

Activity 4

Bouncing balls

When a ball is dropped from a height it will never bounce as high as the point from which it was dropped.

This activity will help you to understand why.

YOU WILL NEED A basketball • Small ball i.e. tennis ball • Appendix 3 'Evidence cards' •

- 1 Place the ball flat on the ground.
- 2 Ask the class if the ball is moving.
- 3 Pick the ball up and hold it at shoulder height.
- 4 Ask the class, "What can this ball do now that it couldn't when it was on the ground?" Elicit the response, "It can fall".
- 5 Tell the class to imagine a scale starting at one at your foot and ending at ten at your shoulder.
- 6 When you picked the ball up you gave it ten parts of energy – potential energy to fall.
- 7 Ask the class to estimate where on the scale the ball will come back to when you drop it.
- 8 Drop the ball. Where on the scale did it bounce back to?
- 9 What happened to the other parts of energy?
- 10 It is impossible to destroy energy. Newton's Principle of Energy Conservation states that energy cannot be created or destroyed just changed from one form to another.
- 11 Get the students to close their eyes and repeat the experiment; tell them to shout out when the ball hits the ground. How do they know? There is a sound, so some of the energy has changed into sound energy.
- 12 What are the other types of energy generated by the ball?
- 13 Hand out the evidence cards from Appendix 3 and ask the students to arrange the evidence cards to prove that the energy did not just disappear.

