

Sporting collisions

Concept—Energy transfer

CURRICULUM LINK:

Science Curriculum—Energy and Forces strand

Experiment

You will need:

- Basketball
- Smaller plastic ball or tennis ball

1. Lift the basketball to about shoulder height.
2. Imagine a scale of 1–10 with the floor rated 1 and your shoulder 10, now drop the basketball and notice how high on your scale it bounces back to.
3. Do the same with the smaller ball.
4. The basketball doesn't have enough energy to come back up to shoulder height (10 on the scale) so some of the energy must have been lost by the basketball. Where did it go?
5. Close your eyes and drop the ball again—with your eyes closed how do you know when the ball hits the ground?
6. Put the palms of your hands flat on the ground and get somebody else to drop the basketball nearby, do you feel anything when the basketball drops?
7. From 4 and 5 above you should have discovered 2 places where the energy of the basketball went—can you think of any others?
8. Try dropping the basketball with the smaller ball balanced on top (you will have to hold onto the smaller ball until you drop them). NB. Do this outside or in an open space.
9. This time the smaller ball shoots up in the air—where did it get the energy to bounce so high?

Energy can never be destroyed. In this experiment it is transferred between the two balls and changed into different forms, such as sound, heat and vibrational energy.

