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| **National Curriculum** | **The national curriculum for science aims to ensure that all pupils:** * develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
* develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
* are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

**Foundation Stage**The principal focus of science teaching in EYFS: Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children’s personal experiences increasestheir knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection ofstories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words thatsupport understanding across domains. Enriching and widening children’s vocabulary will support later reading comprehension.Pupils should be taught to: * Explore the natural world around them, making observations and drawing pictures of animals and plants;
* Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
* Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter

**Key Stage 1*** The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly-constructed world around them.
* They should be encouraged to be curious and ask questions about what they notice.
* They should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information.
* They should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.
* Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.
* ‘Working scientifically’ is described separately in the programme of study, but must always be taught through and clearly related to the teaching of substantive science content in the programme of study.
* Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.
* should read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

**Lower Key Stage 2*** The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them.
* They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions.
* They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.
* They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.
* ‘Working scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study.
* Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.
* Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge.

**Upper Key Stage 2*** The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas.
* They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.
* At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates.
* They should also begin to recognise that scientific ideas change and develop over time.
* They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.
* Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.
* ‘Working and thinking scientifically’ is described separately at the beginning of the programme of study, but must always be taught through and clearly related to substantive science content in the programme of study.
* Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.
* Pupils should read, spell and pronounce scientific vocabulary correctly.
 |
|  | **Nursery Scientist** | **Reception Scientist** | **Year 1 Scientist** | **Year 2 Scientist** |
| **Working Scientifically**  | ***Understanding the World**** ***Use all their senses in hands-on exploration of natural materials.***
* ***Explore collections of materials with similar and/or different properties.***
* ***Talk about what they see, using a wide vocabulary.***
	+ *Provide interesting natural environments for children to explore freely outdoors.*
	+ *Make collections of natural materials to investigate and talk about.*

*Suggestions:**• contrasting pieces of bark**• different types of leaves and seeds**• different types of rocks**• different shells and pebbles from the beach** + *Provide equipment to support these investigations.*

*Suggestions: magnifying glasses or a tablet with a magnifying app.** + *Encourage children to talk about what they see.*
	+ *Model observational and investigational skills. Ask out loud: “I wonder if…?”*
	+ *Plan and introduce new vocabulary, encouraging children to use it to discuss their findings and ideas.*
* ***Explore and talk about different forces they can feel.***
	+ *Draw children’s attention to forces.*

*Suggestions:**• how the water pushes up when they try to push a plastic boat under it**• how they can stretch elastic, snap a twig, but cannot bend a metal rod**• magnetic attraction and repulsion** + *Plan and introduce new vocabulary related to the exploration and encourage children to use it.*
* ***Talk about the differences between materials and changes they notice.***
	+ *Provide children with opportunities to change materials from one state to another.*

*Suggestions:**• cooking – combining different ingredients, and then cooling or heating (cooking) them**• melting – leave ice cubes out in the sun, see what happens when you shake salt onto them (children should not touch to avoid danger of frostbite)** + *Explore how different materials sink and float.*
	+ *Explore how you can shine light through some materials, but not others.*
	+ *Investigate shadows.*
	+ *Plan and introduce new vocabulary related to the exploration and encourage children to use it.*
 | ***Understanding the World**** ***Explore the natural world around them.***
	+ *Provide children with have frequent opportunities for outdoor play and exploration.*
	+ *Encourage interactions with the outdoors to foster curiosity and give children freedom to touch, smell and hear the natural world around them during hands-on experiences.*
	+ *Create opportunities to discuss how we care for the natural world around us.*
	+ *Offer opportunities to sing songs and join in with rhymes and poems about the natural world.*
	+ *After close observation, draw pictures of the natural world, including animals and plants.*
	+ *Observe and interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object and a boat floating on water*

*•* ***Describe what they see, hear and feel whilst outside.**** *Encourage focused observation of the natural world.*
* *Listen to children describing and commenting on things they have seen whilst outside, including plants and animals.*
* *Encourage positive interaction with the outside world, offering children a chance to take supported risks, appropriate to themselves and the environment within which they are in.*
* *Name and describe some plants and animals children are likely to see, encouraging children to recognise familiar plants and animals whilst outside.*

