



Exploring the oceans

LINKED CHALLENGE

To make a sinking diver



ACTIVITY OVERVIEW

Discuss the importance of the oceans: as a habitat for many animals; as a part of the planet's water cycle; in producing oxygen for the planet; in providing food for humans and animals; for leisure activities, travel, etc.

1. Draw or paint an underwater scene on a piece of paper to fit around the back of the bottle and tape it around the bottle so that you can see it through the water from the front.
2. Use a pen lid with a pocket clip. Attach a paperclip to the clip and put a blob of mounting putty on the top of the lid to block the hole.
3. Cut out a diver shape (or have these pre-cut and laminated) from plastic and use mounting putty to attach it to the bottom of the paper clip.
4. Use a beaker of water to test that your 'diver' floats so that its tip is above the water and the rest of the diver is below the surface. You may have to add more or less putty to the pen clip to achieve this position.
5. Fill bottle fully with water and carefully lower the diver through the neck. Screw the lid on.
6. Squeeze the bottle and the diver should sink. Release the pressure and watch it return to the top.



RESOURCES

2l plastic bottle	Coloured pens/pencils
Pen lid (with pocket clip)	Sticky tape
Mounting putty (e.g. blu tack)	Diver cut from thin plastic
Paperclip	(Beaker for float check)
Paper	Water

QUESTIONS/FURTHER LEARNING

- Why do you think divers are interested in the oceans?
- What would you look for if you were a diver in the ocean?
- Are all the Earth's oceans the same? What might be different about them?
- Can you think of some things we could do to help the oceans become healthier places? (Discuss plastic use.)

KEY FACTS/SCIENCE

An air bubble trapped in the pen top causes the 'diver' to float when you lower the diver in. Children might relate to the air in armbands that are worn in a swimming pool. Water cannot be squashed into a smaller space (volume) but air can. When the bottle is squeezed, the increased pressure squashes the air bubble and the space it took up is replaced by water, so the diver is less buoyant. This causes the diver to sink. If you release the pressure, the air bubble expands again and pushes out the extra water and the diver rises to the top because the air bubble returns to its original size.

Online supporting video on oceans:

<https://tinyurl.com/y7uhrxzt>

