Theme Overview

Year	6	Term	Spring 1
Theme	Biomes and Classification	Big Question	Could a Polar Bear Live in a Desert?

Focus of unit and scope of unit:
The unit is based around a book on Shackelton's Journey, The children will learn about how light travels and use this to make a 3D structure of a periscope. They will carry out scientific investigations to enhance their understanding about light and use observations and results to draw conclusions. They will then learn about Biomes across the globe and the importance that climate plays across the globe on physical landscape and life in the biomes. The children will learn about Carl Lennaeus and the classification of animals and will use local nature and those of the Antarctic region to classify animals.

Caring	Creative	Critical	SMSC/Equalities/British Values
The unit will focus on the children understanding what makes up a biome and therefore how biomes and life within them might be impacted by climate change. Children will have time to reflect on the natural world. Children will work in groups to create a working periscope.	Throughout the unit children will be thinking creatively about answering questions, including those about light and colour They will have the opportunity to design and make their own periscope and using creative thinking to problem solve and improve designs.	The unit will allow the children to use data and climate maps to ask and answer questions about climate and biomes. The unit will give the children chance to study shell structures and strengthening techniques and to measure and draw accurately and improve designs through critical thinking. It will encourage the children to think about the validity of results.	The unit will look at how animals are classified. It will endeavour to teach respect about the natural world and God's creations. It will promote awe and wonder about the world we live in. It will increase the children's understanding of the world and promote courageous advocacy in terms of climate change.

Big Start	Big Finish	Experience
Biome Puzzle - work out the key in groups	Biomes writing - to share with parents	VR workshop - Frozen Biomes

<table>
<tr><td>Year 6</td><td colspan="3">Spring Term 1: Can a Bear live in a desert? - Living Things, habitats and light</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Children have previously looked at evolution and observing characteristics to classify animals into groups using keys.
Children have previously looked at how shadows are formed and investigated how light moves and is reflected.</td><td>Children will move on to understand the groups and sub groups of classification. They will begin to understand the spectrum of light.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Planning an Investigation</td><td>Carrying Out an Investigation</td><td>Presenting Evidence and Drawing Conclusions</td></tr>
<tr><td>• I ask relevant questions (containing scientific knowledge and understanding).</td><td>• I use relevant information sources to find things out.</td><td>• I present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification key.
• From my data and observations, I draw valid conclusions (i.e. consistent with the evidence) including causal relationships.
• I identify scientific evidence to support or refute the ideas or arguments for my conclusion.</td></tr>
<tr><td colspan="2">Substantive Knowledge</td><td>Famous Scientists</td></tr>
<tr><td colspan="2">Living things and their habitats
• Classify living things into broad groups according to observable characteristics and based on similarities and differences.
• Know how living things have been classified.
• Give reasons for classifying plants and animals in a specific way.
Light
• Know how light travels.
• Know and demonstrate how we see objects.
• Know why shadows have the same shape as the object that casts them.
• Know how simple optical instruments work, e.g. periscope, telescope, binoculars, mirror, magnifying glass etc.</td><td>Recap on Carl Linneus</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Spectrum
Eye
Pupil
Optic nerve
Cornea
Pericope
Concave
Convex
Magnify
Kingdom
Classification key</td></tr>
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<tr><td>Year 6</td><td colspan="3">Term: Can a Polar Bear Live in a Desert?</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">The children have previously learnt about their local environment, places in Europe and South America.
They have previously identified how climate affects land use and human activity and have compared data and maps to draw conclusions about human and physical features and activity.</td><td>Children will consolidate and extend their knowledge of the world's major countries and their physical and human features. They will be taught how geographical processes interact to create distinctive human and physical landscapes that change over time. They will become aware of increasingly complex geographical systems in the world around them. They will develop greater competence in using geographical knowledge, approaches and concepts and geographical skills in analysing and interpreting different data sources.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Locational Knowledge</td><td colspan="2">Place Knowledge
Human and Physical Knowledge</td></tr>
<tr><td>• Locate the Artic and Antarctic Circle on a map.
• Locate the Greenwich meridian and know how time zones work and calculate time differences around the world.</td><td colspan="2">Place knowledge /Human and physical geography
<u>World Biomes – focus on Antarctic.</u>
• Know the difference between climate and weather.
• Know the climate in the UK and compare this with different world climates.
• Know what a climate graph is and how it helps us to compare different places.
• Know what a biome is.
• Know how the climate affects landscapes and biomes
• Know that plants and animals adapt so they can survive in different climates.</td></tr>
<tr><td colspan="2">Mapwork</td><td>Fieldwork</td></tr>
<tr><td colspan="2">17. Know how to use lines of longitude and latitude or grid references to locate features and places.
18. Ask and answer geographical questions and hypotheses using a range of fieldwork and research techniques.</td><td>19. Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Arctic circle
Antarctic
Greenwich Meridian
Time zones
Longitude
Latitude
Climate graph
biome
Hypotheses</td></tr>
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Design Technology

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<tr><td>Year 6</td><td colspan="3">Spring Term 1: Periscope</td></tr>
<tr><td rowspan="2">Sequence of Learning</td><td colspan="2">Previous Learning</td><td>Next Steps in Learning</td></tr>
<tr><td colspan="2">Children have previously learnt how to create 3D structures and strengthen them. They have begun to measure, mark and cut accurately and will build on these skills further using more precision.</td><td>Children will move onto the KS3 curriculum. They will use more tools and equipment to measure and create products. They will begin to understand more detailed structural elements. They will use further mechanical devices to develop working products.</td></tr>
<tr><td rowspan="4">Knowledge and Skills</td><td>Design</td><td>Make</td><td>Evaluate</td></tr>
<tr><td>• Use market research to inform my plans and ideas and create a success criterion.
• Follow and refine my plans.
• Produce an increasingly detailed, step-by-step plan which could include step by step instructions, cross sectional diagram, prototypes.</td><td>• . Use a range of tools and equipment precisely and with increasing independence.
• Consider the aesthetic qualities and functionality of my product whilst making it, refining details as necessary.</td><td>• Show that I can test and evaluate my products.
• Evaluate my product against clear criteria.
• Suggest improvements that could be made, considering material, methods, sustainability of the product and how much a product costs to make.</td></tr>
<tr><td colspan="2">Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms</td><td>Famous Designers</td></tr>
<tr><td colspan="2">Create a periscope.
• Understand that 3D structures can be created from nets.
• Measure accurately to create own net to make a 3D structure.
• Know that structures can be strengthened by manipulating materials and shapes.
• Identify the shell structure in everyday life in cars, aeroplanes, tins and cans.
• Build a range of structures drawing upon new and prior knowledge of structures.
• Measure, mark and cut accurately to create a range of structures.
• Use a range of materials to reinforce and add decoration to structures.</td><td>In 1854, French scientist Hippolyte Marié -Davy invented the first naval periscope, consisting of a vertical tube with two small mirrors fixed at each end at 45°.</td></tr>
<tr><td>Vocabulary</td><td colspan="3">Shell structure
Nets
Reinforce
Manipulation</td></tr>
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