

Junior Department – Year 6 scheme of work

Science

Set Texts: Term 1 – Living Things / circuits and electricity

Term 2 - Light / sound

Term 3 – Human Body / evolution and inheritance

Key Stage 2 curriculum

Resources and planning from Planbee and Twinkl

The Planbee curriculum has detailed planning and lesson activities differentiated into 3 levels and will be used as a planning and teaching tool alongside other resources.

Time-line	Subject topics	Resources / activities (including ICT)	Assessment & skills (including ICT)	SEN / EHC / EAL / Gifted & talented
Year 6, term 1:	Living things			
Week 1, Autumn Term	Classifying organisms	<p>To discuss ways of grouping organisms according to their characteristics.</p> <p>Understand features, criteria and groupings such as: mammal, amphibian, reptile, fish, bird, insect, mollusc, crustacean, echinoderm, arachnid, annelid and myriapod.</p> <p>Provide children with the Classification Key and Animal Cards B. Challenge children to identify which group each of the organisms belongs to and record on worksheet 1B. Children to then describe the features of each group. Children may need access to books or the internet to help identify the features of some of the animals.</p>	Assess pupil's prior knowledge on this topic.	<p>Written work differentiated by outcome.</p> <p>Word mats / key word lists is needed for SEN and EAL</p> <p>G and T - Extended vocabulary tasks in written work. Planning in more detailed science investigations.</p> <p>SEN support - specific to individual pupils needs and based around their IEP's</p>
Week 2	To explore ways of distinguishing between organisms that have similar characteristics	<p>Sorting activity using a classification system.</p> <p>Provide children with the Mammal Cards in pairs or small groups. Give children some time to think about the different features the mammals have and how they could further split them into groups. Children to stick the Mammal Cards into the groups they have chosen on a large sheet of paper then label each group. When finished, children to answer the questions on worksheet 2B.</p>		As above

Week 3	To be able to classify plants according to their characteristics.	<p>Observe plants in the local area and group in to different sections using their characteristics. Do all plants have roots? What are the features that help us identify them?</p> <p>ICT - Take children to an outside area where there are plenty of different plants to explore. Provide children with a digital camera in pairs or ask them to collect samples. Children need to find eight different plants. Once back in the classroom, challenge children to identify the plants using books and/or the internet (there are plenty of plant identification websites that are child-friendly). They then create a classification key on worksheet 3B to identify each of their plants.</p>	ICT – to look up names of unknown plants found	As above
Week 4	To find out about Carl Linnaeus and his classification system.	<p>Complete charts using the same system as Carl Linnaeus.</p> <p>Provide children with the Animal Classification System - Examples of Mammals sheet and worksheet 4C. Children to study the key to answer the questions. Make sure children understand that the key only represents a tiny number of the orders, families, genera and species of mammals.</p>		As above
Week 5	To explore micro- organisms and how they can be grouped.	On worksheet 5B, children to write as many facts as they can on what they already know about micro-organisms. They then think of four questions they would like to find the answer to, record them on the worksheet and use different sources of information to find the answers	As above	As above
Half term				
Week 6	To be able to identify and classify organisms in the local area.	<p>Provide children with magnifying glasses, clipboards, digital cameras and plain paper in small groups. Take children into the grounds where there will be lots of organisms to explore, such as a local park or woodland. Challenge children to find as many organisms as they can and either draw and label ones they don't know the names of, take photos, gather samples, etc. Children to list the organisms they are familiar with.</p> <p>Once back in the classroom, challenge children to use different sources of information to identify the organisms they spotted. Provide children with a set of the</p>	ICT - to identify organisms found	As above

