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| **Working Scientifically** |
| * Ask questions such as:
	+ Why are flowers different colours?
	+ Why do some animals eat meat and others do not?
	+ Why do trees lose their leaves in Autumn and others do not?
	+ How long are roots of tall trees?
	+ Why do some animals have underground habitats?
* Set up a test to see which materials keeps things warmest, know if the test has been successful and can say what has been learned
* Explain to someone what has been learned from an investigation they have been involved with and draw conculsions from the answers to the questions asked
* Use equipment such as thermometes and rain gauges to help observe changes to local environemtn as the year progresses
* Use microscopes to find out more about small creatures and plants
* Know how to set up a fair test and do so when finding out about how seeds grow best
* Classify or group things according to a given riteria, e.g. decisuous and confierous trees
* Draw conclusions from fair test and explain what has been found out
* Use measures (Y2 mathemtaical limits) to help find out more about the invesetigations they are engaged with
 |
|  | **Biology** | **Chemistry** | **Physics** |
| **Animals in. Humans** | **Animals in. Humans** | **Plants** |  |  |
| National Curriculum | * *Name common animals​*
* *Carnivores, etc​*
* *Alive or dead*
* *habitats*
* *Adaptations*
* *Food chains*
 | * *Human body and senses​*
* *Animal reproduction*
* *Healthy living*
* *Basic needs*
 | * *Common plants​*
* *Plant structure​*
* *Plant and seed growth​*
* *Plant reproduction​*
* *Keeping plants healthy*
 | * *Properties of materials​*
* *Grouping materials​*
* *Identify different materials​*
* *Name everyday materials​*
* *Properties of materials*
 | * *The four seasons​*
* *Seasonal weather​*
* *Compare the use of different materials​*
* *Compare movement on different surfaces*
 |
| Knowledge Acquired | * Know how to classify a range of animals by amphibian, reptile, mammal, fish and birds​
* Know and classify animals by what they eat (carnivore, herbivore and omnivore)​
* Know how to sort by living and non living things​
* Classify things by living, dead or never lived​
* Know how a specific habitat provides for the basic needs of things living there (plants and animals)​
* Match living things to their habitat​
* Name some different sources of food for animals​
* Know about and explain a simple food chain​

​ | * Know the name of parts of the human body that can be seen​
* Know the basic stages in a life cycle for animals, (including humans)​
* Know why exercise, a balanced diet and good hygiene are important for humans​
 | * Know and name a variety of common wild and garden plants​
* Know and name the petals, stem, leaves and root of a plant​
* Know and name the roots, trunk, branches and leaves of a tree
* Know and explain how seeds and bulbs grow into plants​
* Know what plants need in order to grow and stay healthy (water, light & suitable ​
* temperature)
 | * Know the name of the materials an object is made from​
* Know about the properties of everyday materials​
* Know how materials can be changed by ​
* squashing, bending,    ​
* twisting and stretching​
 | * Name the seasons and know about the type of weather in each season​
* Know why a material might or might not be ​
* used for a specific job
 |

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| **Working Scientifically** |
| * *Asking relevant questions and using different types of scientific enquiries to answer them*
* *Setting up simple practical enquiries, comparative and fair tests*
* *Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers*
* *Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions*
* *Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables*
* *Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions*
* *Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions*
* *Identifying differences, similarities or changes related to simple scientific ideas and processes*
* *Using straightforward scientific evidence to answer questions or to support their findings.*
 |
|  | **Biology** | **Chemistry** | **Physics** |
| **Animals in. Humans** | **Plants** | **Plants** | **Rocks** | **Forces** | **Light** |
| National Curriculum | * *Skeleton and muscles*​
* *Nutrition*​
* *Exercise and health*​
* *Digestive system*​
* *Teeth*​
* *Food chains*​
 | * *Plant life*​
* *Basic structure and functions*​

​ | * *Life cycle*​
	+ *Water transportation*​
 | * *Fossil formation*​
* *Compare and group rocks*​
* *Soil*​

​ | * *Different Forces*​
* *Magnets*​
 | * *Reflections*​
* *Shadows*​
 |
| Knowledge Acquired | * Know about the importance of a nutritious, balanced diet​
* Know how nutrients, water and oxygen are transported within animals and humans​
* Know about the skeletal and muscular system of a human​
* Identify and name the parts of the human digestive system​
* Know the functions of the organs in the human digestive system​
* Identify and know the different types of human teeth​
* Know the functions of different human teeth​
* Use and construct food chains to identify producers, predators and prey​

​ | * Know the function of different parts of flowing plants and trees​
* ​
* ​

​ | * Know how water is transported within plants​
* Know the plant life cycle, especially the importance of flowers​

​ | * Compare and group rocks based on their appearance and physical properties, giving reasons​
* Know how soil is made and how  fossils are formed​
* Know about and explain the difference between sedimentary, metamorphic and igneous rock​

​ | * Know about and describe how objects move on different surfaces​
* Know how a simple pulley works and use to on to lift an object​
* Know how some forces require contact and some do not, giving examples​
* Know about and explain how magnets attract and repel Predict whether magnets will attract or repel and give a reason​
 | * Know that dark is the absence of light​
* Know that light is needed in order to see and is reflected from a surface​
* Know and demonstrate how a shadow is formed and explain how a shadow changes shape​
* Know about the danger of direct sunlight and describe how to keep protected​

