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| Science | **Pedagogical Knowledge**  **Science pedagogy is based in the development of conceptual understanding, processes, skills of enquiry and developing scientific attitudes.**  There are many different ways to elicit children’s ideas including:   * Drawing * Writing * Responding to a stimulus * Concept mapping * Individual or group discussions   **Best Practice Specific Pedagogies for Science**   * Analogues and illustrations to help children visualise abstract concepts. * Demonstrations to bring concepts to life. * Models to represent ideas such as the structure of a flower * Animated models to support understanding of dynamic systems * New ideas need to be related to children’s experiences, for example talking about puddles when teaching about evaporation. | | | | | |
| Y1&2  Cycle B | **Autumn**  **Movers & Shakers** | | **Spring**  **Coastline** | | **Summer**  **Magnificent Monarchs** | |
| Unit | Human Survival | Habitats | Uses of Materials | Plant Survival | Animal Survival | |
| Local Heritage |  |  |  |  |  | |
| Y1 | Identify and name a variety of common animals and group them into carnivores, omnivores and herbivores.  Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.  Classify and identify animals including humans. | Know that some animals are nocturnal. | **Sort and group objects that float and sink.**  Distinguish between the object and the material from which it is made.  Describe the simple physical properties of a variety of everyday materials.  Perform simple tests to test the properties of the materials. | Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.  Identify and describe the basic structure of a variety of common flowering plants, including trees.  Use observations and ideas to suggest answers to questions. | Identify and name a variety of common animals and group them into carnivores, omnivores and herbivores.  Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.  Classify and identify **animals** including humans. | |
| Y2 | Notice that animals, including **humans**, have offspring that grow into adults.  Find out about and describe the basic needs of animals including humans for survival (water, food, air) and explore the benefits of a healthy lifestyle and good hygiene.  Perform simple tests and gather and record data to answer questions. | Know that animals live in different habitats.  Be able to complete a simple food chain. | Know a variety of different everyday materials and name them.  Know the properties of everyday materials using scientific vocabulary.    Be able to compare everyday materials and test their properties. | Name the parts of a plant.  Know what a plant needs to live.  Be able to observe and record the growth of a plant. | Notice that **animals**, including humans, have offspring that grow into adults.  Find out about and describe the basic needs of animals including humans for survival (water, food, air) and explore the benefits of a healthy lifestyle and good hygiene.  Perform simple tests and gather and record data to answer questions | |
| Y3&4  Cycle B | **Autumn**  **Invasion** | | **Spring**  **Misty Mountain, Winding River** | | **Summer**  **Ancient Civilisations** | |
| Unit | Digestive System | | States of Matter | | Electrical Circuits & Conductors | |
| Local Heritage | William Owen, Lucozade  Quorn Factory, Stokesley | |  | | Joseph Swan, light bulb | |
| Y3 | 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 animals have skeletons and muscles for support, protection and movement. | | **Describe the water cycle using words or diagrams and explain the part played by evaporation and condensation.**  Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.  Recognise that soils are made from rocks and organic matter and describe in simple terms how fossils are formed when things that have lived are trapped within rock.  Gather, record, classify and present data in a variety of ways to help in answering questions. | | Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. | |
| Y4 | 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.  Ask relevant questions and use different types of scientific enquiries to answer them. | | **Describe how environments can change due to human and natural influences and the impact this can have on living things.**  Compare and group materials together according to whether they are solids, liquids or gases and observe that some materials change state when heated or cooled.  Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.  Make systematic and careful observations taking accurate measurements using standard units using a range of equipment including thermometers and data loggers. | | Know when a circuit is complete and the components that influence this. Recognise that a switch opens and closes a circuit.  Set up simple practical enquires, comparative and fair tests. | |
| Y5&6  Cycle B | **Autumn**  **Maafa** | | **Spring**  **Frozen Kingdoms** | | **Summer**  **Britain at War** | |
| Unit | Circulatory System | | Electrical Circuits & Components | | Evolution & Inheritance | Light Theory |
| Local Heritage | Freeman Hospital  Novavax Vaccine, Billingham | | Charles Hesterman Merz | | Albany Hancock |  |
| Y5 | Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood as well as how nutrients are transported. | | **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.**  Know that the brightness of a bulb is associated with the voltage of cells in a circuit. | | 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 light appears to travel in straight lines and use this idea to explain that objects are seen because they give out or reflect light into the eye. |
| Y6 | Recognise the impact of diet, exercise, lifestyle and drugs on the way their bodies function.  Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar/line graphs. | | **Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.**  **Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.**  Compare and give reasons for variations in how components function, including the brightness of bulbs and the loudness of buzzers.  Use recognised symbols when representing a simple circuit in a diagram. | | Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.  Identify scientific evidence that has been used to support or refute ideas or arguments. | Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then our eyes.  Plan different types of scientific enquiries to answer questions including recognising and controlling variables where necessary. |