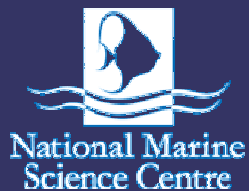


Rocky Shore Ecosystems



Name: _____
School: _____
Date: ____/____/____



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Ecosystem Introduction

Rocky shores are among the most studied ecosystems in the world. They are unique ecosystems that possess a diverse range of life forms living in the intertidal zone between the high and low water marks.

Many plants and animals that live within the intertidal zone have special adaptations that help them to live in extreme environmental conditions.

Plants and animals on rocky shores are often found living in similar patterns on the shoreline. This is because some plants and animals are happier being covered and uncovered by ocean tides than others.

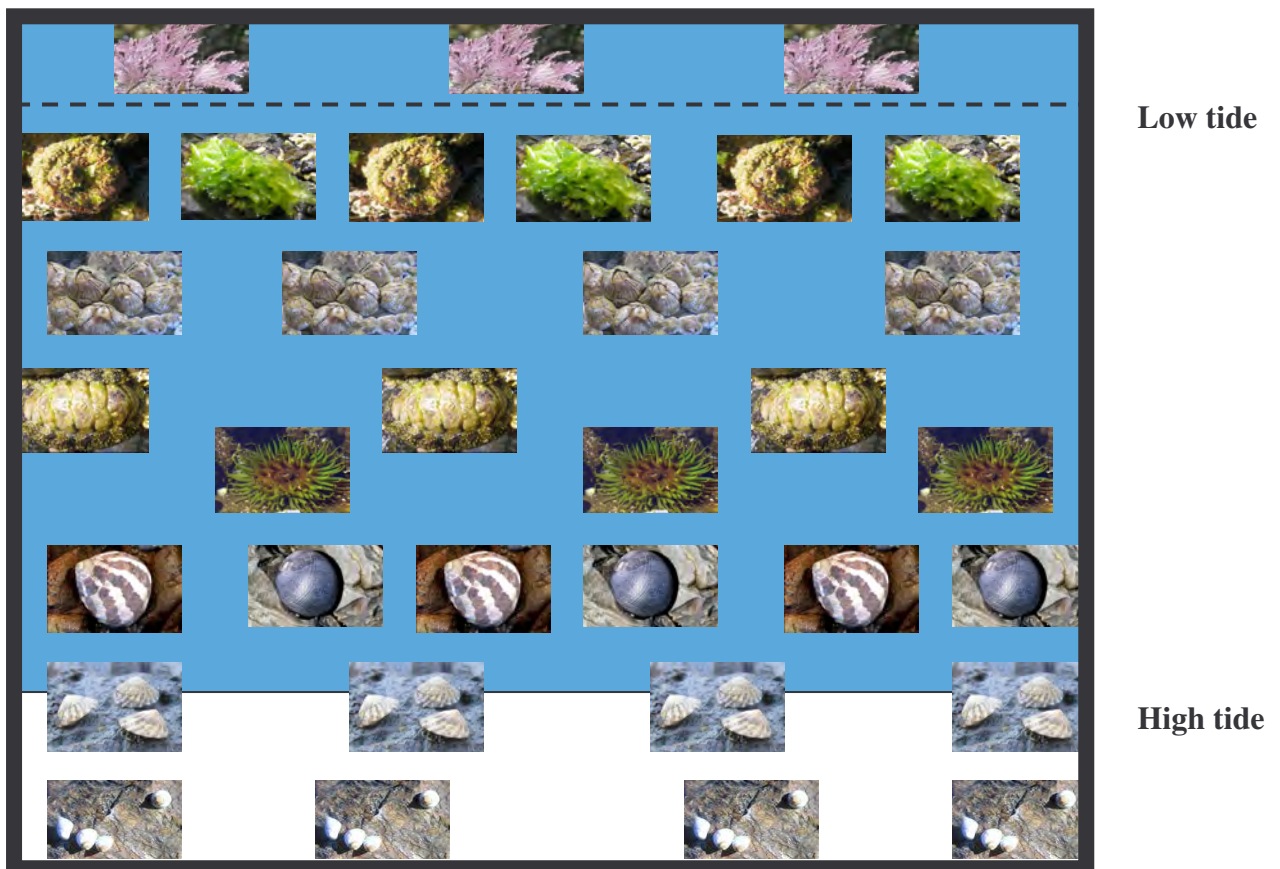


Figure 1. Rocky shore plant and animal patterns

Study Aims

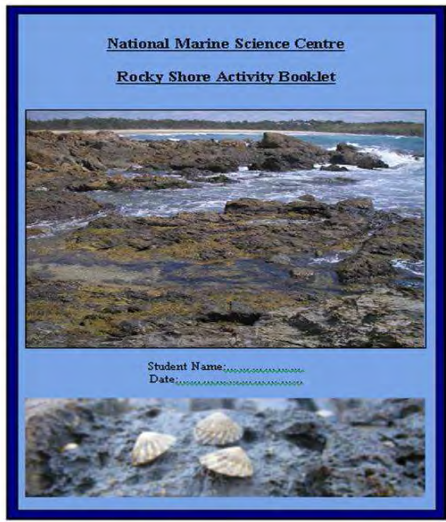
Examine the diversity and abundance of rocky shore organisms with regard to;

1. Distance extending landwards from the low water mark.
2. Rock pool and adjacent bare rock habitat types.
3. Identify that a number of **biotic** and **abiotic** factors help shape organism life patterns on rocky shorelines.

EXTENSION ACTIVITIES

1. Identify the difference in abiotic factors, i.e. temperature, dissolved oxygen, salinity and pH, and their influences on organisms found within rocks pools at **sublittoral**, **eulittoral** and **supralittoral** habitat zones.
2. Research rocky shore food webs and create an illustrated flow chart showing **trophic** relationships between all the organisms observed in the field.

EQUIPMENT



Activity book



Species I.D cards



Digital water tester



30 m tape measure



Quadrat (0.5m²)



