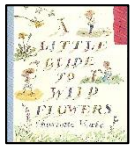
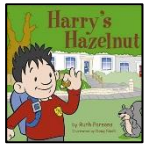
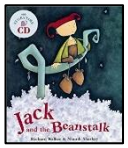
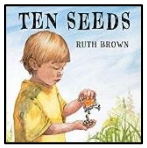
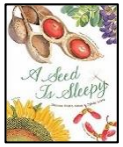
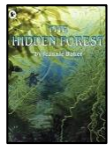
LONGMAN'S HILL CP SCHOOL CURRICULUM PROGRESSION TABLE

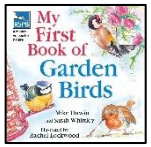
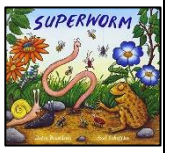
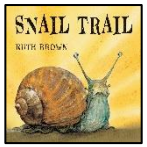
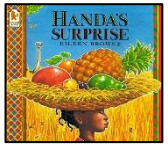
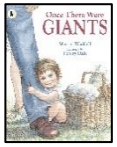
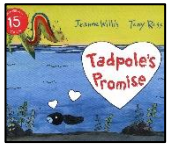
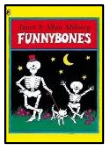
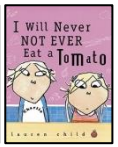
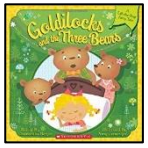
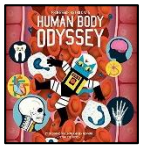
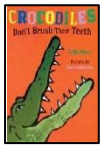
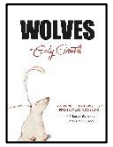
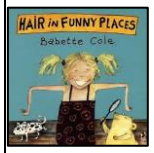
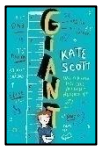
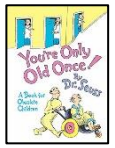
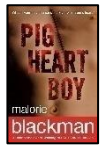
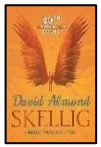
# Science

| EYFS : Understanding the World: The World | | | |
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| EYFS ELG | What child can do | What Adults Could Do | Enabling Environments |
| Children know about similarities and differences in relation to objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. | • Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world.<br>• Can talk about some of the things they have observed such as plants, animals, natural and found objects.<br>• Talks about why things happen and how things work.<br>• Developing an understanding of growth, decay and changes over time.<br>• Shows care and concern for living things and the environment<br>Looks closely at similarities, differences, patterns and change. | • Help children to notice and discuss patterns around them, e.g. rubbings from grates, covers, or bricks.<br>• Examine change over time, for example, growing plants, and change that may be reversed, e.g. melting ice.<br>• Use appropriate words to help children make distinctions in their observations.<br>• Encourage children to express opinions on natural and built environments and give opportunities for them to hear different points of view on the quality of the environment.<br>• Encourage the use of words that help children to express opinions, e.g. 'busy', 'quiet' and 'pollution'.<br>• Use correct terms so that, e.g. children will enjoy naming a chrysalis if the practitioner uses its correct name.<br>• Pose carefully framed open-ended questions, such as "How can we…?" or "What would happen if…?". | •Give opportunities to record findings by, e.g. drawing, writing, making a model or photographing.<br>• Provide stories that help children to make sense of different environments. |

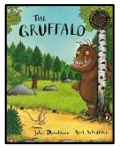
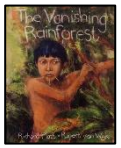
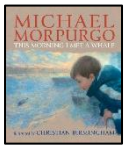
| SUBJECT | YEAR 1 | YEAR 2 | YEAR 3 | YEAR 4 | YEAR 5 | YEAR 6 |
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| **Science** | | | | | | |
| Knowledge | | | | | | |
| **Plants** | **Plants**<br>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.<br><br>Identify and describe the basic structure of a variety of common flowering plants, including trees. | **Plants**<br>observe and describe how seeds and bulbs grow into mature plants<br><br>find out and describe how plants need water, light and a suitable temperature to grow and stay healthy | **Plants**<br>identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers<br><br>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><br>investigate the way in which water is transported within plants<br><br>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.<br><br>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.<br><br>**Possible Longman's List Link:**<br>Grow something to eat. Which part of the plant do you eat? Is that the same for all plants? eg grow potatoes, herbs (mint?), borage, courgettes and strawberries- great time-lapse videos available for watching the flower turn into the fruit. | | | |

