



Travelling trash

YEAR LEVEL

Years 4 – 6

MATERIALS

PowerPoint presentation
4-6 Lesson 5.ppt

Equipment for Ss to watch
PowerPoint presentation on

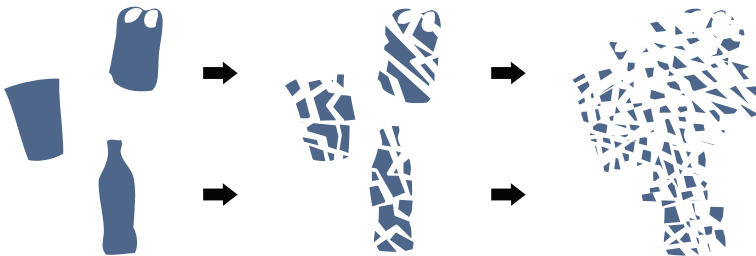
4 light weight containers

4 different types of rubbish

KEY WORDS

- Shore
- Hypothesis
- Great Pacific Garbage Patch
- Gyre
- Plankton
- Cause and effect
- Trash

In the ocean, plastics - Polycarbonate, Polystyrene and PET sink, while LDPE, HDPE, Polypropylene and foamed plastics float on the ocean's surface. Sunlight and wave action cause these floating plastics to fragment, breaking into increasingly smaller particles, but never completely disappearing - at least on any documented time scale. This plastic pollution is becoming a hazard for marine wildlife and ultimately for us.



Orientation:

Ask Ss questions such as: 'How does marine debris reach the shore?', 'Once we find litter on the shore, do you think it usually stays there?', 'Where do you think is the most likely place for this litter to go?', 'If it reaches the ocean, where does it go then?'. Elicit Ss' answers on the whiteboard.

Experiment: marine debris persistency test

Let Ss know that they are going to look at what happens to rubbish once it is in the ocean. Organise Ss into groups or do as a whole class.

Materials:

Four watertight containers to represent the action of waves in the ocean and four different types of rubbish to represent shoreline litter.

Place one type of rubbish into each container and close the lids tightly. Gently test to ensure that when you turn the containers over, no water leaks.

Ask Ss: Of the four different types of rubbish at your station, 'Which one do you think will break down the most quickly?' and 'Which one do you think will break down the slowest?'

Help Ss record a hypothesis on their Experiment Worksheet (see end of this lesson plan). Go through the definition of a hypothesis with Ss and elicit ideas.

Assign four responsible Ss in the group to each take one container. This Ss is going to create the movement of





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water in the ocean by shaking. Ask one S to keep an eye on the time and then instruct each of the four Ss to shake their container vigorously for three minutes. After three minutes of shaking, Ss record their findings. Was their hypothesis correct?

Discuss: What types of rubbish break down faster than others? What word can you think of to describe rubbish that breaks down quickly in the environment? What type of rubbish do you think will persist longest in the ocean? What do you think this means for marine animals? What do you think this means for shoreline litter that we see in our community?

Reflection: Afterwards, ask each group to present their findings to the class – or just discuss as a whole class. Now consider a real-life example of ocean currents and litter that won't break down: the gyre of debris known as the 'Great Pacific Garbage Patch'. Show students the photographs of the Pacific Ocean currents and the Great Pacific Garbage Patch in the Lesson 5 Travelling Trash PowerPoint presentation. Ask Ss what types of rubbish they would mostly likely find there.

Those who guessed plastic are absolutely right. Plastic doesn't completely decompose for tens to thousands of years, but it does break down into small particles, creating a kind of plastic soup or sludge over vast distances of ocean. It's estimated by scientists that some samples of water in the Great Pacific Garbage Patch contain more plastic than plankton!

Visual display:

Allow Ss to watch a short clip from ABC about the Great Pacific Garbage Patch and how it is affecting marine life. <http://www.youtube.com/watch?v=D7vHrMsnRFA>

Research project, cause and effect: life cycle of an albatross bird

Ask Ss what are the environmental consequences when people throw their plastic litter on shorelines. Does this demonstrate respect for the environment? Are any animals adapted to be able to survive in plastic 'soup' like the water found in the Great Pacific Garbage Patch? Let Ss know they are going to look at the life cycle of an albatross bird – the birds that were in the video clip they just watched. To help them prepare for their research, first help them think of cause and effect. Use the Cause and Effect Chart at the end of this lesson and let Ss work in small groups. When they are ready, use the internet and library to investigate the life cycle of an albatross bird and how it is affected by marine debris. Ss can present their projects to the class.





Experiment Worksheet

Name _____ Date _____

Research Question _____

Hypothesis _____

Materials Procedure _____

Procedure _____

Observations _____

Conclusion and Analysis _____

Notes on Group Discussion _____



Cause and Effect Chart

- What type of marine debris caused the marine animal to get sick/injured/or die?
- What might happen to other marine animals that rely on the same food source?
- What human activity is this marine debris linked to?
- What might happen to the marine animal's family?

