

Roller-coaster ride

This activity is designed to show the difference between the energy stored in a stationary object and the energy of an object in motion. It demonstrates that the energy of a moving object is dissipated over time so that it eventually comes to a rest.

You will need

- 2 chairs
- Masking tape
- Metre sticks
- 3 marbles
- Strip of vinyl ceiling moulding or minicar race track, or strip of tubing split in half lengthways

Steps

1

Tape each end of the track to a separate chair so that the track will hang down in the middle in the shape of the letter U. Tape the bottom of the track to the floor.

2

Place a marble at one end of the track and let it roll down (don't push it). Make a note of the number of times it travels back and forth.

3

Experiment with different combinations of marbles – one, two or three at a time. What happens when a marble is left at rest in the bottom of the loop and another one sent down to meet it?

Analysis/ discussion

Experiment to see what happens when the marble is released from a different position.

Can you establish a ratio between the position of the released marble and the number of times it rolls back and forth before coming to a stop?

