**Surveying beach populations using transects**

**Levels:** 6-7 **NoS achievement aims:** Understanding about science, Investigating in science   
**Topic:** Rocky Shore **Contextual strands:** Living world

**Rationale**

Zonation is a concept used by biologists to systematically describe the distribution of living things across a specified abiotic (non-living) changing environment.

By carrying out a transect activity on the rocky shore, students can work collaboratively to gather enough information to enable them to determine a pattern. At the same time they can be encouraged to think of other ways scientists collaborate to enrich their understanding.

**What you need**

* A line transect (string or rope marked at regular intervals) for each group and quadrat.
* A rocky shore area for investigation.
* An example of how a transect and quadrat can be used.
* [Setting up a transect line](https://scienceonline.tki.org.nz/content/download/1063/12234/version/1/file/Setting+up+a+transect+line.pdf) PDF – Diagram illustrating how to set up a transect line.

**Focus**

* How can the students in our class work together to collect data that will allow us to compare our results in a valid way?
* What do we need to know to specify and standardise our sampling protocols?
* How will we determine how much data is ‘adequate’?
* How do scientists determine how much data is ‘adequate’?
* How might ‘adequate’ results affect the conclusions we draw at the end of the investigation?

**Exploration**

The students work in groups to:

1. lay out their line transect between the high and low tide marks
2. at each interval, put down a quadrant
3. within the quadrant, count the numbers of each species and/or the percentage coverage of rocks
4. move to the next interval and repeat the procedure.

The students use their collected data to address the reflection questions (see below).

**Reflection**

* Why is one transect not sufficient to establish a zonation pattern?
* How is what you did:
  + the same as scientists would do to establish zonation in an area?
  + different from what scientists would do to establish zonation in an area?
* What factors had to be kept the same for each group? Why?
* What knowledge did you need to have to collect the data?
* How did you make sure everyone had the same understandings about how to sample?
* What type(s) of environmental gradient contribute to zonation on the rocky shore?
* If you were looking to quickly establish zonation patterns in your local area, what five species would you choose to sample and why?