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| **Plants Vocabulary** | Identify<br>Name<br>Wild plants<br>Garden plants<br>Deciduous<br>Flowering plants<br>Trees<br>Leaves<br>Flowers<br>Blossom<br>Petals<br>Fruit<br>Roots<br>Bud<br>Seed<br>Trunk<br>bark<br>stalk<br>Branches<br>Stem | Observe<br>Describe<br>Seeds<br>Bulbs<br>Mature plants<br>Plants<br>Water<br>Light<br>Suitable temperature<br>Healthy<br>Germination<br>Growth<br>Survival<br>Reproduction<br>Shade<br>Sun<br>Warm cool | Identify<br>Describe<br>Function<br>Flowering plants<br>Roots<br>Stem<br>Trunk<br>Leaves<br>Flowers<br>Air<br>Light<br>Water<br>Nutrients<br>Transported<br>Life cycle<br>Pollination<br>Seed formation<br>Seed dispersal<br>Structure<br>Pollen<br>support<br>Photosynthesis<br>Nutrition<br>Reproduction | | | |
| **Suggested Linked Texts (Reading Across the Curriculum)** | ***A Little Guide to Wild Flowers***<br>*(Charlotte Voake)*<br><br>***The Things That I LOVE about TREES***<br>*(Chris Butterworth)*<br><br>***Harry's Hazelnut***<br>*(Ruth Parsons)*<br><br><br><br><br> | ***Jack and the Beanstalk***<br>*(Richard Walker)*<br><br>***Ten Seeds***<br>*(Ruth Brown)*<br><br>**A Seed Is Sleepy**<br>(Dianna Aston)<br><br><br><br><br><br> | ***The Story of Frog Belly Rat Bone***<br>*(Timothy Basil Ering)*<br><br>***The Hidden Forest***<br>*(Jeannie Baker)*<br><br>***George and Flora's Secret Garden***<br>*(Jo Elworthy)*<br><br><br><br><br> | | | |

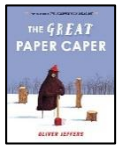
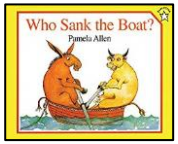
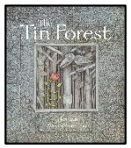
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| **Animals including humans** | **Animals including humans**<br>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals<br><br>identify and name a variety of common animals that are carnivores, herbivores and omnivores<br><br>describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)<br><br>identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.<br><br>**Possible Longman's List Link:**<br>Hold a live animal. Label a photograph of the animal that they held and compare to a different on eg this one has fur, this one has feathers..<br><br>**Possible Longman's List Link:**<br>Hunt for bugs- where do they live? Why do thy live there? | **Animals including humans**<br>notice that animals, including humans, have offspring which grow into adults<br><br>find out about and describe the basic needs of animals, including humans, for survival (water, food and air)<br><br>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene<br><br>**Possible Longman's List Link:**<br>Hold a live animal. Research the animal and find out what it needs to survive. It that what we need? | **Animals including humans**<br>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><br>identify that humans and some other animals have skeletons and muscles for support, protection and movement. | **Animals including humans**<br>describe the simple functions of the basic parts of the digestive system in humans<br><br>identify the different types of teeth in humans and their simple functions<br><br>construct and interpret a variety of food chains, identifying producers, predators and prey. | **Animals including humans**<br>describe the changes as humans develop to old age. | **Animals including humans**<br>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood<br><br>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function<br><br>describe the ways in which nutrients and water are transported within animals, including humans.<br><br>**Suggested scientists:**<br>**Justus von Liebig**<br>(Theories of Nutrition and Metabolism)<br><br>**Sir Richard Doll**<br>(Linking Smoking and Health Problems)<br><br>**Leonardo Da Vinci**<br>(Anatomy) |
| **Animals including humans vocabulary** | Animals<br>Fish<br>Amphibians<br>Reptiles<br>Birds<br>Mammals<br>Pets<br>Human body<br>Sense<br>Habitat<br>Local environment<br>Head<br>Neck<br>Arms<br>Elbow<br>Legs<br>Knees | Humans<br>Offspring<br>Grow<br>Adults<br>Animals<br>Survival<br>Water<br>Food<br>Air<br>Exercise<br>Hygiene<br>Reproduction<br>Growth<br>Egg /chick/ chicken<br>egg/caterpillar/pupa/butterfly<br>Spawn/tadpole/frog<br>Lamb/sheep | Identify<br>Humans<br>Animals<br>Nutrition<br>Food<br>Skeleton<br>Muscles<br>Support<br>Protection<br>Movement<br>Diet<br>Nutrients<br>Carbohydrate<br>Sugars<br>Protein<br>Vitamins<br>Minerals | Describe<br>Function<br>Digestive system<br>Construct<br>Interpret<br>Food chains<br>Producers<br>Predators<br>Prey<br>Mouth<br>Tongue<br>Teeth<br>Oesophagus<br>Stomach<br>Small intestine<br>Large intestine<br>Herbivores | Describe<br>Changes<br>Humans<br>Old age<br>Develop<br>Timeline<br>Stages<br>Growth<br>Puberty<br>Gestation period | Identify<br>Name<br>Circulatory system<br>Functions<br>Heart<br>Blood vessels<br>Blood<br>Impact<br>Diet<br>Exercise<br>Drugs<br>Lifestyle<br>Function<br>Nutrients<br>Transported<br>Skeletal system<br>Muscular system |