*•* ***Understand the effect of changing seasons on the natural world around them.**** *Guide children’s understanding by draw children’s attention to the weather and seasonal features.*
* *Provide opportunities for children to note and record the weather. Select texts to share with the children about the changing seasons.*
* *Throughout the year, take children outside to observe the natural world and encourage children to observe how animals behave differently as the seasons change.*
* *Look for children incorporating their understanding of the seasons and weather in their play.*
 | * *Know how to ask simple scientific questions.*
* *Know how to use simple equipment to make observations.*
* *Know how to carry out simple tests.*
* *Know how to identify and classify things.*
* *Know how to explain to others what I have found out.*
* *Know how to use simple data to answer questions.*
 |
| **Biology** | ***Plants**** *Know and name a variety of common wild and garden plants. (EW, DP)*
* *Know and name the petals, stem, leaves and root of a plant. (EW)*
* *Know and name the roots, trunk, branches and leaves of a tree. (EW)*

***Animals, including humans**** *Know and name a variety of animals including fish, amphibians, reptiles, birds and mammals. (PCW, DP)*
* *Classify and know animals by what they eat (carnivore, herbivore and omnivore). (PCW, DP)*
* *Know how to sort animals into categories (including fish, amphibians, reptiles, birds and mammals). (PCW, DP)*
* *Know how to sort living and non-living things. (PCW)*
* *Know how to name the parts of the human body that I can see. (S)*

*Know how to link the correct part of the human body to each sense. (S)* | ***Plants**** *Know how seeds and bulbs grow into plants. (SG)*
* *Know what plants need in order to grow and stay healthy (water, light & suitable temperature). (SG)*

***Animals, including humans**** *Know the basic stages in a life cycle for animals, including humans.*
* *Know what animals and humans need to survive.*
* *Know why exercise, a balanced diet and good hygiene are important for humans. (GFL)*

***Living things and their habitats**** *Identify things that are living, dead, never lived. (BTT)*
* *Know how a specific habitat provides for the basic needs of things living there (plants and animals). (BTT)*
* *Identify and name plants and animals in a range of habitats.(BTT)*
* *Match living things to their habitat. (BTT)*
* *Know how animals find their food.(SD)*
* *Name some different sources of food for animals. (SD)*
* *Know and can explain a simple food chain.(SD)*

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|  | **Nursery Scientist** | **Reception Scientist** | **Year 1 Scientist** | **Year 2 Scientist** |
| **Chemistry** | * ***Plant seeds and care for growing plants.***
* ***Understand the key features of the life cycle of a plant and an animal.***
* ***Begin to understand the need to respect and care for the natural environment and all living things.***
	+ *Show and explain the concepts of growth, change and decay with natural materials.*