Water proof digital camera

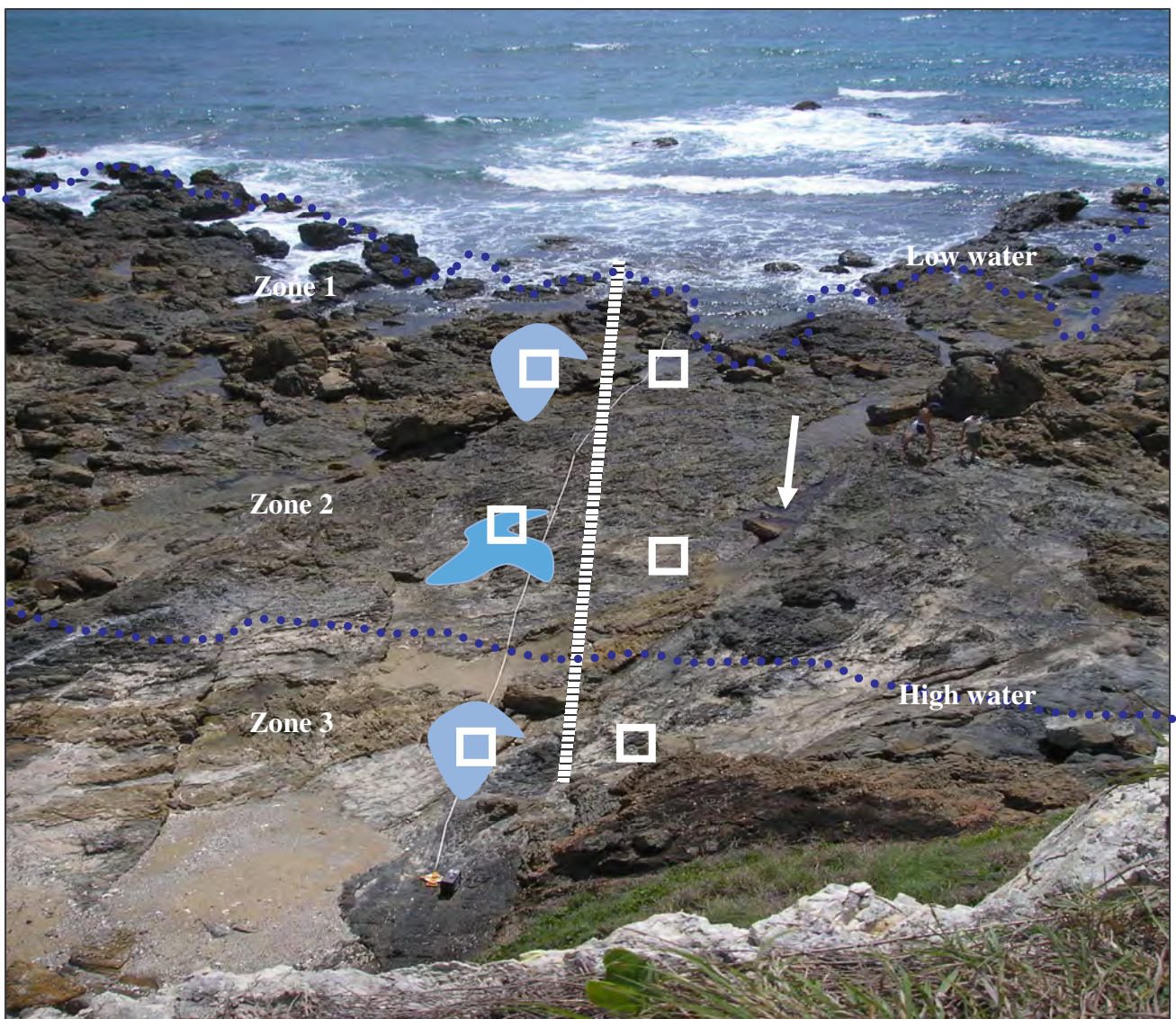


Pencil 2B

Study Methods

Remember to **HAVE SOMEONE WATCHING THE OCEAN AT ALL TIMES** to prevent injury from waves.

1. Walk out a 30 meter tape measure from the low water zone up to the high water zone.
2. Start at the low water zone and work through booklet activities.
3. Teachers will move between groups to assist students with gathering water quality data when required.



Site 1 Low water zone

1. Choose a safe spot to put your square on the **dry rock** and count how many **different types** of animal are in it. Write the answer in your group's species data sheet.
2. Draw and name the animal type you saw most on the dry rock.



3. Name one adaptation this animal has for living on the rocky shore?

