


BILSTON CHURCH OF ENGLAND PRIMARY



MEDIUM TERM PLANNING

Subject	Topic/Key Question	Year Group	Term	Time Allocation
Science	The Nature Library (classification)	6	Autumn 1	14 hours

Lesson Sequence	Time Allocation	Key Question/WALT	Teaching Activities	Resources
Lesson 1	2 hours	<p>To demonstrate understanding of the process of classification</p> <p>Working scientifically links:</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs</p> <p>Success criteria:</p> <ul style="list-style-type: none"> I can develop a classification system for sweets. 	<p>How many different species are in the world? How can we classify them into groups? Show children a set how can we sort them? How many different ways can we sort them?</p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms.</p> <p>Show children different animals how can we sort them?</p>  <p>What are the features of each of the animal groups?</p>	<p>Twinkl</p> <p>BBC bitesize</p> <p>Collins connect</p>

		<ul style="list-style-type: none"> • I can explain how and why I have classified certain objects in certain ways. 	<p>Share facts about different animal groups.</p> <p>Group organisms by their characteristics.</p>	
Lesson 2	2 hours	<p>To explore the classification of animals and recognise the main group of vertebrates.</p> <p>To explore the classification of the main groups of invertebrates.</p> <p>Working scientifically links:</p> <p>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</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can use appropriate vocabulary to classify animals and group vertebrates. • I can use observable characteristics to 	<p>Recap on classification of animals from previous lessons and the characteristics of each group.</p> <p>Give each pair of children a cut up set of cards from Animal card sort (Resource sheet 1) to sort. Ask children to group the animals and be prepared to explain the criteria they have used. Once they have made their groups they should provide a name for each group which indicates why the animals are in that group.</p> <p>Encourage children to think about groups based on combinations of characteristics; for example, if the grouping was simply on 'wings or no wings', they would end up with bats and birds in the same group. However, if the grouping was based on 'wings and feathers', the group would only contain birds.</p> <p>After a few minutes, create a 'marketplace' where pairs visit other pairs to share and listen to their reasons for grouping the animals in a certain way.</p> <p>Gather together as a class and record the most commonly used group names in the class during this activity. Show slides 1 and 2 from the Vertebrates and invertebrates slideshow (Slideshow 1). They should be familiar and confident with these words now.</p> <p>What is invertebrate/ vertebrate? Discuss</p> <p>Sort images into vertebrates/ invertebrates</p>	Collins Connect

		<p>group and classify vertebrates.</p> <ul style="list-style-type: none"> • I can apply what I know in order to classify an unknown animal. 		
Lesson 3	2 hours	<p>To apply the process of classification to plants. Working scientifically links:</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can group plants in different ways. • I can explain why I have classified plants in different ways using the features they have in common. • I can describe the classification system that scientists use to classify plants and name the main plant groups. 	<p>Display the different types of plants so that all children can look at them in detail. Ask them to work independently to record different ways they could sort the plants. Ask what characteristics the plants might have in common that they could use to put them in the same groups. How might they use the characteristics to sort a large number of plants?</p> <p>Share how they have sorted them to the rest of the class. What do they all have in common? How are they different?</p> <p>Introduce the terms vascular and non vascular. What do these terms mean?</p> <p>Use a classification key to sort plants.</p>	Collins connect

		<ul style="list-style-type: none"> •I can use scientific vocabulary to classify plants. 		
Lesson 4	2 hours	<p>WALT-find out about Carl Linnaeus and his classification system To recognise that the classification system for living things has changed through history and is still changing</p> <p>Working scientifically links:</p> <p>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 or other presentations; identifying scientific evidence that has been used to support or refute ideas</p> <p>Success criteria:</p> <ul style="list-style-type: none"> •I can describe to others how people 	<p>Ask: <i>Do you think they have always been classified in this way? Give reasons for your answer.</i></p> <p>Use the think, pair, share strategy for children to share their key ideas. Show the history of classification (Video 1). Ask children to reconsider their ideas on how the classification of living things has changed over time.</p> <p>Explain to children that they are going to investigate how and why changes in classification have occurred. The challenges are differentiated by the topic that is to be covered and the way in which the findings of children are to be presented to the rest of the class.</p> <p>Why do you think we need to use a classification system? Discuss</p> <p>Use Linnaeus System to classify animals</p>	Collins Connect

