


# Science Curriculum – Summer 2023 *The numbering of the week Indicate the week in the term that the learning is taking place.*

Year 1 and 2 – Life in different environments

National Curriculum	HPS Knowledge Curriculum	End of Unit Outcome –Discipline of biology – The study of living organisms. 1. Could animals survive on Mars How do plants differ in the microhabitat of school and Clumber	Feed Forward						
<p>Pupils will be taught to:</p> <p>Year 2 – Living things and their habitats Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other identify and name a variety of plants and animals in their habitats, including microhabitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p> <p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> <li>asking simple questions and recognising that they can be answered in different ways</li> <li>observing closely, using simple equipment</li> <li>performing simple tests</li> <li>identifying and classifying</li> <li>using their observations and ideas to suggest answers to questions</li> <li>gathering and recording data to help in answering questions.</li> </ul>	<p><u>Life</u></p> <p>Prior knowledge –</p> <ul style="list-style-type: none"> <li>Know that there are different common animals and plants</li> <li>Recognise and know the names of familiar plants and animals</li> <li>Describe and comment on things they have seen in the natural environment making</li> <li>Observe closely and make simple representations of living things in a variety of ways</li> </ul> <p>Learning (year 1)</p> <ul style="list-style-type: none"> <li>Know the main categories of common animals and plants (birds, fish, amphibians, reptiles mammals, trees, flowers) and the habitats/microhabitats that these are found.</li> <li>Know what carnivores, herbivores and omnivores are and name animals from each group</li> <li>Compare a variety of common (animals birds, fish, amphibians, reptiles and mammals, including pets )</li> <li>Know that animals, including humans, have basic needs for survival. Name 5 sources of food for animals.</li> </ul> <p>Learning (year 2)</p> <ul style="list-style-type: none"> <li>Know that animals, including humans; have basic needs of animals for survival (water, food, oxygen ), have offspring which grow into adults</li> <li>Know that animals live in habitats and micro-habitats that are suitable for their needs</li> <li>Explain how seeds and bulbs grow into mature plants knowing that they need water, light and suitable temperature to grow and stay healthy</li> <li>Know that most living things live in habitats to which they are suited</li> </ul> <p><u>Significant figures</u></p> <p>Mya-Rose Craig </p> <p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> <li>Observe and perform simple tests to seek out answers to a question</li> <li>Investigate and discuss answers to a question through observation and testing and explain what has been learned</li> <li>Ask questions about living things and suggest answers</li> <li>Discuss using prior knowledge, how to plan a scientific investigation to answer a question (aim, prediction, apparatus, method, results, conclusion), carry it out and offer explanations for outcomes</li> <li>Understand the term fair test and apply it to investigations.</li> </ul> <p><u>Lines of enquiry</u></p> <p><u>Pattern seeking</u></p> <p><u>Observing over time</u></p> <p><u>Comparative and Fair Testing</u></p> <p><u>Identifying, classifying and grouping</u></p> <p><u>Research using secondary sources</u></p>	<p>Week 1, 2</p> <table border="1"> <thead> <tr> <th>Learning</th> <th>Vocab</th> <th>Resources</th> </tr> </thead> <tbody> <tr> <td> <p>Previous learning</p> <p>Sorting animals using simple criteria (farm, sea ...)