



## Rowsley Church of England Primary School

### Science Progression and Long Term Plan (Updated January 2026)

*"Great are the works of the Lord, studied by all who delight in them." (Psalm 111:2)*

*"Life in all its fullness." John 10:10*

#### **Intent:**

At Rowsley C of E Primary School we recognise the importance of a high quality science education. We aim to help our children develop their understanding of the natural world through carefully sequenced lessons that build their substantive and disciplinary knowledge within biology, chemistry and physics. We want children to ask questions, take part in hands-on learning and think critically. We ask children to build on the skills they have learned in other subjects – such as maths, English and geography – to further their scientific learning. Our aim is for all children to feel confident in their scientific knowledge and enthusiastic about the next stage in their learning journey.

#### **Implementation:**

In EYFS, science is taught as part of the "Understanding the World" strand of learning, with a mixture of continuous provision activities and adult-led learning. From Year 1 onwards we adopt a more formal approach, in which children are introduced to new concepts which sequentially build upon each other to meet the standards set out in the National Curriculum 2014. Particularly in KS1, we use stories, poems and songs to help children remember new information. We use investigations to consolidate pupils' understanding of concepts and develop their investigative skills. Pupils use a range of equipment to conduct investigations and gather data, such as data-loggers. We explicitly teach skills related to maths and English so that children are able to use them in a scientific context e.g. using the passive voice in an investigation report. Children are also taught how to use secondary sources, such as textbooks or webpages, to gather information. Children are assessed at the end of each unit so that future teaching can be adapted and any gaps in children's knowledge addressed.

#### **Intent:**

- Children will achieve age related expectations or above in Science at the end of each school year;
- Children will make links to previous learning in order to build their understanding of new concepts;
- Children understand that science is 'unfinished' and that new research is continually changing our understanding of the world;
- Children will be able to question ideas and reflect on knowledge;
- Children will work collaboratively and practically to investigate and experiment;
- Children will be able to explain the process they have taken and be able to reason scientifically.

## Early Years Framework

### Understanding the World (People and Communities)

Children know about similarities and differences between themselves and others, and among families, communities and traditions.

### Understanding the World (The World)

Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.

### KS1 and KS2

At Rowsey C of E Primary, children are taught in classes of two or more year groups. As such, we use a two-year cycle to ensure that all Y1 and Y2 National Curriculum units are covered in KS1, Y3 and Y4 units are covered in LKS2 and Y5 and Y6 units are covered in UKS2. We have sequenced these in a way that allows children to build their knowledge and make links to other areas of the curriculum e.g. when children learn about states of matter in Y3/4, they can relate this to their geography unit on the water cycle. We recognise that as a core subject, science should be taught weekly every half term to ensure continue to build their understanding of the subject.

Cycle	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Infants</b>						
<b>Cycle 1</b>	Enchanted Woodlands  Seasonal Changes	Rainforest  Uses of everyday materials	Frozen  Living things and their habitats	Superheroes  Animals, inc humans (Humans)	Princesses and Knights  Plants	India  Animals, inc humans (identification and structure, survival)
<b>Cycle 2</b>	Rainbows and Raindrops  Uses of everyday materials	Space  Seasonal Changes	Paws Claws and Whiskers  Animals, inc humans (identification and structure, survival)	Pirates  Animals, inc humans (Humans)	Dinosaurs  Plants	Minibeasts  Living things and their habitats
<b>Year 3/4</b>						

<b>Cycle 1</b>	Invasion!  Light	Potion Commotion  States of Matter	Mountains  Water Cycle	Peak District  Living Things and Their Habitats	Ancient Egypt  Living Things and Their Habitats	Deep Blue Sea  Forces & Magnets
<b>Cycle 2</b>	Chomp, Chomp, Gurgle, Gurgle  Animals inc humans (Digestive system- teeth, nutrition)	Romans  Rocks	Star Spangled Banner  Electricity	Stone Age to Iron Age  Plants	It's All Greek to Me  Sound	Predators and Prey  Animals inc humans (Food Chains & Skeletons)