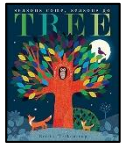
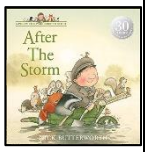
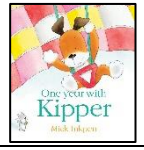
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| | Ears<br>Face<br>Eyes<br>Hair<br>Mouth<br>Teeth<br>Feathers<br>Fur<br>Beak<br>Paws<br>Hooves<br>Wing<br>Fin<br>Scales<br><br>Carnivore<br>Herbivore<br>Omnivore<br>Children do not need to use these words, they just need to know that some animals eat meat, some eat plants and some eat both. | Baby<br>Toddler<br>child<br>Teenager<br>Adult | Fibre<br>Fat<br>Water<br>Food groups<br>Function<br>Skeletal system<br>Bones<br>Ribs<br>Skull<br>Spine<br>Joints<br>Muscular system. | Carnivores<br>Digestion<br>saliva,<br>Nutrients<br>Rectum<br>Anus<br>incisor<br>canine<br>molar | | Digestive system<br>Healthy<br>Substances<br>harmful |
| **Suggested Linked Texts (Reading Across the Curriculum)** | ***RSPB: My First Book of Garden Birds***<br>*(Mike Unwin and Sarah Whittley)*<br><br>***Snail Trail***<br>*(Ruth Brown)*<br><br>***Superworm***<br>*(Julia Donaldson & Axel Scheffler)*<br><br><br><br><br><br><br><br> | ***Handa's Surprise***<br>*(Eileen Brown)*<br><br>***Once There Were Giants***<br>*(Martin Waddell and Penny Dale)*<br><br>***Tadpole's Promise***<br>*(Jeanne Willis and Tony Ross)*<br><br><br><br><br><br> | ***Funnybones***<br>*(Janet and Allan Ahlberg)*<br><br>***I Will Never Not Ever Eat a Tomato***<br>*(Lauren Child)*<br><br>***Goldilocks and the Three Bears***<br>*(Samantha Berger)*<br><br><br><br><br><br> | ***Human Body Odyssey***<br>*(Werner Holzwarth)*<br><br>***Crocodiles Don't Brush Their Teeth***<br>*(Colin Fancy)*<br><br>***Wolves***<br>*(Emily Gravett)*<br><br><br><br><br><br> | ***Hair in Funny Places***<br>*(Babette Cole)*<br><br>***Giant***<br>*(Kate Scott)*<br><br>***You're Only Old Once!***<br>*(Dr. Seuss)*<br><br><br><br><br><br> | ***Pig-Heart Boy***<br>*(Malorie Blackman)*<br><br>***Skellig***<br>*(David Almond)*<br><br>***A Heart Pumping Adventure***<br>*(Heather Manley)*<br><br><br><br><br><br> |

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| **Living things and their habitats** | | **Living things and their habitats**<br>explore and compare the differences between things that are living, dead, and things that have never been alive<br><br>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<br><br>identify and name a variety of plants and animals in their habitats, including micro-habitats<br>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.<br><br>**Possible Longman's List Link:**<br>Hunt for bugs. | | **Living things and their habitats**<br>recognise that living things can be grouped in a variety of ways<br><br>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment<br><br>recognise that environments can change and that this can sometimes pose dangers to living things.<br><br>**Possible Longman's List Link:**<br>Discover what lives in a pond. Pong dipping- use a classification key. | **All living things and their habitats**<br>describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird<br><br>describe the life process of reproduction in some plants and animals.<br><br>**Possible Longman's List Link:**<br>Make a film. Children could make a nature film in the style of Richard Attenborough.<br><br>**Suggested scientists:**<br>**David Attenborough**<br>(Naturalist and Nature Documentary Broadcaster)<br><br>**James Brodie of Brodie**<br>(Reproduction of Plants by Spores) | **Living things and their habitats**<br>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<br><br>give reasons for classifying plants and animals based on specific characteristics.<br><br>**Possible Longman's List Link:**<br>Discover what lives in a pond. Pong dipping – classify discoveries, make a classification key on J2e.<br><br>Go rock-pooling (Residential)<br><br>**Suggested scientists:**<br>**Carl Linnaeus**<br>(Identifying, Naming and Classifying Organisms) |