</p> <p>Continents and corresponding environments</p> </td> <td> <p>survive, oxygen, food, water, shelter</p> <p>reproduce, offspring, extinct</p> <p>bird, fish, amphibians, reptile</p> <p>mammal</p> <p>microhabitat (canal)</p> </td> <td> <p>Week 1 - <a href="https://www.youtube.com/watch?v=eHUKUMsh6E0">https://www.youtube.com/watch?v=eHUKUMsh6E0</a></p> </td> </tr> </tbody> </table> <p><u>Learning – What do animals need to survive?</u></p> <ul style="list-style-type: none"> <li>Know difference between living, dead and never been alive</li> <li>Know that all animals have the same 4 basic needs (oxygen, food, water, shelter)</li> <li>Know that the acquisition look different for some animals (oxygen – mammals, fish, reptiles)</li> <li>Know that animals reproduce or they might become extinct</li> </ul> <p><u>Line of enquiry – Pattern seeking Do bigger animals have bigger feet?</u></p> <p><u>Do all animals have the same senses as humans?</u></p> <p><u>Learning – Different class of living things</u></p> <ul style="list-style-type: none"> <li>Know that animals can be classified together in ‘families’ based on shared properties.</li> <li>Know the different class of animals ( fish, insects, amphibians, reptiles, birds and mammals)</li> <li>Know 5 examples of animals and their family classification – hedgehog, heron, bream, dragonfly, frog, grass snake (all found near Chesterfield canal)</li> <li>Have some knowledge of features of family groups</li> </ul> <p>Link week 1 that all need the 4 basic needs of survival</p> <p><u>Line of enquiry – Identifying, classifying and grouping Which offspring belongs to which animal?</u></p>	Learning	Vocab	Resources	<p>Previous learning</p> <p>Sorting animals using simple criteria (farm, sea ...)</p> <p>Continents and corresponding environments</p>	<p>survive, oxygen, food, water, shelter</p> <p>reproduce, offspring, extinct</p> <p>bird, fish, amphibians, reptile</p> <p>mammal</p> <p>microhabitat (canal)</p>	<p>Week 1 - <a href="https://www.youtube.com/watch?v=eHUKUMsh6E0">https://www.youtube.com/watch?v=eHUKUMsh6E0</a></p>	
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		<p>Week 3, 4</p> <table border="1"> <thead> <tr> <th>Learning</th> <th>Vocab</th> <th>Resources</th> </tr> </thead> <tbody> <tr> <td> <p>Classifying living things by families</p> </td> <td> <p>Habitat, similarity, difference</p> <p>ornithologist, environmentalist, writer, speaker, broadcaster</p> </td> <td> <p>Week 3 - <a href="https://explorify.uk/en/activities/odd-one-out/a-home-for-baby-birds">https://explorify.uk/en/activities/odd-one-out/a-home-for-baby-birds</a></p> <p>Week 4 - <a href="https://explorify.uk/en/activities/who-is/mya-rose-craig">https://explorify.uk/en/activities/who-is/mya-rose-craig</a></p> </td> </tr> </tbody> </table> <p><u>Learning – Shelter Birds</u></p> <ul style="list-style-type: none"> <li>Know how birds shelter in different ways</li> <li>Know that birds lay eggs to reproduce</li> <li>Know different birds build different nests depending on different habitats (compare nests resource week 3, link to local birds)</li> </ul> <p><u>Line of enquiry Research - Why do different birds live in different places?</u></p> <p><u>Learning – Birds Mya-Rose Craig</u></p> <ul style="list-style-type: none"> <li>Know about Mya-Rose (ornithologist, environmentalist, writer, speaker, broadcaster)</li> <li>Know that she is concerned about the need for survival of birds</li> </ul> <p><u>Line of enquiry - Research How can we care for birds in the wild?</u></p>	Learning	Vocab	Resources	<p>Classifying living things by families</p>	<p>Habitat, similarity, difference</p> <p>ornithologist, environmentalist, writer, speaker, broadcaster</p>	<p>Week 3 - <a href="https://explorify.uk/en/activities/odd-one-out/a-home-for-baby-birds">https://explorify.uk/en/activities/odd-one-out/a-home-for-baby-birds</a></p> <p>Week 4 - <a href="https://explorify.uk/en/activities/who-is/mya-rose-craig">https://explorify.uk/en/activities/who-is/mya-rose-craig</a></p>	<p>Feed Forward</p>
