

## What is a hot air balloon?

A hot air balloon is a method of transport that enables the user to move from one place to another through the air. Consisting of a basket, four big gas tanks, a burner and the balloon (or 'envelope'), a hot air balloon is a safe way to travel.

### How does a hot air balloon work?

First, the pilot puts four nylon poles into sockets on top of the basket. After that, she puts the burner on top of its poles. Next, she connects the cables to the burner frame. The cables also go under the basket, in order to hold everything together. After this, she connects the hoses from the full gas tanks to the burner so that she can test it. Next, two people hold the mouth of the balloon open while it's filled with cold air from the fan, until it is quite fat and tight. The pilot then lies on the ground, half in the basket. Turning on the balloon's gas burner, she points the flame into the 'mouth' of the balloon. This is to ensure the balloon slowly stands up. When the pilot is ready to go, she heats up the air in the balloon a bit more. This results in it being hot enough to get the balloon to rise off the ground.



### Who invented the hot air balloon?

French brothers, Joseph and Jacques Etienne Montgolfier, invented the hot air balloon in 1783. The Montgolfier brothers were paper mill owners and wrongly believed that smoke provided the lift for their light fabric balloon. They filled their balloon with smoke from a fire of straw, humidified wool and even of old shoes! The more dense the smoke, the better, they thought. Only later was it realised that it was the hot air provided by the fire that mattered, not the smoke.

### Why does the air have to be hot?

Hot air is lighter (less dense) than cool air. The heated air causes the balloon to rise because it is lighter than an equal volume of cold air. Often, the upstairs of a house is warmer than the downstairs. This is because hot air rises and cold air doesn't.

1. The basket of the balloon transports the passengers.
2. 4 large, gas tanks provide fuel for the burner.
3. The burner provides the heat which lifts the balloon off the ground.
4. The 'envelope' of the hot air balloon helps to keep it in the air.

### Glossary

Basket: (N) Device made of wicker used to carry passengers.

Burner: (N) Device which propels the hot air up into the envelope.

Envelope: (N) Nylon balloon fabric which fills with air when inflated.

Gas tanks: (N) Capsules filled with propane gas which acts as fuel for the burner.

Pilot: (N) A person who operates an aircraft.

Transport: (V) To take or carry people or goods from one place to another.

### Did you know?

- The first hot air balloon's envelope was made of cloth, lined with paper and held together by 2000 buttons!
- The first passengers in a hot air balloon were a sheep, a rooster and a duck!
- Louis XVI, Marie Antoinette and the French court watched this first flight.

Hot air balloons have been used for many years and their designs are constantly being improved. Although we now have many forms of transport to choose from which are much quicker, hot air ballooning has become a popular hobby.