

A **Force** is a push or a pull. When you open a drawer, you are pulling against the drawer; when you close the drawer, you are pushing against it. To move any kind of object, you must push or pull it to make it move. We often describe forces as tugging, twisting, stretching, squashing, squeezing or pressing. These forces act on objects and structures all around you.

Compression and **tension** are the terms for squeezing and pulling. **Friction** is a force we can feel when surfaces slide against each other. Friction slows down movement or even

stops it. By the way, friction always creates heat. What happens when you rub your hands together?

Friction acts on liquids and gases as well as solids, but we call the friction we can feel in liquids and gases **resistance**. Think of the resistance of the water when you swim. Olympic athletes can run 100 m in 10 seconds, but they take almost 60 seconds to swim 100 m!

Water is the most common liquid found on Earth. **Upthrust** or **buoyancy** is the force of water pushing against an object,

which in effect pushes an object up. When the effect of gravity, which pulls an object down, is greater than the upthrust, an object sinks. For an object to float, the effects of gravity and upthrust need to be the same. Buoyancy also refers to an object's ability to float.

Elastic force is what happens when an object is stretched or squashed and then springs back to its original shape. A spring scale and a sponge are good examples of this kind of force.

The force of **magnetism** is the push and pull of a magnet.

Gravity can move things, for example, when an object rolls down a hill or when leaves fall off a tree. Every object that has mass also has gravity. Small objects, like you and me, have very weak gravity. We don't attract other objects very well. Only very, very large objects like our Earth are large enough for us to feel their gravity. Everything on Earth is pulled down by gravity toward Earth's centre.

