



making physics matter



# Scientific ideas over time

How have our ideas about electricity changed over time?

## Till roll timeline

### Introduction

When looking at the historical timeline of how our ideas about electricity have changed over the centuries, the story begins in 600BC when Thales of Miletus discovered static electricity by rubbing amber. Thales was a Greek philosopher living in Asia Minor (now Turkey). He was one of the first philosophers to break from the use of mythology to explain the world around him and instead used science to make sense of the phenomena he observed. After this initial discovery, the next significant event in the electricity timeline is over 2,000 years later which is where our timeline begins – 1600AD with Queen Elizabeth I on the throne.

### Materials per pair

- Till roll
- Scissors
- Tape measure/metre stick
- Pencil
- Ruler
- Our 12 key events in the history of electricity list



### Instructions

1. Children work in pairs to carefully measure out an 84cm length of till roll. This represents the past 400 years of ideas about electricity.
2. Ask the pupils to mark one end of the till roll (left) '1600' and then mark 4cm from the other end (right) '2000' – to account for some significant modern-day inventions we want the timeline to extend just beyond the year 2000.
3. Show the children the events list and ask them to predict where they think they fit on the timeline – the children can create their own key and mark their predictions on the till roll lightly in pencil. Make it clear that there were in fact thousands of events, scientists and inventors involved in the full history of electricity and this is a very small sample of significant ideas and discoveries.

## Twelve key events in the history of electricity

**William Gilbert**, doctor to Elizabeth I, first uses the word 'electricity'

The first electrical power station in the UK, **Deptford Power Station**, is built in London.

**Alessandro Volta**, Italian physicist, makes the first batteries.

**John Logie Baird**, Scottish engineer, invents the colour television.

**Joseph Swann** and **Thomas Edison** invent the filament lamp.

**Stephen Gray**, English scientist, demonstrates that electricity isn't just static but can in fact flow through wires.

**Benjamin Franklin**, scientist and one of the Founding Fathers of the USA, proposed the idea of an 'electrical fluid' flowing.

The first mobile phones and digital cameras become available.

The first iPhone becomes available.

**Michael Faraday**, English scientist, invents the electric motor.

The first electrical washing machines, dishwashers and tumble dryers appear in British homes.

The streets of Godalming are first in the UK to be lit with electric lights.

4. Pairs share their ideas with the class – looking for similarities and differences between when they think events took place. Use questioning to encourage children to justify their ideas.
5. Share the positions that the events should be placed on the timeline – the children can then use coloured pens to create their timeline of the history of electricity adding illustrations if they want.
6. **Challenge:** only give children the years and ask them to use their mathematical knowledge to create the full timeline and determine the position of each event on the timeline (100 years = 20cm, 10 years = 2 cm and 1 year = 0.2cm)
7. Encourage children to take the timeline home to share and discuss with their families.



## The solution

Event	Year	Position on timeline
William Gilbert, doctor to Elizabeth I, first uses the word 'electricity'.	1600	Left end of the timeline
Stephen Gray, English scientist, demonstrates that electricity isn't just static but can in fact flow through wires.	1729	25.8cm from the left end
Benjamin Franklin, scientist and one of the Founding Fathers of the USA, proposed the idea of an 'electrical fluid' flowing.	1747	29.4cm from the left end
Alessandro Volta, Italian physicist, makes the first batteries.	1793	38.6cm from the left end
Michael Faraday, English scientist, invents the electric motor.	1821	44.2cm from the left end
Joseph Swann and Thomas Edison invent the filament lamp.	1873	54.6cm from the left end
The streets of Godalming are first in the UK to be lit with electric lights.	1881	56.2cm from the left end
The first electrical power station in the UK, Deptford Power Station, is built in London.	1891	58.2cm from the left end
The first electrical washing machines, dishwashers and tumble dryers appear in British homes.	1930	66cm from the left end
John Logie Baird, Scottish engineer, invents the colour television.	1944	68.8cm from the left end
The first mobile phones and digital cameras become available.	1975	75cm from the left end
The first iPhone becomes available.	2007	81.4cm from the left end