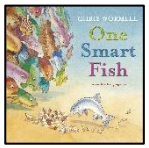
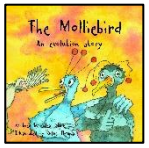
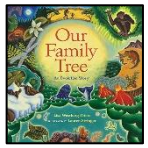
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| **Living Things and their habitats Vocabulary** | | Explore<br>Compare<br>Living<br>Dead<br>Never been alive<br>Habitats<br>Animals<br>Suitable<br>Basic Needs<br>shelter<br>Plants<br>Micro-habitats<br>Food chain<br>food<br>Characteristics<br>Alive<br>Healthy<br>Woodland<br>Ocean<br>Seashore<br>Rainforest<br>Food source | | Living things<br>Explore<br>Classification keys<br>Group<br>Identify<br>Local environment<br>Wider environment<br>Danger<br>Hibernate<br>Plants<br>Animals<br>Habitat<br>Flowering plants<br>Non-flowering plants<br>Vertebrates<br>Fish<br>Amphibians<br>Reptiles<br>Birds<br>Mammals<br>Invertebrates<br>Snails and slugs<br>Worms<br>Spiders<br>Insects<br>Human impact<br>Positive<br>Negative<br>Population<br>Development<br>Deforestation | Describe<br>Differences<br>Life cycle<br>Mammal<br>Amphibian<br>Insect<br>Bird<br>Life processes<br>Plants<br>Animals<br>Local environment<br>Naturalists<br>Animal behaviourists<br>Jane Goodall<br>Reproduction<br>Sexual reproduction<br>Asexual reproduction<br>sperm<br>metamorphosis<br>live young<br>fertilise<br>gametes<br>Parent plant<br>identical<br>Seeds<br>Stem<br>Root cuttings<br>Tubers<br>runners<br>Bulbs | Describe<br>Living things<br>Classified<br>Classifying<br>Groups<br>Common<br>Observable features<br>Characteristics<br>Similarities<br>Differences<br>Micro-organisms<br>Plants<br>Animals<br>Classification system<br>Invertebrates<br>Insects<br>Spiders<br>Snails<br>Worms<br>Vertebrates<br>Fish<br>Amphibians<br>Reptiles<br>Mammals<br>Birds<br>Keys<br>Unfamiliar environment<br>Habitats |
| **Suggested Linked Texts (Reading Across the Curriculum)** | | ***The Gruffalo***<br>*(Julia Donaldson)*<br><br>***Meerkat Mail***<br>*(Emily Gravett)*<br><br>***No Place Like Home***<br>*(Jonathon Emmett)*<br><br><br><br><br> | | ***The Vanishing Rainforest***<br>*(Richard Platt)*<br><br>***The Morning I Met a Whale***<br>*(Michael Morpurgo)*<br><br><br><br><br> | ***Charlotte's Web***<br>*(E.B. White)*<br><br>***The Land of Neverbelieve***<br>*(Norman Messenger)*<br><br>***Mummy Laid an Egg***<br>*(Babette Cole)*<br><br><br> | ***Beetle Boy***<br>*(M G Leonard)*<br><br>***Insect Soup***<br>*(Barry Louis Polisar)*<br><br>***Fur and Feathers***<br>*(Janet Halfmann)*<br><br><br> |

