



## The Boiler

The boiler is the heart of a steam engine. This is where the fire heats the water to make it boil and create steam. The steam from the boiler travels to the cylinders, where it pushes the pistons. The pistons, via the rods, make the wheels go round.

## Safety Valves

These are automatic devices that prevent too much pressure building in the boiler, as too much pressure could cause the boiler to explode! They are tested every year to make sure they work correctly. A good fireman will not let these operate (lift), as they will be wasting coal and water.

## Pressure Gauge

This shows how much pressure is in the boiler. The pressure wants to be enough for the engine to do its work, but not so much as to lift the safety valves

## Steam Space and Dome

Above the water sits the steam. On the top of the boiler there is often a dome. This dome is much higher than the water and is often where the steam for the cylinders is taken from, as water being carried over into the cylinders can cause damage.

## Gauge Glass

This shows how much water is in the boiler. If there isn't enough the top of the firebox may melt, and cause damage! Too much and the water may get into the cylinders, causing damage! Getting it just right is a real skill.

## The Tubes

Tubes take the hot gasses from the fire to the smokebox at the front of the engine. The tubes also get hot, helping to heat the water.

## The Smokebox

The hot gasses come from the tubes into the smokebox, then goes up the chimney. Used steam also comes through the smokebox and goes up the chimney. It is this used steam that causes the 'chuff' sound. The harder the locomotive is working, the louder the chuff!

## The Fire

All of our steam engines burn coal. This sits on the firebars at the bottom of the firebox. The hot gasses burn above this and give the heat for the water in the boiler to boil, and make steam. This is a bit like a kettle at home, but that uses either electric or gas to heat the water.