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		<p><u>Previous Learning</u> Animal survival Seasons and changes that happen to the plants during those seasons. Recognition of some fruits and vegetables and named the basic parts of a plant (petals, stem, flower, roots).</p>	<p>Recap previous vocab Root, stem, leaf, flower</p>	<p>Week 8 <a href="https://www.npms.org.uk/sites/default/files/PDF/NPMS%20ID%20GUIDE_WEB_0.pdf">https://www.npms.org.uk/sites/default/files/PDF/NPMS%20ID%20GUIDE_WEB_0.pdf</a></p>							
		<p><u>Learning – Big Question</u> <b>Research - Could animals survive on Mars? Using learnt knowledge of habitat, shelter and diet, combining with new knowledge of the climate on Mars</b> <a href="https://explorify.uk/en/activities/mission-survive/surviving-on-mars">https://explorify.uk/en/activities/mission-survive/surviving-on-mars</a></p> <p><u>Learning – Plant growing naturally in the local environment</u>  <ul style="list-style-type: none"> <li>➤ Know the names of the following common plants - daisy, white clover, nettle, ivy, dandelion, grass, moss and locate some in the local environment.</li> <li>➤ Identify parts of the plant – root, stem, leaf, flower</li> <li>➤ Know the location and habitat that each plant requires</li> <li>➤ Know the microhabitat that some plants thrive in</li> </ul> </p> <p>Line of enquiry: <b>Pattern seeking - Is there a pattern in where we find moss growing in the school grounds?</b> <b>Research – use resource to support searching for plants in the natural environment</b></p>									
		<b>Week 9,10</b>			<b>Feed Forward</b>						
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		<p><u>Learning – Planning and creating a comparative test</u>  <ul style="list-style-type: none"> <li>➤ Know what plants need for survival (water, light, soil (nutrients), air and space)</li> <li>➤ Know how to predict results and test if knowledge is correct</li> <li>➤ Know how to set up a comparative test</li> <li>➤ Know how to change one variable (independent variable)</li> <li>➤ Know how to compare change over time (dependent variable)</li> <li>➤ Know how to plant seeds</li> </ul> </p> <p>Line of enquiry: Comparative testing- Design and create a test to identify the conditions required by plants to grow successfully (how is the test fair using controlled variables)  <b>Comparative testing – Do cress seeds grow quicker inside or outside?</b>  <b>What conditions are needed for a plant to grow?</b>  <b>Observing over time - How does my sunflower change each week? How does the same plant look different over time?</b></p> <p><u>Learning – Collecting data for comparative test (over several weeks)</u>            Know how to collect data for testing            Know what vocabulary to use to explain observations            Recall and use planting techniques to plant a variety of seeds            Continue to monitor and record seed growth at regular intervals            Line of enquiry – <b>Comparative testing Which type of compost grows the tallest sunflower?</b></p>									
		<b>Week 11,1,2,13</b>			<b>Feed Forward</b>						
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		<p><u>Learning – Trees in school habitat</u>  <ul style="list-style-type: none"> <li>➤ Know the names of 5 common trees – identify trees that are in the school grounds.</li> <li>➤ Identify parts of tree – roots, trunk, branch, leaf, fruit, flower</li> <li>➤ Know how to identify trees from their leaves, fruit and shape using an information leaflet</li> <li>➤ Know that some fruit is to be only consumed by birds or other local wild animals (mice)</li> <li>➤ Know whether trees are deciduous or evergreen</li> </ul> </p> <p>Line of enquiry: <b>Research use research station to identify trees in the local area</b>  <b>Do trees have flowers?</b>  <b>Classifying, identifying and Grouping How can we sort the leaves that we collected on our walk?