Forces at work: Bounce

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Measuring bounce: Student sheet

Method

1. Read through these directions and draw a results table with column headings as follows:
   - Ball type
   - Diameter (cm)
   - Surface (if using)
   - Bounce height (cm)
   - Average bounce height (cm)
   - Bounce minus diameter (cm)
2. Ask your teacher for guidance if you're not sure what the headings should be
3. Clamp the metre ruler vertically using the stand (on the ground). The ruler should rest on the ground. Use a spirit level to make sure the ruler is straight
4. Measure the diameter of the ball
5. One group member should carefully drop the ball from a height of 100cm (from the bottom of the ball) and observe how high it bounces. Do this a few times so that the judge can get an idea of how high it will go and get their eyes level with the top of the bounce
6. Then drop the ball three times and record how high it bounces (measure from the top of the ball)
7. Next, calculate the mean height of bounce (the average of the results)
8. Subtract the diameter of the ball to get the exact distance the bottom of the ball has travelled
9. If your teacher tells you there's time, switch balls and repeat steps 2-6

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Results table

Use this page to design your own tables and record your results

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Explain your results by answering these questions

- Which ball had the biggest bounce?

- What would the effect of bouncing the ball on a different surface be? For example, grass or tarmac?

- Can you explain why some of the balls bounce better than others?

- Discuss how consistent the results of each test were.

- What is the biggest source of error in the experiment?

- Could there be a more accurate way to measure the bounce of the ball?