

Stupid Egg Trick

Is it magic or is it science?



Grab this stuff:

- A** 3 eggs (or juggling balls)
- B** 3 hollow tubes
- C** 3 glasses

- D** Cork-backed place mat
- E** Water

Stupid Egg Trick



Arrange the glasses in a triangle formation, then half fill them with water.



1

Balance the board on the glasses with the cork side facing upwards. Next balance the plastic tubes on the board, open end up and directly over the glasses. You can check you have done this correctly by looking at the board at eye level from the front and the side.



2

The tricky bit is now balancing three eggs on top of the three tubes. The aim is to get the eggs into the glasses without touching them. Hit the board hard and see what happens...



3

Stupid Egg Trick notes

Aims

- Predictions – think and pose questions. Can you get all three eggs into the glasses?
- Observation skills – discover the importance of friction.
- Investigation – learn how friction can change the outcome of an experiment.

Practicalities and preparation

- If you are using juggling balls, do not put water in the glasses. Most juggling-ball fillings are made with millet, birdseed or other material designed to give the ball bulk, so if they become wet they may start to germinate. The reason water is added to the glasses is to give them weight, so if the plastic tumblers you are using are light in weight we recommend adding a little sand to make them heavier.

- Hit the board quite hard! If you do not use enough force the board will not have enough momentum to clear the glasses. On the other hand, if you use too much you run the risk of knocking the glasses over.
- If you are right-handed make the board hang more over the right-hand side of the glasses, but if you are left-handed do the opposite. Remember the reason for the overhang is to give your hand enough space to stop before hitting the glasses.

Safety information

Using juggling balls and plastic tumblers will save money on eggs, and reduces potential risks from salmonella and broken glass.

The science – an introduction

The place mat has a smooth side and a rough side. The smooth side is face down on the glasses and slides over them with little friction. The cork side is face up and grips the tubes, dragging them along, as there is more friction between the surfaces. The eggs are heavy and gravity pulls them down into the glasses. The water stops the eggs breaking the glasses. This demonstrates the first part of Newton's first law of motion (objects remain at rest or travelling at constant speed unless a force acts on them to change their motion) and helps us understand inertia. Inertia is the tendency for an object at rest to remain at rest until a force acts on it. In terms of the Stupid Egg Trick, inertia is important because, according to the law, the objects (the eggs) will not move unless an outside force (gravity) moves them.

Discussion

- What is friction?
- Which part of the board has the most friction?
- Why do you need there to be friction between the place mat and the tubes?
- Where don't you want friction?
- What other forces are in play to allow this experiment to work?

Extensions

- Use a variety of different-weighted balls.
- Use a variety of boards with different surfaces.
- Can you go bigger?

Links to real life

Inertia can be experienced in lots of everyday situations. When you are standing in a moving bus you lean forward when the brakes are applied suddenly. This is because your body is in motion along with the bus. When the bus stops quickly, the lower part of your body comes to rest along with the bus, whereas the upper part of your body continues to move forwards.

Links to the Science Museum

Galleries:

- Launchpad

Further information

- Gravity-Defying Water
- Tablecloth Trick
- Alka-Seltzer Rocket