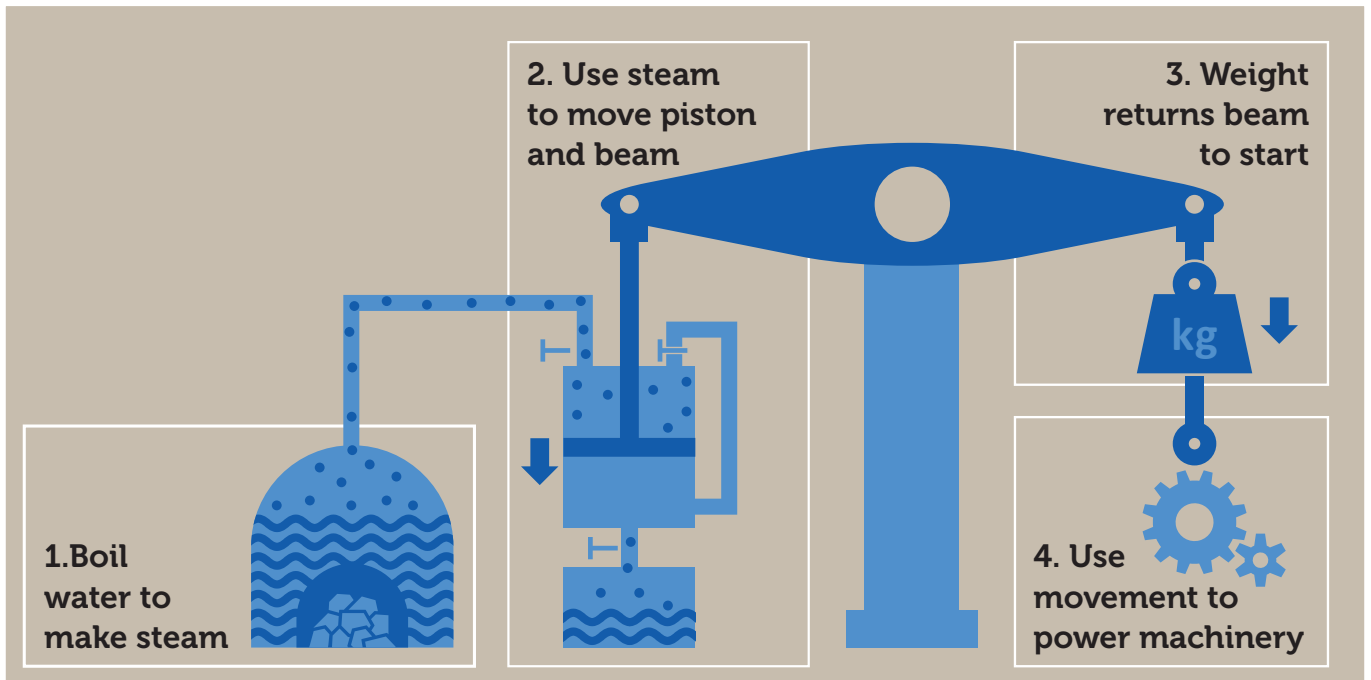


Steam power simplified

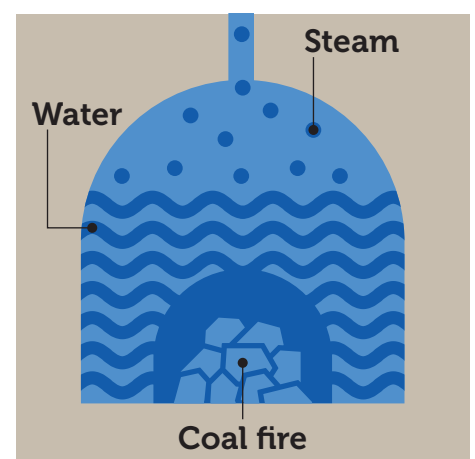
Almost every modern mechanical development can trace its origins back to The Industrial Revolution and the development of steam power. The London Museum of Water & Steam is home to a unique collection of steam engines that were used to pump water to homes and businesses in London.