		<p>classified living things in the past.</p> <ul style="list-style-type: none"> • I can explain the importance of Carl Linnaeus in the way we classify living things. • I can suggest reasons why the classification systems change over time. 		
Lesson 5	2 hours	<p>To recognise that micro-organisms are groups of living things and explain what they are.</p> <p>Working scientifically links: Identifying scientific evidence that has been used to support or refute ideas or arguments</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can explain that plants and animals are not the only groups of living things. • I can explain what micro-organisms are. 	<p><i>What do you think is the smallest living thing you can see? Do you think there are things that are even smaller?</i></p> <p>Ask children to make a list of everything they can think of and then to share their list with a partner.</p> <p>As a class, discuss the ideas children have come up with and show What can you see? (Slideshow 1). You may also find it useful to print out a set of the images per table group to allow children to explore the images more closely. Ask them what they think the images are of and to discuss in their table groups.</p> <p>If children do not refer to 'micro-organisms' by this stage, introduce the term now. Explain that the images they can see are all of micro-organisms viewed through a very powerful microscope. Explain that micro-organisms are also living things and are divided into three groups: fungi, bacteria and protista</p> <p>What are micro-organisms?</p> <p>Look at different micro organisms. Which are helpful/harmful?</p> <p>GIVE CHILDREN A SET OF MICRO-ORGANISMS AND SORT INTO HELPFUL AND HARMFUL.</p> <p>ENQUIRE:</p>	Collins connect Twinkl

		<ul style="list-style-type: none"> • I can begin to organise micro-organisms based on their common observable characteristics. • I can present my findings to others. 	<p>Explain to children that they are now going to look more closely at what micro-organisms are.</p> <p>Challenge 1: Children investigate the nature of micro-organisms and present their findings in a poster. Ask the children to look again at the photographs they have already seen and sort them into bacteria, fungi and protista.</p> <p style="text-align: center;"><i>Ask: In what ways are the organisms in each group the same? In what ways are the groups different?</i></p> <p>Using secondary sources, ask the children to find out how we know micro-organisms are small and what are the characteristics of the three kinds.</p> <p>Challenge 2: Children investigate how micro-organisms can be helpful and share their findings in a presentation.</p> <p>Ask the children to use secondary sources to find out how micro-organisms can be helpful in our lives. Split the group into pairs and ask one child to focus their research into how micro-organisms are useful in food production (yoghurt and cheese, for example) and the other to focus on how micro-organisms can help us with medicines such as penicillin.</p> <p>They should come together to share their findings in a presentation such as PowerPoint or Smart notebook. Ask them to restrict their slides to six bullet points each to get them to focus on the key facts. They will be asked to share these in the Reflect and review section.</p> <p>Challenge 3: Children investigate how micro-organisms can be harmful and share their findings via a method of their choice.</p> <p>Ask the children to use secondary sources to find out how micro-organisms can be harmful to us. Give the following statistic to the group: Almost 99% of bacteria are helpful. Disease is caused by only a few of them. Ask them to investigate which diseases are caused by bacteria and to specifically focus on what we can do to prevent them from causing harm to our health.</p>	
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			They should present their information in any way they feel appropriate, remembering that it needs to be helpful to others. These presentations could form part of a class display or be made into information posters to be displayed around the school.	
Lesson 6	2 hours	<p>To investigate the growth of micro-organisms</p> <p>Working scientifically links: Planning different types of enquiries to answer questions including recognising and controlling variables where necessary</p> <p>Success criteria:</p> <ul style="list-style-type: none"> • I can plan an investigation to grow microorganisms carefully, considering health and safety. • I can closely and systematically observe changes in the growth of micro-organisms. • I can present my findings to others and give reasons for my conclusions about the 	<p>Ask children where they might have seen micro-organisms growing. If they are not sure, rephrase the question to where have they seen mould growing. Remind them that mould is a micro organism.</p> <p><i>Ask: In what type of conditions do you think moulds grow best? Why might investigating microorganisms be particularly difficult?</i></p> <p>As they think about their answers, remind children of what they learned in the last lesson about micro-organisms being very small and invisible to the naked eye. In order to see them, we need to grow some that multiply until they are visible with the naked eye.</p> <p>Remind children about the work children did for Challenge 3 in the previous lesson, when they researched how harmful micro-organisms can be.</p> <p>Explain to children that they are going to plan and set up investigations to find out in which conditions some micro-organisms grow best. At this stage, the challenges all involve growing their own micro-organisms in controlled conditions. Depending on the resources available to you, you should split these groups into smaller groups (ideally twos or threes) to allow children to be as hands-on with their investigation as possible.</p> <p>Plan and set up mould investigation with bread.</p>	Collins Connect

		growth of micro-organisms.		
Lesson 7	2 hours	<p>WALT- find out about helpful organisms</p> <p>Working scientifically links:</p> <p>Planning different types of enquiries to answer questions including recognising and controlling variables where necessary</p>	<p>Recap on what you already know about organisms. Today we are going to find out about helpful organisms and how they have helped over time.</p> <p>Who is Louis Pasteur?</p> <p>Has anyone heard of him?</p> <p>In pairs research who he is? What he is famous for etc.</p> <p>Create a non chronological report on Louis Pasteur.</p>	