| **Materials** | **Everyday Materials**<br>Distinguish between an object and the material from which it is made<br>identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock<br><br>describe the simple physical properties of a variety of everyday materials<br><br>compare and group together a variety of everyday materials on the basis of their simple physical properties. | **Use of Everyday Materials**<br>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses<br><br>find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching<br><br>**Possible Longman's List Link:**<br>Follow a recipe to bake something- If making biscuits or something with a dough, children will have the opportunity to use language related to material properties eg squashing and stretching. | **Rocks**<br>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties<br><br>describe in simple terms how fossils are formed when things that have lived are trapped within rock<br><br>recognise that soils are made from rocks and organic matter. | **States of matter**<br>compare and group materials together, according to whether they are solids, liquids or gases<br><br>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 (°C)<br><br>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. | **Properties and changes of material**<br>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<br><br>know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution<br><br>use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating<br><br>give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic<br><br>demonstrate that dissolving, mixing and changes of state are reversible changes<br><br>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.<br><br>**Possible Longman's List Link:**<br>Fly a kite.<br>**Suggested scientists:**<br>**Spencer Silver,**<br>**Arthur Fry and Alan Amron**<br>(Post-It Notes)<br><br>**Ruth Benerito**<br>(Wrinkle-Free Cotton) | |
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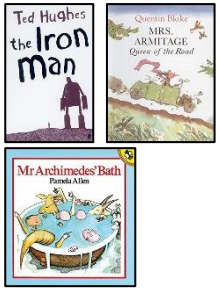
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| **Materials Vocabulary** | wood<br>plastic<br>glass<br>metal<br>water<br>rock<br>fabric<br>carboard<br>rubber<br>wool<br>hard<br>soft<br>stretchy<br>stiff<br>shiny<br>dull<br>rough<br>smooth<br>bendy<br>not bendy<br>waterproof<br>not waterproof<br>absorbent<br>not absorbent<br>see through | Wood<br>Plastic<br>Glass<br>Metal<br>water<br>Rock<br>brick<br>paper<br>cardboard<br>squashing<br>Bending<br>twisting<br>Stretching<br>Suitable<br>Unsuitable<br>Properties<br>Absorbent<br>Opaque<br>Strong<br>Weak<br><br>Optional opportunities:<br>John Dunlop – tyres<br>Charles Macintosh | Rocks<br>Stone<br>Pebble<br>Boulder<br>Layers<br>Hard<br>Soft<br>Texture<br>Absorb<br>Marble<br>Chalk<br>Granite<br>Sandstone<br>Slate<br>Peat<br>Appearance<br>Physical properties<br>Fossils<br>Soil<br>Organic matter<br>Grains<br>Crystals | Solids<br>Liquids<br>Gases<br>State<br>changed<br>Heated<br>Cooled<br>Temperature<br>Degrees Celsius (°C)<br>Evaporation<br>Condensation<br>Water cycle<br>Investigate<br>Effect<br>Oxygen condensing<br>Iron melting | hardness<br>solubility<br>transparency<br>Electrical conductivity<br>Thermal conductivity<br>response to magnets<br>Dissolve<br>Solution<br>Recover from solution<br>Soluble<br>Insoluble<br>Solids<br>Liquids<br>Gases<br>Separated<br>Filtering<br>Sieving<br>evaporating<br>Metal<br>Wood<br>Plastic<br>mixture<br>changes of state<br>reversible changes<br>Irreversible changes<br>Burning<br>Acid<br>Bicarbonate of soda<br>rusting<br>melting | |
| **Suggested Linked Texts (Reading Across the Curriculum)** | ***The Great Paper Caper***<br>*(Oliver Jeffers)*<br><br>***Who Sank the Boat***<br>*(Pamela Allen)*<br><br><br><br> | ***The Tin Forest***<br>*(Helen Ward)*<br><br>***Traction Man***<br>*(Mini Grey)*<br><br>***Three Little Pigs***<br>*(Lesley Sims)*<br><br><br><br><br><br> | ***The Pebble in My Pocket***<br>*(Meredith Hooper)*<br><br>***Stone Girl, Bone Girl***<br>*(Laurence Anholt)*<br><br>***The Street Beneath My Feet***<br>*(Charlotte Guillain & Yuval Zommer)*<br><br> | ***Charlie and the Chocolate Factory***<br>*(Roald Dahl)*<br><br>***Once Upon a Raindrop: The Story of Water***<br>*(James Carter)*<br><br>***Sticks***<br>*(Diane Alber)*<br><br> | ***Itch***<br>*(Simon Mayo)*<br><br>***Kensuke's Kingdom***<br>*(Michael Morpurgo)*<br><br>***The BFG***<br>*(Roald Dahl)*<br><br> | |

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| **Seasonal Change** | **Seasonal change**<br>Observe changes across the four seasons<br><br>Observe and describe weather associated with the seasons and how day length varies. | | | | | |
| **Seasonal change vocabulary** | Observe<br>Changes<br>Four seasons<br>Weather<br>Sunny<br>Windy<br>Rainy<br>Snowy<br>Day length<br>Sunset<br>Sunrise<br>Spring<br>Summer<br>Autumn<br>Winter | | | | | |
| **Suggested Linked Texts (Reading Across the Curriculum)** | ***Tree: Seasons Come, Seasons Go***<br>*(Patricia Hegarty and Britta Teckentrup)*<br><br>***One Year with Kipper***<br>*(Mick Inkpen)*<br><br>***After the Storm***<br>*(Nick Butterworth)*<br><br><br><br><br><br><br> | | | | | |

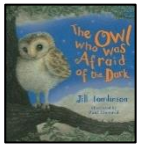
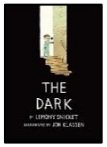
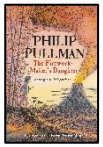
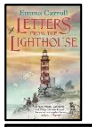
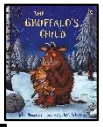
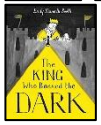
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| **Evolution** | | | | | | **Evolution**<br>recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago<br><br>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents<br><br>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.<br><br>**Suggested scientists:**<br>**Charles Darwin and Alfred Russel Wallace**<br>(Theory of Evolution by Natural Selection)<br><br>**Jane Goodall**<br>(Chimpanzees) |
| **Evolution Vocabulary** | | | | | | Recognise<br>Living things<br>Changed<br>Fossils<br>Inhabited<br>Produce<br>Offspring<br>Vary<br>Not identical<br>Parents<br>Sexual reproduction<br>Adapted<br>Environment<br>Adaptation<br>Evolution<br>Characteristics<br>Inherited<br>Suited<br>Species<br>Breeds<br>Variation<br>More able to survive<br>Less able to survive<br>Palaeontologists<br>Mary Anning<br>Advantages<br>Disadvantages |

