

Changing Circuits

Science

Year 6

Lesson 2 of 5

Learning Objective		Resources
To investigate ways in which the brightness of a bulb or speed of a motor is changed.		Slides Worksheet 2A/2B/2C/2D Question Cards (FSD? activity only) Batteries, bulbs/motors, wires, switches (FSD? activity only)
Teaching Input		
<ul style="list-style-type: none"> Show children the picture of a series circuit on the slides. How could we make the bulb in this circuit brighter? Children to think, pair, share their ideas. Go through the information on the slides about voltage and the effect this has on circuits. Which of these circuits will be the brightest? Go through the pictures on the slides and discuss as a class for each one, encouraging children to give reasons for their choices. What do you think would happen if we put 10 batteries in this circuit with just one small lightbulb? Children to think, pair, share their ideas. Explain that if the voltage running through the circuit is too high for the bulb or motor, it will blow out. 		
Main Activity		
<u>Lower ability:</u> On worksheet 2A, children to decide which of the diagrams will have the brightest bulbs and explain their choices for each one.	<u>Middle ability:</u> On worksheet 2B, children to alter each of the circuits shown to make the bulbs as bright as possible, if they are using 5V bulbs and 1.5V batteries.	<u>Higher ability:</u> 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 = E (will burn out), C, B, A, D.
Fancy something different...?		
<ul style="list-style-type: none"> Provide children with wires, batteries, bulbs and/or motors and switches and give them some time to investigate how to make the bulbs brighter and/or the motors speed up or slow down. Remind children not to use too many batteries or the components will blow out. If children are struggling for ideas to test, cut out the Question Cards and leave them on the tables for children to test one at a time. EXTEND - challenge children to investigate whether the effects are the same in series circuits and parallel circuits. Children to write up their findings on worksheet 2D. 		
Plenary	Assessment Questions	
What have we found out today about circuits? Invite each child to share one sentence explaining something they have found out about circuits and voltage.	<ul style="list-style-type: none"> Do children know that the brightness of a bulb or the speed of a motor can be changed in a circuit? Do children know that the brightness of a bulb or speed of a motor depends on how much power is supplied to each component? Do children know that bulbs and motors will blow out if too high a voltage is used? 	