SAND DUNE WORKSHEET 2
Plant adaptations to the conditions on the frontal dunes

INTRODUCTION

General Features of a healthy dune system

Our coastline is constantly under the influence of high temperatures, strong winds and stormy seas. These physical factors regularly create and destroy sand dunes. The sand dunes on the coast are a buffer zone between the land and the sea and serve to protect the delicate land plants from the salt air and wind coming from the ocean.

The sand dune plant community consists of various species, each occurring within a certain zone in the dune system. Each zone is subject to a specific set of conditions according to how close it is to the ocean, and the plants serve a certain function in their zone. The vegetation of the dune system is generally sparse and poor in species which is characteristic of all sand dunes that are open to the ocean.

If a dune system is not healthy there may be one or more zones absent and some of the buffering effect will be lost for the nearby land vegetation. Unhealthy dunes are also less likely to be able to withstand strong winds and stormy seas and as a consequence the beach can disappear regularly from this type of environment.

AIMS

- Identify and give the common names of the native plants found on the sand dunes
- Discuss the importance of plants, especially the natives, to the coastal dune system
- List the adaptations of some of the native plants to their harsh life on the frontal dune
- List the physical factors effecting the growth of the plants

EQUIPMENT

- Sunscreen and Hat
- Mosquito repellant
- Water Bottle
- Clipboard folder
- Notepad, pen and pencil
- Thermometer
- 10 metre string (marked at 1m intervals)
- Books to help identify native plant species

PROCDEURE

This study will help you familiarize yourself with the dune plants, and the way they are adapted to the conditions in which they live. It is important that you spend time on the windward side of the dune and determine what conditions prevail there and how they might affect the plants. Answer the appropriate questions. When this is complete, move to the leeward (sheltered) side of the dune and assess the conditions there. Determine how the plants are adapted to those conditions and answer the appropriate questions. After examining both areas decide how the plants differ in each and then fill out the table that follows.

1. List three plants found on the windward side of the dune. Describe one feature of each plant which enables it to survive in this habitat. Try to use a different feature for each plant.

a)_____

_____

b)_____

_____

c)_____

_____

2. List the features of the windward side of the dune that affect the organisms living there.

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3. (i) List three plants found on the leeward (sheltered) side of the dune.

a)_____

b)_____

c)_____

(ii) Select one of the three plants above and describe it in detail using the following features.

Size of plant_____

Leaf size_____

Soil depth requirements_____

Anchorage requirements_____

Water requirements_____

4. Why would these features make it difficult for the plant to grow on the windward side of the dune?

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In order to summarise the differences in vegetation on the two sides of the dune, and to hypothesise the reasons for the differences, complete the following table.

Plant Feature	Windward Side	Leeward Side	Explanation of Difference
Name:	**Pigface**	**Banksia**	
Leaf Size: (length, width and thickness)			
Leaf Shape: (diagram)			
Ability to store water			
Average height of plant species			
Litter around base of plant Calculate % on .1m square quadrant			
Proximity to other plants (measure distance to several plants and average)			
Special features (from your observations find another interesting feature for each plant)