</b>  <b>How many plants can we identify in our school grounds?</b></p> <p><u>Learning – Trees in Clumber park</u>  <ul style="list-style-type: none"> <li>➤ Know the names of 5 common trees – identify trees that are in the school grounds.</li> <li>➤ Identify parts of tree – roots, trunk, branch, leaf, fruit, flower</li> <li>➤ Know how to identify trees from their leaves, fruit and shape using an information leaflet</li> <li>➤ Know that some fruit is to be only consumed by birds or other local wild animals (mice)</li> <li>➤ Know whether trees are deciduous or evergreen</li> </ul> </p> <p>Line of enquiry: <b>Research use research station to identify trees from Clumber park</b>  <b>Do trees have flowers?</b></p>									

# Science Curriculum – Summer 2023 *The numbering of the week Indicate the week in the term that the learning is taking place.*

Year 3 and 4 - Life




National Curriculum	HPS Knowledge Curriculum	End of Unit Outcome – Discipline of biology - the study of living organisms. 1. What if humans lived underwater <a href="https://explorify.uk/en/activities/what-if/humans-lived-underwater">https://explorify.uk/en/activities/what-if/humans-lived-underwater</a>																							
<p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</li> </ul> <p><i>Non-statutory</i> <i>Identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy, and design meals based on what they find out.</i></p> <p><b>Working Scientifically</b> asking relevant questions and using different types of scientific enquiries to answer them</p> <ul style="list-style-type: none"> <li>setting up simple practical enquiries, comparative and fair tests</li> <li>making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</li> <li>gathering, recording, classifying and presenting data in a variety of ways to help in answering questions</li> <li>recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</li> <li>reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</li> <li>using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> </ul>	<p><b>Life</b> Prior knowledge – (Year 3)</p> <ul style="list-style-type: none"> <li>Identify that animals, including humans, need the right types and amount of nutrition, and that they can't make their own food; they get nutrition from what they eat.</li> </ul> <p>(Year 2)</p> <ul style="list-style-type: none"> <li>Know that animals, including humans; have basic needs of animals for survival (water, food, oxygen ), have offspring which grow into adults</li> <li>Know that animals live in habitats and micro-habitats that are suitable for their needs</li> </ul> <p>Learning (year 3)</p> <ul style="list-style-type: none"> <li>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> <li>Know that living things can be grouped in a variety of ways.</li> </ul> <p>(year 4)</p> <ul style="list-style-type: none"> <li>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</li> </ul> <p><b>Significant figures</b></p> <p><b>Carl Linnaeus</b> </p> <p><b>Working Scientifically</b></p> <ul style="list-style-type: none"> <li>Know how to select appropriate equipment/route/people to solve a problem successfully and choose effective strategies</li> <li>And change ideas if it is not working.</li> <li>Ask own questions about what is observed and decide which scientific enquiry will best answer them.</li> <li>Find things out using secondary sources of information.</li> <li>Plan all investigations using the headings: aim, prediction, apparatus, method, results, conclusion</li> <li>Observe over time, notice patterns, group and classify things, carry out simple comparative and fair tests.</li> <li>Make accurate measurements using standard units, using a range of equipment, e.g. Thermometers.