# Y3 & 4 SCIENCE CURRICULUM

## Year A

| AUTUMN: "ARCHEOLOGY ROCKS!" | SPRING: "OUTLAWS!" | SUMMER: "LET YOUR LIGHT SHINE!" |
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| **Rocks & Soils**<br>**(K)** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties<br>**(K)** Describe in simple terms how fossils are formed when things that have lived are trapped within rock<br>**(K)** Recognise that soils are made from rocks and organic matter.<br><br>Recognise there will always be rocks under-ground and sometimes soil. Compare & contrast soil / rocks; group them in different ways. Explain how soil is made. Understood & investigated the different properties of rocks / soils. Know that fossils are found in rocks; describe (in simple terms) how they are formed.<br><br>**Y4 ext:** Explain how fossils are formed. Describe precise physical differences between rocks / soils. Explain how soil types are linked to rock types from which they are formed. Recognise long timescales involved in rock / soil formation. Describe role of worms to keep soil healthy. | **Grouping Living Things**<br>**(K)** Recognise that living things can be grouped in a variety of ways<br>**(K)** Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment<br><br>Refer to some newly discovered species. Recognise there is a vast array of living things. Suggest ways to group living things. Used branching classification keys to identify living things. Developed own keys using appropriate questions. Collect data about living things in their locality & produced a key for them. Recognise differences between plants / animals that live in north & south of British Isles. Select most useful classification key.<br><br>**Y4 ext:** Recognise why scientists need to classify living things. Use complex branching classification keys to identify variety of living things. Develop own complex keys using appropriate questions. Suggest reasons for differences in living things in different parts of the country; related this to weather patterns. Explain why one classification key is better than another. | **Light & Shadow**<br>**(K)** Recognise that they need light in order to see things and that dark is the absence of light<br>**(K)** Notice that light is reflected from surfaces<br>**(K)** Recognise that shadows are formed when the light from a light source is blocked by a solid object<br>**(K)** Recognise that light from the sun can be dangerous and that there are ways to protect their eyes<br>**(K)** Find patterns in the way that the size of shadows change.<br><br>Explain a shadow is formed when light source is blocked. Name several light sources & identified differences between sources / reflectors. Suggest which materials will cast a dark crisp shadow. With help set up a fair test, made accurate measurements & identified simple patterns. Identify hazards (& solutions) to exposure to the sun.<br><br>**Y4 ext:** Suggest a relationship between length of shadows & distance of object from light source. Notice that translucent materials can cast shadows. Notice that shadows differ in darkness & crispness. |
| **Movement & Feeding**<br>**(K)** Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat<br>**(K)** Identify that humans and some other animals have skeletons and muscles for support, protection and movement.<br><br>Know that animals including humans need the right nutrition to thrive and grow and that eating the wrong types / amounts can lead to health problems. Describe health problems linked to not eating well. List types of food we need and why; construct a balanced food plate. Identify animals have different dietry needs and some humans foods are poisonous to them. Discuss role of skeleton & muscles, and describe what would happen if we did not have them.<br><br>**Y4 ext:** Use topic specific vocabulary (proteins, carbohydrates etc). Name a variety of bones in the human body. Use scatter graphs to make predictions. Identify that not all individuals follow the same pattern. | **Dangers to Living Things**<br>**(K)** Recognise that environments can change and that this can sometimes pose dangers to living things.<br>**(K)** Construct and interpret a variety of food chains, identifying producers, predators and prey.<br><br>Construct / interpret a variety of food chains. Identify producer, predator, prey. Recognise plants are start of food chain because they make their own food. State how fire / flood affect living things & how humans can reduce effects of changes to the environment. Give examples of human impact, including diverting rivers. Suggest ways of reducing human impact on environment / living things.<br><br>**Y4 ext:** Research & construct a food chain with many links. Compare different effects of flood / fire on living things. Considered effectiveness of different human interventions. Evaluated ways of reducing change / impact. | **Sound**<br>**(K)** Identify how sounds are made, associating some of them with something vibrating<br>**(K)** Recognise vibrations from sounds travel through a medium to the ear<br>**(K)** Find patterns between the pitch of a sound and features of the object that produced it<br>**(K)** Find patterns between the volume of a sound and the strength of the vibrations that produced it<br>**(K)** Recognise that sounds get fainter as the distance from the sound source increases.<br><br>Explain how sounds are made. Know sounds travel through solids / liquids / gases. Describe how to change pitch & volume of sounds. Set up simple practical enquiries. Make a series of observations / measurements. Discover simple patterns between pitch of a sound and the features of the object that made it.<br><br>**Y4 ext:** Describe how the pitch of a sound can be changed in a specific instrument. Identify which part of an object is vibrating in a number of instruments. |
| VOCABULARY | VOCABULARY | VOCABULARY |
| Fossil / soil / organic material / crystals / particles / molecules / Sedimentary / metamorphic / igneous / magma / solidifies / Nutrition / diet / Skeleton / joint / pelvis / rib-cage / spine / skull / femur / muscles / tendon / cartilage / | Food chain / predator / prey / producer / Micro-organism / species / organism / monera / bacteria / Protista / algae / Taxonomy / vertebrates / invertebrates / warm or cold blooded / | Reflection / shadow / light source / refraction / concave / convex / Opaque / translucent / transparent / luminous Ear / cochlea / ossicles / malleus / incus / stapes / Auditory / acoustic / waves / vibration / frequency / Pitch / volume / amplify / medium / vacuum / |

