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| **Science Curriculum Milestone 1** | | | | | | | | | | | | |
| **Expectations for Pre School** | | | | | **Expectations for Reception** | | | | | **ELG** | | **Key Vocab** |
| Explore collections of objects using their senses | | Explore collections of objects, identifying similar and difference properties  Develops an understanding of changes | | | Talks about similarities and differences between objects | Identifies changes they notice | | Describes the changes they notice | | **Explore the natural world around them, making observations and drawing pictures of animals and plants**  **Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter**  **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** | | **Observe**  **Differences**  **Similarities**  **Predict**  **Changes** |
| Making simple observations about animals and plants | | Makes a basic representation of things they have observed e.g. I’ve drawn a rabbit. | | | Begins to correctly represent things that they have observed in their drawings | Begins to add more detail to their drawings | | Name and label features of their observations, including drawings | | **Links to KS1** |
| Asking simple questions and recognising that they can be answered in different ways  Observing closely, using simple equipment  Performing simple tests  Identifying and classifying  Using their observations and ideas to suggest answers to questions  Gathering and recording data to help in answering questions |
| **Knowledge organisers and fluent in five checks:**  **Useful websites to use:**  <http://www.jbprimaryscience.co.uk/home>  <https://www.ogdentrust.com/resources-cpd/resources>  <https://www.reachoutcpd.com>  <https://www.ase.org.uk/resources>  <https://www.stem.org.uk/resources> | | | | | | | | | | | | |
| **Science Enquiry Skills** | | | | | | | | | | | | |
| **Enquiry Planning** | | | | **Scientific Enquiry** | | | **Enquiry Recording** | | | | **Enquiry Evaluation** | |
| • Ask simple questions. | | | | • Observe closely, using simple equipment such as thermometers and rain gauges  • Use microscopes to find out more about plants / animals  • Perform simple tests ensuring that they are fair. | | | • Use observations and ideas to suggest answers to questions. | | | | • Gather and record data to help in draw simple conclusions to fair tests | |
| **Aspect** | **Key Vocabulary** | | **Sticky Facts** | | | | | | **Sticky Knowledge** | | | |
| **Biology (Yr1)**  The animal world  **Out of Africa** | **Fish**  **Amphibian**  **Reptile**  **Bird**  **Mammal**  **Carnivore**  **Herbivore**  **Omnivore**  **Tame**  **Nocturnal** | | * A fish can swim in water because it has gills. * Nocturnal animals are awake at the night time. * Reptiles are cold blooded, lay eggs and have scales. * Birds have feathers, wings and lay eggs. * Mammals have fur and are warm blooded. * A carnivore is a meat eater. * Herbivores only eat plants. * Omnivore eats both meat and plants. | | | | | | * 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 * Describe and compare the structure of common animals (fish / amphibians / reptiles / birds / mammals) | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells. | | | | | | | | | | | | |
| **Biology (Yr1)**  The Human Body  **Once upon a time** | Head  Neck  Arms  Elbows  Legs  Knees  Elbows  Taste  Touch  Smell  Hearing  Sight | | * Know key parts of the body including arms, legs, elbows, knees, head and neck. * Humans taste things using their tongue. * To smell things we use our nose. * We hear things through our ears. * Our eyes are to help us see things. | | | | | | * Know the name of parts of the human body that can be seen * Name the 5 different senses | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils should have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes.   * BBC Terrific Scientific - taste | | | | | | | | | | | | |
| **Biology (Yr1)**  Common plants and plant structure  **Ahoy** | Buds  Bulbs  Deciduous  Evergreen  Trunk  Wild plant  Environment  Petal  Branches | | * An evergreen tree keeps its leaves all year round. * Deciduous trees lose their leaves are bare in the winter. * Petals are colourful parts of a flower and attract insects. * The trunk of a tree is the main part that grows from the ground to hold the tree sturdy. | | | | | | * 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 | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants. | | | | | | | | | | | | |
| **Physics (Yr1)**  Seasonal Changes  **Throughout the year** | Autumn  Winter  Spring  Summer  Weather  Temperature  Thermometer  Weather symbol | | * In the UK we have four season: summer is the warmest and winter is the coldest. * Temperature is a measure of hotness and coldness and is measured using a thermometer. * In June (summer) there is the longest day and in December (winter) there is the shortest day. | | | | | | * Name the seasons and observe the changes. * Know about the type of weather in each season. | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: making tables and charts about the weather; and making displays of what happens in the world around them, including day length, as the seasons change. | | | | | | | | | | | | |