</li> <li>Gather, record, classify and present data in a variety of ways to help in answering questions</li> </ul> <p><b>Lines of enquiry</b>  <span style="background-color: #e0f0ff;">Pattern seeking</span>  <span style="background-color: #e0f0ff;">Observing over time</span>  <span style="background-color: #e0f0ff;">Comparative and Fair Testing</span>  <span style="background-color: #e0f0ff;">Identifying, classifying and grouping</span>  <span style="background-color: #e0f0ff;">Research using secondary sources</span></p>	<p><b>Week 1,2</b></p> <p><b>Learning</b></p> <p><u>Previous learning</u> Know animals fit into Mammal, fish, bird, insect, amphibian, reptile</p>	<p><b>Vocab</b></p> <p>Classification</p> <p>Warm blooded Cold blooded</p>	<p><b>Resources</b></p> <p><a href="https://explorify.uk/en/activities/zoom-in-zoom-out/dry-scales">https://explorify.uk/en/activities/zoom-in-zoom-out/dry-scales</a></p>	<p><b>Feed Forward</b></p>																				
		<p><b>Learning – Classification of animals</b></p> <ul style="list-style-type: none"> <li>Know that animals can be grouped this is called classification.</li> <li>Recap KS1 knowledge of groups in chart (recap ks1 learning)</li> <li>Know what the key identifying features of each group are</li> </ul> <table border="1" data-bbox="1234 583 1724 947"> <tr> <td>mammals</td> <td>animals such as humans, dogs, lions, and whales. In general, female mammals give birth to babies rather than laying eggs, and feed their young with milk.</td> </tr> <tr> <td>fish</td> <td>a creature that lives in water and has a tail and fins. There are many different kinds of fish.</td> </tr> <tr> <td>birds</td> <td>a creature with a beak/bill, feathers and wings. Female birds lay eggs. Most birds can fly.</td> </tr> <tr> <td>insects</td> <td>a small animal that has six legs. Most insects have wings.</td> </tr> <tr> <td>amphibian</td> <td>are animals such as frogs and toads that can live both on land and in water.</td> </tr> <tr> <td>reptile</td> <td>a group of cold-blooded animals which have skins covered with small hard plates called scales and lay eggs. Snakes, lizards, and crocodiles are reptiles.</td> </tr> </table> <p><b>Learning – Warm/Cold blooded</b></p> <ul style="list-style-type: none"> <li>Know that animals can be divided into warm and cold blooded</li> <li>Know which set 5 animals belong (recap ks1 animals - hedgehog, heron, bream, dragonfly, frog, grass snake)</li> </ul> <table border="1" data-bbox="1234 1066 1724 1213"> <thead> <tr> <th>Type</th> <th>Definition</th> <th>Example</th> </tr> </thead> <tbody> <tr> <td>Warm Blooded</td> <td>Animals that can make their own body heat even when it is cold outside</td> <td>Humans, mammals, birds</td> </tr> <tr> <td>Cold Blooded</td> <td>Animals that cannot make their own heat. They need the sun's warmth to heat their bodies.</td> <td>reptiles, amphibians, fish</td> </tr> </tbody> </table> <p><b>Line of enquiry – Pattern seeking</b> Do amphibians have more in common with reptiles or fish?</p> <p><b>Line of enquiry – Research</b> How do warm-blooded animals control their body temperature?</p>				mammals	animals such as humans, dogs, lions, and whales. In general, female mammals give birth to babies rather than laying eggs, and feed their young with milk.	fish	a creature that lives in water and has a tail and fins. There are many different kinds of fish.	birds	a creature with a beak/bill, feathers and wings. Female birds lay eggs. Most birds can fly.	insects	a small animal that has six legs. Most insects have wings.	amphibian	are animals such as frogs and toads that can live both on land and in water.	reptile	a group of cold-blooded animals which have skins covered with small hard plates called scales and lay eggs. Snakes, lizards, and crocodiles are reptiles.	Type	Definition	Example	Warm Blooded	Animals that can make their own body heat even when it is cold outside	Humans, mammals, birds	Cold Blooded	Animals that cannot make their own heat. They need the sun's warmth to heat their bodies.