**Years 5/6**

<b>Cycle 1</b>	Ring a Ring 'o Roses  Living things and their habitats (reproduction)	The Alchemist  Properties and changes of materials	Have a heart!  Animals inc humans (Y5 unit)	Dragon People  Animals inc humans (Y5 unit)	In An English Country Garden  Living Things and Their Habitats (Y5 and Y6 units)	
<b>Cycle 2</b>	Keep it under your hat (WW2)  Electricity	Frozen Kingdom/Let it Snow!  Living things and their habitats (Adaptations, classification)	Survival of the Fittest  Evolution	Space/One Small Step  Earth and space	La Cucaracha!  Light	Life is a Rollercoaster  Forces

**Assessment**

At the end of each unit of work our teachers or science coordinator completes a formal assessment with our pupils. The assessment is based on the key knowledge that we have identified our children should know at the end of each unit. This assessment is then analysed by the subject leader alongside class teachers to establish areas or learning which have been taught and learnt well and areas in which we need to improve on our teaching and learning. This is reinforced by subject leader assessments according to the school assessment timetable. This assessment forms the basis of continual changes that we make to our medium term plans. Alongside this, teachers will assess the key knowledge from the last lesson at the beginning of each lesson. Any lost learning or misconceptions will be identified immediately.

## Progression by subject area

Biology: Plants			
EYFS	Year 1/2	Year 3/4	Year 5/6
<p>Children know about similarities and differences in relation to places, 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.</p> <p><b>Vocabulary:</b> water, temperature, warm, hot, cold, habitat</p>	<p><u>Plants</u></p> <ul style="list-style-type: none"> <li>- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (Cycle 1)</li> <li>- identify and describe the basic structure of a variety of common flowering plants, including trees (Cycle 1)</li> <li>-observe and describe how seeds and bulbs grow into mature plants (Cycle 1)</li> <li>- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy (Cycle 2)</li> <li>-observe and describe how seeds and bulbs grow into mature plants (Cycle 2)</li> <li>- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy (Cycle 2)</li> </ul> <p>Science Enrichment- Each year pupils plant and observe plants and vegetables that they have planted growing over time.</p> <p>They learn about plant structures using terms such as petals, leaves, flowers, fruit, buds, roots, seed, trunk, branches, stems. Pupils keep records of how plants may change overtime i.e. in the different seasons i.e. leaves falling or trees, buds opening.</p> <p><b>Vocabulary:</b></p>	<p><u>Plants</u></p> <ul style="list-style-type: none"> <li>- identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</li> <li>-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</li> <li>- investigate the way in which water is transported within plants</li> <li>- explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</li> </ul> <p>Enrichment: Children plant vegetables and nurture their growth from seed to seedling to mature plant. They compost their dinner scraps and see the degradation of the plant material. A guest speaker talks about his allotment and the conditions in which different plants best grow.</p> <p><b>Vocabulary:</b> Water transportation: transport, nutrients, absorb, anchor. Life cycle of flowering plants: pollination (insect/wind), pollen, nectar, pollinator, seed formation, seed dispersal (animal/wind/water), reproduce, fertilisation, fertilise, stamen, stigma, style, ovary, sepal, carbon dioxide.</p> <p><b>Assessment:</b> Match plant parts (roots, stem, petals) to their function.</p>	<p><u>All living things</u></p> <ul style="list-style-type: none"> <li>-explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>- describe the life process of reproduction in some plants and animals</li> <li>- 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</li> <li>- give reasons for classifying plants and animals based on specific characteristics.</li> </ul> <p><b>Vocabulary:</b> Water transportation: transport, evaporation, evaporate, nutrients, absorb, anchor. Life cycle of flowering plants: pollination (insect/wind), pollen, nectar, pollinator, seed formation, seed dispersal (animal/wind/water), reproduce, fertilisation, fertilise, stamen, anther, filament, carpel (pistil), stigma, style, ovary, ovule, sepal, carbon dioxide, glucose, photosynthesis.</p> <p><b>Assessment:</b> We sort living things into different groups at different levels. What is the name of the original level of groupings that included 'animal' and 'plant'? Sort animals on a taxonomy tree Explain a difference between the life cycle of a bird and a mammal. Label the reproductive parts of a plant.</p>

Common plants: wild plant, garden plant, evergreen tree, deciduous tree, flowering plant, weed, grass, sunflower, daffodil.

Features of plants: flower, vegetable, fruit, berry, leaf/leaves, blossom, petal, stem, trunk, root, seed, bulb, soil.

Growth: germinate, shoot, grow, food store, life cycle, die, wilt, seedling, sapling.

Needs of plants: sunlight, nutrition, light, healthy, space, air.

