

Roll up, roll up!

Science at the circus is an interactive science show that uses some of the tricks and skills you might see at a circus to explore science concepts from a range of topics relating to forces and sound.

Our shows are designed to work flexibly as introductions to a topic or to revise a topic depending on what approach teachers would like us to adopt with particular audiences. Teachers may wish to use this overview to help to prepare their classes before the show. Introducing or revising key vocabulary and concepts in advance of the show tends to increase the learning outcomes from the presentation.



Key concepts and vocabulary

- **gravity** is a force that pulls all objects down towards the ground;
- the air around us is a gas and even though we cannot see it and it doesn't feel very heavy it does have weight;
- if an object is lighter than the space of air it takes up then it will **float**, and if the object is heavier than that amount of air then it will **sink**;
- some gases, like **helium**, are lighter than air for their size eg helium-filled balloons that float.
- every object has a **centre of gravity** (or balance point) – it's where you can assume that the force of gravity acts on the whole object;
- an object can only **balance** if it can keep its centre of gravity directly above the point where it is being supported;
- whenever an object wobbles or **vibrates** fast enough it makes the air around it shake backwards and forwards all the way to our ears – we call this a **sound wave**;
- the smaller the object that is vibrating, the faster it can vibrate, and higher the pitch of the note that it makes;
- **rubber** is a stretchy material (scientists call it **elastic**) – if you pull it, it will return to its original shape when you let go.
- when you spin an object it will tend to keep spinning in that direction for a long time;
- the more you stretch an elastic cord the bigger the force that pulls it back together when you let go.

Further information explaining the demonstrations and concepts used in the show, with some suggested follow-up activities, can be found in the support notes for this show at www.think-differently.co.uk