



## **Balls - Why do some balls go further than others?**

### **Fact**

- The more force you use to throw – the harder you throw it - the further the ball the will go.
- The weight and density of the ball determines how much force you have to use. (Density means how thick something is)
- What the ball is made of can affect how heavy and dense a ball is.
- Smaller, lighter balls need less force to push them through the air than larger, heavier balls.
- You don't need to use much force to throw a light rubber ball but you need to use a lot of force to throw a heavy bowling ball!

### **Do you know**

- Rubber balls make the best bouncy balls because rubber is flexible.
- Rubber balls are usually full of air so they're light and not very dense.
- Bowling balls are usually full of hard plastics so they are very dense and heavy.
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### **Experiments you can do**

Try throwing different types of balls (outside where there is lots of room and you're not going to hit anything!). Which ones are easy to throw? Which ones need more force to throw? Maybe mark up a line so you throw every ball from the same place and get someone to mark where each ball lands so you can really see the distance each ball reaches.

Try dropping different balls from a height and seeing how high they bounce.

### **Other Investigations**

Try guessing if things are heavy or light before you pick them up.

Experiment with density at Easter. Bite into one of those solid chocolate, crème filled chocolate or marshmallow filled eggs then bite into a hollow chocolate egg.

Are the solid, crème filled or marshmallow eggs more dense or less dense than a hollow chocolate egg?

### **Jokes**

What happened to the broken ball? It got thrown away.