

Forces and Motion Show

Learning objectives

- Recognise that pushes and pulls are examples of forces
- Develop an understanding that forces are needed to get something moving
- Gain an appreciation that when forces are balanced there can be no movement/acceleration Whereas unbalanced forces do result in movement/acceleration
- Investigate that gravity is a downward pull that makes everything travel at the same speed
- Understand how air resistance affects falling objects
- Gain an understanding that a person's weight is the force applied by their body to the floor due to gravity
- Gain an understanding of reaction forces
- Investigate how pulleys can be used to lift heavy objects
- Gain an appreciation of how scientific principles can help us solve problems

Show content - students will:

- Demonstrate the effect of balanced and unbalanced forces
- Observe and compare the gravitational pull on a melon and a plum
- Investigate the effect of air resistance using a vacuum tube
- Use a force plate to measure force due to gravity
- Make use of a thermal imaging camera to investigate the heat generated by different materials due to friction
- Observe how pulley systems can be used to lift a person with ease

National Curriculum links

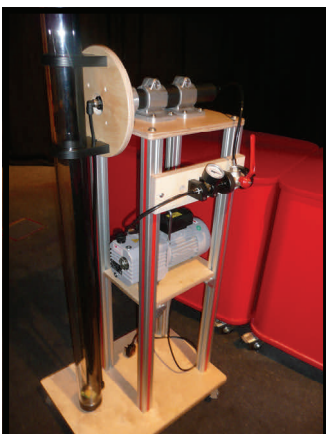
Sc1 Scientific enquiry

Sc4 Physical processes

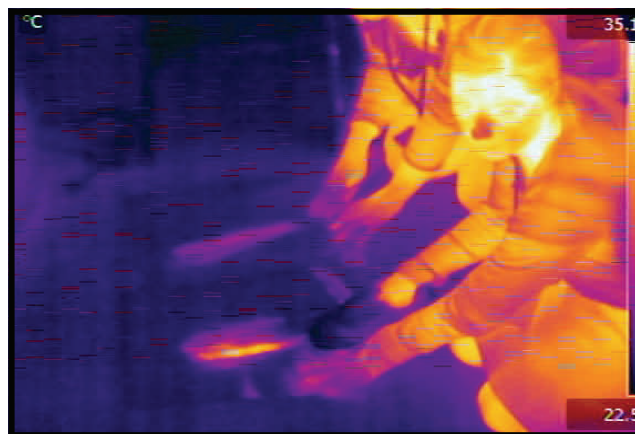
2) Forces and motion

- that objects are pulled downwards because of the gravitational attraction between them and the Earth
- about friction, including air resistance, as a force that slows moving objects and may prevent objects from starting to move
- that when objects are pushed or pulled, an opposing push or pull can be felt
- how to measure forces and identify the direction in which they act

Picture gallery



Using a vacuum tube to investigate air resistance



A thermal imaging camera is used to compare the friction generated by different shoes



Observe how pulleys make doing work easy!