		Classification Cards and see if they can find the species, genus, family, order, phylum and kingdom for each organism. Once finished, children can use this information to sort the organisms into a classification key		
Week 7 - electricity	To recap knowledge of electricity and circuits.	On worksheet 1B, children to draw a series circuit and a parallel circuit using the words provided to label their pictures. Children to then answer the questions about series and parallel circuits. When finished, challenge children to complete the electricity glossary	SEN and EAL - children to use the pictures to help them draw a simple circuit to light a bulb. Children should make sure the wires come out of the + and - ends of the battery and are linked to the metal part of the bulb. Children to then answer the true or false questions about electricity	As above
Week 8	To investigate ways in which the brightness of a bulb or speed of a motor is changed.	On worksheet 2C, children to order the circuits from dimmest to brightest according to the voltage of the batteries and how many bulbs there are. Can children recognise the circuit that will blow the bulb and therefore not shine at all? Answers from dimmest to brightest	As above	As above
Week 9	To be able to recognise and use conventional symbols for circuits.	Children to describe what each of the symbols on worksheet 3B are and then draw the circuits shown using conventional circuit symbols.		Work in mixed ability pairs
Week 10	To be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit affects the brightness of a bulb	On worksheet 4C, children to plan their own experiment about how different wires affect the brightness of a bulb. Children to then carry out their experiment and record the results. Challenge children to think about how they could repeat the experiment several times to check for accuracy	As above	
Week 11	To be able to review and assess understanding of circuits	Challenge children to create an information booklet about electricity and circuits using the Information Booklet Template. Children to fill in each page with as much detail as they can, and include diagrams as well as text.	As above	As above
Week 12	To be able to review and assess understanding of circuits	As above	ICT – for research on this topic	As above
Year 6, term 2: Light				
Week 1	To review understanding of light and shadow and to explore how light travels	On worksheet 1C, children to answer the questions about how light travels and how shadows are formed, then define transparent, translucent		As above

		and opaque (using a dictionary if necessary) and how this would affect the shadows that are formed in the pictures.		
Week 2	To investigate how we see things through light entering the eyes	On worksheet 2B, children to fill in the labels for the eye using the words in the word box to fit in with the partial labels on the diagram. Children to then answer the questions about how the eye sees light.		As above
Week 3	Continue lesson about how eyes work	Continuation of lesson on eyes and sight		
Week 4	To explore how light can be reflected and change direction.	Provide children with worksheet 3B, a torch, a piece of white paper and a mirror. Children to place the torch on the sheet of paper facing the mirror. Give them some time to investigate what happens to the beam of light shining at the mirror when the mirror is moved to a different angle and then complete the challenges on the worksheet to draw in mirrors to direct a light beam to the goals.	As above	As above, differentiated by outcome
Week 5	To investigate reflections from a variety of surfaces	On worksheet 4C, children to find 15 different surfaces and test whether they are reflective by seeing if a torch beam is reflected off the surface, predicting which they think will and which won't. Children to record their findings on the worksheet and then answer the questions.	As above	As above
Week 6	Reflection and how a periscope works	To follow instructions how to make a simple periscope		
Half term				
Week 7	Refraction of light	Refraction investigation – how light travels through water.		
Week 8	Changing shadows To be able to plan and carry out an experiment to investigate how shadows behave.	On worksheet 5B, children to plan their experiment to find out what happens to the size of a shadow when an object is moved further away from the light source. Children to then carry out their experiment and record the results on the worksheet. Children to then plot the results on a bar graph using squared paper and	As above	As above

