



# Developing Interest and Relating Scientific Learning to the Wider World

## Developing and Communicating Scientific Understanding

ACCESS THE SCIENCE EXEMPLARS ONLINE AT [www.tki.org.nz/r/assessment/exemplars/sci/](http://www.tki.org.nz/r/assessment/exemplars/sci/)

LEVEL 1 2 3 4 5

# Shellfish, Seaweed, and Stuff

## THE LEARNING CONTEXT

The teacher's intended outcomes were for the students to:

- group animals according to their similarities and differences
- develop an interest in the world around them.

The intended outcomes were aligned to the following "big ideas":

- Living things are grouped and classified together according to their shared features.
- Nature provides many fascinating phenomena to experience.

The teacher planned a study of the rocky shore with a focus on developing the students' questioning, curiosity, and observational skills. Prior to the visit the teacher asked the class what they thought they would see. The students indicated they expected to see shells, crabs, starfish, and snails. While they were at the rocky shore a local fisherman helped them find a vast array of creatures, including kina and paua, and the visit became a "hands-on" marine experience.

Back in the classroom the students brainstormed their experiences and recorded the types of creatures found and where they were found (tide zones and habitat focus). They discussed adaptive features and how the creatures coped with the conditions of the different tide zones. They used identification sheets to identify and group the creatures found at different tide zones. They wrote about their experiences focusing on descriptive language. They sketched the creatures they observed and presented the information gathered as a report.

Down by the Sea (level 3) and Balancing Act (level 4) are other exemplars that show students classifying living things.

## Teacher-student conversation

After the visit:

Teacher: Why have you grouped these animals together?

Elliott: Because they all have a hard body with a shell.

Teacher: What are you looking at, to help you decide how to group these [points to molluscs]?

Elliott: I look at how many shells it's got. Some have one shell; these [points to bivalves] have two shells. This one [points to chiton] has lots of lines on it – I think they're shells.

Teacher: Why have you grouped these animals together?

Elliott: The name starts with "b".

Teacher: Did you see any mussels?

Elliott: Of course we didn't see any mussels; we were looking at the wrong tidal zone.

## REFERENCE

Ministry of Education (1993). *Science in the New Zealand Curriculum*. Wellington: Learning Media.

## WHERE TO NEXT?

To move Elliott towards the next learning step the teacher could help him focus on:

- seeking out the correct scientific terms in future work with living organisms (developing and communicating scientific understanding)
- suggesting ideas to relate his learning to a wider context, for example, "Elliott tell me what you could do to help keep the sea shore clean?" (developing interest and relating science learning to the wider world).

The teacher could:

- provide further opportunities to link and explain scientific ideas by encouraging him to compare his ideas with scientists' groupings (developing and communicating scientific understanding)
- provide access to resources for students to research, identify comparisons, and develop criteria for grouping living things (developing and communicating scientific understanding)
- encourage Elliott to look for scientific learning in other aspects of everyday life (developing interest and relating science learning to the wider world)
- provide opportunities for Elliott and the class to take ownership in keeping an environmental area clean (developing interest and relating science learning to the wider world).

## CURRICULUM LINKS

*Science in the New Zealand Curriculum*

### Achievement Objectives

#### Level 2: Making Sense of the Living World

Students can use differences and similarities in external characteristics to distinguish broad groups of living things.

*Science in the New Zealand Curriculum*, page 56

[http://www.tki.org.nz/r/science/curriculum/p56\\_57\\_e.php](http://www.tki.org.nz/r/science/curriculum/p56_57_e.php)

#### Levels 1 and 2: Developing Scientific Skills and Attitudes

**Processing and interpreting:** Students can identify trends and relationships in recorded observations and measurements by suggesting links between these.

*Science in the New Zealand Curriculum*, page 46

[http://www.tki.org.nz/r/science/curriculum/p44\\_51\\_e.php](http://www.tki.org.nz/r/science/curriculum/p44_51_e.php)

#### Level 2: Making Sense of the Nature of Science and its Relationship to Technology

Students can use a variety of methods to investigate different ideas about the same object or event.

