

YEAR 4		Science
Topic 1: Treasure Seekers (5)		
KNOW	DO	UNDERSTAND
Topic 2: Junior Medics(4)		
KNOW	DO	UNDERSTAND
<p>S: describe the simple functions of the basic parts of the digestive system in humans</p> <p>S: identify the different types of teeth in humans and their simple functions</p> <p>S: construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p><i>Vocabulary: function, digestive system, mouth, tongue, teeth, oesophagus, stomach, the small and large intestine, teeth, molars, canines, incisors, carnivore, omnivore, herbivore, prey, predator, producer.</i></p> <p>Children know the main body parts associated with the digestive system (mouth, tongue, teeth, esophagus, stomach and the small and large intestine)</p> <p>Children know the role that each body part plays in digesting food.</p> <p>Children know the names of incisors, canines and molars and can describe the function of the different teeth.</p> <p>Children know that different animals will have different sets of teeth, dependent on whether they are a carnivore, herbivore or omnivore.</p> <p>Children know the definitions of prey, predators and producers.</p> <p>Children know how to draw a food chain and can explain one, using producer, prey and predator.</p> <p><i>Questions:</i> <i>What are the different types of teeth?</i></p>	<p>WS: asking relevant questions and using different types of scientific enquiries to answer them</p> <p>WS: setting up simple practical enquiries, comparative and fair tests</p> <p>Children ask questions about the different functions of the digestive system and will conduct scientific enquiries to answer their questions.</p> <p>Children set up fair tests (having been exposed to this concept in year 3). They will discuss the idea that only one variable can be changed, e.g. vinegar and a boiled egg, looking at how the acid erodes the shell.</p> <p>Children sort animals into groups by looking at their teeth.</p> <p><i>Questions:</i> <i>How can you classify animals by looking at their teeth?</i></p>	<p><i>PRIOR KNOWLEDGE: children can identify omnivores, carnivores and herbivores. They can describe the basic needs of animals, including humans, for survival. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 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.</i></p> <p>Children understand why it is important to look after our teeth and how you do that – links to PSHE.</p> <p>Children understand how our diet impacts our teeth. Children also revisit the different food groups, studied in year 3.</p> <p>Link food chain to plastic contamination. If plastic particles are in the sea, then they enter fish, then they can enter us.</p> <p><i>Questions:</i> <i>What is the effect on the food chain if one part is damaged?</i> <i>How can you look after your teeth?</i></p>

<p><i>If an animal is herbivore, which teeth would they have? Can you describe a food chain – starting with a mouse?</i></p>		
ART WEEK: Modern Abstract		
KNOW	DO	UNDERSTAND
Topic 3: Vicious Vikings (5)		
KNOW	DO	UNDERSTAND
Topic 4: Electrical Engineers (4)		
KNOW	DO	UNDERSTAND
<p>S: identify common appliances that run on electricity S: construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers S: 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 S: recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit S: recognise some common conductors and insulators, and associate metals with being good conductors</p> <p><i>Vocabulary: electricity, series, circuit, cells, wires, bulbs, switches, buzzers, loop, conductors, insulators, metals, component, cell.</i></p> <p>Children know that common appliances ran on electricity. Children know examples of these appliances.</p> <p>Children know how to create a simple circuit, using cells, wires, bulbs, switches and buzzers. Children can also correctly identify each component.</p> <p>Children know whether a lamp will work, based on whether it is connected to a cell.</p>	<p>WS: setting up simple practical enquiries, comparative and fair tests WS: recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables WS: identifying differences, similarities or changes related to simple scientific ideas and processes WS: using straightforward scientific evidence to answer questions or to support their findings.</p> <p>Children can draw a pictorial representation of a circuit, however symbols do not have to be introduced at this time.</p> <p>Children can devise a test to determine whether they are conductors or insulators. They can make it a fair test, by only changing one variable – the material.</p> <p>From this test, they can find similarities about which materials are conductors, mainly metals etc.</p> <p>Children can record these results on a table.</p> <p>Throughout this topic, children are encouraged to question and then test their questions.</p> <p><i>Questions: How did you make this experiment a fair test? When you tested the conductors, did you find that they had any similar properties?</i></p>	<p><i>PRIOR LEARNING: This is completely new learning for the children. They are used to sorting materials into categories, but they have not done any work on electricity.</i></p> <p>We need the children to see the real-life contexts and implications, rather than just making a circuit with bulbs.</p> <p>We want the children to understand plugs and why they are plastic and earthed.</p> <p>Children should understand the difference between mains and battery-power, and understand the dangers of mains electricity.</p> <p>We want them to use their understanding of circuits, switches and bulbs/buzzers to make a game for Year 1 children in D.T.</p> <p><i>Questions: Why do we need to be careful when using electricity? Why are plugs covered in plastic?</i></p>

