

## Key Stage 3/4 Lesson 2 – Amazing Oysters

### Practical activity – Exploring the effect of ocean acidification

#### Introduction

The burning of fossil fuels is causing more carbon dioxide (CO<sub>2</sub>) to be released into the atmosphere. The ocean absorbs CO<sub>2</sub> from the air. When CO<sub>2</sub> dissolves in seawater, it combines with water molecules to form carbonic acid. The more CO<sub>2</sub> that the ocean absorbs, the more acidic the ocean will become – this is known as ocean acidification. Marine organisms with shells made of calcium carbonate, such as oysters, will be particularly affected by ocean acidification. In this experiment, you will explore for yourself how ocean acidification will affect shellfish, such as oysters.

#### Aim

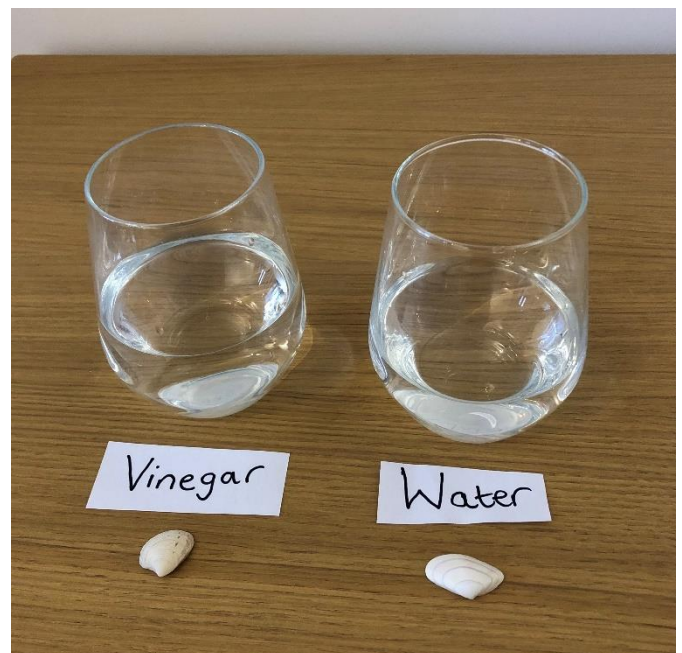
To investigate the effect of ocean acidification on marine animals with calcium carbonate shells.

#### Apparatus

- 2x 500ml glass beakers
- 200ml water
- 200ml white vinegar
- 2x shells (could be from oysters, limpets, cockles or mussels, for example)
- Scales

#### Method

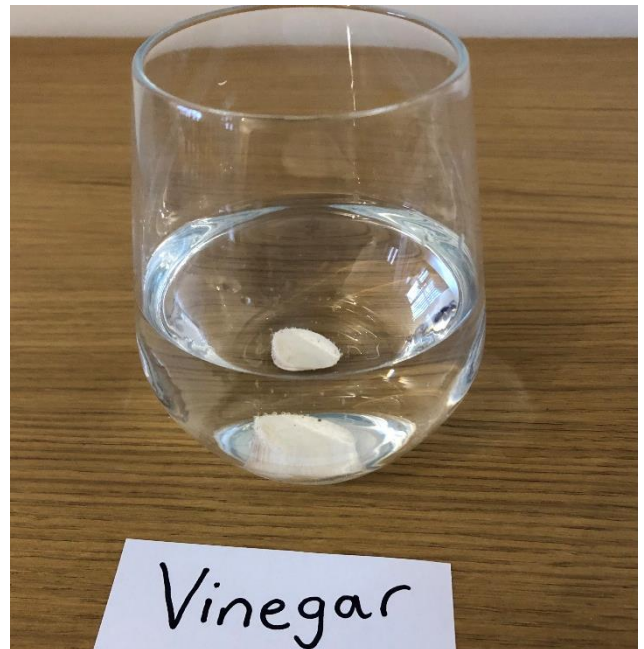
- 1) Fill one of the beakers with water and fill the other beaker with vinegar.
- 2) Weigh each of the shells and record your results.
- 3) Place one shell in each of the beakers.
- 4) Record your observations of what initially happens to the shells in water and in vinegar.
- 5) Leave the shells in the beakers for 24 hours.



- 6) After 24 hours, remove the shells and weigh them both. Record the masses of the shells and work out any differences in mass.
- 7) Record your observations of any changes in the appearance in the shells.
- 8) Plot your results in a graph.

## Results

- Did the shell left in water change in mass or appearance?
- Did the shell left in vinegar change in mass or appearance?
- What may be the reasons for any changes you observed?



## Questions

Ocean acidification causes shells made from calcium carbonate to dissolve. It also makes shells more difficult to produce and causes deformities. Many plankton have exoskeletons made from calcium carbonate.

- 1) How will ocean acidification affect organisms that have calcium carbonate shells?
- 2) How will ocean acidification affect other marine organisms that rely on plankton or shellfish for food?
- 3) What can we do at home and/or school to help in the fight against climate change and ocean acidification?

