

Hot Air Balloon-Reflection



How did it go? What were your results?

What would the force diagram look like on an ideal hot air balloon that is rising straight up?

What would the force diagram look like on your hot air balloon?



What design might help your hot air balloon to stay in the air longer?

bigger, more heat, lighter mass, if the opening at the bottom is smaller

How might weather conditions affect your balloon's flight?

A hot air balloon will fly higher and for longer on a cold day because there is a bigger temperature difference between the cold air outside and the hot air in the balloon.

How do balloonists keep their hot air balloons flying for long distances and times?

They carry propane with them so they can reheat the air as they fly.

Fun Facts

The oldest person to fly in a hot air balloon

Emma Carol was 109 years old when she flew for an hour in a hot air balloon in 1895. Her record still stands.

First person to circumnavigate the world in a balloon

Steve Fossett set off from Western Australia in 2002 and landed in Queensland, Australia 13 days and 12 hours later to be the first person to fly around the world in a hot air balloon.

World's largest passenger hot air balloon

In 2014, a giant hot air balloon was manufactured by Cameron Balloons of Bristol. It carried 32 passengers to claim the world record for the largest certified passenger carrying balloon.

As we discovered, balloons use expanding hot air to cause vertical lift.

What about birds, arrows, and airplanes that move horizontally through the air. They must have a different source of lift because the air is in motion around these flying objects.

The study of air in motion is called aerodynamics.

Air is very pushy, it doesn't pull but it does push. Air is pushing on your body right now. We're so used to air pushing on us that we don't even notice it. **The constant push of air is called air pressure.**

If you've driven up a steep hill or been in a plane, you might have felt your ears pop. This is caused by higher air pressure inside our ear drums than outside.

We will be doing some aerodynamics activities. You will work in pairs. For each station, read over the entire procedure before you begin.

Predict what is going to happen at each station.

Perform the activity, jotting down your observations. Each activity has questions to help you reflect on what you observed. Be sure to answer the questions in complete sentences.

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While you move from activity to activity, keep in mind how airspeed, air pressure, and movement are all related.

Liftoff and Aerodynamics