Names of different types of plants: bean plant, cactus

Habitats: rainforest, desert

Assessment:

Label a plant with the following parts roots, stem, petals, seed.

To name the plants daffodil, daisy, sunflower.

Explain the difference between an evergreen and a deciduous tree.

I can explain how plants change in the different seasons (Cycle 1)

Assessment:

Describe how seeds/bulbs grow into plants.

Say the three elements plants need for survival. (Cycle 2)

Literature/Songs:

Bloom by Anne Booth

Ten Seeds Ruth Brown

The Seed Song

Explain how water travels within plants.

Explain the life cycle of flowers.

Identify a described method of seed dispersal.

Biology: Animals, including humans

EYFS	Year 1/2	Year 3/4	Year 5/6
<p>Children know about similarities and differences in relation to places, 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.</p> <p><b>Vocabulary:</b>  <b>Names of animal groups:</b> fish, amphibians, reptiles, birds, mammals.  <b>Animal diets:</b> carnivore, herbivore, omnivore.  <b>Human and animal body parts:</b> e.g. body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills.</p>	<p><u>Animals, including humans</u></p> <ul style="list-style-type: none"> <li>- notice that animals, including humans, have offspring which grow into adults</li> <li>- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> <li>- identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> <li>- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>- identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</li> </ul> <p><b>Vocabulary:</b>  <b>Names of animal groups:</b> fish, amphibians, reptiles, birds, mammals.  <b>Animal diets:</b> carnivore, herbivore, omnivore.</p>	<p><u>Animals, including humans</u></p> <ul style="list-style-type: none"> <li>- 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</li> <li>- identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> <li>- construct and interpret a variety of food chains, identifying producers, predators and prey</li> <li>- describe the simple functions of the basic parts of the digestive system in humans</li> <li>- identify the different types of teeth in humans and their simple functions</li> </ul> <p><b>Vocabulary:</b>  <b>Food groups and nutrients:</b> carbohydrate, protein, fibre, fats, vitamins, minerals.  <b>Skeletons and muscles:</b> skeleton, muscles, joints, protection, support, organs, contract, relax, bone,, shell, vertebrate, invertebrate, endoskeleton, exoskeleton, hydrostatic skeleton.  <b>Names of human bones:</b> skull, spine, ribcage, clavicle, scapula, humerus, ulna, pelvis, radius, femur, tibia, fibula.  <b>Digestive system:</b> digest, digestion, tongue, teeth, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, faeces/stool, organ.  <b>Types of teeth and dental care:</b> molar, premolar, incisor, canine, tooth decay, plaque, enamel, baby (milk) teeth.  <b>Food chains and animal diets:</b> producer, consumer, predator, prey, decomposer, food chain, ecosystem.</p> <p><b>Assessment:</b>  <b>Identify which food group a specified food belongs to</b>  <b>Explain why humans need food</b></p>	<p><u>Animals, including humans</u></p> <ul style="list-style-type: none"> <li>- describe the changes as humans develop to old age</li> <li>- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</li> <li>- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</li> <li>- describe the ways in which nutrients and water are transported within animals, including humans</li> </ul> <p><b>Vocabulary:</b>  <b>Process of reproduction:</b> gestation, asexual reproduction, sexual reproduction, sperm, egg, cells, clone.  <b>Changes and life cycle:</b> embryo, foetus, uterus, prenatal, adolescence, puberty, menstruation, adulthood, menopause, life expectancy, old age, hormones, sweat.  <b>Changing body parts:</b> e.g. breasts, penis, ovaries, genitalia, pubic hair.  <b>Circulatory system:</b> circulation, heart, pulse, heartbeat, heart rate, lungs, breathing, blood vessels, blood, pump, transported, oxygenated blood, deoxygenated blood, oxygen, arteries, veins, capillaries, chambers, plasma, platelets, white blood cells, red blood cells.  <b>Lifestyle:</b> drug, alcohol, smoking, disease, calorie, energy input, energy output.  <b>Other:</b> water transportation, nutrient transportation, waste products.</p> <p><b>Assessment:</b>  <b>Name the stages of human development</b>  <b>Explain why changes happen during puberty</b></p>

