Helium balloon lift experiment

Activity Overview

This activity introduces the counteracting forces of lift and weight, and their effect on flight.

1-2 HOURS

Learning Objective

The key learning objective is to develop understanding of the interaction between lift and weight.

Activity Plan

- Take turns holding the balloon - can you feel the lift?
- Add a small amount of sand/water to the cup to provide weight - weigh on the scales.
- Retest the balloon - does it still rise, even with the increased weight?
- If so, add more weight to the balloon and retest.
- Keep going until the balloon hovers in place - neither rising nor falling.
- At this point, weigh the cup and the sand - this is equal to the lift generated by the balloon.

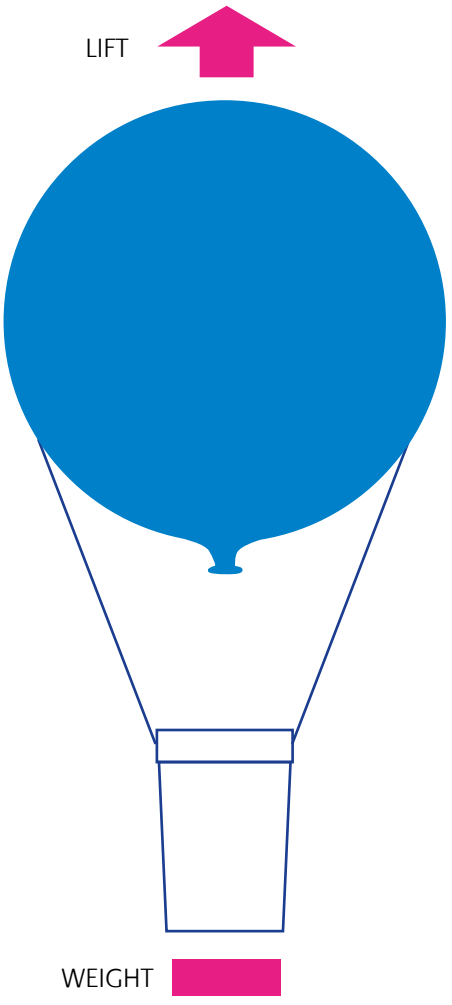
Material Examples:

- Pre-filled helium balloons - one per group of 3/4 students.
- Small plastic cups.
- Sand or water - to fill the cups with.
- Digital scales.
- String & sticky tape.

Challenge Statements

Can you draw a diagram to explain the interacting forces?

How much could two or three balloons lift?

How much would it take to lift you?

Example Set up