**Science Long Term Plans**



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| **Science** | **Biology** | **Chemistry** | **Physics** |
| Year 3 | **Plants**  Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers  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  Investigate the way in which water is transported within plants  Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.    **(Summer term, planting and growing including trip to Killerton House)**  **Animals including humans**  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  Identify that humans and some other animals have skeletons and muscles for support, protection and movement  **(Rugby world cup link – Nutrition, diet and exercise.)** | **Rocks**  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 matter.  **(Volcanoes, physical features of land in geography. Stone age link with Fossils).** | **Forces and Magnets**  Compare how things move on different surfaces  Notice that some forces need contact between two objects, but magnetic forces can act at a distance  Observe how magnets attract or repel each other and attract some materials and not others  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  Describe magnets as having two poles  Predict whether two magnets will attract or repel each other, depending on which poles are facing.  **(Design a maze which uses magnets to move the ball.)**  **Light**  Recognise that they need light in order to see things and that dark is the absence of light  Notice that light is reflected from surfaces  Recognise that light from the sun can be dangerous and that there are ways to protect their eyes  Recognise that shadows are formed when the light from a light source is blocked by an opaque object  Find patterns in the way that the sizes of shadows change.  **(Light day)** |
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| Year 4 | **Animals including humans**  Describe the simple functions of the basic parts of the digestive system in humans  Identify the different types of teeth in humans and their simple functions  Construct and interpret a variety of food chains, identifying producers, predators and prey.  **(Make operation game DT / electricity link. Visit of Oral hygiene team Spring).**  **Living things and their habitats**  Recognise that living things can be grouped in a variety of ways  Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment  Recognise that environments can change and that this can sometimes pose dangers to living things  **(Rainforest summer linked to water cycle and Geography Brazil. Trip to Paignton Zoo and Mincinglake).** | **States of Matter**  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.  **(Paper Bag Prince literacy link Autumn)** | **Sound**  Identify how sounds are made, associating some of them with something vibrating  Recognise that vibrations from sounds travel through a medium to the ear  Find patterns between the pitch of a sound and features of the object that produced it  Find patterns between the volume of a sound and the strength of the vibrations that produced it  Recognise that sounds get fainter as the distance from the sound source increases.  **(Link to Marvin literacy Summer)**  **Electricity**  Identify common appliances that run on electricity  Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers  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  Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit  Recognise some common conductors and insulators, and associate metals with being good conductors.  **(Make steady hand game.)** |
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| Year 5 | **Animals including humans**  Describe the changes as humans develop to old age.  **Living things and their habitats**  Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird  Describe the life process of reproduction in some plants and animals. | **Properties and changes of materials**  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  Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic  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. | **Forces**  Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object  Identify the effects of air resistance, water resistance and friction, that act between moving surfaces  Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.  **Earth and Space**  Describe the movement of the Earth, and other planets, relative to the Sun in the solar system  Describe the movement of the Moon relative to the Earth  Describe the Sun, Earth and Moon as approximately spherical bodies  Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky. |
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| Year 6 | **Animals including humans**  Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood  Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function  Describe the ways in which nutrients and water are transported within animals, including humans.  ***TOPIC (AUT 2) TO INCLUDE DOME VISIT.***  ***Explore beyond the key organs; how does blood travel? How does the heart work? Begin to explain the circulatory system. Is blood really blue as our veins suggest?***  **Living things and their habitats**  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 give reasons for classifying plants and animals based on specific characteristics.  ***TOPIC (AUT 2) TO INCLUDE DOME VISIT.***  ***Explore how animals and plants have adapted, how their habitat is vital to their survival, how species change and even travel and go on to create own hybrid animal.***  **Evolution and Inheritance**  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.  ***TOPIC (AUT 2) TO INCLUDE DOME VISIT.***  ***Explore how animals and plants have adapted, how their habitat is vital to their survival, how species change and even travel and go on to create own hybrid animal.*** |  | **Light**  Recognise that light appears to travel in straight lines  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  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  Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.  ***TO BE LINKED WITH COMPUTING AND COVERED IN A DAY – VideoFX IPad App to create revision video.***  **Electricity**  Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit  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  Use recognised symbols when representing a simple circuit in a diagram.  ***TO BE LINKED WITH COMPUTING AND COVERED IN A DAY – Poplet Ipad App to create a revision mind-map.*** |