

## What about James Watt?

Five things you need to know about the inventor and mechanical engineer Mr James Watt.

### 1. He didn't go to school very often

James Watt was born to a rich family in Greenock, Scotland on 30th January 1736. Although he did not regularly go to school, he was well educated and schooled at home by his mother. Watt enjoyed and excelled in mathematics and science, but Greek and Latin didn't interest him at all.



### 2. He found a way to make steam engines more powerful

When he was around 18 years old Watt came to London to study 'instrument making', working with watches and other small mechanical machines. From there he moved back to Scotland, setting up an instrument making business in Glasgow and working for Glasgow University. It was there that he found a

#### WATT'S IMPROVEMENTS

Watt invented the separate condenser and used steam pressure much more reliably and efficiently than ever before.

model steam engine that needed repair. By the time Watt had finished his work on the model engine, he had developed the idea to make a steam engine that was far more efficient and powerful.

### 3. He was in the right place at the right time

Victorian Britain was a time of great change. By the time Watt had left school and started work, the Industrial Revolution had begun. New factories were now mass producing products for the ever-growing population. Victorian Britain was ready for bigger, more efficient engines to power the machinery in the new factories. James Watt was about to invent the greatest steam engine the world had ever seen. There was just one problem...

## James Watt: Timeline

**1736** James Watt is born on 19th January in Greenock, Scotland

**1755** Moves to London to begin work as a mathematical instrument maker and completes an apprenticeship in one year. Some apprentices took seven years

**1756** Returns to Scotland to start his own business making mathematical instruments, but faces opposition from local tradesmen who do not recognise his credentials and training from London

**1763** Given a model Newcomen steam engine and sets about improving the design

**1764** Marries his cousin Margaret (Peggy) Miller. They have five children, but only two of them live to adulthood

**1765** Develops modifications to the design of steam engines, helping to start the Industrial Revolution

**1768** Enters partnership with John Roebuck who funds the construction of Watt's first steam engine

**1769** Patents his invention for "A New Invented Method of Lessening the Consumption of Steam and Fuel in Fire Engines"

#### 4. He was short of cash

Watt knew that his improvements to Newcomen's engine would work from the small scale model engines he had made. Unfortunately, Watt didn't have the funds to build a full sized steam engine. Eventually a Birmingham based businessman named Matthew Boulton bought the patent for Watt's steam engine. Boulton funded the project and helped to find iron-workers with enough skill to build Watt's engine. Without the financial help from Matthew Boulton, Watt's steam engines may never have been built.



**Built in 1820, the Boulton & Watt engine is the oldest in the Museum**

#### 5. His inventions changed the world for ever

James Watt formed a business with Mr Boulton, producing Watt's steam engines for factories and other industries across the country. Boulton and Watt steam engines were installed in coal mines, factories and water pumping stations all over Britain. Many of the necessities and luxuries we enjoy today can trace their roots back to these early days of the Industrial Revolution when Boulton and Watt engines were popular.

#### WATT AND WATER PUMPING

Boulton and Watt engines were so good that all of the water-pumping companies in London used them.

**1772** Watt's wife, Margaret, dies

**1775** Matthew Boulton buys Roebuck's interests in Watt's engines and begins business relationship with Watt

**1777** Watt remarries to Ann MacGregor. They have two children

**1784** Boulton and Watt steam engine is launched. It uses 75% less fuel than the earlier Newcomen engine

**1819** Dies on 25th August in Birmingham, England

**1820** Boulton and Watt Engine built and installed at Grand Junction Water Works (GJWW) site in Chelsea

**1832** Watt's wife, Ann MacGregor, dies

**1840** Boulton and Watt engine moved from GJWW Chelsea to new Kew Bridge waterworks site

**1882** A unit of measurement of electrical and mechanical power – the watt – is named in James Watt's honour

**1944** Boulton and Watt engine at Kew Bridge is retired from service

**1975** Boulton and Watt engine at Kew Bridge is restored and returned to steam

**2011** Featured on £50 note, alongside his business partner Matthew Boulton