*Suggestions:**• plant seeds and bulbs so children observe growth/decay over time**• observe an apple core going brown and mouldy over time**• help children to care for animals and take part in first-hand scientific** + *explorations of animal life cycles, such as caterpillars or chick eggs.*
	+ *Plan and introduce new vocabulary related to the exploration.*
	+ *Encourage children to use it in their discussions, as they care for living things.*
	+ *Encourage children to refer to books, wall displays, online resources.*
	+ *This will support their investigations and extend their knowledge and ways of thinking.*
 | ***ELGs: Understanding the World******• Explore the natural world around them, making observations and drawing pictures of animals and plants;*** ***• Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class******• Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter*** | ***Everyday materials**** *Distinguish between an object and the material it is made from. (MZ, MB)*
* *Know materials that an object is made from. (MB)*
* *Know the difference between wood, plastic, glass, metal, water and rock. (MZ, MB)*
* *Know about the properties of everyday materials (MZ, MB)*
* *Group objects based on the materials they are made from.(MZ, MB)*
 | ***Uses of everyday materials**** *Identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. (SD, BTT, LA)*
* *Know why a material might or might not be used for a specific job. (SD, LA))*
* *Know how materials can be changed by squashing, bending, twisting and stretching. (LA)*
 |
| **Physics** | ***Seasonal changes**** *Observe and know about the changes in the seasons. (Ongoing)*
* *Name the seasons and know about the type of weather in each season. (Ongoing)*
 | * ***No content***
 |
| **Themes**  | * ***Me and My Community/Exploring Autumn (C, A)***
* ***Starry Night/Winter Wonderland (S, W)***
* ***Move It (M)***
* ***Puddles and Rainbows (P)***
* ***Ready Steady Grow (R)***
* ***Tumble (T)***
 | * ***Me and My Community (C)***
* ***Exploring Autumn/Sparkle and Shine (E, Sp)***
* ***Let’s Explore/Build It Up (L, B)***
* ***Once Upon A Time (O)***
* ***Animal Safari/Creep, Crawl and Wriggle (A, C)***
* ***Sunshine & Sunflowers/Shadows & Reflections (S, R)***
 | * ***Superheroes (S)***
* ***Enchanted Woodlands (EW)***
* ***Paws, Claws and Whiskers (PCW)***
* ***Dinosaur Planet (DP)***
* ***Moon Zoom (MZ)***
* ***Memory Box (MB)***
 | * ***Street Detectives (SD)***
* ***The Great Fire of London (GFL)***
* ***Baddies, Towers and Tunnels (BTT)***
* ***Land Ahoy (LA)***
* ***Scented Garden (SG)***
* ***Humans (H)***
 |
| **Vocabulary** | * baby, care, love, parent, family, sister, force, pull, head, eyes, ears, mouth, nose, Autumn, season, weather, cold, rain, sun, warm, leaves
* melt, cold, snow, snowflake, freeze, soft, frost, warm, water, weather, ice, melt, Winter, season
* colour, colourful, flower, fruit, vegetable, red, orange, yellow, green, blue, indigo, violet, rain, water, sun
* animal, paw, claw, puppy, dog, small, smell, feed, fur, whisker, hairy, vet, farm, grow, vegetables, fruit
 | * baby, care, grow, love, family, parent, brother, sister, head, eyes, nose, mouth, ears, arms, hair
* acorn, nature, autumn, nut, berry, pine cone, conker, season, crunch, squirrel, feather, tree, harvest, twig, hedgehog, wild, hibernate, wind, leaf, winter, migrate, woodland, habitat, summer, spring, autumn
* materials, plastic, wood, metal, glass, clay, bend, stretch
* camouflage, meercat, monkey, cheetah, pattern, safari, elephant, spot, stripe, giraffe, hyena, lion, wildlife, zebra
 | * vitamins, minerals, senses, smell, taste, touch, hearing, sight, head, neck, arms, elbows, legs, knees, face, ears, hair, mouth, teeth
* petal, stem, leaf, root, trunk, branch, deciduous, evergreen, flowers, fruit, bulb, seed, seasons, spring, summer, autumn, winter, sun, rain, snow, hail, storm, hot, cold
* carnivore, dinosaur, fossil, herbivore, invertebrate, omnivore, palaeontologist, amphibian, excavate, extinct, habitat, marine, predator, prey, reptile vertebrate
* wood, plastic, glass, metal, water, rock, waterproof, absorbent, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy, opaque, transparent, brick, paper, fabrics, elastic, foil
* exercise, healthy, unhealthy, toddler, baby, child, teenager, adolescent, elderly, childhood, human
 | * materials, man-made, natural, wood, metal, plastic, glass, brick, rock, paper, cardboard, squashing, bending, twisting, stretching
* animals, humans, offspring, adults, survival, exercise, balanced diet, hygiene
* flexible, hardness, stretch, bend, wood, metal, plastic, glass, brick, rock, paper, cardboard, squashing, bending, twisting, stretching
* bud, flower, germinate, leaf, nutrient, petal, root, seed, shoot, stem, foliage, exotic, herb, poisonous, weed, bulb, water, light, temperature, grow
* exercise, diet, hygiene, survival, life cycle, carbohydrates, protein, dairy, animals, humans, offspring, adults, survival, exercise, balanced diet, hygiene, nutrition, reproduction
 |
| **Famous** | * David Attenborough – biologist and broadcaster
* Planet Earth
 | * Andrew Day – Andy’s prehistoric adventures.
 | * Mary Anning – fossil collector
* Yuri Gagarin – first person in space
* Neil Armstrong – first person on the Moon
* Helen Sharman – first British person in space
* Tim Peake – longest British person in space
* International Space Station
 | * Charles Macintosh – inventor
* Mae Carol Jemison – engineer and astronaut
* Sir Christopher Wren – architect
* Isambard Kingdom Brunel – engineer
* Neil Armstrong - astronaut
* David Attenborough – biologist/broadcaster
* Elizabeth Garrett Anderson – physician
 |
|  | **Year 3 Scientist** | **Year 4 Scientist** | **Year 5 Scientist** | **Year 6 Scientist** |
| **Working Scientifically** | * *Know how to ask relevant scientific questions.*
* *Know how to use observations and knowledge to answer scientific questions.*
* *Know how to set up a simple enquiry to explore a scientific question.*
* *Know how to set up a test to compare two things.*
* *Know how to set up a fair test and explain why it fair.*
* *Make careful and accurate observations, including the use of standard units.*
* *Know how to use equipment, including thermometers and data loggers to make measurements.*
* *Gather, record, classify and present data in different ways to answer scientific questions.*
* *Know how to use diagrams, keys, bar charts and tables; using scientific language.*
* *Know how to use findings to report in different ways, including oral and written explanations, presentation.*
* *Know how to draw conclusions and suggest improvements.*
* *Know how to make a prediction with a reason.*
* *Know how to identify differences, similarities and changes related to an enquiry.*
 | * *Know how to plan different types of scientific enquiry.*
* *Know how to control variables in an enquiry.*
* *Measure accurately and precisely using a range of equipment.*
* *Know how to record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.*
* *Use the outcome of test results to make predictions and set up a further comparative and fair tests.*
* *Report findings from enquiries in a range of ways.*
* *Know how to explain a conclusion from an enquiry.*
* *Explain causal relationships in an enquiry.*
* *Know how to relate the outcome from an enquiry to scientific knowledge in order to state whether evidence supports or refutes an argument or theory.*
* *Read, spell and pronounce scientific vocabulary accurately.*
 |
| **Biology** | ***Plants**** *Know the function of different parts of flowering plants and trees.(TT)*
* *Know what different plants need to help them survive.(TT)*
* *Know how water is transported within plants.(TT)*
* *Know the plant life cycle, especially the importance of flowers.(TT)*

