

Name _____ Class _____ Date _____

Design a toy garage, doll's house or shop for a local playgroup. The toy should include lights, and could include items such as a movable ramp for cars with a motor, or a lift in the shop.

You need to:

- Draw a rough plan of the building.
- Draw circuit diagrams to show how the lights and any other electrical items will be connected.

Make sure that you can explain:

- What each component in your plan does.
- Why they are connected up in the way shown in your diagram.

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Now that you have completed the activity, circle the number of stars next to each of these sentences to describe how well you did.

I have...	
drawn a circuit that includes at least one bulb and one cell.	* * * * *
explained why circuits need a cell and/or switch to make them work.	* * * * *
designed one or more circuits for my model that will work.	* * * * *
stated that a cell is essential in a circuit to provide energy for the lights and motors.	* * * * *
explained that cells are used in my model instead of plugging into a mains socket because they are safer.	* * * * *
stated that I need cells, switches and motors in my model and explained why each is needed.	* * * * *
described how adding more components (e.g. bulbs or motors) reduces the current in a series circuit but that this does not happen in a parallel circuit.	* * * * *
explained, in terms of brightness and resistance, why I have used parallel circuits when there are two or more bulbs in a circuit.	* * * * *
designed a lighting circuit in which two or more bulbs can be switched on or off independently.	* * * * *
described how a variable resistor can be used to control the brightness of lights.	* * * * *
described what is meant by the term 'current' in terms of the flow of electrons.	* * * * *
described the transfer of energy from cells to bulbs and other components in my circuit.	* * * * *
explained two or more factors which affect the brightness of bulbs in a circuit (e.g. number and voltage of the cells in the circuit, resistance of each bulb).	* * * * *
designed a circuit showing how a motor is used to move a part of the model.	* * * * *

What could you do to improve? _____