

Topic: Tools, machines, technology

Pulleys

<http://www.primaryscience.ie/media/flash/act31/index.html#>

Question 1: Do you know what a pulley is?

A pulley is a simple machine with a wheel that has two raised edges. The edges allow a rope or string to run around the wheel without falling off.

A pulley can also be called a block and tackle.

Question 2: Can you think of where pulleys are used?

Pulleys can be used in lots of different ways. They can be used to lift heavy things, so you might find them on building sites. Have you been in a lift recently? How do you think the lift was able to move up and down between floors?

Question 3: Where else might you find pulleys being used?

Pulleys can be used to move things, like pulling clothes along a clothes line in the garden, or moving a cable car from one side of a valley to another.

Make a pulley

You will need:

A bucket

A weight

Rope

A rolling pin

Attach one end of your rope strongly to the bucket handle.

Put a weight in the bucket, e.g. stones

Place the rolling pin on a desk or table, with one end hanging over the desk.

Get two people to hold the rolling pin down firmly so that it doesn't move.

Now put the other end of the rope over the end of the rolling pin hanging over the desk, and lift the bucket by pulling DOWN on the rope.

Test to see whether the bucket is easier to lift by the pulley method: (pulling down), or by just lifting it up from the floor without the pulley.

Topic: Tools, machines and technology

Energy Transfer through Balls

<http://www.sciencekids.co.nz/experiments/bouncingballs.html>

Energy is constantly changing forms and transferring between objects, try seeing for yourself how this works. Use two balls to transfer kinetic energy from the big ball to the smaller one and see what happens.

What you'll need:

- A large, heavy ball such as a basketball or soccer ball
- A smaller, light ball such as a tennis ball or inflatable rubber ball

Instructions:

1. Make sure you're outside with plenty of room.
2. Carefully put the tennis ball on top of the basketball, holding one hand under the basketball and the other on top of the tennis ball.
3. Let go of both the balls at exactly the same time and observe what happens.

What's happening?

If you dropped the balls at the same time, the tennis ball should bounce off the basketball and fly high into the air. The two balls hit each other just after they hit the ground. A lot of the kinetic energy in the larger basketball is transferred through to the smaller tennis ball, sending it high into the air.

While you held the balls in the air before dropping them they had another type of energy called 'potential energy', the balls gained this through the effort it took you to lift the balls up, it is interesting to note that energy is never lost, only transferred into other kinds of energy.