<p>Human senses: sight, hearing, touch, smell, taste.</p> <p>Exploring senses: loud, quiet, soft, rough.</p> <p>Other: human, animal</p>	<p>Human and animal body parts: e.g. body, head, neck, arms, elbows, legs, knees, face, ears, eyes, nose, hair, mouth, teeth, hands, feet, tail, wings, feathers, fur, beak, fins, gills.</p> <p>Human senses: sight, hearing, touch, smell, taste.</p> <p>Exploring senses: loud, quiet, soft, rough.</p> <p>Other: human, animal, pet.</p> <p>Being born and growing: Young, offspring, live young, grow, develop, change, hatch, lay, fly, crawl, talk.</p> <p>Young and adult names: e.g. lamb and sheep, kitten and cat, duckling and duck.</p> <p>Life cycle stages: e.g. baby, toddler, child, teenager, adult; frogspawn, tadpole, froglet, frog.</p> <p>Survival and staying healthy: basic needs, survive, food, air, exercise, diet, nutrition, healthy, balanced diet, germs.</p> <p>Food groups: fruit and vegetables, proteins, dairy and alternatives, carbohydrates, oil and spreads, fat, salt, sugar.</p> <p><u>Assessment:</u>  I understand the vocabulary of lifecycles (offspring, live young, adult, life cycle)  Name the three basic things (water, food, air) that animals need to survive.  Name some foods you should eat more or less of  Say ways to keep healthy (wash hands, brush teeth, exercise, eat well).  (Cycle 1)</p>	<p>Explain the function of bones and muscles  Label parts of the digestive system  Explain what parts of the digestive system do  Label the types of teeth and say what they are used for</p> <p><u>Literature/Songs:</u>  The Bones Skeletal System song  <a href="https://www.youtube.com/watch?v=aUHh8uMdBso">https://www.youtube.com/watch?v=aUHh8uMdBso</a></p>	<p>Explain the function of the heart  Label a diagram of the heart  Describe the content of the blood  Describe how nutrients and water are transported around the body</p> <p><u>Literature/Songs:</u>  Pig Heart Boy by Malorie Blackman</p> <p><u>Evolution and inheritance</u>  - recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago  - recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents  - identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p> <p><u>Vocabulary:</u>  Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossil, survival of the fittest, inheritance, variations, evolution</p> <p><u>Assessment</u>  Name ways animals and plants have adapted to suit their environment  Explain how adaptations take place over a long period of time and not in an animals life time  To identify environmental and inherited characteristics  To identify the stages of human evolution</p>
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I can name a variety of different types of animals.  
I understand what carnivores, herbivores and omnivores are and can name some animals in each category.  
Label the human body. (Cycle 2)

Literature/Songs:

Tadpole's Promise by Jeanne Willis  
Heads, Shoulders, Knees and Toes  
Funny Bones by Janet & Allan Ahlberg

Biology: Living things and their habitats

EYFS	Year 1/2	Year 3/4	Year 5/6
<p>Children know about similarities and differences in relation to places, 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.</p>	<p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> <li>- explore and compare the differences between things that are living, dead, and things that have never been alive</li> <li>- 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</li> <li>- identify and name a variety of plants and animals in their habitats, including microhabitats</li> <li>- 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</li> </ul> <p><b>Enrichment:</b> Pupils learn in Forest School/Green Zone about microhabitats i.e. woodlice live under bark/stones. They observe how living things depend on each other i.e. plants being both</p>	<p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> <li>- recognise that living things can be grouped in a variety of ways</li> <li>- explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</li> <li>- recognise that environments can change and that this can sometimes pose dangers to living things</li> </ul> <p><b>Vocabulary:</b> <b>Living things: organisms, specimen, species.</b> <b>Grouping living things: classification, classification keys, classify, characteristics.</b> <b>Names of invertebrate animals: snails and slugs, worms, spiders, insects.</b></p> <p><b>Assessment:</b> <b>Understand what each letter in MRSGREEN stands for</b> <b>Match some animals to their classification</b> <b>Understand the difference between a vertebrate and an invertebrate</b> <b>Be able to use a classification key</b> <b>Describe how humans can affect habitats including the sea.</b></p>	<p><u>Living things and their habitats</u></p> <ul style="list-style-type: none"> <li>- describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</li> <li>- describe the life process of reproduction in some plants and animals</li> <li>- 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</li> <li>- give reasons for classifying plants and animals based on specific characteristics</li> </ul> <p><b>Vocabulary:</b> <b>Reproduction: asexual reproduction, sexual reproduction, gestation, metamorphosis, gametes, tuber, runners/side branches, plantlet, cuttings, embryo, adolescent, penis, vagina, egg, pregnancy, gestation.</b> <b>Classifying: Carl Linnaeus, Linnaean system, flowering and non-flowering plants, variation.</b> <b>Microorganisms: bacteria, single-celled, microbes, microscopic, virus, fungi, fungus, mould, antibiotic, yeast, ferment, microscope, decompose.</b></p> <p><b>Assessment:</b> <b>Complete the lifecycle of an animal diagram</b> <b>Explain how animals reproduce- match words to phrases</b> <b>Complete a classification grid</b> <b>Give reasons on how to classify a groups of animals into two groups</b></p>

