ELECTRIC ART

Year 6 | 10-20 mins

Teacher input

This lesson should be done in two parts, the first part is much shorter and it should be done as one activity whilst some children are creating the dough used for the electric art.

National curriculum links

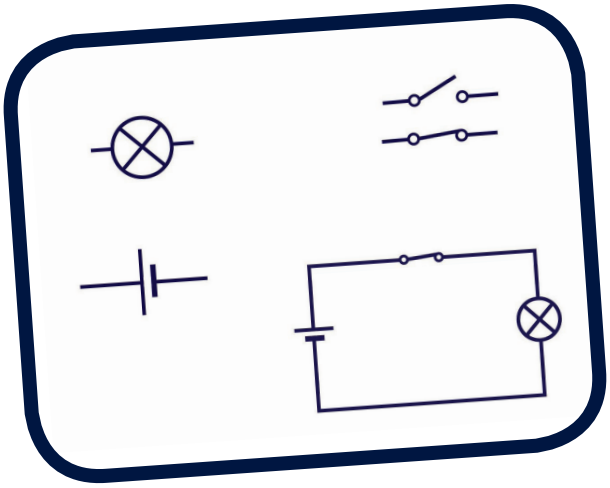
- Use recognised symbols when representing a simple circuit in a diagram.

Learning objective

- I can use recognised symbols when using drawn circuits.

Part 1

How is a circuit drawn? There is an example on the PowerPoint (also available in the resources pack) that shows the symbols for a battery, a light and a switch, and explains what electricity is made of. It also includes the instructions for the game, so you can read them through with the children if you feel it's necessary.



Differentiation

Lower ability children can use the set of instructions that includes the circuit diagram (in the resources pack). Challenge more able children to build the circuit using the set of instructions without the diagram.

Part 2

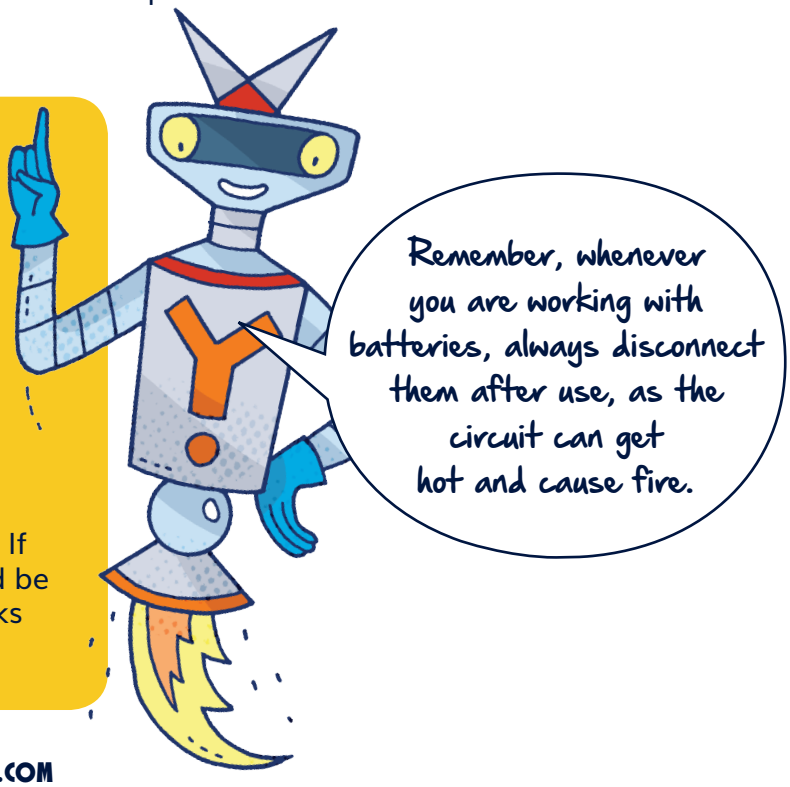
The salt dough should be made while some children are playing the game. They will use their knowledge of the symbols when they plan their electric art.

Resources

- Board games and pieces per pair (included in the resources pack)
- Dice
- Scissors

Activity

In pairs, the children can follow the instructions to play the circuit game. If evidence is needed, the circuits could be stuck into the children's science books once the game is completed.



ELECTRIC ART

Year 6 | 60 mins

Teacher input

Part 2

Share Emmi's Eco Club page about electric art (included in the PowerPoint). Ask the children how the bulb could be made brighter or the buzzer louder? What would need to be increased? Give the children the chance to discuss the answer.

Resources

The recipe below will make enough dough for five pairs of children, so you will need to make enough batches for the whole class.

- 160 g of flour
- 165 ml of water
- 3 tbsp of salt
- 2 tbsp of cream of tartar
- 2 tbsp of vegetable oil

Equipment needed:

- Tablespoons
- Measuring jug
- Scales
- Pan
- Wooden spoon
- Access to a hob
- Cookie cutters (optional)
- Foil – at least 20 cm long & 3 cm wide
- Batteries
- LEDs or buzzers

Activity

Explain to the class that salt dough has the texture of modelling dough.

Encourage them to choose a shape to cut in half, like the example on the PowerPoint.

In pairs, children should first create a simple plan of their electric art. Remind them they will need to leave a gap for the electricity to flow through the LED or the buzzer. Explain LED bulbs have a negative and a positive. The longer pin is positive.

National curriculum links

- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit.

Learning objective

- I can explain how the brightness of a lamp or the volume of a buzzer is changed.

Working scientifically links

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables when necessary.

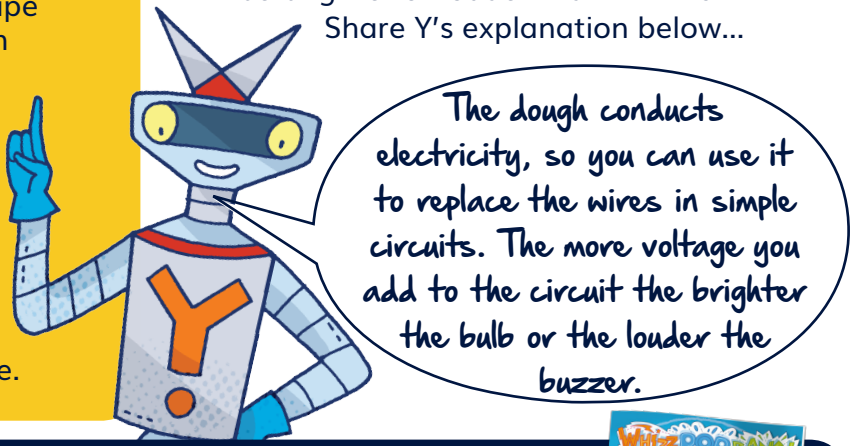
Activity continued

The children's art should light up brighter or buzz louder than Emmi's, so they should explain how they will do this in their plan (use more than two batteries, increasing the voltage). Their plans should include a diagram, using the symbols. In the resources pack there is a suggested guide, showing all the symbols for the circuit they would need to draw.

Plenary

Give the children the opportunity to present their electric art design. Encourage them to explain how it works. Challenge the more able thinkers to explain, using the correct terminology. All the children should try to explain how they know their light or buzzer will be brighter or louder than Emmi's.

Share Y's explanation below...



ISSUE 34 Cross curricular links

Reading: Sensational Scientist Michael Faraday, pages 28-29; interview with Nikita Hari, an electrical engineer whose job it is to blow things up, pages 22-23; How Stuff Works – plugs, pages 24-25; 'How green is our electricity?', pages 6-7.