Traction Man (Mini Grey)</p> <p>Three Little Pigs (Lesley Sims)</p> 	<p>Handa's Surprise (Eileen Brown)</p> <p>Once There Were Giants (Martin Waddell and Penny Dale)</p> <p>Tadpole's Promise (Jeanne Willis and Tony Ross)</p> 	<p>The Gruffalo (Julia Donaldson)</p> <p>Meerkat Mail (Emily Gravett)</p> <p>No Place Like Home (Jonathon Emmett)</p> 	<p>Jack and the Beanstalk (Richard Walker)</p> <p>Ten Seeds (Ruth Brown)</p> <p>A Seed Is Sleepy (Dianna Aston)</p> 
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Year 3

Year 3 – Knowledge and Understanding

	Light	Forces and Magnets	Rocks	Plants	Animals inc. Humans
Year 3	<p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows change.</p>	<p>Compare how things move on different surfaces.</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter.</p>	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>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.</p> <p>Invest the way in which water is transported within plants</p> <p>Explore the part of the flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>	<p>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.</p> <p>Identify that humans and some animals have skeletons and muscles for support, protection and movement.</p>
Famous Scientists					
	<p>James Clerk Maxwell (Visible and Invisible Waves of Light)</p>	<p>William Gilbert (Theories on Magnetism)</p> <p>Andre Marie Ampere (Founder of Electro-Magnetism)</p>	<p>Mary Anning (Discovery of Fossils)</p> <p>Inge Lehmann (Earth’s Mantle)</p>	<p>Jan Ingenhousz (Photosynthesis)</p> <p>Joseph Banks (Botanist)</p>	<p>Adelle Davis (20th Century Nutritionist)</p> <p>Marie Curie (Radiation / X-Rays)</p>

Vocab	Plants	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal
	Light	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous
	Forces and magnets	Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole
	Rocks and soils	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil
	Animals and humans	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints

Year 3 - Suggested Linked Texts (Reading Across the Curriculum)

<p><i>The Owl Who Was Afraid of the Dark</i> (Jill Tomlinson)</p> <p><i>The Dark</i> (Lemony Snicket)</p> <p><i>The Firework-Maker's Daughter</i> (Philip Pullman)</p>	<p><i>The Iron Man</i> (Ted Hughes)</p> <p><i>Mrs Armitage: Queen of the Road</i> (Quentin Blake)</p> <p><i>Mr Archimedes' Bath</i> (Pamela Allen)</p>	<p><i>The Pebble in My Pocket</i> (Meredith Hooper)</p> <p><i>Stone Girl, Bone Girl</i> (Laurence Anholt)</p> <p><i>The Street Beneath My Feet</i> (Charlotte Guillain & Yuval Zommer)</p>	<p><i>The Story of Frog Belly Rat Bone</i> (Timothy Basil Ering)</p> <p><i>The Hidden Forest</i> (Jeannie Baker)</p> <p><i>George and Flora's Secret Garden</i> (Jo Elworthy)</p>	<p><i>Funnybones</i> (Janet and Allan Ahlberg)</p> <p><i>I Will Never Not Ever Eat a Tomato</i> (Lauren Child)</p> <p><i>Goldilocks and the Three Bears</i> (Samantha Berger)</p>
				

Year 4

Year 4 – Knowledge and Understanding

	Sound	States of Matter	Living Things and their Habitats	Electricity	Animals inc. Humans
Year 4	<p>Identify how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify, and name a variety of living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Identify common appliances that run on electricity</p> <p>Construct a simple electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>
Famous Scientists					
	<p>Aristotle (Sound Waves)</p> <p>Gaillileo Galilei (Frequency and Pitch of Sound Waves)</p> <p>Alexander Graham Bell (Invented the Telephone)</p>	<p>Anders Celcius (Celcius Temperature Scale)</p> <p>Daniel Fahrenheit (Fahrenheit Temperature Scale / Invention of the Thermometer)</p>	<p>Cindy Looy (Environmental Change and Extinction)</p> <p>Jaques Cousteau (Marine Biologist)</p>	<p>Thomas Eddison (First Working Lightbulb)</p> <p>Joseph Swan (Incadesecant Light Bulb)</p>	<p>Ivan Pavlov (Digestive System Mechanisms)</p> <p>Joseph Lister (Discovered Antiseptics)</p>

Vocab	Living things and habitats	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate
	Animals and humans	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain
	Electricity	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol
	Sound	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation
	States of matter	Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle

Year 4 - Suggested Linked Texts (Reading Across the Curriculum)

	<p>Horrid Henry Rocks (Francesca Simon)</p> <p>Moonbird (Joyce Dunbar)</p> <p>The Pied Piper of Hamelin (Natalia Vasquez)</p> 	<p>Charlie and the Chocolate Factory (Roald Dahl)</p> <p>Once Upon a Raindrop: The Story of Water (James Carter)</p> <p>Sticks (Diane Alber)</p> 	<p>The Vanishing Rainforest (Richard Platt)</p> <p>The Morning I Met a Whale (Michael Morpurgo)</p> <p>Journey to the River Sea (Eva Ibbotson)</p> 	<p>Until I Met Dudley (Roger McGough)</p> <p>Oscar and the Bird: A Book about Electricity (Geoff Waring)</p> <p>Electrical Wizard: How Nikola Tesla Lit Up the World (Elizabeth Rusch)</p> 	<p>Human Body Odyssey (Werner Holzwarth)</p> <p>Crocodiles Don't Brush Their Teeth (Colin Fancy)</p> <p>Wolves (Emily Gravett)</p> 
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Year 5