*Science in the New Zealand Curriculum*, page 28

[http://www.tki.org.nz/r/science/curriculum/p28\\_29\\_e.php](http://www.tki.org.nz/r/science/curriculum/p28_29_e.php)

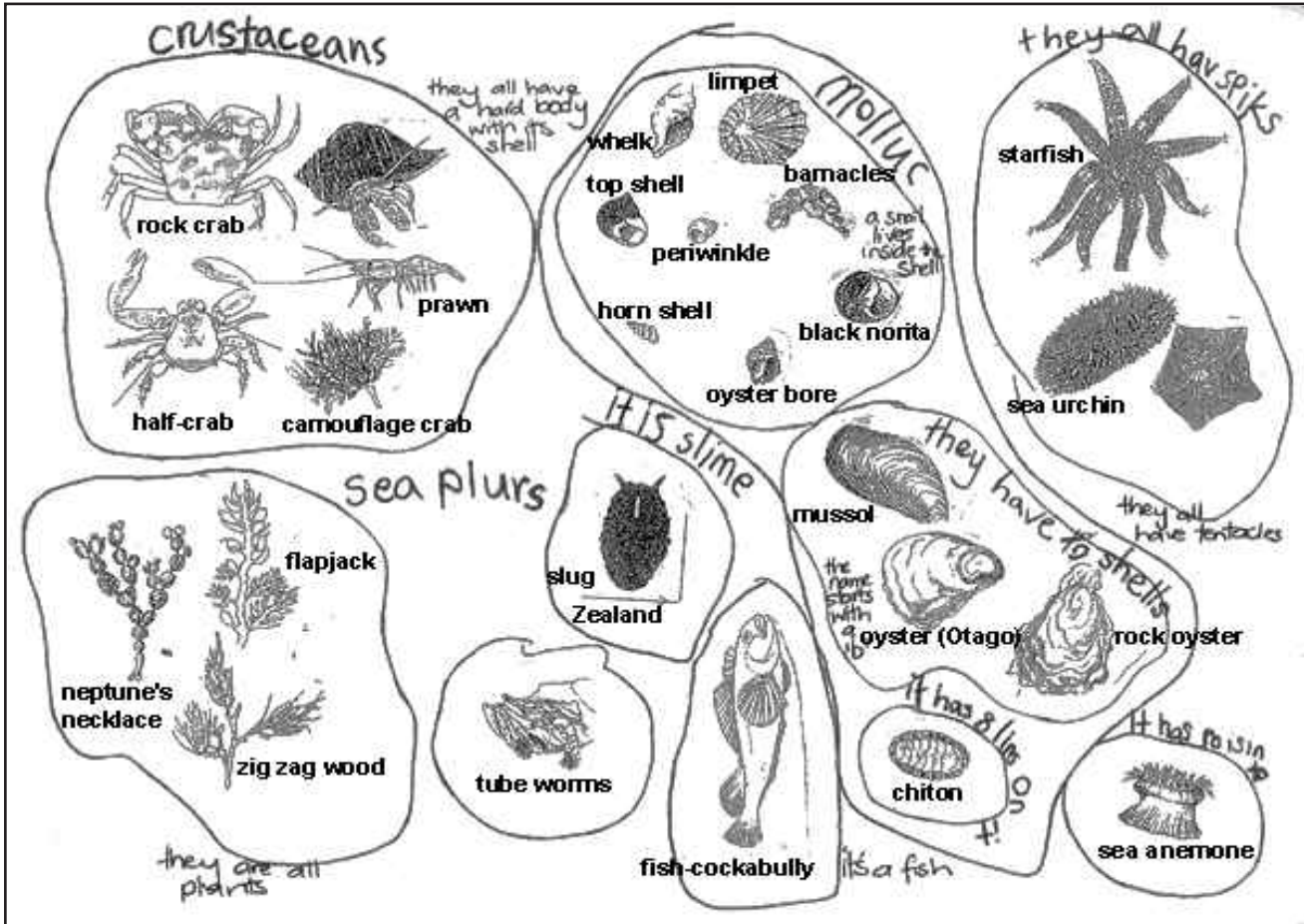


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## WHAT THE WORK SHOWS

Elliot's drawing of the creatures he observed at the rocky shore shows his attempt to classify the creatures he found.



Elliot's classification of the creatures he found at the rocky shore

### Progress Indicator

#### Developing Interest and Relating Scientific Learning to the Wider World

##### Experiencing and showing awe, wonder and interest

Elliot pursues scientific interests, without prompting, outside the formal learning environment.

He shares with, and involves others in his own interest in science by escorting his parents on a trip to the scene of the lesson and sharing his findings and explanations for the locations of the different living things.

### Progress Indicator

#### Developing and Communicating Scientific Understanding

##### Using scientific ideas in constructing explanations

Elliot offers explanations for experiences, using some scientific ideas, for example; "a snail lives inside the shell", "they have two shells", "the name starts with a b", and "they have spikes, tentacles".

##### Using scientific vocabulary

Elliot experiments with vocabulary and uses correct labels to describe experiences.

##### Reflecting on their understanding

Elliot describes changes in his understanding. He links scientific ideas to the activity but did not explain the link. The link is more clearly explained with prompting from the teacher. This is shown by his grouping of molluscs – one shell, two shells, multi-shell (chiton).