***Animals, including humans**** *Know about the importance of a nutritious, balanced diet.(GM)*
* *Know how nutrients, water and oxygen are transported within animals and humans.(GM)*
* *Know about the skeletal system of a human.(GM)*
* *Know about the muscular system of a human.(GM)*
* *Know about the purpose of the skeleton in humans and animals.(GM)*
 | ***Living things and their habitats**** *Group living things in different ways. (MMS)*
* *Use classification keys to group, identify and name living things. (MMS)*
* *Create classification keys to group, identify and name living things (for others to use). (MMS)*
* *Know how changes to an environment could endanger living things.(MMS)*

***Animals, including humans**** *Identify and name the parts of the human digestive system. (BBB)*
* *Know the functions of the organs in the human digestive system. (BBB)*
* *Identify and know the different types of teeth in humans. (BBB)*
* *Know the functions of different human teeth. (BBB)*
* *Use food chains to identify producers, predators and prey. (MMS)*
* *Construct food chains to identify producers, predators and prey. (MMS)*
 | ***Living things and their habitats**** *Know the life cycle of different living things, e.g. mammal, amphibian, insect bird. (A)*
* *Know the differences between different life cycles.(A)*
* *Know the process of reproduction in plants.(A)*
* *Know the process of reproduction in animals.(A)*