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| **Suggested Linked Texts (Reading Across the Curriculum)** | | | | | | ***One Smart Fish*** *(Christopher Wormell)*<br><br>***The Molliebird*** *(Jules Pottle)*<br><br>***Our Family Tree*** *(Lisa Westberg Peters)*<br><br><br><br> |

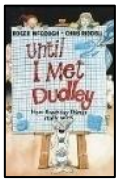
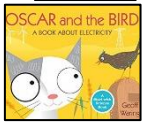
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| **Forces** | | | **Forces and Magnets**<br>compare how things move on different surfaces<br><br>notice that some forces need contact between two objects, but magnetic forces can act at a distance<br><br>observe how magnets attract or repel each other and attract some materials and not others<br><br>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<br>describe magnets as having two poles<br><br>predict whether two magnets will attract or repel each other, depending on which poles are facing. | | **Forces**<br>explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object<br><br>identify the effects of air resistance, water resistance and friction, that act between moving surfaces<br><br>recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.<br><br>**Possible Longman's List Link:**<br>Fly a kite.<br><br>**Suggested scientists:**<br>**Galileo Galilei**<br>(Gravity and Acceleration)<br><br>**Isaac Newton**<br>(Gravitation)<br><br>**Archimedes of Syracuse**<br>(Levers) | |

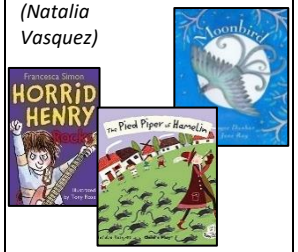
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| **Forces Vocabulary** | | | Compare<br>Surface<br>Forc<br>Push<br>Pull<br>Twist<br>Contact force<br>Non contact force<br>Magnetic<br>Attract<br>Repel<br>Magnetic materials<br>Iron<br>Steel<br>Group<br>Poles<br>Predict<br>Strength<br>Button magnet<br>Horse shoe magnet<br>Bar magnet | | Force<br>Gravity<br>Air resistance<br>Water resistance<br>Friction<br>Mechanism<br>Simple machine<br>Levers<br>Pulleys<br>Gears<br>Smaller<br>Greater<br>Effects | |
| **Suggested Linked Texts (Reading Across the Curriculum)** | | | ***The Iron Man***<br>*(Ted Hughes)*<br><br>***Mrs Armitage: Queen of the Road***<br>*(Quentin Blake)*<br><br>***Mr Archimedes' Bath***<br>*(Pamela Allen)*<br> | | ***The Enormous Turnip***<br>*(Katie Daynes)*<br><br>***Leonardo's Dream***<br>*(Hans de Beer)*<br><br>***The Aerodynamics of Biscuits***<br>*(Clare Helen Welsh)*<br> | |

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| **Light** | | | **Light**<br>recognise that they need light in order to see things and that dark is the absence of light<br><br>notice that light is reflected from surfaces<br><br>recognise that light from the sun can be dangerous and that there are ways to protect their eyes<br>recognise that shadows are formed when the light from a light source is blocked by a solid object<br><br>find patterns in the way that the size of shadows change. | | | **Light**<br>recognise that light appears to travel in straight lines<br><br>use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye<br><br>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<br><br>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects cast by them.<br><br>**Suggested scientists:**<br>**Thomas Young**<br>(Wave Theory of Light)<br><br>**Ibn al-Haytham (Alhazen)**<br>(Light and our Eyes) |
| **Light Vocabulary** | | | Light<br>Dark<br>Surfaces<br>Sun<br>Shadows<br>Light source<br>Blocked<br>Change<br>Mirror<br>Reflective<br>Light source<br>Absence of light<br>Transparent<br>Translucent<br>Opaque<br>Shiny<br>Matt<br>Surface<br>Dangerous | | | Light<br>Travel<br>Straight lines<br>Reflect<br>Eye<br>Shadows<br>Light source<br>Light rays<br>Reflection<br>Periscope<br>Shadow puppets<br>Coloured filters |

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| **Suggested Linked Texts (Reading Across the Curriculum)** | | | ***The Owl Who Was Afraid of the Dark***<br>*(Jill Tomlinson)*<br><br>***The Dark***<br>*(Lemony Snicket)*<br><br>***The Firework-Maker's Daughter***<br>*(Philip Pullman)*<br><br><br><br><br><br><br> | | | ***Letters from the Lighthouse***<br>*(Emma Carroll)*<br><br>***The Gruffalo's Child***<br>*(Julia Donaldson)*<br><br>***The King Who Banned the Dark***<br>*(Emily Haworth-Booth)*<br><br><br><br><br><br><br> |

