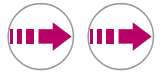




CARTESIAN DIVERS

LEVEL OF DIFFICULTY



OUTLINE OF ACTIVITY

This toy works in the same way as a submarine - it displaces (pushes away) water to make it dive. It is made from simple household objects, but the diver itself needs to be carefully assembled.

EQUIPMENT

Quantities are based on a **make** and **take** approach to produce 20 cartesian divers.

- plastic bottles x 20
- plasticine
- pen tops x 20
- bowl of water
- wide straws x 20
- dropping pipettes x 20
- sellotape

SCIENCE CONTEXT

Forces, objects are pulled downwards because of the gravitational attraction between them and the Earth. When objects are pushed or pulled, an opposing pull or push can be felt.

SCIENTIFIC EXPLANATION

A tiny air bubble is trapped inside the diver. When you squeeze the bottle the air pressure is increased and the air inside the bubble is compressed. Therefore, water enters the bottom of the diver to fill the space. The density of the diver is now greater than that of the surrounding water it displaces, therefore, it sinks. When you let go of the bottle, the pressure inside drops and the air in the diver expands and forces the water out. The density of the diver is reduced and it rises.

HINT: it will take some time to get your diver to float. Try different amounts of plasticine.