# Year B

| AUTUMN: "MOVERS & SHAKERS" | SPRING: "SPLASH & CRASH!" | SUMMER: "TO INFINITY AND BEYOND" |
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| **What Plants Need**<br>**(K)** Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, & room to grow) & how they vary from plant to plant.<br>**Parts of Plants**<br>**(K)** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.<br>**(K)** Investigate the way in which water is transported within plants<br>**(K)** Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.<br><br>Accurately name / locate common parts of flowering plants & describe their function. Recognise importance of leaves & roots. Describe seed dispersal. Notice water is transported within plants. Describe how volume of water, amount of space & fertilizer affects plant growth.<br><br>**Y4 ext:** Identified increasingly detailed parts of plants, including male & female parts. Begin to explain photosynthesis. Understand how water moves through a plant. Use specific plant vocabulary with confidence & accuracy. Suggest the relationship between plant growth and amount of soil, fertilizer and space. | **Changes of State**<br>**(K)** Compare and group materials together, according to whether they are solids, liquids or gases<br>**(K)** Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)<br>**(K)** Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.<br><br>Describe differences between solids, liquids & gases. Recognise same material can exist in different states. Explain the water cycle in terms of changes of state using terms condensation / evaporation. Explain when evaporation occurs; describe as liquids turning to gases.<br><br>**Y4 ext:** identify & describe a range of contexts in which evaporation / condensation occur. Link these to changes in temperature. Name & describe an increasing range of materials and recognize some have different melting points. | **Magnets & Forces**<br><br>**(K)** Compare how things move on different surfaces<br>**(K)** Notice that some forces need contact between two objects, but magnetic forces can act at a distance<br>**(K)** Describe magnets as having two poles<br>**(K)** Predict whether two magnets will attract or repel each other, depending on which poles are facing.<br>**(K)** Observe how magnets attract or repel each other and attract some materials and not others<br>**(K)** Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials<br><br>Observe how forces make toy cars move / slow down. Use catapults to investigate force. Observe how balls move on different surfaces; recognize it moves further on smoother surface. Classified materials that are magnetic / not. Describe how a magnet has two poles to repel / attract another magnet. Notice that magnetic forces act at a distance & do not need contact. Set up a simple fair test and collect evidence. Use what they have learnt to make a tool to pick up magnetic objects from a distance.<br><br>**Y4 ext:** Explain results of their investigation. Understand & explain that a rolling ball will travel further on a smooth surface as there are fewer forces acting on it to slow it down. Predict& classify materials that are magnetic / not and used evidence to draw conclusions. Work independently to carry out an investigation. Collect evidence and carry out repeat tests. Draw on subject knowledge |
| **Human Nutrition**<br>**(K)** Describe the simple functions of the basic parts of the digestive system in humans<br>**(K)** Identify the different types of teeth in humans and their simple functions<br><br>Describe & name different types of human teeth & relate shape to function. Recognise role of teeth in digestive system. Name & sequence key organs of digestion (mouth, stomach, small & large intestines). Describe main parts of human digestive system. Suggest relevant questions for investigation; suggest how to carry out a fair test.<br><br>**Y4 ext:** Describe & explain how animals have dentition suitable for their diets. Describe sequence of human digestion in increasing & accurate detail (including role of saliva, oesophagus, bile duct, rectum). Conduct a fair test with confidence and compared their observations. Record results on a table. Come to a reasonable conclusion based upon their evidence. | **Electricity**<br>**(K)** Identify common appliances that run on electricity<br>**(K)** Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br>**(K)** Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery<br>**(K)** Recognise some common conductors and insulators, and associate metals with being good conductors.<br>**(K)** Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit<br><br>Identify common appliances that run on battery & mains electricity. Identify & describe functions of simple electrical components. Made simple circuits, including a switch. Raise questions to investigate insulation / conductivity. Applied their knowledge about circuits and conductors.<br><br>**Y4 ext:** Name a greater number / more unusual appliances. Attempt explanations for why they think materials are good conductors or insulators. Made generalisations based on findings from investigations but know they need further investigative evidence to prove this. | |
| VOCABULARY | VOCABULARY | VOCABULARY |
| Organ / pancreas / oesophagus / throat / stomach / intestine / salivary gland / gall bladder / liver /<br>Enzymes / nutrients / minerals / absorb / digest / bile<br>Molars / canines / incisors / enamel / blood vessels / nerves | Reversible / irreversible / evaporate / melt / freeze /<br>Solubility / soluble / dissolve / filter / separate /<br>Water vapour / condensation / precipitation / aquifers /<br>Conductor / insulator / volts / voltage / symbol / diagram / switch<br>Circuit / series / resistor / cells / generator / turbine / fuses Components / | Friction / sliding / resistance / particles / gravity /<br>Magnetic pole / geographic pole /<br>Magnetic field / attract / repel / |