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	<u>Previous learning</u> Classification, warm/cold blooded, vertebrate, invertebrate	Recap previous vocab  Carl Linnaeus	Week 6 <a href="https://www.bbc.co.uk/teach/class-clips-video/science-ks2-the-work-of-carl-linnaeus/zhnjf4j">https://www.bbc.co.uk/teach/class-clips-video/science-ks2-the-work-of-carl-linnaeus/zhnjf4j</a>																																																																
	<u>Learning – Local habitat</u> <ul style="list-style-type: none"> <li>➢ Know that Rhodesia is a wooded area – know names of the following animals that might be local</li> <li>➢ Know the classification groups they are members of and identify pictures of them -</li> <li>➢ Know the habitat that supports these animals.</li> <li>➢ Know animals that would not fit local habitat</li> </ul> Mammals: Weasel, badger, rabbit, bat, deer, fox, mole Fish: Salmon, brown trout Birds: Barn owls, blackbird, kestrel, cuckoo, great spotted woodpecker, kingfisher Reptiles: Adder, Grass Snake, Amphibians: Common frog, Common toad, Smooth newt Molluscs: Slug, Garden Snail, Arachnids: Harvestman, Garden Spider Worms: Common earthworm Insect: Peacock Butterfly, wood ant, wasp, bee, cricket, centipede, millipede, woodlouse, grasshopper Line of enquiry <b>Pattern seeking - Has the use of insecticides affected the bee population?</b>																																																																		
	<u>Learning – Carl Linnaeus</u> Know who Carl Linnaeus was (Country, years of life, occupation, interests) Know how he classified animals Classify Animals using questions warm/cold blooded and vertebrates/invertebrates Habitat Line of enquiry : <b>Identifying and classifying- How could you use Carl Linnaeus work to classify (some above and animals from different habitats)</b>																																																																		
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# Science Curriculum – Summer 2023 *The numbering of the week Indicate the week in the term that the learning is taking place.*

Year 5 and 6 - Forces

National Curriculum	HPS Knowledge Curriculum	End of Unit Outcome – Discipline of Physics - Forces 1. How might the Vikings have benefitted from greater water resistance? 2. What is the fastest way to travel?			
<p>Pupils should be taught:</p> <p>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.</p> <p><u>Working Scientifically</u></p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</li> <li><input type="checkbox"/> recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</li> <li><input type="checkbox"/> using test results to make predictions to set up further comparative and fair tests</li> <li><input type="checkbox"/> reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</li> <li><input type="checkbox"/> identifying scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>	<p><b>Forces</b></p> <p>Prior knowledge –</p> <ul style="list-style-type: none"> <li>• Know about the physical properties of a range of everyday materials such as transparency, flexibility and absorbency.</li> <li>• Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>• Explain how magnets attract or repel each other and attract some materials and not others.</li> <li>• Know that magnets have 2 poles a North Pole and a South Pole and that opposite poles attract and like poles repel.</li> <li>• Name 3 magnetic materials and 3 non-magnetic materials.</li> <li>• Explain that some forces need contact between two objects, but magnetic forces can act at a distance.</li> </ul> <p>Learning (year 5)</p> <ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</li> <li>• Know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul> <p><b>Significant figure</b></p> <p>Isaac Newton   </p> <p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> <li>• Explore and discuss ideas, then ask own questions about scientific phenomena.</li> <li>• Analyse functions, relationships and interactions more systematically.</li> <li>• Recognise that scientific ideas change and develop over time.</li> <li>• Carry out fair tests and find things out using secondary information.</li> <li>• Draw conclusions based on data and observations using scientific language to write about what has been found out). Hypothesis, fair test, variable, conclusion</li> <li>• Use evidence to justify ideas.</li> <li>• Observe changes over time, notice patterns, group and classify.</li> </ul> <p><u>Lines of enquiry</u></p> <p><b>Pattern seeking</b></p> <p><b>Observing over time</b></p> <p><b>Comparative and Fair Testing</b></p> <p><b>Identifying, classifying and grouping</b></p> <p><b>Research using secondary sources</b></p>	<p><b>Week 1,2</b></p>			<p><b>Feed Forward</b></p>
