A weighty question

Background knowledge

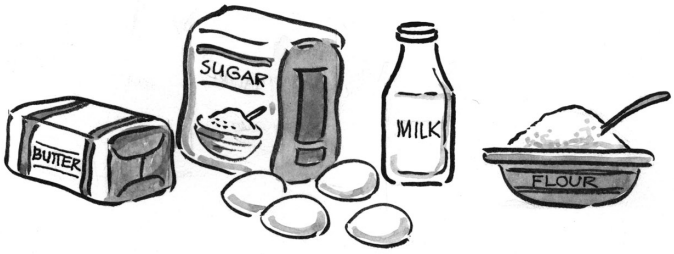
If a man stood on the Moon, he would stay the same size. His mass would not change. However, if he weighed himself on the Moon, he would weigh less. Your weight is caused by the pull of gravity. The Moon is smaller than Earth, so it has less gravitational pull. For example, a person who weighs 700 N on Earth will weigh about 120 N on the Moon.

Science activity

Imagine that some settlers have left Earth and gone to the Moon, taking their recipe books with them. The first cake they baked was a disaster. It had far too little moisture and was about six times the size they had expected.

The cake recipe was:

1.25 N	butter
1.50 N	sugar
4	eggs
1.50 N	flour
20 ml	milk



Why was the cake so big? Why was it so dry?

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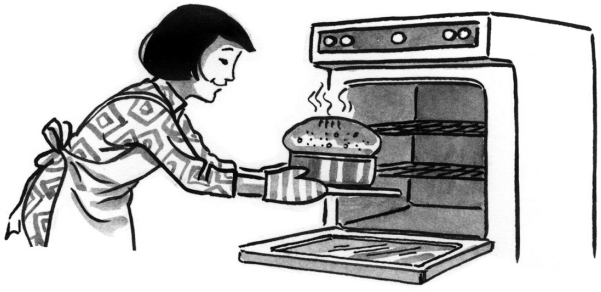

Science investigation

Take extra care - ask an adult to supervise you.

Can you catapult objects further on the Moon than on Earth? To find out, make a catapult using a thick rubber band. On Earth, objects weigh almost six times what they do on the Moon. Duct tape together 3 pennies (weight of an object on the Moon), then duct tape together 18 pennies (weight of an object on Earth). Catapult both sets of pennies. Predict which one will travel the farthest.

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Why was the cake so big? Why was it so dry?

Ingredients weigh less on the Moon. The cake was so large because they used about six times the butter, sugar, and flour they would have on Earth. The cake was so dry because the volume of an object does not change on the Moon, and they did not use six times the amount of milk.

Science investigation

(!) Heavier objects have more inertia (resistance to motion), so it is easier to catapult lighter objects. NASA has considered setting up a launching pad on the Moon – with less gravity than Earth, less energy would be needed.