shelter and food for animals. Pupils also learn in forest School/green Zone whether things are living, dead or were never alive.

Through our range of topics children learn to identify and compare plants and animals found in different habitats i.e. rainforests, woodland, polar regions, oceans.

Pupils learn how to construct simple food charts in a variety of different habitats i.e. woodland, rainforest, polar regions.

**Vocabulary:**

**Living or dead: living, dead, never living, not living, alive, never been alive, healthy.**

**Habitats including microhabitats: depend, shelter, safety, survive, suited, space, minibeast, air.**

**Life processes: movement, sensitivity, growth, reproduction, nutrition, excretion, respiration.**

**Food chains: food sources, food, predator, prey.**

**Names of habitats and microhabitats: e.g. under leaves, woodland, rainforest, sea shore, ocean, urban, local habitat.**

**Assessment:**

**Be able to say which  
objects are alive, dead and  
things that have never  
been alive**

**Match animals to their  
habitats (Cycle 1)**

**Label a simple food chain  
(Cycle 2)**

**Literature/Songs:**

**The Gruffalo by Julia  
Donaldson**

**Wolves by Emily Gravett**

**Arlo the Lion Who Couldn't**

**Sleep by Catherine Raynor**

**The Owl Who is Afraid of the**

**Dark by Jill Tomlinson**

Chemistry: Materials and their states

EYFS	Year 1/2	Year 3/4	Year 5/6
<p>Children know about similarities and differences in relation to places, 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.</p>	<p><b>CHEMISTRY</b></p> <p><u>Uses of everyday materials</u>                      – identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Cycle 2)</p> <p>- distinguish between an object and the material from which it is made (Cycle 2)</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 and group together a variety of everyday materials on the basis of their simple physical properties</p> <p><u>Vocabulary:</u>                      plastic, glass, metal, water, rock, paper, cardboard, rubber, fabric.                      Properties of materials: hard, soft, shiny, dull, stretchy, rough, smooth, bendy, not bendy, transparent, opaque, waterproof, not waterproof, absorbent, not absorbent, sharp, stiff.</p>	<p><b>CHEMISTRY</b></p> <p><u>States of matter</u></p> <p>- compare and group materials together, according to whether they are solids, liquids or gases                      - 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)                      - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p> <p><u>Vocabulary:</u>                      Solid, liquid, gas, particles, condensation/condense, evaporation/evaporate, heat, cool, solidify, melt, melting point, boiling point, freezing point, water vapour, steam.</p> <p><u>Assessment:</u>                      Identify states of different materials                      Name the different states of matter                      Explain what happens to materials when they change state                      Describe the water cycle and explain evaporation and condensation</p> <p><u>Literature/Song links:</u>                      Rhythm of the Rain by Grahame Baker-Smith</p> <p><u>Rocks</u>                      -compare and group together different kinds of rocks on the basis of their appearance and simple physical properties                      -describe in simple terms how fossils are formed when things that have lived are trapped within rock                      - recognise that soils are made from rocks and organic</p>	<p><b>CHEMISTRY</b></p> <p><u>Properties and changes of materials</u>                      - 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                      - know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution                      - use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating                      - demonstrate that dissolving, mixing and changes of state are reversible changes                      - 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                      - give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p><u>Vocabulary:</u>                      Properties of materials: thermal conductor/insulator, magnetism, electrical resistance, transparency.                      Mixtures and solutions: dissolving, substance, soluble, insoluble.                      Changes of materials: reversible change, physical change, irreversible change, chemical change, burning, new material, product.                      Separating: sieving, filtering, magnetic attraction.</p> <p><u>Assessment:</u>                      Identify and group materials based on the properties mentioned above.                      Label a diagram with the words dissolving, solution and</p>