​ |
|  | **All Living Things and Their Habitats** | **States of Matter** | **Electricity** | **Sound** |
| * *Grouping living things*​
* *Classification keys*​
	+ *Adaptation of living things*​
 | * *Compare and group materials*​
* *Solids, liquids and gases*​
* *Changing state*​
	+ *Water cycle*​
 | * *Uses of electricity*​
* *Simple circuits and switches*​
* *Conductors and insulators*​

​ | * *How sounds are made*​
* *Sound vibrations*​
* *Pitch and Volume*​
 |
|  |  | * Use classification keys to group, identify and name living things​
* Know how changes to an environment could endanger living things​
* Group materials based on their state of matter (solid, liquid or gas)​
 | * Know the temperature at which materials change state​
* Know about and explore how some materials can change state​
* Know the part played by evaporation and condensation in the water cycle​

​ | * Identify and name appliances that require electricity to function​
* Construct a series circuit​
* Identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers)​
* Predict and test whether a lamp will light within a circuit​
* Know the function of a switch​
* Know the difference between a conductor and an insulator; giving examples of each​
 | * Know how sound is made, associating some of them with vibrating​
* Know how sound travels from a source to our ears​
* Know the correlation between pitch and the object producing a sound​
* Know the correlation between the volume of a sound and the strength of the vibrations that produced it​
* Know what happens to a sound as it travels away from its source​

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| **Working Scientifically** |
| * *planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary*
* *taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate*
* *recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs*
* *using test results to make predictions to set up further comparative and fair tests*
* *reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations*
* *identifying scientific evidence that has been used to support or refute ideas or arguments*
 |
|  | **Biology** | **Chemistry** | **Physics** |
| **Animals in. Humans** | **All Living Things and Their Habitats** | **Properties and Changes in Materials** | **Forces** | **Earth and Space** |
| National Curriculum | * *Changes as humans develop from birth to old age*​
* *The circulatory system*​
* *Water transportation*​
* *Impact of exercise on body*​
 | * *Life cycles – plants and animals*​
* *Reproductive processes*​
* *Famous naturalists*​
* *Classification of living things and the reasons for it*​
 | * *Compare properties of everyday materials*​
* *Soluble/ dissolving*​
* *Reversible and irreversible substances*​
 | * *Movement of the Earth and the planets*​
* *Movement of the Moon*​
* *Night and day*​
 | * *Movement of the Earth and the planets*​
* *Movement of the Moon*​
* *Night and day*​
 |
| Knowledge Acquired | * Create a timeline to indicate stages of growth in humans​
* Identify and name the main parts of the human circulatory system​
* Know the function of the heart, blood vessels and blood​
* Know the impact of diet, exercise, drugs and lifestyle on health​
* Know the ways in which nutrients and water are transported in animals, including humans​
 | * Know the life cycle of different living things e.g. mammal, amphibian, insect and bird​
* Know the differences between different life cycles​
* Know the process of reproduction in plants​
* Know the process of reproduction in animals​
* ​ Classify living things into broad groups according to observable characteristics and based on similarities and differences​

Know how living things have been classified​Give reasons for classifying plants and animals in a specific way​​ | * Compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets​
* Know and explain how a material dissolves to form a solution​
* Know and show how to recover a substance from a solution​
* Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating) ​
* Know and demonstrate that some changes are reversible and some are not​

Know how some changes result in the formation of a new material and that this is usually irreversible​ | * Know about and explain the movement of the Earth and other planets relative to the Sun​
* Know about and explain the movement of the Moon relative to the Earth​
* Know and demonstrate how night and day are created​
* Describe the Sun, Earth and Moon (using the term spherical) ​
* ​
 | * Know about and explain the movement of the Earth and other planets relative to the Sun​
* Know about and explain the movement of the Moon relative to the Earth​
* Know and demonstrate how night and day are created​
* Describe the Sun, Earth and Moon (using the term spherical) ​

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|  |  | **Evolution and Inheritance** | **Electricity**  | **Light** |
| * *Identical and non-identical off-spring*​
* *Fossil evidence and evolution*​

*Adaptation and evolution*​ | * *Electrical components*​
* *Simple circuits*​
* *Fuses and voltage*​

​ | * *How light travels*​
* *Reflection*​
* *Ray models of light*​

​ |
| * Know how the Earth and living things have changed over time​
* Know how fossils can be used to find out about the past​
* Know about reproduction and offspring (recognising that offspring normally vary and are not identical to their parents) ​
* Know how animals and plants are adapted to suit their environment​
* Link adaptation over time to evolution​

Know about evolution and can explain what it is​ | * Compare and give reasons for why components work and do not work in a circuit​
* Draw circuit diagrams using correct symbols​
* Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer​

​ | * Know how light travels​
* Know and demonstrate how we see objects​
* Know why shadows have the same shape as the object that casts them​
* Know how simple optical instruments work e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.​

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