<p>Children know that electricity flows around a complete circuit; if a circuit is broken, this will not happen. Children will know that a switch is used to complete and break a circuit. Children know what a switch looks like in everyday life.</p> <p>Children know what conductors and insulators mean. They know names of conductors and of insulators.</p> <p><i>Questions:</i>  <i>How do I make a bulb light up?</i>  <i>Can you name 3 insulators and 3 conductors?</i></p>		
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DT WEEK: Electrical Games		
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KNOW	DO	UNDERSTAND
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Topic 5: Super-sonologists (4)		
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<p>S: identify how sounds are made, associating some of them with something vibrating</p> <p>S: recognise that vibrations from sounds travel through a medium to the ear</p> <p>S: patterns between the pitch of a sound and features of the object that produced it</p> <p>S: find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>S: recognise that sounds get fainter as the distance from the sound source increases</p> <p><i>Vocabulary: sound, vibrating/vibrations, travel, medium, pitch, patterns, volume, fainter, louder.</i></p> <p>Children know the words pitch, vibrations and volume.</p> <p>Children know how some sounds are made, linking this to vibrations, e.g. a drum with rice in it.</p> <p>Children know that sounds travel through a medium to the ear.</p> <p>Children know that the pitch of the sound is determined by the different features of an object.</p>	<p>WS: setting up simple practical enquiries, comparative and fair tests</p> <p>WS: reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>WS: using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <p>WS: making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.</p> <p>Use appropriate scientific vocabulary – vibrations.</p> <p>Experiment about how sound changes when you move away/ closer to the source of the sound – fair test, ask questions, design an experiment.</p> <p>Experiment about how different sound affects recovery rate after exercise – fair test, graph, conclusions.</p>	<p><i>PRIOR LEARNING: Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</i></p> <p>Children look at how different instruments make and change sound – links to music.</p> <p>Children make the links between music lessons and the Science that they have just learnt. They write about the instrument they play in music, and how the sound changes.</p> <p>Children refer back to their work in previous years about the body and the heart.</p>
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<p>Children know that the volume of sound is linked to the vibrations it produces. Children know that as you go further away from a sound it gets fainter.</p> <p><i>Questions:</i> <i>How is sound made? What happens to the volume if the sound is made far away? What causes the volume to be loud?</i></p>	<p>Children use scientific equipment to record the volume of a sound.</p> <p><i>Questions:</i> <i>What equipment did you use to measure the volume of a sound? What is it measured in? How did you make it a fair test?</i></p>	
LANGUAGE WEEK: Spanish		
KNOW	DO	UNDERSTAND
Topic 6: Wild Water (5)		
KNOW	DO	UNDERSTAND
<p><u>Living Things and their Habitats</u> <b>S:</b> recognise that living things can be grouped in a variety of ways <b>S:</b> explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment <b>S:</b> recognise that environments can change and that this can sometimes pose dangers to living things</p> <p><i>Vocabulary: classification, keys, local and wider environment, fish, amphibians, reptiles, birds and mammals, human impact, positive, negative.</i></p> <p>Children know how the living environment changes throughout the year, with regards to plants and animals.</p> <p>Children know that animals can be grouped in to categories. They will know the definitions for fish, amphibians, reptiles, birds and mammals.</p> <p><i>Questions:</i> <i>How have you classified (grouped) animals? How can environments change?</i></p> <p><u>Science: (States of Matter)</u></p>	<p><b>WS:</b> gathering, recording, classifying and presenting data in a variety of ways to help in answering questions <b>WS:</b> reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions <b>WS:</b> identifying differences, similarities or changes related to simple scientific ideas and processes</p> <p><u>Living Things and their Habitats</u> Children can group a selection of living things in the local area, e.g. flowering and non-flowering plants (ferns and mosses), animals etc. Children can group animal into vertebrate and invertebrate, as well as fish, amphibians, reptiles, birds and mammals. Pupils can assess the impact of humans on their local area and on the wider area. Children can look at positive effects, for example, Moseley Bog, which is very natural and encourage wild life to thrive. However, they will also look at the negative effects, such as growing population, development, litter and deforestation.</p> <p><i>Questions:</i> <i>Can you group these animals into vertebrates and invertebrates? How do we affect our local area?</i></p>	<p><i>PRIOR LEARNING: Children have already learnt the words vertebrates and invertebrates. However, they have not been taught about how animals can be categorised. Children can also distinguish between an object and the material from which it is made, identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock, describe the simple physical properties of a variety of everyday materials.</i></p> <p>Children will use their geography skills to look at areas that are being affected by climate change. They will identify the continent and country on a map.</p> <p>Children will look at rivers in the local area and globally in geography. This will really support their learning of the water cycle.</p> <p>Children will create graphs and tables, using their mathematical skills.</p> <p><i>Questions:</i> <i>How have humans damaged animals' environments?</i></p>

<p>S: compare and group materials together, according to whether they are solids, liquids or gases  S: 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)  S: identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p> <p><i>Vocabulary: solids, liquids, gases, state, heated, cooled, temperature, Celsius, evaporation, condensation.</i></p> <p>Children know the definitions of solids, liquids and gases (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). They can also give examples of each.  Children know that some materials change state when they are cooled or heated. Children can give examples of these.  Children know the different steps of the water cycle.  They know the definitions of condensation and evaporation and they can explain how these are key parts of the water cycle.  Children know that water can be a solid, liquid or a gas.</p> <p><i>Questions</i>  <i>Define solid, liquids and gases.</i>  <i>Can you give an example of each?</i>  <i>Describe the water cycle.</i></p>	<p><u>Science: (States of Matter)</u>  Children can use their scientific knowledge to group different materials according to their state.  Children use thermometers (Celsius) to measure the temperature.  Using this information, children will create graphs and tables to show their data.</p> <p><i>Questions:</i>  <i>How might you measure the temperature of something?</i></p>	
<b>Topic 7: Environmental Engineers (6)</b>		
KNOW	DO	UNDERSTAND
<b>DT WEEK: Bridge Builders</b>		
KNOW	DO	UNDERSTAND