1. Boil water to make steam

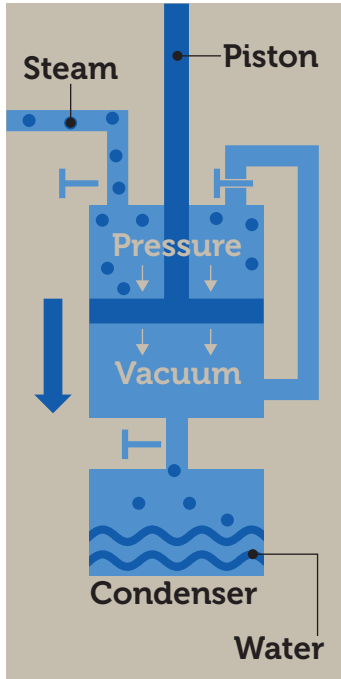
When water is heated to boiling point, it expands to make a gaseous cloud called steam.

The steam has a greater volume than the water it was made from and so creates an increase in pressure inside the sealed boiler.



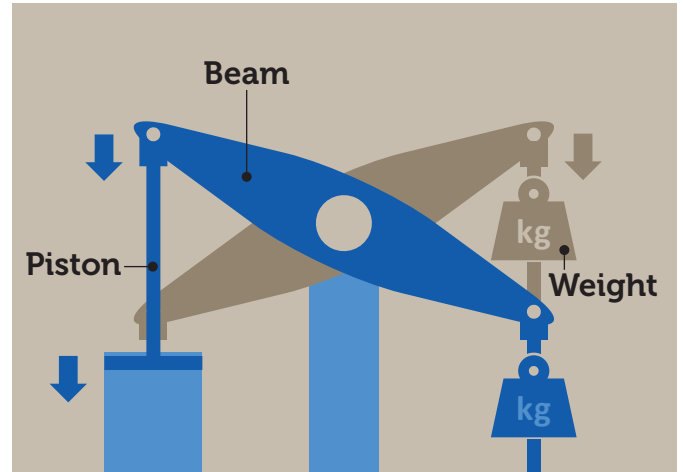
Giant boilers These were used to burn coal to produce the heat that was needed to make steam for the engines.

2a. Use steam to move the piston



Producing steam in a sealed container creates pressure. The **pressure** is used to push the piston. The piston's movement is assisted by use of a **vacuum**. As steam enters the condenser it cools and turns back into water. This is called condensation. Water takes up less room than steam so a vacuum is created.

2b. The piston rocks the beam

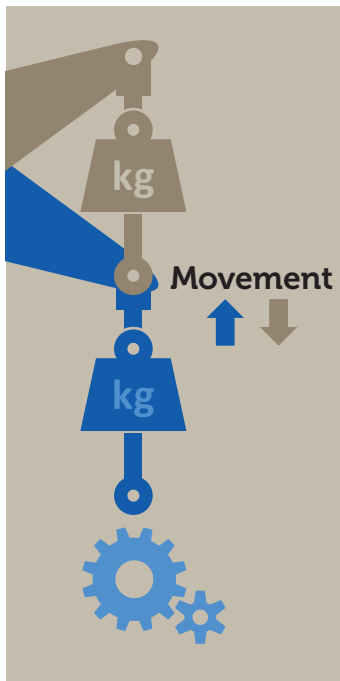


The pressure and vacuum work together to move the piston which **rocks the beam**.

3. Weight returns beam to start

At the other end of the beam a **weight** brings the beam back again to the starting position.

4. Use movement to power machinery



The beam rocks to and fro, pushed one way by the steam powered piston and brought back to the start position as the weight falls. This **movement** can be used to power types of machine, such as water pumps.

TALKING POINT

Why some of the engines at the Museum are called 'Cornish' engines

Cornish type steam engines were built to a design developed for the Cornish mining industry that were used to remove water from deep mine shafts. As coal cannot be found in Cornwall, it was transported there from places such as Wales and Newcastle. Transporting coal was expensive, so the Cornish miners needed an engine that would use less coal. Cornish engineers were brave enough to build stronger engines that could safely withstand high steam pressures. The powerful new 'Cornish' method was so successful that the design was used all over the world.



All of the steam engines at the Museum work just like this, using steam to move **pistons**. Most of the engines have a large iron **beam** which rocks back and forth as the piston moves. The movement of the beam is used to power large water **pumps**.