| **Chemistry (Yr1)**  Everyday Materials  **Fire Fire** | Materials  Wood  Plastic  Metal  Liquid  Gas  Stretch  Stiff  Bend  Waterproof  Shiny  Brittle | | * Glass is used for windows as you can see through it. * Metal is used in construction such as cars and buildings due to its strength. * Plastic is man-made and can be moulded or shaped. * Wood comes from trees and is used to make doors and furniture. * Materials can have different properties such as stretching (elastic), bend (flexible) or shiny. | | | | | | * Know the name of the materials an object is made from * Identify and name a variety of everyday materials including wood / plastic / glass / metal / water / rock * Describe the properties of everyday materials * Compare and group together a variety of materials based on their properties. | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations. Performing simple tests to explore questions, for example: ‘What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast’s leotard?’   * Links to the three little pigs – why were they not good ideas. | | | | | | | | | | | | |
| **Biology (Yr2)**  Animals and their habitats  **Pole to Pole** | Rivers  Woodland  Pond  Sea  Rainforest  Desert  Species  Micro-habitat  Camouflage | | * A habitat is a place that an animal lives. It provides the animal with food, water and shelter. * There are many different sorts of habitats around the world: forests, grasslands, mountains and deserts. * All living things have young, eat, move, grow and breathe. * A microhabitat is smaller such as under a log or a rock. | | | | | | * 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 and how suited * Identify and name a variety of plants / animals in their habitat including microhabitat. * Name some different sources of food for animals * Know about and explain a simple food chain | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions for example: ‘Is a flame alive? Is a deciduous tree dead in winter?’ and talk about ways of answering their questions. They could construct a simple food chain that includes humans (e.g. grass, cow, human). They could describe the conditions in different habitats and micro-habitats (under log, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there. | | | | | | | | | | | | |
| **Biology (Yr2)**  Animals including humans  **Once upon a time** | Healthy  Diet  Offspring  Exercise  Proteins  Carbohydrates  Fats  Nutrition  Hygiene | | * Keeping healthy means caring for your body so you have enough energy to learn, play and grow. * All foods contain nutrients which your body needs to stay active throughout the day. * For survival, humans and animals need water, food and air. * Everyone should have five portions of fruit and vegetables, to get the right amount of nutrients. * Reptiles and Birds lay eggs. * Mammals give birth * It’s important not to eat too much sugar: damages teeth and can be fattening. * For healthy teeth, brush and floss every day. | | | | | | * Know the basic stages in a life cycle for animals, (including humans) * Notice that animals, including humans, have off-spring that grow into adults. * Know and describe the basic needs of animals, including humans, for survival. * Know why exercise, a balanced diet and good hygiene are important for humans | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions. | | | | | | | | | | | | |
| **Biology (Yr2)**  Plant Life  **Ahoy** | Roots  Oxygen  Woodland  Habitat  Stem  Trunk  Bulb  Evergreen  Deciduous | | * Trees take in water and carbon dioxide and give out oxygen. * The roots carry food and water from the ground and anchor the plant. * Leaves take in light and use water and food taken from the roots to help it grow. * Plants need a suitably warm environment to grow. | | | | | | * 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) | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy. | | | | | | | | | | | | |
| **Chemistry (Yr2)**  Everyday materials  **Super heroes** | Metal  Plastic  Wood  Transparent  Squashing  Bending  Twisting  Stretching | | * Glass is used for windows as it is transparent. * When metal is heated is can be moulded into shapes. | | | | | | * Know how materials can be changed by squashing, bending, twisting and stretching. * Know why a material might or might not be used for a specific job. | | | |
| **Enquiry Ideas:**  **(NC Non- Statutory):** Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs).   * Explore bending twisting and stretching with a link to super heroes. * What material could be used to make a superheroes cape? Which would be best? | | | | | | | | | | | | |