



Starting and Stopping

Preparation

CLASS LEVEL	Fourth - Sixth classes
SKILLS	Predicting, experimenting, observing, recording, classifying, analysing
CONTENT	Forces Living things – Myself – the ear
EQUIPMENT	<ol style="list-style-type: none">1. Oranges (satsumas fit well into jampots), matchboxes, jampots, postcards.2. 5 or 6 identical coins for each group of children, thick card e.g. postcard, rulers or flat knives.3. Fresh eggs, hard-boiled eggs.4. None.
PREPARATION	Hardboil eggs, collect rest of materials
BACKGROUND INFORMATION	It can be hard to get something to start moving. It can be just as hard to get something to stop moving. Things try to stay still if they are not moving – or keep moving if they are already moving.
TRIGGER QUESTIONS	If you are standing on a bus which suddenly starts up, what happens to you? Which way do you tend to fall over? If the bus stops suddenly which way do you tend to fall? <i>(When a car brakes hard or crashes, if the people inside it are not wearing seatbelts, they will keep moving forward even though the car has stopped; they can go through the windscreen).</i>



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Activity

ACTIVITY

1. Orange and Matchbox

Put the postcard on the jampot and place the matchbox cover vertically on top of it. Put the orange on top of the matchbox cover. Pull the postcard away quickly.

What happens to the orange?

(It falls into the jampot. Heavy things, like an orange, are harder to move than light things, like the postcard and matchbox cover. The orange isn't moving, so it just falls into the jampot).

Try this as a 'double-decker', i.e. 2 postcards and matchboxes!

2. Coins (See 'Safety' note)

Put a number of identical coins into a vertical pile.

Can you remove the bottom coin without touching the others?

(Give the bottom coin a sharp horizontal blow with the card, ruler or knife and it flies off, leaving the others in a pile).

The pile of coins is heavy. It stays still when you knock out the bottom coin. The bottom coin on its own is light, so it moves easily when you hit it. This leaves a gap and the pile of coins falls to fill it.

(Magicians often use this trick using breakable things, e.g. whisking a tablecloth from underneath cups and saucers!).

3. Eggs

Can you tell the difference between a fresh egg and a hardboiled egg?

Set one egg spinning and then lightly touch it with your fingers to stop it. As soon as the egg stops take your fingers away. What happens? Repeat with the other egg. What happens?

(When you stop the fresh egg you only stop the shell but the white and yolk keep spinning. When you let go, the moving contents make the egg start spinning again. The hardboiled egg will not start spinning again because the egg is solid – there is nothing loose inside).

4. Feeling dizzy?

Turn around a few times quickly. Do you feel dizzy?

(When you spin, liquid inside three tubes inside your ears spins too. When you stop suddenly, the liquid keeps on moving. Your brain thinks your body is still spinning, so you feel dizzy.)

SAFETY

Care with knives, rulers

Care with 'flying' coins, i.e. that they do not injure another child.

FOLLOW-UP ACTIVITIES

Take two similar-sized dolls and two similar toy cars or carts or skateboards which the dolls will fit onto. Tie one doll onto one car and leave the other doll loose on the other car. Ask the children to push the cars into a wall. What happens?

(The 'loose' doll will probably be thrown against the wall or out of the car, because it keeps moving even though the car had stopped.)

Discuss the use of seat belts in cars.