**ACTIVITY: Changes on the beach**

**Activity idea**

In this activity, students use scenario cards to identify and discuss changes that occur on an ocean beach. They consider whether the changes are natural or human induced. Information from this activity can inform planning for action to protect or care for a local beach.

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

* begin to understand that change is a natural process
* begin to understand that extreme and sudden change may cause a species to be eliminated from an environment
* identify ways in which people can help to protect natural habitats.

# For teachers

## Introduction/background

The beach environment undergoes regular daily and seasonal changes of conditions as well as unpredictable changes due to extreme weather, unusual tides and the impact of people. If the changes are not too drastic, creatures and plants living at the beach are able to accommodate or recover. Humans can cause drastic changes and we can also intervene to aid recovery.

## What to do

1. Put the students into small groups and hand out copies of the [scenario cards](#_heading=h.4d34og8) for them to discuss and identify as either changes caused by people or natural changes.
2. Ask students to predict what the effect of each change might be.
3. Ask which changes could be prevented or reversed? Which could not?
4. Identify the changes made by people that could have long-lasting or permanent effects – both positive and negative.
5. From this discussion, have the students draw up a list of things that people could do to help protect the natural habitat of a beach.

## What to look for

Students should understand that:

* beaches are places of constant change over which people may have some control or not
* living things need to be able to cope with change in a harsh environment to survive in beach habitats, but drastic change can cause them to die out
* while naturally occurring beach detritus might look messy, it is likely to be home to many tiny beach animals.

## Extension ideas

This could be extended to:

* a survey – sending the results to such interested parties as local councils and local caring organisations
* students participating in a beach clean-up, identifying potentially harmful rubbish and removing it from the beach – this could include a rubbish audit as to where the rubbish came from and what could be done to remove the source or the cause.

# For students

**Scenario cards**

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| A storm covers the beach with logs, branches or stones. | A storm washes away some of the sand. | A small oil spill puts a greasy slick on the rocks. |
| Cars regularly drive along the beach at low tide. | Big pieces of driftwood are taken away for firewood. | A breakwater is built at the end of the bay. |
| An area is made a reserve and replanted in pīngao (native sand sedge). | A very high tide pushes the litter line up into the plant fringe. | A fire burns the lupins along the fringe of the beach. |
| A crab-fishing venture reduces the number of large sand crabs near the beach. | A fringe of mussels on the rocks grows bigger and thicker as the years go by. | The population of kina falls because so many have been taken for food. |
| A toxic algal bloom prevents the taking of shellfish. | A tractor is used to open the outlet of a sand-blocked stream. | All beach debris is carefully raked up and removed by a beachfront hotel. |