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.....

4. Was there any algae living on the dry rock?

.....
.....

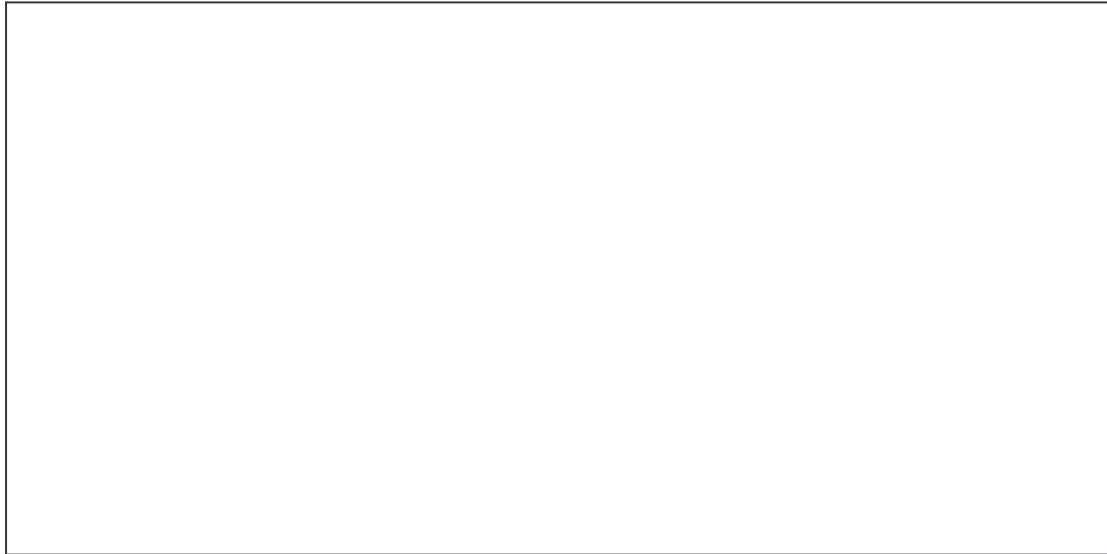
5. Take a moment to look around and see if you can list the three colours of algae found living on rocky shorelines?

1)..... 2)..... 3).....

Site 1 Low water zone

6. Now choose a safe spot to put your square in a **rock pool** and count how many different types of animal are in it. Write the answer in your group's species data sheet.

7. Draw and name the animal type you saw most in the rock pool



8. Why do you think this animal lived in a rock pool very close to the ocean and not one further away?

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.....
.....

