

CURIOSITY AT HOME

BALL BOUNCE



MATERIALS

- Several different types of balls (like a tennis ball, bouncy ball, baseball, kickball)
- A tape measure or yard stick
- A pencil and piece of paper

PROCEDURE

- For each ball you have, compare its size, shape and weight and other characteristics. Is it hollow or solid? Is the surface hard or squishy? Predict which will bounce the highest.
- Drop each ball (be sure to drop and not throw the ball), and measure how high the ball bounces.
- Check your result by dropping each ball two more times, and graph the heights of each ball in the table below.

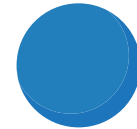
Was your prediction of which ball would bounce the highest correct, or were you surprised? Was your highest bouncing ball hollow or solid? What was it made of?

CURIOSITY FOR ALL AGES: EXPLORE MORE

Material science can also help us understand the properties of the surface the ball is dropped on. Try dropping the balls again on different surfaces, such as grass, a wooden porch, or the sidewalk.

- Which surfaces caused the balls to bounce the highest?
- Which ball bounces the most times?
- If you could bounce any type of ball on any surface, what would you try?

Experiment continued on next page...



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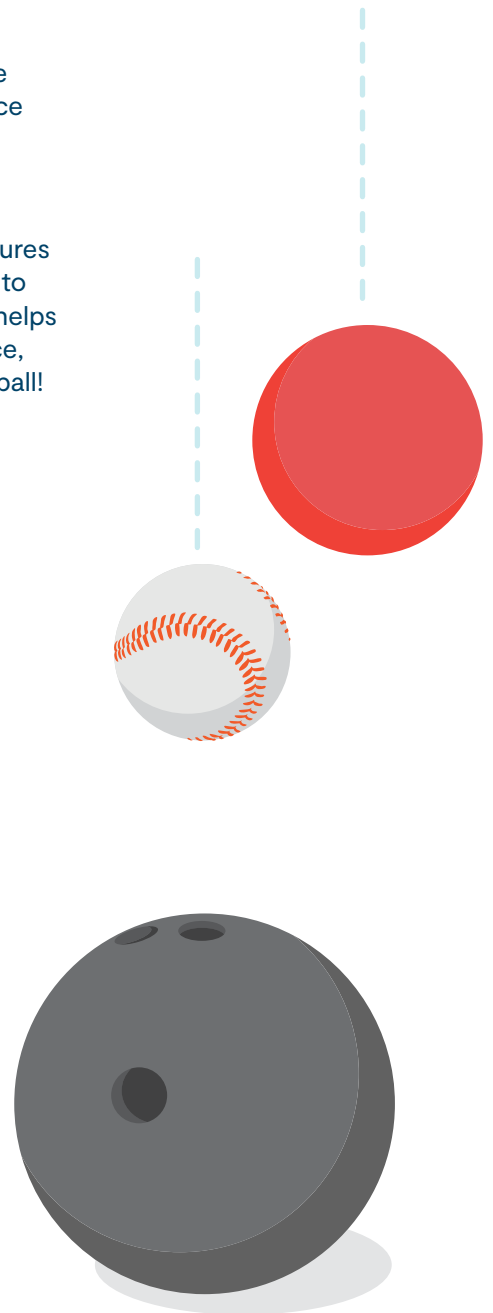


CURIOSITY FOR GRADES 3–5, 6–8: EXPLORE MORE

- Print or copy the bar graph page into a science notebook.
- Color in the heights of the ball bounces.
- Picking one ball, try dropping it from different starting heights, and measure how high it bounces. If you double the initial dropping height, does it bounce twice as high?

What's happening?

Not every ball bounces the same way, because different materials and structures all have different characteristics; some balls bounce, and some are designed to not bounce as much. Material scientists test and measure properties, which helps us decide what materials are best for different uses. Without materials science, we might be trying to play soccer with a tennis ball, or go bowling with a kickball!



Experiment continued on next page...



