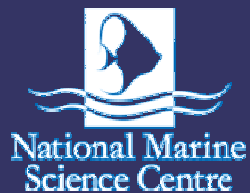


Sandy Shore Ecosystems



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



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Ecosystem Introduction

Sandy ecosystems are the most common intertidal habitat around the world. They are constantly changing through time.

The sediment on coastal beaches is sorted by the physical action of water currents, wind and waves.

How much the sand grains are sorted depends greatly on the amount of wave action, geographical location and beach aspect.

The animals which live on and within sandy shores possess a wide range of physical characteristics which help them to survive in an environment that is always changing.

These organisms are often categorized as;

1. Macrofauna, larger animals
2. Meiofauna microscopic organisms
3. Epifauna, animals living on top of the sand
4. Infauna animals living beneath the ground surface

Many of the animals inhabiting sandy shores play important roles in food webs for many commercially important fish species.

Sandy shores also provide a common place for many human recreational activities and as a result need to be cared for to ensure they are looked after for future use.

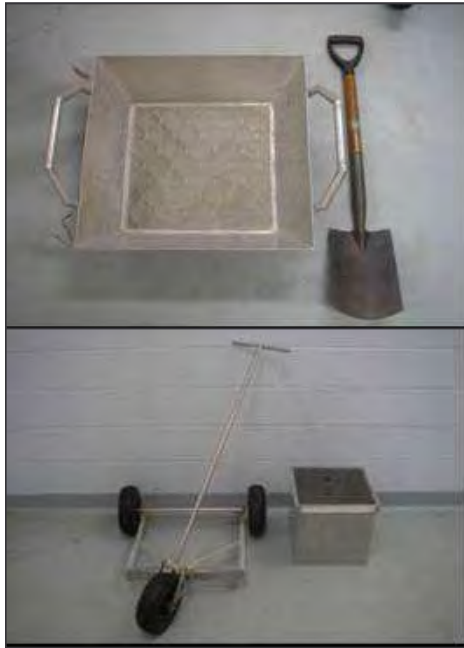
Study Aims

- Identify a range of **invertebrate** beach fauna.
- Identify and classify several **infauna organisms** according to size and **adaptations**.
- Investigate a number of **biological interactions** occurring on sandy shores.
- Investigate a number of **physical environmental processes** at work on coastal beaches.

Safety Measures

- Enclosed footwear must be worn at ALL times (sandals recommended).
- Slip, Slop, Slap.
- Stay with the class.
- Fully stocked First Aid Kit to be taken.
- Don't touch unknown organisms without asking teacher first.
- Bring a water bottle.
- Don't take live specimens from their natural environment.
- Don't enter the water without permission from the teacher at ANY time.

Equipment



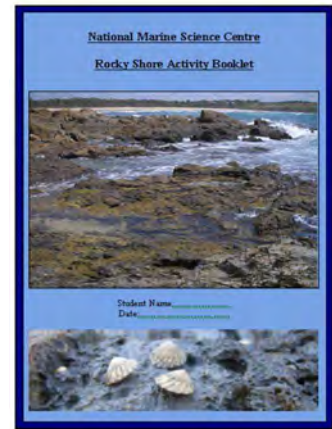
Sieve, shovel, sieve trolley



Pencil 2B



Species I.D cards



Activity book




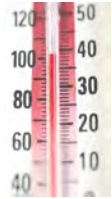


Diggers Beach Coffs Harbour.

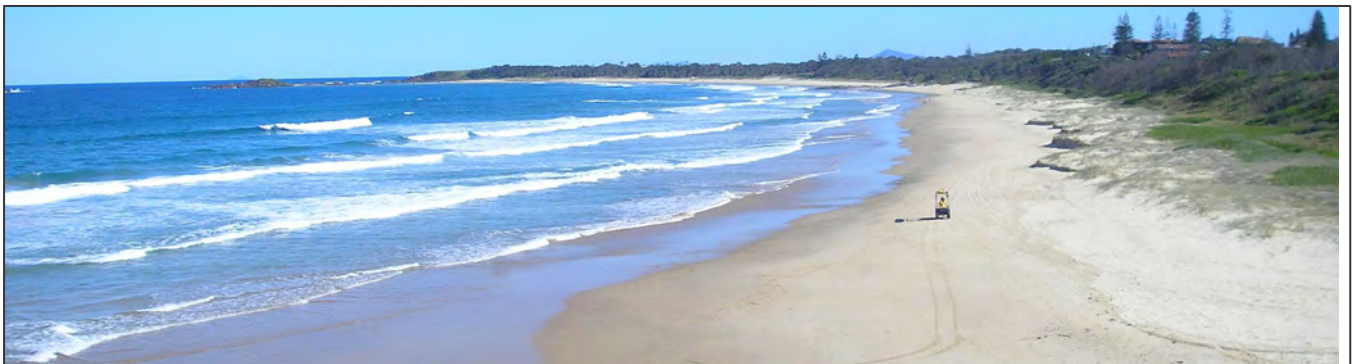
Study Methods

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

Study site 1: High water mark

Complete the weather conditions table below:

Data Sheet A: Weather Conditions			
Time:			
Tide: (circle)	High	Mid	Low
Temperature:			
Wind direction:			
Wind speed:			



Site 1 South end of beach - Low water zone

1. Choose a safe spot near the low tide mark to take your first sample of sand.

2. Use the spade to put four shovels of sand into the sieve and carefully use the water to help you sort it out (ask your teacher where to do this)

3. Walk back up the beach and answer the questions below.

4. How many different types of animal are in your sieve?
Write the answer below?

.....
.....

5. Draw and name the animal type you saw most in your sieve.



6. Name one adaptation this animal has for living in the sandy shore?

.....

7. Draw a scale in the box above to show how big your animal drawn is?

8. Is the organism drawn epifauna or infauna?

.....

Site 1 South end of beach - Low water zone

9. Count the different animals in your sieve and write your answers in the table below.

	Worms	Molluscs	Arthropods
Sample 1			
Sample 2			
TOTAL			

10. List two physical environmental factors present in this zone.

a)..... b).....

11. In the box below draw a diagram of the beach showing where study site one is located.



Site 1 South end of beach - High water zone

12. Choose a safe spot near the high tide mark to take your next sample of sand.

13. Use the spade to put four shovels of sand into the sieve and carefully use the water to help you sort it out (ask your teacher where to do this)

14. Walk back up the beach and answer the questions below.

15. Count the different animals in your sieve and write your answers in the table below.

	Worms	Molluscs	Arthropods
Sample 1			
Sample 2			
TOTAL			

16. Are there any worms present in these samples?

.....

17. Give two reasons why the class might have found more worms down closer to the low tide mark?

1).....

2).....

18. Have a look around the spot where your sample was taken. Is there any evidence of any epifaunal animals living on the sandy shore?

.....
.....

Site 1 South end of beach - High water zone

19. How protected from the waves is this end of the beach?

.....
.....

20. Draw and name an animal type you saw living on the beach surface?



21. Make a list of animals that live on the beach and what they eat?

.....
.....

22. Circle the correct answer:

If one animal feeds on another it is called a:

- a) Biological interaction. b) Biological adaptation
- c) Physical adaptation d) Abiotic process

Site 2 North end of beach - Low water zone

23. Choose a safe spot near the low tide mark to take your first sample of sand.

24. Use the spade to put four shovels of sand into the sieve and carefully use the water to help you sort it out (ask your teacher where to do this)

25. Walk back up the beach and answer the questions below.

26. Count the different animals in your sieve and write your answers in the table below.

	Worms	Molluscs	Arthropods
Sample 1			
Sample 2			
TOTAL			

27. Are there more or less organisms living at this study site than the first site?

.....

28. Is the sand at this study site different to the last one?.....

29. Explain what physical process may cause this difference?

.....

30. Which study site is more affected by the action of waves?.....

31. This is because most of the ocean swells off NSW come from which direction?

.....

Site 2 North end of beach High water zone

32. Choose a safe spot near the high tide mark to take your first sample of sand.

33. Use the spade to put four shovels of sand into the sieve and carefully use the water to help you sort it out (ask your teacher where to do this)

34. Walk back up the beach and answer the questions below.

35. Count the different animals in your sieve and write your answers in the table below.

	Worms	Molluscs	Arthropods
Sample 1			
Sample 2			
TOTAL			

36. Are there more or less organisms living at the high tide mark at this site or the first site?

.....

37. Circle the correct answer

All of the organisms examined today have been?

- a. Meiofauna b. Macrofauna

38. Explain a physical process at work on the beach?

.....

39. Give an example of a biological process at work on the beach?

.....

Extension questions

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

.....
.....

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

.....
.....

3. What physical environmental factor contributes most to the types of animals found living in coastal ecosystems exposed to the ocean?

.....

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



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

4. Fill in the missing words below:

Reflective beaches are generally very _ _ _ _ and have coarse sand.

_ _ _ _ _ beaches generally have spilling waves.

Dissipative beaches are typically much _ _ _ _ than other beach types and have very _ _ _ _ sand.

5. Research and explain why animals living in sandy shores are adapted to a different lifestyle than animals living on rocky shores?

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