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| **Electricity** | | | | **Electricity**<br>identify common appliances that run on electricity<br><br>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br><br>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<br><br>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit<br><br>recognise some common conductors and insulators, and associate metals with being good conductors.<br><br>predict whether two magnets will attract or repel each other, depending on which poles are facing. | | **Electricity**<br>associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit<br><br>compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches<br><br>use recognised symbols when representing a simple circuit in a diagram. |

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| **Electricity Vocabulary** | | | | Common appliances<br>Electricity<br>Simple series circuit<br>Cells<br>Wires<br>Bulbs<br>Switches<br>Buzzers<br>Lamp<br>Switch<br>Open<br>Closed<br>Conductors<br>Insulators<br>Components<br>Motors<br>Safety<br>Simple devices<br>Mains<br>Plug<br>Battery<br>Positive<br>Negative<br>Connect/connections<br>Short circuit,<br>Crocodile clip<br>Buzzer<br>Motor<br>Conductor<br>Insulator,<br>Metal<br>Non-metal<br>Symbol | | Circuit<br>Complete circuit<br>Circuit diagram<br>Circuit symbol<br>Brightness<br>Lamp<br>Volume<br>Buzzer<br>Voltage<br>Cells<br>Batteries<br>Switch<br>Voltage<br>Component<br>Variation<br>Loudness<br>Diagram<br>Systematic<br>Safety<br>Changing |
| **Suggested Linked Texts (Reading Across the Curriculum)** | | | | ***Until I Met Dudley***<br>*(Roger McGough)*<br><br>***Oscar and the Bird: A Book about Electricity***<br>*(Geoff Waring)*<br><br>***Electrical Wizard: How Nikola Tesla Lit Up the World***<br>*(Elizabeth Rusch)*<br><br><br><br> | | ***Good Night Mr Tom***<br>*(Michelle Magorian)*<br><br>***Horrible Science: Shocking Electricity***<br>*(Nick Arnold and Tony De Saulles)*<br><br> |

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| **Sounds** | | | | **Sound**<br>identify how sounds are made, associating some of them with something vibrating<br><br>recognise that vibrations from sounds travel through a medium to the ear<br><br>find patterns between the pitch of a sound and features of the object that produced it<br><br>find patterns between the volume of a sound and the strength of the vibrations that produced it<br><br>recognise that sounds get fainter as the distance from the sound source increases. | | |
| **Sound Vocabulary** | | | | Vibrate<br>Ear<br>Pitch<br>Sound<br>Travel<br>Volume<br>Pattern<br>Strength<br>Faint<br>Source<br>Musical instruments<br>Insulation | | |
| **Suggested Linked Texts (Reading Across the Curriculum)** | | | | ***Horrid Henry Rocks***<br>*(Francesca Simon)*<br>***Moonbird***<br>*(Joyce Dunbar)*<br>***The Pied Piper of Hamelin***<br>*(Natalia Vasquez)*<br> | | |

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| **Earth and Space** | | | | | **Earth and Space**<br>describe the movement of the Earth, and other planets, relative to the Sun in the solar system<br><br>describe the movement of the Moon relative to the Earth<br><br>describe the Sun, Earth and Moon as approximately spherical bodies<br><br>use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.<br><br>**Suggested scientists: Claudius Ptolemy and Nicolaus Copernicus** (Heliocentric vs Geocentric Universe)<br><br>**Neil Armstrong** (First man on the Moon)<br><br>**Helen Sharman** (First British astronaut)<br><br>**Tim Peake** (First British ESA astronaut) | |

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| **Earth and Space Vocabulary** | | | | | Solar system<br>Movement<br>Earth<br>Planets<br>Sun<br>Star<br>Moon<br>Spherical<br>Rotation<br>Day<br>Night<br>Mercury<br>Venus<br>Earth<br>Mars<br>Jupiter<br>Saturn<br>Uranus<br>Neptune<br>moons<br>Celestial body<br>Axis<br>Orbit<br>Safety<br>Astronomical clocks<br>Sundials<br>Calibration | |
| **Suggested Linked Texts (Reading Across the Curriculum)** | | | | | ***The Skies Above My Eyes*** *(Charlotte Guillain & Yuval Zommer)*<br><br>***George's Secret Key to the Universe*** *(Lucy and Stephen Hawking with Christophe Galfard)*<br><br>***The Way Back Home*** *(Oliver Jeffers)*<br><br> | |