		<p><b>Learning</b></p> <p>Previous learning Space, difference of gravity on Earth and in space, push, pull</p>	<p><b>Vocab</b></p> <p>surface, friction, force, sliding, slip, smooth</p>	<p><b>Resources</b></p> <p><a href="https://www.bbc.co.uk/bitesize/topics/zvr3nrd/articles/zxqrdxs">https://www.bbc.co.uk/bitesize/topics/zvr3nrd/articles/zxqrdxs</a></p> <p><a href="https://www.ogdentrust.com/resources/research-cards-friction/">https://www.ogdentrust.com/resources/research-cards-friction/</a></p>	
		<p><b>Learning – Friction</b></p> <ul style="list-style-type: none"> <li>➢ Know that as objects move across a surface there is friction when they rub against each other and that sometimes this friction is larger or smaller.</li> <li>➢ Know frictional forces (when two surfaces are already in contact)</li> <li>➢ Know that the roughness of a material is an example of a property</li> </ul> <p><b>Line of enquiry – Comparative test Which shoe is the slippiest?</b> (relate slip to friction; construct own test consider fair for next week)</p> <p><a href="https://www.ogdentrust.com/resources/phizzi-enquiry-slippy-shoes/">https://www.ogdentrust.com/resources/phizzi-enquiry-slippy-shoes/</a></p> <p>Using info gathered from comparative quest <b>Classify - What materials make the best rock climbing shoes ?</b></p> <p><b>Learning – Resistance and Friction</b></p> <ul style="list-style-type: none"> <li>➢ Know that objects move differently on rough and smooth surfaces; objects resist movement more on rough surfaces because there is higher friction as the object moves</li> </ul> <p><b>Lines of enquiry – Fair test How do different surfaces affect the time it takes a moving object to descend a slope?</b></p>			
		<p><b>Week 3, 4</b></p>			<p><b>Feed Forward</b></p>
		<p><b>Learning</b></p> <p>Previous learning Friction</p>	<p><b>Vocab</b></p> <p>Recap previous vocab</p> <p>acceleration, deceleration, air resistance, buoyancy, effort, water resistance, streamlined</p>	<p><b>Resources</b></p> <p>Week 3 <a href="https://explorify.uk/en/activities/whats-going-on/scarf-shooter">https://explorify.uk/en/activities/whats-going-on/scarf-shooter</a></p>	
		<p><b>Learning – Air Resistance</b></p> <ul style="list-style-type: none"> <li>➢ Know air resistance is a type of frictional force that air exerts on a moving object</li> <li>➢ Know air resistance happens between air and another material (this is sometimes called drag).</li> <li>➢ Know that as an object moves, air resistance slows it down.</li> <li>➢ Know the faster the object’s motion, the greater the air resistance exerted against it.</li> <li>➢ Know air resistance affects all moving objects. For example, when a parachute descends, air particles hit the parachute making it more difficult for it to move through the air.</li> </ul> <p><b>Line of enquiry – Comparative test How does the area of a parachute affect the time it takes to fall?</b> <a href="file:///C:/Users/staffeg/Downloads/Phizzi-enquiry_parachutes.pdf">file:///C:/Users/staffeg/Downloads/Phizzi-enquiry_parachutes.pdf</a></p> <p><b>What happens to the air as you fly higher in the plane OR climb higher up a mountain?</b></p> <p><b>Learning – Water resistance</b></p> <ul style="list-style-type: none"> <li>➢ Know that water resistance is a force felt by an object as it moves through water; it is caused by the object bumping into the water particles</li> <li>➢ Know that the shape of an object determines how much air resistance or water resistance it experiences; shapes of object that experience little air resistance or water resistance are described as streamlined</li> </ul> <p>Question - How might the Vikings have benefitted from greater water resistance?</p>			
<p><b>Week 5, 6</b></p>			<p><b>Feed Forward</b></p>		