9. Were there more animals living on the dry rock or in the rock pool?

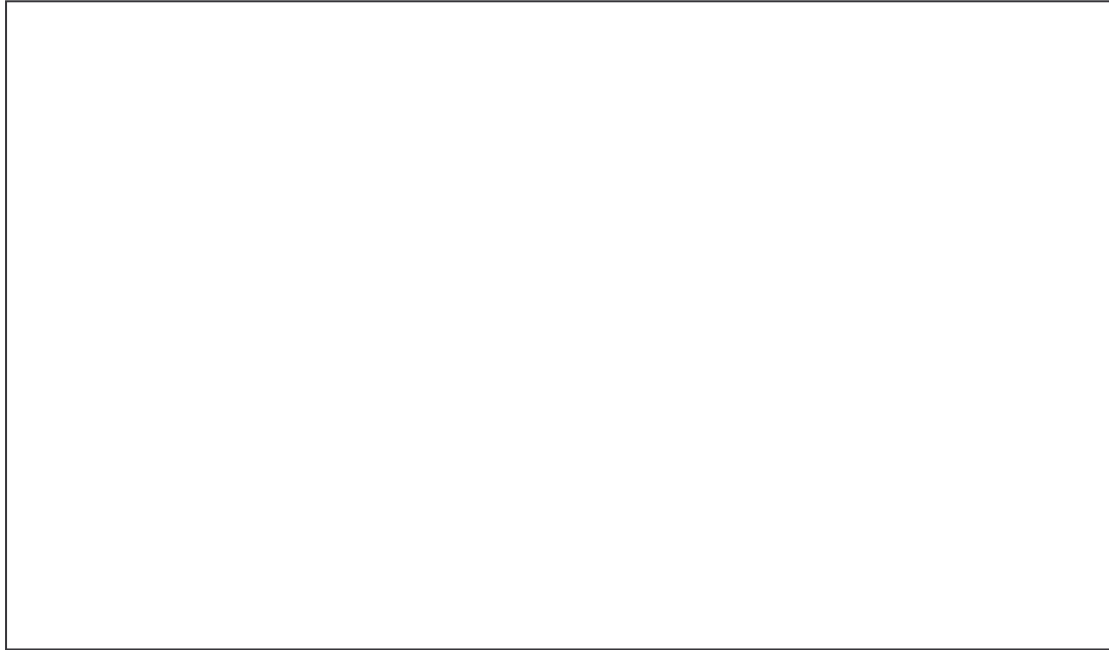
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10. With your teacher fill in the below table for your rock pools water quality

	Dissolved Oxygen	pH	Turbidity	Water Temperature	Salinity
Rockpool 1					

Site 2 Mid intertidal zone

1. Choose a safe spot to put your square on the **dry rock** and count how many **different types** of animal are in it. Write the answer in your group's species data sheet.
2. Draw and name the animal type you saw most on the dry rock.



3. Name one adaptation this animal has for living on the rocky shore?
.....
4. What does this animal eat?
.....
5. Is there any algae living on the rocks in this zone?
.....
6. What type of algae was it?
.....
7. Explain why most of the organisms are living in cracks in the rock rather than on top of the rocks?
.....
.....
.....

Site 2 Mid intertidal zone

- 8. Now choose a safe spot to put your square quadrat in a **rock pool** and count how many different types of animal are in it. Write the answer .in your group’s species data sheet.

- 9. Draw and name the animal type you saw most in the rock pool



- 10. In this zone were there more animals living on the dry rock or in the rock pool? Explain your answer.

.....
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.....

- 11. With your teacher fill in the below table for your rock pools water quality.

	Dissolved Oxygen	pH	Turbidity	Water Temperature	Salinity
Rockpool 2					

Site 3 High water zone

1. Choose a safe spot to put your square quadrat on the **dry rock** and count how many **different types** of animals are in it. Write the answer in your group's species data sheet.
2. Draw and name the animal type you saw most on the dry rock.



3. Why do you think this animal lived on a dry rock far from the ocean and not one closer to the low water mark?

.....
.....

4. What kind of adaptation makes it possible for this organism to live in the high water zone.

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.....

Site 3 High water zone

- 5. Now choose a safe spot to put your square quadrat in a **rock pool** and count how many different types of animal are in it. Write the answer in your group's species data sheet.
- 6. Draw and name the animal type you saw most in the rock pool



- 7. Were there more animals living on the dry rock or in the rock pool?

.....
.....
.....
.....

- 8. With your teacher fill in the below table for your rock pools water quality

	Dissolved Oxygen	pH	Turbidity	Water Temperature	Salinity
Rockpool 3					

Extension questions

1. List five things that you can do to help look after rocky shores?

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2. How does the effect of waves help determine what organisms live on a rocky shore?

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3. What environmental factor contributes most to organism zonation on rocky shores?

.....

4. Whereabouts on the shoreline would you expect to find the following organisms?



a)..... b)..... c)..... d).....

5. Explain why organisms living in rockpools have to be better adapted to temperature changes than organisms living in the ocean?

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.....

6. Research and explain why rockpools further away from low tide can often have a higher salinity than the ocean?

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7. The dissolved oxygen of a rockpool was measured 1 hour after high tide and 7 hours later at low tide. Explain whether you would expect the dissolved oxygen levels to rise or fall?

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