		explain in their own words what the results show.		
Week 9	Shadows, reflection, refraction and light To explore the differences between shadows and reflections and consolidate knowledge of how we see things.	To make a poster highlighting the main topics covered so far over the past half term.	As above	As above
Week 10	As above continued	As above		As above
Week 11	Assessment			As above
Week 12	Assessment and consolidation		As above	As above
Year 6, term 3:	Human Body			
Week 1	Nutrition To find out how scientific ideas about food and diet were tested in the past and how this has contributed to our knowledge of a balanced diet.	Provide children with the Information Sheet describing what scurvy is and how Lind carried out the first clinical trial to explore how to prevent scurvy. On worksheet 1B, children to answer the questions about Lind's experiment, then suggest other things that Lind could have tested to come to a better understanding of scurvy.	As above	As above
Week 2	Healthy diet To investigate some different food groups and find out why a variety of foods is important for a healthy diet.	On worksheet 2C, children to complete the chart by describing what each of the different food groups listed provides our bodies with and some examples of foods that belong to each group.	As above	SEN - On worksheet 2A, children to match the food group to the description and then decide which food groups each of the foods belongs to. Children can use the Information Sheet to help if necessary
Week 3	To find out how nutrients and water are transported in the human body.	Tell children that their challenge today is to make a life-size diagram of the circulatory system. In pairs or small groups, one child to lie down on a long sheet of paper (e.g. wallpaper) while another draws around them. They then use this as the template. Children to then use the Human Circulatory System sheet to help them create a life-size diagram. They could do this with pens, red and blue wool, felt or fabric for the heart, etc. Ensure children label the diagram clearly to explain what is happening. When finished, challenge children to write a description of how the circulatory system works to accompany their diagram on worksheet 3A.		
Week 4	To investigate what happens to the heart when we exercise and why.	On worksheet 4B, children to record their resting pulse	As above	As above

		<p>rate and then make predictions about what their heart rate will be when they have done some exercise and how long it will take their pulse to get back to normal. Children to then complete some exercise (e.g. running for 3 minutes) and record their pulse rate every minute until they get back to their resting pulse rate. Children could then use the data to create a bar graph or line graph.</p>		
Week 5	To investigate how muscles move the skeleton and how muscle activity requires increased blood flow	<p>On worksheet 5B, children to identify and label each of the muscles using the Human Muscles Diagram. They then write down some exercises that would be good for specifically working each group of muscles.</p> <p>Make a simple working model of an arm muscle</p>	As above	As above
Week 6	The skeleton	Make a model of the skeleton and label the bones.		As above
Half term				
Week 7	To investigate the effects of tobacco, alcohol and other drugs	Ask children to imagine that they are being interviewed on the effects drugs can have on the body. Children to answer the questions on worksheet 6B in as much detail as they can. When finished, children could work in pairs and take it in turns being the interviewer so that can act out their interviews	<p>ICT – research on the internet</p> <p>As above</p>	
Week 8	To evaluate what we can do to keep our bodies healthy	Provide children with a set of the Profile Cards. Children to pick a card at random. On worksheet 7B, children to describe what is healthy about the person, what is unhealthy and what advice they would give them about how they could improve their lifestyle.		
Week 9 – evolution and inheritance	To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	On worksheet 1B, children are to attach pictures of themselves as well as one or both of their parents. They are to label some similar characteristics, then answer the questions below about similar and unique characteristics	As above	

		and describe some characteristics that are not inherited		
Week 10	To identify how animals and plants are adapted to suit their environment in different ways.	Provide groups of children with one of the Environment Posters. They are then to research an organism that lives in this type of environment using books, internet etc. On worksheet 2B children are to describe the environment, draw their chosen organism and label some of its characteristics, giving reasons why they are advantageous		As above
Week 11	To understand that adaptation of plants and animals to suit their environment may lead to evolution.	Provide children with one of the Task Charts appropriate to their ability. Printable resources and instructions for six tasks related to the Learning Objective are provided with this lesson; these should be spread out around the classroom so that pairs or small groups of children can move around and attempt each task following the instructions provided. After each task, groups should get their work checked and their sheet signed by the teacher before moving on to another task	As above	As above
Week 12	To find out about how the work of scientists has helped develop our understanding of the process of evolution.	Show some of the ideas that ancient Greek scientists and philosophers had about the growth, development and variation of plants and animals. Do you know which of these are now believed to be incorrect? Children to discuss and share their ideas, giving reasons for their responses. Using books, internet etc., children are to research the life and work of Charles Darwin. The 'Fact File' on worksheet 4A has questions to help direct their research and can be completed as they find answers	Link to history topic on ancient Greece	