	<p>Changing shape: squash, bend, twist, stretch.</p> <p>Properties of materials: e.g. strong, flexible, light, hard-wearing, elastic.</p> <p>Other: suitability, recycle, pollution</p> <p><u>Assessment:</u>  Match items to the materials they are made from and label the materials  Match items with properties (waterproof, flexible, absorbent, hard, soft)  Match objects that are created naturally or by man  Say why some materials are suitable for certain products i.e. plastic for a water bottle.</p> <p>Literature/Song links:  Pebble in my Pocket by Meredith Hooper  Escape from Pompeii by Christina Ballit</p>	<p>matter.</p> <p><u>Vocabulary:</u>  Types of rock: sedimentary rock, igneous rock, metamorphic rock.</p> <p>Properties of rocks: permeable, impermeable, durable.</p> <p>Names of rocks: e.g. marble, chalk, granite, sandstone, slate.</p> <p>Formation of rocks and fossils: natural, magma, lava, molten rock, sediment, erosion, fossilisation, layers, bone, fossil.</p> <p>Soil: topsoil, subsoil, bedrock, mineral, organic matter, compost.</p> <p><u>Assessment:</u>  Identify and group different types of rock (sedimentary, igneous and metamorphic)  Describe how rocks are made and what they are made from.</p> <p>Literature/Song links:  Pebble in my Pocket by Meredith Hooper  Escape from Pompeii by Christina Ballit</p>	<p>describe how to recover a solution.  Choose substances that can be separated by filtering, sieving and evaporating  Understand what is meant by a reversible change  Explain why some change is not reversible (formation of new materials)</p>
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Physics

EYFS	Year 1/2	Year 3/4	Year 5/6
<p>Children know about similarities and differences in relation to places, objects, materials and living things.</p> <p>They talk about the features of their own immediate environment and how environments might vary from one another.</p> <p>They make observations of animals and plants and explain why some things occur, and talk about changes.</p>	<p><b>PHYSICS</b></p> <p><u>Seasonal changes</u></p> <ul style="list-style-type: none"> <li>- observe changes across the 4 seasons</li> <li>- observe and describe weather associated with the seasons and how day length varies (measuring rainfall study)</li> </ul> <p><u>Vocabulary:</u>  <b>Seasons: spring, summer, autumn, winter, seasonal change.</b>  <b>Weather: e.g. sun, rain, snow, sleet, frost, ice, fog, cloud, hot/warm, cold, storm, wind, thunder, weather forecast.</b>  <b>Measuring weather: temperature, rainfall, wind direction, thermometer, rain gauge.</b>  <b>Day length: night, day, daylight.</b></p> <p><u>Assessment:</u>  <b>Explain/draw the changes that occur across the seasons</b>  <b>Be able to match seasons to months and events</b>  <b>Explain how to keep safe in summer</b></p> <p><u>Literature/Song links:</u>  <b>Tree: Seasons come, seasons go</b></p>	<p><b>PHYSICS</b></p> <p><u>Light</u></p> <ul style="list-style-type: none"> <li>- recognise that they need light in order to see things and that dark is the absence of light</li> <li>- notice that light is reflected from surfaces</li> <li>- recognise that light from the sun can be dangerous and that there are ways to protect their eyes</li> <li>- recognise that shadows are formed when the light from a light source is blocked by an opaque object</li> <li>- find patterns in the way that the size of shadows change</li> </ul> <p><u>Vocabulary:</u>  <b>Light and seeing: dark, absence of light, light source, illuminate, visible, shadow, translucent, transparent, opaque, energy, block.</b>  <b>Light sources: e.g. candle, torch, fire, lightning.</b>  <b>Reflective light: reflect, reflection, surface, beam, mirror, moon.</b>  <b>Sun safety: dangerous, glare, damage, UV light, UV rating, sunglasses, direct.</b></p> <p><u>Assessment:</u>  <b>Explain what the dark is (absence of light)</b>  <b>Identify different sources of light including natural light and manmade light</b>  <b>Understand what reflection is</b>  <b>Understand how shadows are formed</b></p> <p><u>Forces and magnets</u></p> <ul style="list-style-type: none"> <li>- compare how things move on different surfaces</li> </ul>	<p><b>PHYSICS</b></p> <p><u>Light</u></p> <ul style="list-style-type: none"> <li>- recognise that light appears to travel in straight lines</li> <li>- 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</li> <li>- 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</li> <li>- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</li> </ul> <p><u>Vocabulary:</u>  <b>Reflection: periscope.</b>  <b>Seeing light: visible spectrum, prism.</b>  <b>How light travels: light waves, wavelength, straight line, refraction.</b></p> <p><u>Assessment:</u>  <b>Explain using a diagram that light travels in straight lines and we can see objects as light is reflected.</b>  <b>Name some natural and manmade light sources</b>  <b>Explain how eyes can be protected from strong light sources</b>  <b>Explain how shadows are formed and how shadows change as the source is moved closer and further from the light source.</b></p> <p><u>Forces</u></p> <ul style="list-style-type: none"> <li>- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</li> <li>- identify the effects of air resistance, water resistance</li> </ul>