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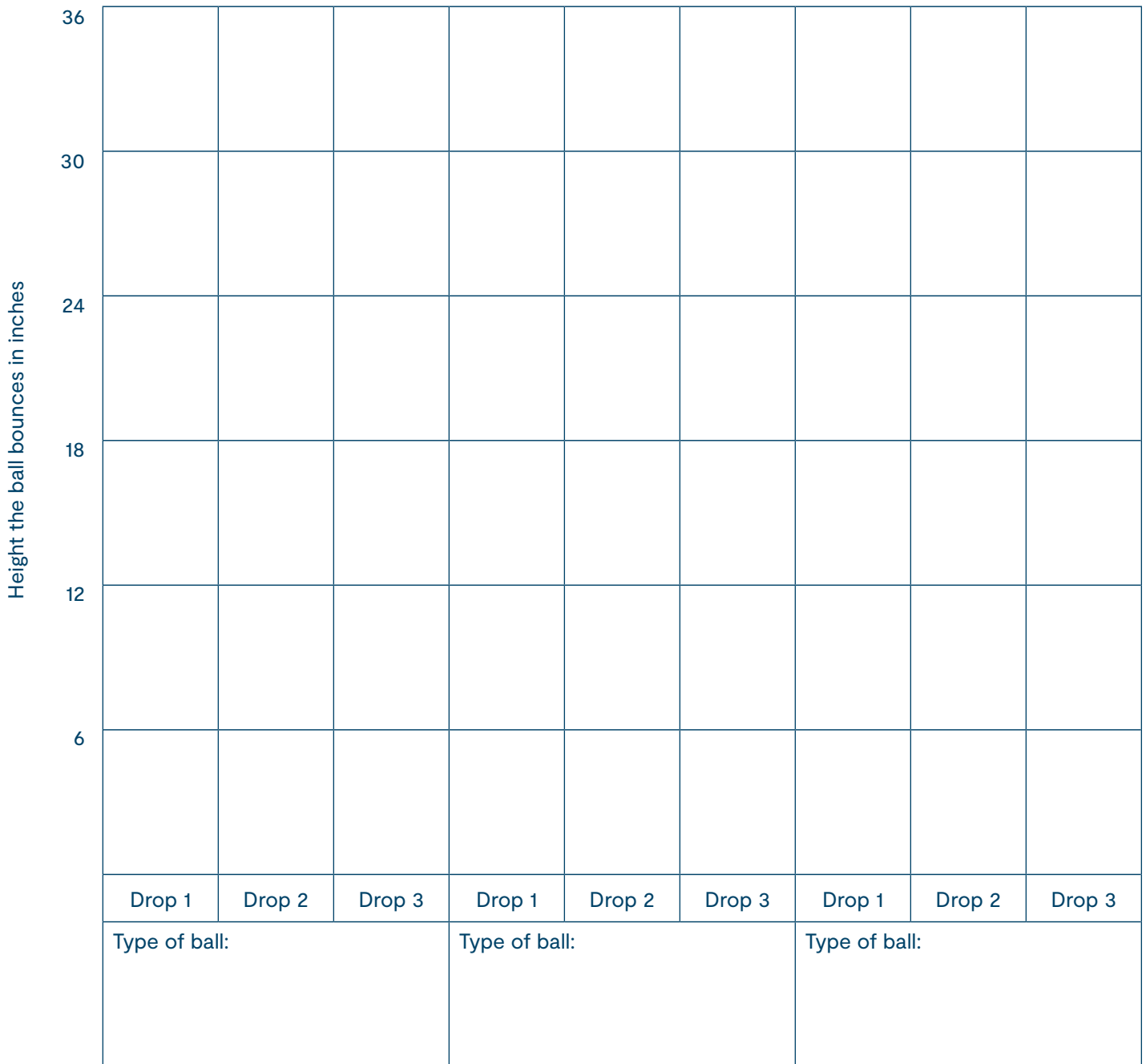
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How high does each ball bounce?

For each drop test, color in the height of the bounce to make a bar graph.



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