| **SKILLS** | | | | | | |
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| QUESTIONING | With help and encouragement I ask simple questions that begin with why, what if, how or when. | I ask simple questions and recognise these questions can be answered in different ways. | I can ask questions and I recognise that there are different types of enquiry | I ask relevant questions and use different types of scientific enquiries to answer them. | I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question. | I ask relevant questions (containing scientific knowledge and understanding). |
| INVESTIGATING | I make suggestions about how to do things when we plan a simple test.<br>With help, I use simple equipment and non-standard units to find things out. | I decide with help, what to find out, observe or measure. | I can set up a simple practical enquiry and I am beginning to understand how to make a test fair. | I can set up simple practical enquiries, comparative or fair tests. | I use a range of equipment independently. | I recognise which type of enquiry is best to answer a question.<br>I can plan different types of science enquiries to answer questions. I recognise and control variables where necessary. |
| OBSERVATION AND MEASUREMENT | I observe using my senses | I observe closely, using simple equipment and non-standard units.<br><br>I can identify and classify.<br><br>I can perform a simple test. | I make suggestions about what observations and measurements to make and what equipment I need.<br><br>I am beginning to make systematic and careful observations.<br><br>I sometimes use standard units.<br><br>With help I can use information sources provided to find things out. | I decide what observations and measurements to make and what equipment to use.<br><br>I use a range of equipment (including thermometers and dataloggers).<br><br>I make systematic and careful observations and take accurate measurements using standard units.<br>I use information sources provided to find things out. | I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations.<br><br>The series of observations and measurements I take are adequate for the task.<br><br>I use information sources provided to find things out.<br><br>I identify possible risks to myself and others. | I decide what observations and measurements to make and what equipment to use (giving reasons) to make my measurements and observations.<br><br>I take measurements, using a range of scientific equipment with increasing accuracy and precision.<br><br>I take repeat readings when appropriate.<br><br>I use relevant information sources to find things out<br><br>I identify possible risks to myself and others. |
| RECORDING FINDINGS | With help, I can gather and record data to help me answer my questions. | I gather data and record data to help me answer my questions.<br><br>I record what I have found out using e.g. words or pictures, tables or simple prepared formats. | I gather data and using a pre-prepared table I can record data.<br><br>I record my findings using a drawing and/or words.<br><br>With help, I can present my data. | I gather, record and classify data in a variety of ways to help me answer my questions.<br><br>I record my findings using simple scientific language, tables, drawings and labelled diagrams.<br><br>I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys. | I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams.<br><br>I present the results (data and observations) in a range of formats e.g. bar and line graphs, simple scatter graphs, keys and frequency charts. | I record data and results of increasing complexity using e.g. scientific diagrams and labels and tables<br><br>I choose a method to suit the results, e.g. a two column table<br><br>I present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification keys. |

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| CONCLUSIONS AND REFLECTIONS | I talk about what happened and/or what I saw<br><br>I talk about what I did. | I use my observations and ideas to suggest answers to my questions.<br><br>I talk about how I found out what I found out. | I can use my results when I talk about what happened.<br><br>I can talk about what went wrong! | I use my results to draw simple conclusions and I make predictions for new values.<br><br>I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and displays.<br><br>I suggest improvements to the way I carried out the enquiry. | I draw conclusions from my data and observations.<br><br>I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion.<br><br>I look at my results and decide if any observations or measurements are unsuitable.<br><br>I use what I have found out to suggest improvements to my work giving reasons. | From my data and observations I draw valid conclusions (i.e. consistent with the evidence) including causal relationships.<br><br>I identify scientific evidence to support or refute the ideas or arguments for my conclusion.<br><br>I look at my results and decide if any observations or measurements are unsuitable and need to be carried out again.<br><br>I offer simple explanations for differences in results. |
| FURTHER INVESTIGATIONS | | | I have ideas about what else I would like to find out. | I suggest further questions to investigate. | I can set up further questions to investigate. | I use my test results to make predictions to set up further enquiries e.g. comparative and fair tests and suggest how my working methods could be improved, with reasons. |
| Working Scientifically Vocabulary | Identify<br>Name<br>Questions<br>Suggestions<br>Test<br>Equipment<br>Observe<br>Identify<br>Compare<br>Enquiry<br>Observing<br>Patterns,<br>Groups<br>classifying<br>Comparative<br>Secondary source | Observe<br>Describe<br>Group<br>Record<br>Data<br>Contrast<br>Diagram<br>Chart<br>Map | Research<br>Enquiry<br>Measurement<br>Systematic<br>Data – gather, record, present<br>Results<br>Table | Predictions<br>Evidence<br>Improve<br>Conclusion<br>Comparative<br>Venn diagram<br>Bar chart<br>Scatter graph<br>Interpret<br>Differences<br>Similarities<br>Changes<br>Thermometers<br>Dataloggers<br>Systematic<br>Standard units<br>Further investigations | Plan<br>Variables<br>Repeat readings report<br>Scientific diagrams,<br>Labels,<br>Classification keys,<br>Line graphs<br>Further comparative and fair test<br>Report and present – conclusions<br>Improvements<br>Risks<br>Non-complex | Causal relationship<br>Explanations<br>Degree of trust,<br>Evidence - support, refute ideas or arguments<br>Accuracy<br>Precision<br>Complex<br>Systematic Quantitative |