**ACTIVITY: Estuary metaphors**

**Activity idea**

In this activity students discuss how a variety of everyday objects can serve as metaphors for the important characteristics and functions of estuaries.

By the end of this activity, students should be able to:

* define an estuary
* describe some key features of estuaries and their importance for humans and marine life
* discuss some of the impacts that humans have on estuaries.

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**Introduction/background**

An estuary is a partially enclosed body of water where freshwater (often from a river mouth) mixes with saltwater from the sea. New Zealand has approximately 300 estuaries.

Estuaries are typically nutrient-rich, productive areas because of their proximity to land. They provide a number of important habitats for our marine life. Healthy estuaries also help to filter agricultural run-off from land and support commercial and recreational fisheries.

**What you need**

* A large container (for example, box, large pillowcase or bag).
* A number of everyday objects – see suggestions in the table below and the metaphors they represent. Objects can be changed to suit your class’s ability and your local area. For example, you may want to select an object that symbolises the estuaries’ cultural value. (This activity works best with actual items but, where necessary, they can be replaced with images.) The number of objects required will depend on the size of the class. For example, a class of 30 working in groups of 3 requires 10 objects.

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| **Suggested object** | **Suggested explanation** |
| Whisk, mixer or eggbeater (any cooking utensil that can symbolise mixing) | Estuaries are areas where saltwater and freshwater mixes. This mixing can increase the levels of dissolved oxygen and nutrients in the water, one of the reasons estuaries are areas of high productivity. |
| Pillow, sleeping bag, model bed, sleeping doll or bird’s nest, hotel brochure | Estuaries are important resting and stop-off places for migrating birds. They also provide suitable nesting areas.  |
| Baby doll, cradle or small baby toy such as a rattle  | Estuaries are often called ‘nursery’ areas. They provide a sheltered, food-rich environment for the young of a number of animals, including fish, crabs and birds.  |
| Ball or toy (or any item that symbolises play/recreation)  | Estuaries are popular places for play, recreation and leisure activities, including swimming, boating, fishing and walking. |
| Model home, toy house, real estate page from a newspaper | Estuaries provide a number of key habitats for marine organisms. They are also often very popular areas for human homes and settlements. |
| Fishing line, fishing lure, small boat, fish and chip shop flyer, tin of tuna | Estuaries are an important food source for humans. They are important areas for recreational and commercial fisheries.  |
| Soap or a safe cleaning product | Estuaries provide an important filtering or ‘cleaning’ service. They help to filter sediments and contaminants from rivers and streams before they flow into the sea, providing cleaner waters for marine organisms. Soap can also symbolise the significant efforts that have been made in many parts of New Zealand to clean up our estuaries. |
| Monopoly money or play money (can be printed off the internet)  | Estuaries are typically nutrient-rich, productive areas because of their proximity to land. They provide habitats for large numbers of economically important species of fish and bivalves (such as cockles and mussels) as well as marine aquaculture. They are also economically important for tourism, recreation and housing. |
| Model rubbish bin, piece of safe rubbish, small bag filled with mock rubbish to resemble rubbish bag, black plastic rubbish bag | Throughout history (and still today in many areas) estuaries have been used for waste disposal. Estuaries are also often a trap for rubbish and other types of pollution due to their proximity to land, housing and popularity for recreation and commercial use.  |
| Sieve, strainer, water filter jug, water purification tablets, coffee filter paper | Estuaries act as a type of natural filter for sediment and contaminants between land and coastal areas. For example, some estuarine plants filter contaminants and a number of estuarine animals (including cockles) filter pollutants out of the water.  |
| Postcard (or anything that symbolises a holiday/tourism) | Estuaries are often important places for tourism, including fishing trips, boat trips, water sports (including kayaking and kite-surfing), wildlife watching and so on. These activities can be very important for the local economy.  |

**What to do**

1. Collect together the selection of objects into a container. Leave this out of sight.
2. Discuss as a class what the students know about estuaries. The discussion could focus on location of estuaries, the kind of organisms that live permanently in estuaries, any other organisms that might visit estuaries, any local examples.
3. Move on to brainstorm some of the characteristics and functions of estuaries in terms of their importance for humans and other marine life. Start to compile a list on the board (it might be useful if this remains in place for the rest of the activity). Visit the Te Ara Encyclopedia of New Zealand for more information about estuaries: [www.teara.govt.nz/en/estuaries](http://www.teara.govt.nz/en/estuaries).
4. Take one of the objects from the bag. Explain to the students that each item can be a metaphor for a feature of an estuary. A metaphor is a figure of speech comparing two different things that have something in common by describing one thing as another. For example, a baby toy demonstrates that an estuary is a nursery for young fish.
5. Divide the class into small groups (3–4 students). A member of each group should come up to the front to collect one of the objects before returning to their group.
6. In their groups, ask the students to work together and think carefully about their object:
* How is it similar to an estuary or a feature of an estuary?
* What do they think the item represents or symbolises in terms of an estuary?
* Can they come up with a suitable metaphor? (A metaphor is a figure of speech comparing two different things that have something in common by describing one thing as another.)
1. Ask them to write down their ideas on the [worksheet](#Worksheet).
2. After a few minutes, the groups will need to swap objects. They could either pass them around in a clockwise direction or put them all back into the container and a different student draws a new object out.
3. Continue until each group has had the opportunity to work with at least 5 objects.
4. As a class go through each object one by one and ask the groups to feedback their ideas to the whole class. If appropriate, agree on a metaphor for each object and record these on the board.

**Discussion questions**

* Can you think of any other estuary metaphors?
* Why do estuaries form?
* Why are estuaries important for humans?
* Why are estuaries important for life in the sea?
* What do you think is the most important characteristic of an estuary?
* How do you think humans affect estuaries?
* What can we do to help look after estuaries?

**Extension ideas**

* Investigate the unique adaptations of marine organisms that live permanently in estuaries.
* Visit a local estuary.

**Student worksheet**

People in your group: ­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Item** | **Metaphor** |
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