<p><b>Learning</b></p> <p>Previous learning Friction, air, water resistance</p>	<p><b>Vocab</b></p> <p>Recap previous vocab</p> <p>Newton, meter, gravity, mass</p>	<p><b>Resources</b></p>			
<p><b>Learning - Newtons</b></p> <ul style="list-style-type: none"> <li>➢ Know that a force is measured in a unit called Newtons, named after a British scientist called Sir Isaac Newton</li> <li>➢ Know that pull forces can be measured using a device called a force/Newton meter</li> <li>➢ Know that the amount of matter (stuff) in an object is its mass</li> </ul> <p><b>Learning – Effect of Gravity</b></p> <ul style="list-style-type: none"> <li>➢ Know that the force that pulls things to the ground on Earth (and other planets) is called gravity.</li> <li>➢ Know that gravity acts as a pull force making unsupported objects fall towards Earth.</li> <li>➢ Know that gravity pulls towards earth wherever you are on Earth.</li> <li>➢ Know Galileo’s enquiry of fall</li> </ul> <p><b>Line of enquiry –</b></p> <p><b>Comparative test - How does the size of an object affect the rate it falls at?</b></p>					

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Week 7, 8			Feed Forward
Learning	Vocab	Resources	
Previous learning Friction, air, water resistance, Newton, Gravity	Recap previous vocab Speed Pivot, fulcrum, load	Week 8 - <a href="https://explorify.uk/en/activities/have-you-ever/moved-position-to-get-a-seesaw-to-work-better">https://explorify.uk/en/activities/have-you-ever/moved-position-to-get-a-seesaw-to-work-better</a> <a href="https://explorify.uk/en/activities/odd-one-out/levers-in-action">https://explorify.uk/en/activities/odd-one-out/levers-in-action</a>	
<p><u>Learning – Speed</u> Know that when an object changes speed it is called acceleration or deceleration Know that an external force can change the speed of an object (a force can accelerate or decelerate)</p> <p>Line of enquiry <b>Observing over time - How long does a pendulum swing for before it stops? What force can change the time it takes to stop?</b></p> <p><u>Learning – Lever</u> &gt; Know that a lever is a rigid length pivoting around a fulcrum &gt; Know that a pulley is a wheel with a fulcrum that supports a moving cable or belt</p> <p>Line of enquiry – <b>Research - How can you make a better lever?</b> <b>Comparative testing - Have you ever moved position to get a see saw working better?</b></p>			
Week 9, 10			Feed Forward
Learning	Vocab	Resources	
Previous learning Friction, air, water resistance, Newton, Gravity, Lever	Recap previous vocab  Pulley, gear, force, rotate, teeth	Week 9 - <a href="https://www.bbc.co.uk/teach/class-clips-video/science-physics-ks2-ks3-will-pulleys-let-9-year-olds-beat-Britain%E2%80%99s-strongest-man/zvm4d6f">https://www.bbc.co.uk/teach/class-clips-video/science-physics-ks2-ks3-will-pulleys-let-9-year-olds-beat-Britain%E2%80%99s-strongest-man/zvm4d6f</a> Week 10 - <a href="https://www.ogdentrust.com/resources/phizzi-practical-investigating-gears/">https://www.ogdentrust.com/resources/phizzi-practical-investigating-gears/</a>	
<p><u>Learning – Pulley</u> &gt; Know that a pulley is a wheel with a fulcrum that supports a moving cable or belt &gt; Know different types of pulley systems <a href="https://explorify.uk/en/activities/odd-one-out/making-work-easier">https://explorify.uk/en/activities/odd-one-out/making-work-easier</a> Create own pulley observe how it makes lifting easier (use recycled materials)</p> <p><u>Learning – Gear</u> &gt; Know that a gear is a rotating wheel with cut teeth that mesh with the teeth of another gear so that turning one gear turns an adjacent gear in the opposite direction</p> <p>Line of enquiry <b>Research - Where do you find gears in the real world?</b></p>			
Week 11, 12, 13			Feed Forward
Learning	Vocab	Resources	
Previous Learning Friction, air, water resistance, Newton, Gravity, Lever, Pulley, Gear	Recap previous vocab		
<p><u>Learning - Mechanism</u> &gt; Know that gears, levers and pulleys are simple machines that are used to allow a smaller force to have a greater effect; they do this by moving a smaller force over a longer distance at one end of the machine, which the machine turns into a larger force over a small distance at the other end</p> <p><u>Mouse trap – How are levers, pulleys, gears used in this game</u> <u>Design own game using levers, pulleys and gears</u></p>			