Food webs - Intertidal rocky shores

The **aim** of this activity is to observe and consider feeding relationships between species living in the intertidal zone of a coastal region, i.e. identify producers and first, second and third order consumers. Students will record and identify characteristic features of different plant and invertebrate groups.

**ACARA curriculum links**
Science understanding (ACSSU111)
Science inquiry skills (ACSIM124, ACSIM125, ACSIM126, ACSIM129, ACSIM130, ACSIM131, ACSIM132, ACSIM133)
Science as a human endeavour (ACSHE119 & ACSHE223)

**Instructions**
- This activity should be conducted on the intertidal zone at low tide. Check tides timetable and plan this activity accordingly.
- To increase the amount of data collection, split the group into smaller groups.
- Features of the plant and invertebrate species found should be described.
- Waterproof invertebrate and plant ID sheets can help in the field to identify specimens found.

**Equipment**
- Sturdy reef walking shoes
- Hat, sunscreen and water bottle
- Waterproof paper to make notes and pencil
- Digital photo camera (if available)
- Identification guide or water proof ID sheets for invertebrates in the intertidal zone
- Coralwatch Coral Health Chart and datasheet (optional)

**Resources**
- Field guides such as plant and invertebrate identification books
- Waterproof sheets of common invertebrates and plants or the cheat sheets in this curriculum laminated

**Recommended classroom activities**
- Worksheet C2 - Observable features of organisms and dichotomous keys.
COMMON FLORA AND FAUNA – INTERTIDAL COASTAL REGIONS

**CAULERPA TAXIFOLIA** (Killer algae)

ALGAE grows on mud and sand flats. Requires large amounts of sunlight to produce its food.

**HALOPHILA OVALIS** (Dugong grass)

SEAGRASS grows in shallow water near the low tide mark. Needs sunlight to produce food.

**AVICENNIA MARINA** (Grey mangrove)

MANGROVE PLANTS are trees that grow on mud and sand flats. Roots poke through the sand into the air.

**STICHODACTYLA HADDONI** (Haddon’s anemone)

ANEMONES bury their foot into muddy sand and use their sticky oral disc to catch food. Anemones also have symbiotic algae that live within their bodies that use sunlight to generate food.

**TAPAS DORSATUS** (Tapestry venus clam)

BIVALVES are shells with two parts protecting the soft body of the animal inside. Bivalves filter food (phytoplankton & zooplankton) from the water. Many were important foods for local indigenous people for thousands of years.

**PHYLODOCE NVAEHOLLANDIA** (Green paddle worm)

WORMS can live in the sand or mud and move about the intertidal zone at low tide. They can feed on small shrimp and crabs, other worms, and also scavenge on dead animals that are in the vicinity.

**PYRAZUS EBENINUS** (Hercules club mud whelk)

GASTROPODS are sea snails and slugs. They live on rocks and in seagrass beds. They often eat seagrasses and algae in the marine environment.
**COMMON FLORA AND FAUNA – INTERTIDAL COASTAL REGIONS**

**Aplysia sowerbyi** (Sowerby’s sea hare)

**Hymenocera elegansi** (Harlequin shrimp)

**SEA SLEGS** live in and around seagrasses and rocky shores. They feed on sponges, green and red algae. Some can be up to 15 cm long.

**Superfamily Paguroidea** (Hermit crab)

**CRABS** eat many things including shrimp, gastropods, molluscs and even dead fish. Hermit crabs live inside shells made by other animals.

**Acropora sp.** (Hard coral)

**CORALS** can be found in rocky shores. They can have a stony skeleton or may be soft. Corals have symbiotic algae that live within their bodies that use sunlight to generate food. Corals also filter food from the water.

**Plotosus lineatus** (Striped eel catfish)

**FISH** move through the intertidal zone at high tide. They eat shrimp, crabs, octopus, worms and many other things.

**Haplochlaena fasciata** (Blue-lined octopus)

**OCTOPUS** feed on crabs, crustaceans and small fish. No octopus should be touched as it may be a Blue-lined octopus. These have a highly venomous bite which can cause paralysis and death.

**Rhynchobatus australiae** (Guitarfish)

**SHARKS and RAYS** move through the intertidal zone at high tide. They eat fish, bivalves, crabs and shrimp. You may also see Shovelnose rays in the shallow water.
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Instructions
Field activity
1. Find a buddy or work in small groups.
2. Find an area that your teacher determines is safe to walk through.
3. Record any animals and plants observed at this location in the table.
4. Refer to the field guide to help with species identification.

Questions
1. Use the information provided in the field guide to determine what animals eat the plants, and identify any other animals you can observe in the area. Record this in the table (worksheet 3).
2. Predict which species are producers, first order consumers, second order consumers and third order consumers based on the information you have learned.

Back in the classroom activity
1. Construct a food web using all the plants and animals recorded in the field. Try to draw representative pictures of each animal or plant in the food web.
2. What types of corals did you observe in your field study? How do they fit into the food web of the intertidal zone?
3. Suggest what may happen if one of the first order consumers is removed from the system?
# Food webs - Intertidal rocky shores

## Food webs field activity results table

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