

Bouncing Balls

Equipment

- > Various balls such as golf ball, table tennis ball, basketball.

Achievement objectives

- > Explore and identify trends and relationships associated with easily observable physical phenomena e.g. bounce and type of ball. (Physical World Level 3)

Learning outcome

- > Carry out a planned investigation to investigate the bounce height of different balls.
- > Record observations and measurements.
- > Describe the trends and relationships between different ball types and how they bounce.

Suggested assessment

- > Ask students to report their findings (in the form of a demonstration, a diagram, or a verbal or visual presentation).
- > Encourage them to keep and refer back to their reports so that they can add or alter information as they work through further activities.

Notes

- > Students would benefit from having carried out a range of other investigations before this lesson and having experimented with a variety of balls e.g. sponge, rugby, basketball, tennis, ping pong etc.
- > This lesson is based on *Building Science Concepts*, Book 42.

Teaching and learning

- > Give students an opportunity to experiment with a range of balls and predict which ones might bounce the highest.
- > Play a game such as four squared and dodge ball (*Kiwidex*), basketball or ball tag. Play with various balls. Ask students to bounce the balls.
- > Use the planning sheet (see below) as a guide to recording predictions, planning an investigation and recording the results.
- > Ask students to design a system that better allows them to release the items simultaneously, e.g. by using the blade of a ruler to sweep both items simultaneously off a high bench.
- > Have students do a 'best of three tries' test to average out the results.
- > In pairs or small groups: Students share their findings and discuss the relationships between different types of balls and the way they bounced.

What to watch for

- > Students' ability to record their observations of the bounce heights of different types of balls, when they carry out a planned investigation. Can they:
 - carry out a planned investigation?
 - record their observations and measurements?
 - explain any common trends and the relationship between various ball types and the way they bounce?

Ways to adapt

- > Investigate the bounce time of a different number of pupils on a trampoline.
- > Investigate the behaviour of falling objects and ways to slow their fall, such as paper parachutes.
- > Refer to *Building Science Concepts*, Book 42 for more ideas.

Planning sheet for science investigation

Name: _____

Title: _____

What are you trying to find out?

What do you think will happen?

Why do you think this will happen?

What are you going to do?

What do you need?

How will you make it a fair test?

Planning sheet for science investigation

What happened?

What do your results tell you?

Are there any relationships, patterns or trends?

Was this what you expected?

Can you explain the relationships, patterns or trends?

What difficulties did you find when doing this investigation?

How could you improve this investigation?