

**Activity Title:**

# Ecosystem relationships

## Focusing question

How are dune systems interdependent with other ecosystems?

## Resources required

- Large sheets of paper and pens OR white board and pens
- Web of life game – page 118

## Prior learning

- 2i Interrelationships – dune animals and plants  
2j Species lost from the beach

## Special notes

The three activities (2i, 2j and 2k) fit together well as a study of interrelationships and biological diversity. There are great learning links between each of these activities and their associated worksheets.

## Method

- 1 The objective of this activity is to investigate the possible relationships that exist between sand dune ecosystems and other ocean and land ecosystems, and to explore what other ecosystems could influence sand dunes. These might include the ocean or forest.
- 2 Discuss the concept of ecosystem.
- 3 Conduct a visioning exercise. As a class create a mind map to explore connections between different ecosystems and how the species within those ecosystems might interact. Questions might include: How is the sand dune connected to the forest? How is the sand dune connected to the sea? Are fisheries affected by sand dune and beach erosion? If snapper eat toheroa, and the toheroa need pīngao, what effect might the loss of pīngao have on snapper? What forest species might visit the dune environment?
- 4 Play the web of life game(s).
- 5 Discuss ideas for research that could develop knowledge of the interrelationships between the ecosystems identified. Investigate – has any of this research been conducted?
- 6 Reflection:
  - What new knowledge has been gained during this activity?
  - What interrelationships can you see within the dune/beach ecosystem? And between the dune/beach ecosystem and other ecosystems?

## Possible next steps

- Conduct investigations into existing research on the interrelationships between ecosystems.

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**Environmental Education Aspect:**

About the environment

**Environmental Education Concept:**

- Interdependence
- Biodiversity

**Curriculum Links:**

- Science
- Social Science

**Suggested Curriculum Level:**

Level 4 and above

# Web of life game

## What you will need:

- A large group
- A ball of string

## How to play the game

- The group forms a circle (ideally at the beach near the sand dunes).
- Lie the end of the string on a sand dune (or a stick in the ground symbolising the sand dune).
- The facilitator asks for the name of an animal or plant that lives in or near the dunes, for example, pīngao.
- One person becomes pīngao and the string is rolled out so that it connects the dunes with pīngao. Continue this way, asking for names of different aspects of the beach ecosystem so that everyone is attached to the string and they are playing parts of pīngao, pōhuehue, rabbits, dotterels, kōwhangatara, sand, wind, waves etc until you have created your own ecosystem. If the group is large then you may have more than one of each plant and animal.
- To demonstrate how each individual is important to the whole community, choose an element of the web to be disrupted for example, sand in the foredune washed away.
- When the sand on the foredune is washed away it tugs gently on the string. Any other players who feel the tug are in some way affected. Everyone who feels the tug from the sand gives a gentle tug on the string as well.
- Explore other situations that could affect the ecosystem. For example, storms, vehicles driving through the dunes, sand mining, grazing of dunes, planting of introduced species that replace natives...

### SUSTAINABILITY TIPS!

If you are at the beach then remember the Coast Care Code; stick to beach accessways and avoid trampling dune plants.

*Atawhaia ngā taipū, he oranga nui –  
Nurture our dunes for our vital livelihood.*

