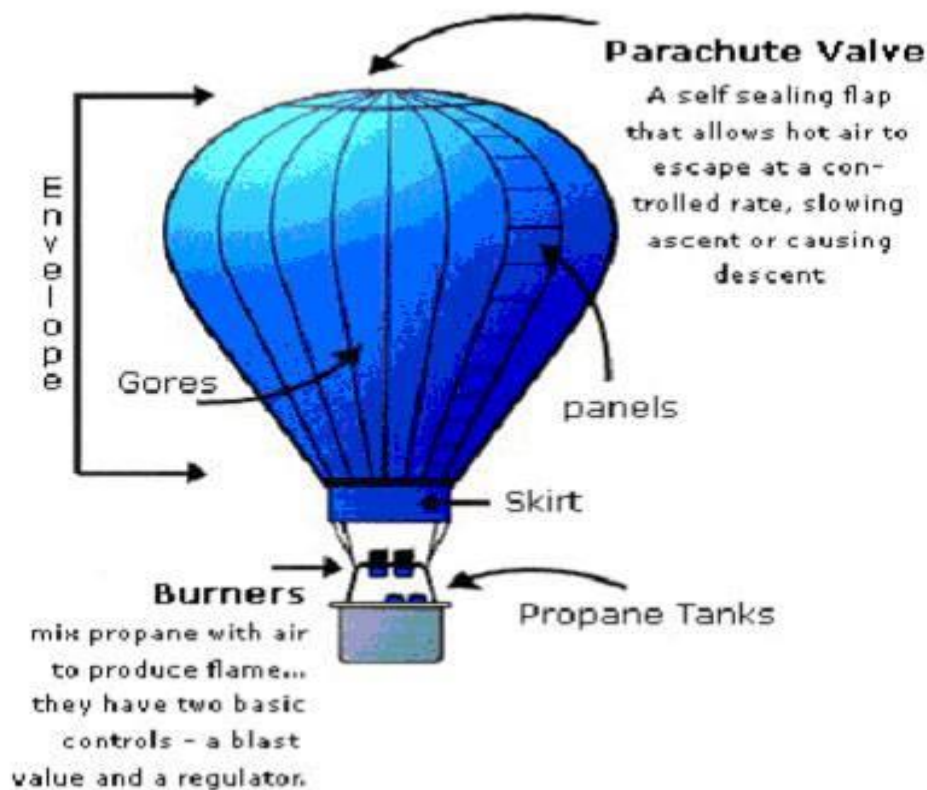


## Hot Air Balloons

This resource will help you with:

- **Stage 3** – I can discuss with my Scouter Hot Air Balloons how hot air balloons work and how they are controlled.

**Know the basic structure** - The structure is so simple that you may already understand it, but learning the terminology allows you to understand how it works.



- The fabric balloon itself is called an **envelope**, made from sewn panels called gores.
- In most balloons, there's a hole at the top of the envelope, tightly covered by a flap of fabric. This is called a **parachute valve**. It is attached to a **rip line** that runs all the way down to the basket.
- The bottom end of the envelope, **or mouth**, is located above a burner, which produces flame fuelled by the propane tanks underneath.
- The **propane tanks**, passengers, and cargo all stand in a basket attached beneath the envelope.

## Hot Air Rising

Hot Air Balloons lift because the air inside them is lighter than the air outside of them. The envelope is filled with hot air from gas burners. The hot air pushes cold air out of the way producing enough upthrust to lift the balloon and the basket off the ground.

The balloon is launched by untying ropes that hold it to the ground. They are made of Flame -resistant fabric so they do not melt or catch fire when been filled with hot air.



## How are Hot Air Balloons controlled?

Balloons have no direct way to control the direction they travel. However, there are typically several layers of wind stacked on top of each other, blowing in different directions. If you raise or lower the balloon you will catch a different cross-stream, and your balloon will change direction. Pilots often need to improvise the route as they go along, to some extent, and it takes experience and planning to catch the right wind at the right time.

Many balloons have cords that pull open side vents on the side of the envelope, but these just rotate the basket. Almost all hot air balloon flights are shadowed by a car or truck on the ground, picking up the balloon and its passengers once it lands.

