



Science planning with Sustainable Travel Links for Year 3 and 4

Creating circuits for cycling equipment

Links to PHSE and DT

Objectives:	<ul style="list-style-type: none"> • identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts including cells, wires, bulbs, switches and buzzers • identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery • recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
Success Criteria:	<ul style="list-style-type: none"> • An understanding of appliances that use electricity • Ability to construct a simple circuit • Correct identification and naming of the elements of a circuit • Knowledge of how to identify a fault in a connection • An understanding of how a switch can open or close the circuit
<p>Teacher Input with key questions:</p> <p>Explain that today we are going to construct a simple circuit for bike lights – either on the bike, helmet or rucksack.</p> <p>Quick fire – wipe boards and pens – name as many appliances that use electricity. How can these be sorted? Which (of these) appliances need electricity for light?</p> <p>Which vehicles need electricity for light? Today we are going to be thinking about lights for vehicles. Why are they important? Think about bike lights? What types are there? Where do they go?</p> <p>Watch http://think.direct.gov.uk/education/early-years-and-primary/pupils/over-7s/watch/tales-of-the-road-2/</p> <p>And look at http://kjarman.wordpress.com/2012/12/30/wear-reflective-aids/</p> <p>Discuss the message in the video clip and on the poster.</p> <p>http://www.tes.co.uk/teaching-resource/Making-a-circuit-3002538/</p> <p>Revise how to make a simple circuit.</p> <p>What happens when we need to add a switch? How can we do this? <i>Remember that bike lights are red at the back and white at the front.</i></p> <p>TASK</p> <p>In groups of 3 to devise 3 different circuits</p> <ol style="list-style-type: none"> 1 for a bike lamp 2 for a helmet 3 for a rucksack <p>(depending on amount of equipment available, chdn to do one circuit at a time, record and then reassemble as next circuit). Where will the best place for the switch be?</p> <p>Allow time to assemble equipment and decide groups.</p> <p>Record in books with components labelled: Battery, battery holder, light bulb, bulb holder, crocodile clip, wire, switch</p> <p>Extension – linked to DT- design the helmet and rucksack that the circuits could attach to. Use materials that enable the wearer to be seen in the dark.</p>	<p>Resources</p> <p>http://think.direct.gov.uk/education/early-years-and-primary/pupils/over-7s/watch/tales-of-the-road-2/</p> <p>http://kjarman.wordpress.com/2012/12/30/wear-reflective-aids/</p> <p>http://www.tes.co.uk/teaching-resource/Making-a-circuit-3002538</p> <p>Range of bike lights, helmets, rucksacks and high visibility jackets.</p> <p>Circuit materials</p> <p>Mini plenary</p> <p>Who is going to make which circuit? What do you need to record? What will you need to consider</p> <p>Plenary</p> <p>What did you find out? How could you improve your circuit? Could your circuit work in your designs? What happens if there is a fault in the connection? How would we know if there was a fault in the connection?</p> <p>Assessment</p> <ul style="list-style-type: none"> • Can understand which appliances use electricity and sort them in different ways • Can construct a simple circuit and add a switch • Can accurately draw and label the circuits • Can think of ways of incorporating these circuits into cycling equipment • Can show Knowledge of how to identify a fault in a connection