

Wider Curriculum

Spring Unit Plan for Home learning

Subject: Science Unit: Electricity: circuits, switches and applications Year: 4

Week 1 Session 1	<p>How much do we rely on electricity?</p> <p>In this lesson, you will learn about mains and battery electricity. You will identify and sort appliances based on whether they are electrical or non-electrical and also whether they are powered by mains or battery electricity. We will explore the idea of a world without electricity.</p> <p>Follow the link here for the lesson on how much do we rely of electricity?</p>	
Week 1 Session 2	<p>What can electricity do?</p> <p>Go on an electricity hunt around your home. Observe all the different affects that electricity has on the various appliances that you encounter– i.e. make them warm/cold, cause movement, produce light, and create sounds.</p> <p>The following video shows the effects that electricity has - http://www.bbc.co.uk/learningzone/clips/the-use-of-electricity-no-narration/2407.html</p> <p>Draw a table that classifies different electrical appliances based on their output. Find at least two examples of an appliance that:</p> <ul style="list-style-type: none"> - Moves because of electricity - Lights up because of electricity - Heats up because of electricity - Makes a sound because of electricity. 	
Week 2 Session 3	<p>What is static electricity?</p> <p>Today, you are going to be learning all about static electricity. You will learn how static charges occur and what happens when they are discharged. You will also be exploring how to create your own static charges with a balloon! If you have a balloon at home then you can use it for this lesson. If you don't then don't worry, you will still be able to watch the demonstrations and complete the lesson.</p> <p>Follow the link here for the lesson on static electricity.</p>	
Week 2 Session 4	<p>Is electricity dangerous?</p> <p>When working with electricity you need to make sure that you are thinking about health and safety. Look around your house to see if you can find any warnings around electrical appliances. What does a warning sign look like?</p> <p>Watch this video about the dangers of electricity- http://www.bbc.co.uk/learningzone/clips/the-dangers-of-electricity/1646.html</p> <p>Create a poster for the dangers of working with electricity that includes:</p> <ul style="list-style-type: none"> - things to look out for around electrical appliances - what a warning sign looks like - how to look after electrical appliances so they don't get damaged. 	
Week 3 Session 5	<p>What makes a circuit work?</p> <p>Today, you will learn how to build an electrical circuit. We will look at all the different components of an electrical circuit and learn the rules for building them. You will need a piece of paper, a pencil and a ruler for this lesson.</p> <p>Follow the link here for the lesson on electrical circuits.</p>	

<p>Week 3 Session 6</p>	<p>What are circuit diagrams? In this lesson, you will be learning how electrical circuits are represented as diagrams. You will learn the symbol for each component and draw your own circuit diagrams. You will need a pencil, a piece of paper and a ruler.</p> <p>Follow the link here for the lesson on circuit diagrams.</p>
<p>Week 4 Session 7</p>	<p>What materials makes a good electrical conductor and insulator? In this lesson, we will learn what an electrical conductor and an electrical insulator are. We will conduct an investigation to see which materials are insulators and which are conductors. Finally, we will draw conclusions about the best material to make certain objects from, based on what we have learnt. You will need a piece of paper, a pencil and a ruler.</p> <p>Follow the link here for the lesson on electrical conductors and insulators.</p>
<p>Week 4 Session 8</p>	<p>What is a switch? Have a look at the pictures of a range of switches which are used to turn components on and off. Why is it important to have different types of switches? E.g. hairdryer, food processor etc. Why do these appliances have switches? Why are the switches different?</p> <p>Watch the video below about how a switch works- https://www.bbc.co.uk/bitesize/clips/za3fb9q#:~:text=The%20battery%20pushes%20the%20electricity,broken%20by%20adding%20a%20switch.&text=When%20the%20bulb%20gets%20old,and%20this%20breaks%20the%20circuit.</p> <p>Using your understanding of switches, write an explanation about how a switch works in a circuit. You should include:</p> <ul style="list-style-type: none"> - A circuit diagram including a switch - A short piece of writing explaining how a switch works <p>An explanation about why products need a switch Challenge: what is a switch made out of? Why is it made out of this material?</p>
<p>Week 5 Session 9</p>	<p>What would happen to the world if all electrical appliances stopped working? Today, you are going to use your prior understanding from the unit and the internet as a research tool to answer the question above.</p> <p>You could think about answering some of these questions:</p> <ul style="list-style-type: none"> • What products use electricity that wouldn't work anymore? How would this affect people's daily lives? • What could have caused the issue? • How could this problem be solved? • What makes our electrical energy? How else could we make electrical energy? • Would chargeable products e.g. mobile phones stop working? <p>You could present this as a poster or an extended piece of writing, focusing on each of the smaller sub-questions or the overall question.</p>
<p>Week 5 Session 10</p>	<p>How has our understanding and use of electricity developed? In this lesson, we will look at the major discoveries in the field of electricity and some important electrical inventions. We will create a timeline of these events. We will also learn about some important scientists and choose one to write a fact file on.</p> <p>Follow the link here for the lesson on how our understanding of electricity has developed.</p>

Session Resources
Session 8