***Animals, including humans**** *Create a timeline to indicate stages of growth in humans. (A)*
 | ***Living things and their habitats**** *Classify living things into broad groups according to observable characteristics and based on similarities and differences.(FK, DD)*
* *Know how living things have been classified.(DD)*
* *Give reasons for classifying plants and animals in a specific way.(DD)*

***Animals, including humans**** *Identify and name the main parts of the human circulatory system.(BH)*
* *Know the function of heart, blood vessels, blood.(BH)*
* *Know the impact of diet, exercise, drugs and life style on health.(BH)*
* *Know the ways in which nutrients and water are transported in animals, including humans.(BH)*

***Evolution and inheritance*** * *Know how the Earth and living things have changed over time.(DD)*
* *Know fossils can be used to find out about past.(DD)*
* *Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents).(DD)*
* *Know how animals and plants are adapted to suit their environment.(FK, DD)*
* *Link adaptation over time to evolution. (FK, DD)*
* *Know about evolution and can explain what it is.(DD)*
 |
|  | **Year 3 Scientist** | **Year 4 Scientist** | **Year 5 Scientist** | **Year 6 Scientist** |
| **Chemistry** | ***Rocks**** *Compare and group rocks based on their appearance and physical properties, giving a reason. (T)*
* *Know about and explain the difference between sedimentary, metamorphic and igneous rock.(T)*
* *Know how fossils are formed.(T)*
* *Know how soil is made. (F)*
 | ***States of matter**** *Group materials based on their state of matter (solid, liquid, gas). (Po)*
* *Know how some materials can change state. (Po)*
* *Explore how materials change state. (Po)*
* *Measure the temperature at which materials change state. (Po)*
* *Know about the water cycle. (Po)*
* *Know the part played by evaporation and condensation in the water cycle. (Po)*
 | ***Properties and changes of materials*** * *Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets). (AI)*
* *Know how a material dissolves to form a solution; explaining the process of dissolving. (AI)*
* *Know and show how to recover a substance from a solution.(AI)*
* *Know how some materials can be separated.(AI)*
* *Demonstrate how materials can be separated (e.g. through filtering, sieving and evaporating). (AI)*
* *Know and can demonstrate that some changes are reversible and some are not. (AI)*
* *Know how some changes result in the formation of a new material and this is usually irreversible.(AI)*
* *Know about reversible and irreversible changes. (AI)*
* *Give evidenced reasons why materials should be used for specific purposes. (AI)*
 | ***No content*** |
| **Physics** | ***Light**** *Know what dark is (the absence of light). (UP)*
* *Know that light is needed in order to see. (UP)*
* *Know that light is reflected from a surface. (UP)*
* *Know and demonstrate how a shadow is formed. (UP)*
* *Explore shadow size and explain the changes. (UP)*
* *Know the danger of direct sunlight and describe how to keep protected. (UP)*

***Forces and magnets**** *Know about and describe how objects move on different surfaces.(MM)*
* *Know how some forces require contact and some do not, giving examples. (MM)*
* *Know about and explain how objects attract and repel in relation to objects and other magnets. (MM)*
* *Predict whether objects will be magnetic and carry out an enquiry to test this out. (MM)*
* *Know how magnets work. (MM)*
* *Predict whether magnets will attract or repel and give a reason. (MM)*
 | ***Sound**** *Know how sound is made. (Pl)*
* *Know how sound travels from a source to our ears.(Pl)*
* *Know how sounds are made, associating some of them with vibrating.(Pl)*
* *Know the correlation between pitch and the object producing a sound. (Pl)*
* *Know the correlation between the volume of a sound and the strength of the vibrations that produced it.(Pl)*
* *Know what happens to a sound as it travels away from its source. (Pl)*