Year 5 – *Knowledge and Understanding*

	Forces and magnets	Earth and Space	Materials	Living Things and their Habitats	Animals including humans
Year 5	<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>Describe the movement of the Earth, and the other planets, relative to the Sun in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	<p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>Recognise that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Describe the changes as humans develop to old age</p>

Famous Scientists

Galileo Galilei
(Gravity and Acceleration)

Isaac Newton
(Gravitation)

Archimedes of Syracuse
(Levers)

Claudius Ptolemy and Nicolaus Copernicus
(Heliocentric vs Geocentric Universe)

Neil Armstrong
(First man on the Moon)

Helen Sharman
(First British astronaut)

Tim Peake
(First British ESA astronaut)

Spencer Silver, Arthur Fry and Alan Amron
(Post-It Notes)

Ruth Benerito
(Wrinkle-Free Cotton)

David Attenborough
(Naturalist and Nature Documentary Broadcaster)

James Brodie of Brodie
(Reproduction of Plants by Spores)

Thomas Young
(Wave Theory of Light)

Ibn al-Haytham (Alhazen)
(Light and our Eyes)

Vocab	Earth and Space	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets
	Materials	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material
	Forces	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears
	Animals including humans	Vocab to be decided alongside PSHE puberty topic
	Living things and habitats	Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings

Year 5 - Suggested Linked Texts (Reading Across the Curriculum)

<i>The Enormous Turnip</i> (Katie Daynes)	<i>The Skies Above My Eyes</i> (Charlotte Guillain & Yuval Zommer)	<i>Itch</i> (Simon Mayo)	<i>Charlotte's Web</i> (E.B. White)	<i>Letters from the Lighthouse</i> (Emma Carroll)
<i>Leonardo's Dream</i> (Hans de Beer)	<i>George's Secret Key to the Universe</i> (Lucy and Stephen Hawking with Christophe Galfard)	<i>Kensuke's Kingdom</i> (Michael Morpurgo)	<i>The Land of Neverbelieve</i> (Norman Messenger)	<i>The Gruffalo's Child</i> (Julia Donaldson)
<i>The Aerodynamics of Biscuits</i> (Clare Helen Welsh)	<i>The Way Back Home</i> (Oliver Jeffers)	<i>The BFG</i> (Roald Dahl)	<i>Mummy Laid an Egg</i> (Babette Cole)	<i>The King Who Banned the Dark</i> (Emily Haworth-Booth)



Year 6

Year 6– Science Programme of Study – *Knowledge and Understanding*

Year 6	Living Things and their Habitats	Evolution and Inheritance	Animals inc. Humans	Light	Electricity
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	<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p>	<p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>Recognise that light appears to travel in straight lines</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they give out light into the eye</p> <p>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>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>Compare and give reasons for variations in how components function, including brightness of bulbs, the loudness of buzzers and the on/off position of switches</p> <p>Use recognised symbols when representing a simple circuit in a diagram</p>
	Famous Scientists				
	<p>Carl Linnaeus (Identifying, Naming and Classifying Organisms)</p>	<p>Charles Darwin and Alfred Russel Wallace (Theory of Evolution by Natural Selection)</p> <p>Jane Goodall (Chimpanzees)</p>	<p>Justus von Liebig (Theories of Nutrition and Metabolism)</p> <p>Sir Richard Doll (Linking Smoking and Health Problems)</p> <p>Leonardo Da Vinci (Anatomy)</p>		

Vocab

Electricity

Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage - NB Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words cells and batteries are now used interchangeably

Light

As for year 3 plus straight lines, light rays.

Living things and habitats

Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering

Evolution and Inheritance

Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils

Animals including humans

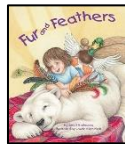
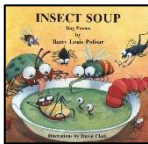
Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle

Year 6 - Suggested Linked Texts (Reading Across the Curriculum)

Beetle Boy
(M G Leonard)

Insect Soup
(Barry Louis Polisar)

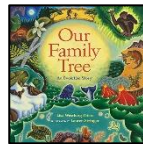
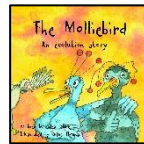
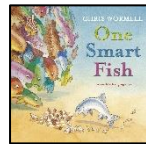
Fur and Feathers
(Janet Halfmann)



One Smart Fish
(Christopher Wormell)

The Molliebird
(Jules Pottle)

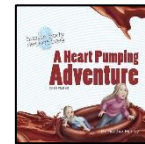
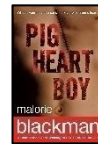
Our Family Tree
(Lisa Westberg Peters)



Pig-Heart Boy
(Malorie Blackman)

Skellig
(David Almond)

A Heart Pumping Adventure
(Heather Manley)



Hair in Funny Places
(Babette Cole)

Giant
(Kate Scott)

You're Only Old Once!
(Dr. Seuss)

