

# Making Waves



Waves form in the ocean when wind blows over the water, creating tiny ripples that build up and up. The maximum height of the waves depends on how hard the wind blows and how far the waves have travelled (the “fetch”). Islands out at sea are nearly always subject to very large waves as there is no shelter nearby. The waves shape our coastlines, pounding rock and coral reefs into sand and sweeping it up onto the shore to form beaches in some places. In other places reefs break the waves before they reach the land, so there may be a sheltered lagoon or mangroves instead of a sandy beach.

In this activity you will make a model to show how waves shape our shores and how reefs can make a big difference to what happens.

## What you need

- Large plastic tray
- Clay or mud
- Sand
- Seawater
- Small pieces of coral rubble
- Flat piece of wood, thick card or a plate for making waves.

## What you do

- Make a thick layer of wet clay/mud at one end of the tray and allow it to dry hard – this is the “coastline”.
- Place a thin layer of sand in the rest of the tray to form the seabed.
- Fill the tray with seawater until it is about half way up the mud or clay.
- Use the wood or card to make waves at the other end of the tray. Don’t make them too large, small and rhythmic is better!
- Watch and describe what happens!
- Try repeating the exercise and using small stones to build a “reef” in front of the “coast”. What happens now?

## Tiny Drifters

If you go swimming in the sea and swallow a mouthful of seawater by mistake, you will be swallowing masses of microscopic plants and animals! Don't worry – they will not do you any harm. In fact, the largest creature on Earth, the blue whale, eats only plankton! The plankton contains tiny plants (phytoplankton), and animals (zooplankton) – most of the animals are the larvae of marine creatures – e.g. crabs, starfish, corals and fish. JUST LOOK...



### What you need

- Plankton net to collect a plankton sample – you can make one cheaply and easily (see instructions overleaf).
- Binocular microscopes or good hand lenses.
- Simple plankton identification charts.

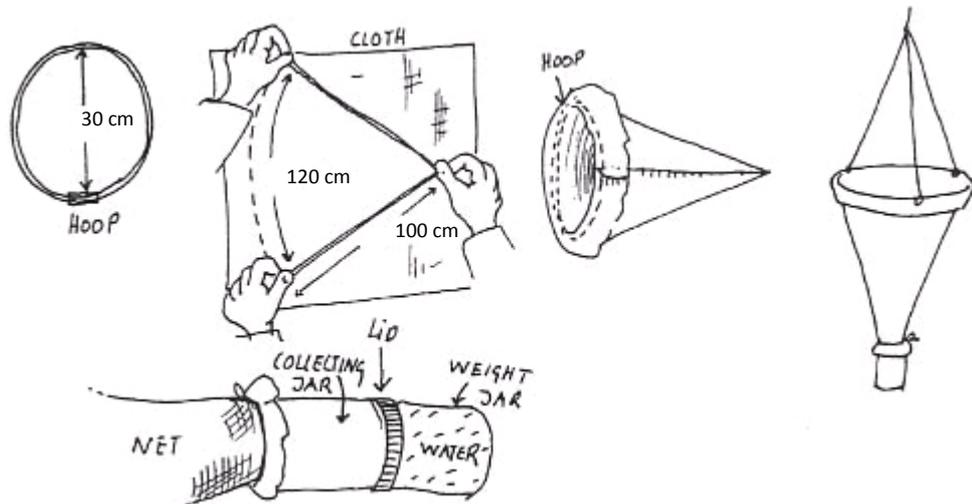
### What you do

To obtain your plankton sample, either tow the net behind a boat (take care not to foul the propeller) or throw into the sea from a promontory (a pier or jetty is ideal) and drag back.

Can you identify the plankton you can see? Watch out – many of them do not look anything like the adult animals!

### How to make your own plankton net

1. Make a hoop out of galvanized wire about 30cm in diameter.
2. Use silky, nylon material for the net (make sure the weave isn't too tight) and cut out a segment of a circle so that the curved length is just over 1m to go around the hoop. About 1m long is about right.
3. Sew net into a funnel shape and fit around the hoop.
4. Tie 3 equal lengths of twine to the hoop and a further 15m of line to let the net out. To avoid tangling when the net is thrown, tie the end to a plastic bucket and feed the line loosely into the bucket.
5. Tie a plastic (**not glass**) jar to the 'cod' end and weight it, for ease of throwing, by gluing a second plastic screw-top jar to the first with silicone glue and filling it with water.



Another method is to make a quick plankton net out of an old pair of tights. It won't be very strong but it will work:

- Knot and cut off 1 leg.
- Cut the foot off the other and tie firmly onto the neck of a weighted plastic jar (as above).
- Thread wire through the waistband to hold the 'net' open and affix lines (as above).

# Whale Tales

Seeing a whale or dolphin is always a memorable experience. People never forget it! Whales used to be caught in large numbers for their meat and oil so they became very rare. Now very few countries still hunt them and there are generally more whales in the sea, although in some places and for some species the numbers will never recover. Whales and dolphins may face other threats such as lack of food as the climate changes.



You can help find out whether there are more or fewer whales than there used to be by talking to people about them. Are sightings rarer now than they used to be?

Compile an oral history of whale and dolphin sightings by asking your family and friends. If your grand-parents have seen whales and dolphins, from the shore, a boat or even seen them stranded on the beach, they will want to tell you about it.

## What to do

Interview family and friends of all ages and ask them whether they have ever seen whales or dolphins near your home. If they have stories to tell, write them down or maybe record them talking about it. Remember always to take notes when you interview people so that you don't forget anything important that they say. Try to find out the answers to these questions;

- When did they see the whales or dolphins?
- Where was it?
- Can they describe the animals they saw? (This might help you identify them!)
- Do they think whales are rarer or more common nowadays?

In your group compare your 'whale tales' – you might find that important events are remembered by many different people.

Make a record of your "whale tales" – perhaps a scrapbook illustrated with photos, drawings or newspaper cuttings. You could even make a web page or a blog about them!

# Open ocean quiz

1. How much of the Earth’s surface is covered by water? .....
2. How much of the world’s water do the oceans contain? .....
3. What is the name of the deepest part of the Indian Ocean? .....
4. The process by which nutrient-rich water from the deep ocean is drawn to the surface is called .....
5. Clear, blue ocean water is ..... in nutrients.
6. Microscopic animals in seawater are called .....
7. How many species of dolphin are found in the Indian Ocean? .....
8. True or false? Turtles can sleep underwater .....
9. True or false? A shark’s skeleton is made of bone .....
10. True or false? A whale shark can grow to 12m in length .....