***Electricity**** *Identify and name appliances that require electricity to function. (IW)*
* *Construct a series circuit. (IW)*
* *Identify and name the components in a series circuit (including cells, wires, bulbs, switches, buzzers). (IW)*
* *Know how to draw a circuit diagram. (IW)*
* *Predict and test whether a lamp will light in a circuit.(IW)*
* *Know the function of a switch in a circuit. (IW)*
* *Know the difference between a conductor and an insulator; giving examples of each. (IW)*
 | ***Earth and space**** *Know about and explain the movement of the Earth and other planets relative to the Sun.(S)*
* *Know about and explain the movement of the Moon relative to the Earth.(S)*
* *Know and demonstrate how night and day are created.(S)*
* *Describe the Sun, Earth and Moon (using the term spherical). (S)*

***Forces**** *Know what gravity is and its impact on our lives.(SM)*
* *Identify and know the effect of air resistance.(SM)*
* *Identify and know the effect of water resistance.(SM)*
* *Identify and know the effect of friction.(SM)*
* *Explain how levers, pulleys and gears allow a smaller force to have a greater effect.(SM)*
 | ***Light**** *Know how light travels.(I)*
* *Know and demonstrate how we see objects.(I)*
* *Know why shadows have the same shape as the object that casts them.(I)*
* *Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.(I)*

