

# DIY Bouncing Egg

## What Do I Need?

- A bowl
- 1 raw egg
- White vinegar
- Golden syrup
- Food dye



### Skill Level:

Medium to Hard

### Time

3-5 days

## How Do I Do It?

1. Place your egg in a bowl, pour in the vinegar until it's submerged. The egg needs to be completely covered by the vinegar. You could place a saucer on top to push the egg under.
2. After 72 hours carefully empty out the vinegar and rinse the egg with tap water.
3. The complete shell should have been removed. If there are patches of shell, do not scrape them off as you may puncture the egg. Try gently rubbing them off and rinsing with water. If they will not come off, put the eggs back in the bowl with some fresh vinegar and leave for another 24 hours.
4. Carefully take your rinsed egg and dry it on a piece of kitchen roll.
5. Drop the egg from a height of about 20cm above a flat surface – it should bounce. Weigh the egg and keep a note of its weight.
6. Place the egg in a bowl and completely cover it with golden syrup. Leave it for 6 hours. After 6 hours take the egg out. You should notice the skin is wrinkly and the egg is soft. Dry and weigh it. It will be lighter!
7. Place your lighter, wrinkly egg in a bowl of water with several drops of food dye. After 6 hours take the egg out. You should notice the skin is firm again and the egg is bouncy. Dry and weigh it. It will be heavier! If you look closely inside it will be the colour of the food colouring that you added. This egg should bounce better than the first one; but don't drop it from too high as it will burst!
8. As an alternative to using golden syrup, cover the egg with a solution of water and sugar. (Dissolve 2-3 teaspoons of sugar with 100 ml of warm water.) You should get the same effect.

**Continued overleaf**

# DIY Bouncing Egg (continued)

## Safety Advice:

IMPORTANT GENERAL SAFETY NOTE FOR SUPERVISING ADULTS. This Terrific Scientific investigation has been devised so that with adult supervision, reasonable care and by following the instructions provided, no special safety equipment or knowledge is required to enjoy the experience safely. These safety reminders are designed to assist the supervising adult when planning and carrying out the investigation. Please read the instructions fully before starting.

- Wash the eggs at the start of the investigation.
- Wash your hands at the end.
- Do not eat the egg at the end.

## What's Happening? The Sciency Bit:

The vinegar is a weak acid. It reacts with the shell, removing it without affecting the egg inside. This is because the egg is surrounded by a strong skin called a membrane which acid does not affect. The membrane allows water to pass through but stops other things. This effect is called osmosis. This investigation is an example of osmosis through a semi-permeable membrane.

When you put the egg into the syrup or the sugary water, water passes out of the egg through the membrane and it becomes lighter. When you put it into water (with food colouring) the water passes into the egg and it gets heavier. When you have finished the investigation place the egg into a basin and cut open the membrane, you should find a raw egg with food dye.

Did you notice that when the acid of the vinegar reacted with the egg shell it was an irreversible reaction? You can't grow the shell back! The shell of the eggs is for protection and the membrane protects the growing chick from, among other things, drying out.

## My Egg Doesn't Change... What Can I Do?

- Leave your egg in the sugared water, syrup or coloured water for a longer period of time.