

<p>Topic: Electricity</p>	<p>Year 6 Age 10-11</p>	<p>Title: Bulb brightness</p>
<p>Working Scientifically Plan: Plan a scientific enquiry to answer a question, recognising and controlling variables.</p>		<p>Concept Context Compare variations in how electrical components function.</p>
<p>Assessment Focus</p> <ul style="list-style-type: none"> • Can children create a scientific question which identifies the 'change' and 'measure'? • Can children identify control variables to plan a fair test? 		
<p>Activity <i>Today we are going to be electrical engineers.</i> Provide a mix of basic circuit components and challenge pairs or trios to make a quick simple circuit. Compare and discuss the differences in bulb brightness and how to measure/observe this e.g. light seen through layers of paper, datalogger, observation. Main task: to investigate how they can change the brightness of the bulb choosing from the available equipment (to include different lamps, cells and different thickness/length of high resistance/fuse wires). Each pair/trio to generate a list of variables which could be changed in their circuit and how they will observe/measure the effect of this change. Create a scientific question which identifies the 'change' and 'measure'. Record their plan e.g. question, variables and diagram of test circuit. Carry out and discuss investigations.</p> <p>Adapting the activity T4 Support: Planning framework to scaffold. Help to decide how to measure the brightness. Extension: Repeat using a different measurement technique. Choose another question to investigate. Other ideas: Try with motors or buzzers.</p> <div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Questions to support discussion:</p> <ul style="list-style-type: none"> • What factors could affect the bulb brightness? • Which variable will you change? (independent variable) • Which variable will you measure / observe? (dependent variable) • Which variables will you keep the same? (control variables) • What is your question? Does it include the 'change' and 'measure'? • Have you found an answer to your question? If yes, what? If not, can you explain why your investigation wasn't able to give you a clear answer? </div> <div style="flex: 1; text-align: right;"> </div> </div>		
<p>Assessment Indicators</p> <p>Not yet met: Can identify what they would like to change but may need support to explain what must be kept the same.</p> <p>Meeting: Identify a range of factors which may affect the brightness of the bulb and define a succinct scientific question to test, e.g. <i>What will happen to the (brightness of the bulb), if we change the (length of wire)?</i> Able to plan a fair test unaided, identifying the different types of variables: what to measure, what to change, what to keep the same</p> <p>Possible ways of going further: Can identify control variables for a range of investigation questions, e.g. <i>if we look at wire length we need to keep the voltage the same but if we look at voltage we need to keep the wires the same.</i> Notes difficulties with the 'life' of the components.</p>		