	<p><b>I Am The Seed That Grows The Tree</b>  <b>The Rhythm of the Rain</b>  <b>Lila and the Secret of the Rain</b>  <b>Meet the Weather</b>  <b>Sunny Day - Out of the Ark</b></p>	<ul style="list-style-type: none"> <li>- notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</li> <li>- observe how magnets attract or repel each other and attract some materials and not others</li> <li>- 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</li> <li>- describe magnets as having 2 poles</li> <li>- predict whether 2 magnets will attract or repel each other, depending on which poles are facing</li> </ul> <p><u>Vocabulary:</u>  <b>How things move: move, movement, surface, distance, strength.</b>  <b>Types of forces: push, pull, contact force, non-contact force, friction.</b>  <b>Magnets: magnetic, magnetic field, magnetic force, bar magnet, horseshoe magnet, ring magnet, magnetic poles (north pole, south pole), attract, repel, compass.</b>  <b>Magnetic and non-magnetic materials: e.g. iron, nickel.</b></p> <p><u>Assessment:</u>  <b>Explain what a force is</b>  <b>Explain the difference between a push and a pull</b>  <b>Group materials that are magnetic and not magnetic</b>  <b>Explain that North and South magnetic poles attract and the same magnetic force will repel</b>  <b>Explain that some magnets are stronger than others</b></p> <p><u>Electricity</u></p> <ul style="list-style-type: none"> <li>- identify common appliances that run on electricity</li> <li>- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>- 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</li> <li>- recognise that a switch opens and closes a circuit and</li> </ul>	<p>and friction, that act between moving surfaces</p> <ul style="list-style-type: none"> <li>- recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</li> </ul> <p><u>Vocabulary:</u>  <b>Types of forces: air resistance, water resistance, buoyancy, upthrust, Earth's gravitational pull, gravity, opposing forces, driving force.</b>  <b>Mechanisms: levers, pulleys, gears/cogs.</b>  <b>Measurements: weight, mass, kilograms (kg), Newtons (N), scales, speed, fast, slow.</b>  <b>Other: streamlined, Earth.</b></p> <p><u>Assessment:</u>  <b>Explain what gravity is and how it can affect falling objects</b>  <b>Explain what air resistance, water resistance and friction is and the effect they have on objects</b>  <b>Explain the effect of levers, pulleys and gears in relation to input vs output</b></p> <p><u>Electricity</u></p> <ul style="list-style-type: none"> <li>- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>- 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</li> </ul>
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Other: soundproof, absorb sound.

Assessment:

Explain what sound is

Explain how sound can travel to your ear

Explain how the volume of a sound can be changed

Explain how the pitch of a sound can be changed

Explain why sounds sound quieter the further away you are from the source

Movement: rotate, axis, orbit, satellite.

Theories: geocentric model, heliocentric model, astronomer.

Day length: sunrise, sunset, midday, time zone.

Assessment:

Name and order the planets in our solar system

Explain the movement of the moon and its phases

Explain night and day

Describe the shape and size of the earth, sun and moon.

Literature/Songs:

My very easy method just speeds up naming (planets!)

Working Scientifically

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and results for a simple test

- Gathering recording data to help in answering questions e.g. measuring rainfall, tallying different insects

- Using straight forward scientific evidence to answer questions or to support their findings e.g Answering the question of whether the bubbles in a fizzy drink weigh anything.

dissection lesson or making persuasive posters on Publisher to promote healthy lifestyles.