***Electricity*** * *Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.(CW)*
* *Compare and give reasons for why components work and do not work in a circuit.(CW)*
* *Draw circuit diagrams using correct symbols.(CW)*
 |
| **Themes** | * ***Tremors (T)***
* ***Tribal Tales (TT)***
* ***Mighty Metals (MM)***
* ***Urban Pioneers (UP)***
* ***Gods and Mortals (GM)***
* ***Flow (F)***
 | * ***Burps, Bottoms and Bile (BBB)***
* ***I am Warrior (IW)***
* ***Traders and Raiders (TR)***
* ***Potions (Po)***
* ***Misty Mountain Sierra (MMS)***
* ***Playlists (Pl)***
 | * ***Off with her head (OWH)***
* ***Alchemy Island (AI)***
* ***Pharaohs (Ph)***
* ***Stargazers (S)***
* ***Scream Machine (SM)***
* ***Allotment (A)***
 | * ***Darwin’s Delights (DD)***
* ***Blood Heart (BH)***
* ***Frozen Kingdom (FK)***
* ***Child’s War (CW)***
* ***Golden Age of Islam (I)***
 |
| **Vocabulary** | * compression, fossils, sedimentary, metamorphic, igneous, hard and soft rocks, organic
* fertilisation, germination, pollination, preserved, reproduction, dispersal, seeds, roots, stem, trunk, leaves, flowers, air, light, water, nutrients, support, soil, transportation, life cycle, seed formation
* force, magnetism, negative, positive, contact, noncontact force, gravity, friction, surface, attract, repel, materials, poles
* disease, light source, light reflector, long-exposure shadows, block, dark, surfaces, opaque
* nutrition, skeletons, muscles, function, healthy
* aquatic, condensation, degrade, evaporation, nutrient, soil, sandy, silty, clay, organic, organic material
* skeleton, muscle, bones, nutrients, nutritious, oxygen, diet
 | * absorb, bacteria, constipation, decay, digestion, digestive system, enzyme, faeces, microorganisms, nutrients, saliva, tongue, oesophagus, small intestine, large intestine, rectum, anus, canines, incisors, premolars, molars, chew, grind, snip, rip, producers, mouth, stomach, carnivore, herbivore
* battery, circuit, insulator, motor, buzzer, conductor, LED, switch, cell, wires, lamp, metal, current, voltage, connect
* anaesthetic, boil, bubble, capacity, condense, dangerous, dental, essential oil, evaporate, freeze, gas, heating, herbs, ingredients, liquid, magical, medical, medicinal, melt, mixture, molecule, poison, potion, process, properties, solid, source, state, temperature, thermometer, evaporation, condensation, precipitation, particles, freeze, degrees Celsius
* adaptation, habitat, predator, prey, species, classify, endanger, vertebrate, fish, amphibians, reptiles, birds, mammals, invertebrates, snails, slugs, worms, spiders, insects, flowering plants, non-flowering plants, fern, moss, nature reserve, ecologically planned park, garden pond, population, litter, deforestation, key
* cochlea, decibel (dB), ear canal, eardrum, insulator, ossicles, outer ear, pinna, volume, vibrate, pitch, volume, distance, sound, source
 | * alchemist, alchemy, circuit, conductor, dissolve, electrical, fantasy, gold, goldrush, hardness, insoluble, irreversible change, magnetism, malleable, material, metal, non-conductor, opaque, precious, pure, reversible change, rust, saturated solution, sieve, solid, soluble, solute, solution, solvent, thermal, translucent, transparency, liquid, substance, solid, gas, filtering, sieving, evaporating, metal, wood, plastic, acid, bicarbonate of soda, melting, burning, rusting, reaction
* growth, timeline, development, humans, puberty, gestation, baby
* asteroid, astronaut, astronomer, axis, comet, crater, free fall, gravity, lunar, meteoroid, moon, NASA, observatory, orbit, planet, planetarium, rocket, satellite, solar system, star, telescope, terrestrial planet, universe, zero gravity, Earth, Sun, solar system, Moon, sphere, rotate, star, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, dwarf planet, celestial body
* air resistance, algorithm, amenity, budget, buoyancy, cam, cam mechanism, capacity, centripetal force, drop ride, engineer, exert, force, gravity, load, log flume, logo, loop the loop, mechanism, motor, oscillate, pendulum, pivot, prototype, pulley, roller coaster, water resistant, waterspout, friction, surface, lever, gear, springs
* anther, bulb, carpel, compost, cutting, filament, fertiliser, germination, greenhouse, minibeast, organic, originate, pollen, pollination, pollinator, produce, stamen, stigma, style, life cycle, habitat, mammal, amphibian, insect, bird, reproduction, sexual reproduction, asexual reproduction, rainforest, desert, ocean, prehistoric, seeds, stem, root cutting, tubers, hatching
 | * adaptation, artificial selection, cloning, DNA (deoxyribonucleic acid), endangered species, evolution, extinct, fossil, genetic engineering, habitat, inheritance, naturalist, natural selection, species, specimen, trait, variation, offspring, adaptation, evolution,
* ABO blood groups, arteries, blood donor, blood groups, blood pressure, blood vessels, capillaries, circulation, heart, intravenous, platelet, plasma, red blood cells, transfusion, vein, white blood cells, diet, exercise, drugs, lifestyle, nutrients
* food chain, freeze, habitat, ice, temperature, micro-organisms, plants, animals, vertebrates, invertebrates
* circuit, parallel, series, faults, voltage, battery, cell, symbol, fair test, variable, volume, buzzer, bright, loud, switch, symbols
* light source, beam, straight line, reflect, opaque, transparent, shadow, translucent, reflection
 |
| **Famous** | * Mary Anning - fossils
* Thomas Edison, Nikola Tesla – inventors
* Joseph Strutt – local businessman and philanthropist
* Pythagoras, Archimedes – scientists and inventors
* James Lind – scientist - developed the theory that citrus fruits cured scurvy
 | * Rosalind Franklin – chemist-DNA
* William Morton – anaesthetic
* Marie Curie- pioneer in the study of radiation
* David Attenborough- biologist and broadcaster
 | * Edward Jenner – physician -smallpox vaccine
* Alexander Fleming – physician -penicillin
* Spencer Silver – glue for sticky notes.
* Ruth Benerito – wrinkle free cotton.
* Isaac Newton – mathematician and scientist- gravity
* Galileo Galilei – Earth’s orbit
* Alexey Leonov, Yuri Gagarin – astronauts/cosmonauts
* Floella Benjamin – presenter
* John Stapp and Galileo Galilei – scientists -pendulum
* Isaac Newton – theory of gravity
* Jane Goodall – animal behaviourist
 | * Charles Darwin – evolutionary biologist
* Mary Anning – fossil collector
* Carl Linnaeus - classification
* Isaac Newton – mathematician and scientist - spectrum
* Al-Khawarizimi – mathematician
* Lewis Latimer – inventor - air conditioning, light bulbs)
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