



Marine Education Activities Booklet

Designed by the MESA National Council

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Diving Deeper and exploring further



Photographer: John Hemmings

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‘What’s the sea got to do with me’? by Barbara Jensen (NSW)

Background

The sea is not just for fishers, oil rigs and those who live on the coast. Dive deeper with your thinking. The oceans are integral part of your life wherever you live!

Aim

To consider some of the many interactions between people and the sea, no matter where you live.

What to do

Read through the poem, ‘What’s the sea got to do with me’?.

With each verse discuss what role the sea is having in that persons life.

Using the list below make up more verses.

Illustrate the verses and make a sea mobile, with all the pictures hanging from a person.

‘What’s the sea got to do with me’?

‘What’s the sea got to do with me’?

Said Carlos from Cobram.

Food, said his Dad, set the table please, we’re having calamari for dinner.

‘What’s the sea got to do with me’?

Said Bess from Byron Bay.

Fun, said her partner, the bay is calm and clear, lets go snorkelling and look for turtles.

‘What’s the sea got to do with me’?

Said Luke from Longreach.

Holidays, said his Great Aunt on the telephone, we look forward to you visiting us soon.

‘What’s the sea got to do with me’?

Said Bridget from Burnie.

Transport, said the shopkeeper, I’m expecting a shipment of goods next week.

‘What’s the sea got to do with me’?

Said Neville from Nhulumbuy.

Totems, said his Uncle, your totem is a dolphin.

‘What’s the sea got to do with me’?

Said Amity from Albany.

Wellbeing, said her Grandad, we retired here to enjoy the peace and beauty of the sea.

‘What’s the sea got to do with me’?

Said Bruce from Barton.

Water, said his cousin, evaporation from the sea forms clouds that float over the land and rain on us.

‘What’s the sea got to do with me’?

Said Pip from Port Lincoln.

Research, said her big sister, I'm doing a shark study at work, so we can understand and make plans to protect them.

As you learn more about the sea, you will discover that it is not only an interesting place to visit, full of amazing plants and animals but also that it is an important environment, which plays an integral role in our lives. Make up more verses using these further examples of the ways in which people interact with the ocean.

- Work eg diving instructor or fisher
- History eg wrecks and voyages
- Recreation eg sailing and fishing
- Sport eg surfing and paddling
- Play eg sand castles and swimming
- Safety eg life savers and coastal patrols
- Farming eg aquaculture and mariculture
- Education eg interest and awareness
- Inspiration eg songs, poems and art
- Tourism eg mangrove boardwalks and kayak trips
- Energy eg oil and gas
- Climate control eg currents and winds
- Oxygen cycle eg phytoplankton, release oxygen and provide carbon dioxide sinks
- International relations eg refugees and seabird migration flyways
- Medicine eg developed from sea animals or plants
- Biodiversity eg variety of life in the oceans and its integral part in the web of life
- Biomimicry ie learning from nature to develop things for human use eg tough material like abalone shell or adhesives like mussel adhesive
- And more . . .



BEACH ACTIVITIES by Brooke O'Connor (Vic)

Activity 1

Title: My Life in a Rock Pool

Objectives:

To encourage participants to closely analyse life in a rock pool and to understand the influences and interactions that affect the survival of organisms in this environment.

Materials / Equipment:

Writing paper, pens, underwater magnifying glass.

Activity:

Participants are to select a rock pool and to list what they find in the rock pool.

Participants are then asked to imagine they are one of the organisms they found in the rock pool and to write a story describing one day in their life.

Encourage participants to think about aspects that affect them including:

- Tidal influences
- The time of day
- Feeding
- Moving around
- Protection from predators
- Reproduction
- Relationship with other organisms in the rock pool

Activity 2

Title: Human Impact

Objectives:

To encourage participants to analyse human impact on the natural environment.

Materials/Equipment:

Writing paper, pens

Activity:

- Undertake a site assessment to a rocky shore or beach
- Document any visible human impacts
- Research the use of the area, both past and present

Encourage participants to make an assessment as to what the area would have looked like prior to European settlement:

- What things would be there?
- What things would not be there?
- Is it better now?
- What things make the area better now for people / for nature?
- What things make the area worse now for people / for nature?

Investigate ways to protect these natural areas.

Activity 3

Title: Amazing Beach Experiences

Objectives:

To encourage participants to gain a greater understanding and appreciation of the marine environment.

Materials/Equipment:

Writing paper, pens, books about the sea

Activity:

Stage 1 – Sea Bingo

Stage 2 - Encourage participants to discuss personal experiences / opinions about the sea and the marine environment.

- What do they think about the sea?
- What is special about the sea?
- Books they have read about the sea?
- Songs about the sea?

Stage 3 – Undertake a rock pool ramble and analyse the organisms found at various locations along the rocky platform. Discuss:

- Which organisms are found where and why?
- What adaptations do various organism have for survival in each particular zone?
- What do they eat?
- How do they eat?
- How do they move?
- How do they hide?
- How do they reproduce?

Stage 4 - Create a rock pool in the classroom / design a sea creature which displays the various adaptations that participants observed in the field.

Other ideas:

- Encourage school / community groups to work in with Dolphin Research or Environment Australia in marine mammal monitoring.
- Promote SEA (Students for Environmental Action)



Diving deeper - safety sign design by Jody Plecas (Vic)

How many times have we read about spinal injuries from people who dive off of piers/jetties or jumped into the water from a height. These terrible injuries may well have been avoided if more people were aware of the risks.



1. Decide on a particular place that you know of or could imagine, where it could be dangerous to jump or dive in. Write a description of the place and the potential dangers. Write down or draw a series of ways to help people become aware of the dangers.

2. Design a circular symbolic design for a sign to warn people.

3. In order to evaluate your design write 5 interview questions that you will ask to 3 people you know (one has to be an adult). If after speaking with the people interviewed you feel that your design could be better with a few changes make modifications to the design.

When your design is complete hand in to your teacher or Seaweek leader who will choose which entry will be sent in to Seaweek.

Deepsea - No see

The deep ocean waters are black and only the animals who can make themselves glow in the dark (bioluminescent) can be seen. In addition to bioluminescence, deep sea animals have developed other senses to a high degree.

1. Get together with a friend. Remembering the water is much thicker than air. Write and compare your lists of the senses that deep sea animals might employ to find food or escape being eaten.

2. Deep water animals are very much aware of the change of density of the water around them - like the feeling you get when something whooshes past (even though you might not see it). Gather together an old folded newspaper, a fan and any other objects that you think would push enough air to be felt by a blindfolded partner. Have a go. Record how the subject reacted and which objects were most easily detected by the blindfolded partner.

[If you are in a class the teacher may participate too. Smell may also play a big role in the lives of deep sea creatures so without telling the blindfolded subject begin to peel a mandarin or orange and introduce some other smelly things during the 'whooshing' events]

3. Record the subjects answer to the following questions.

Name the sensations you could detect as different objects moved past

Were you frightened or startled at any point during the experiment?

Did you always feel in control?

4. Riddle: If you can't see or hear a person in the afternoon sun how do you know where they are? (Answer - by following their shadow). Some 'twilight' sea animals have such large keen eyes that they can detect other animals, like sea jellies, by the shadows they cast in the dim light. See if you can think of a game using shadows. Send the best one in to the Seaweek office and you might win a prize.



Environment & Expression by Alex Gaut (SA)

Use the following 2 poems for these creative ideas.

Read the poem “Sea Shore” by Nick Vall.

- Encourage creative responses to the poem, its lyrics and images.
- Develop sensory skills. Look carefully for sensory expressions in the poem. Share them. Think back to times when the seashore has affected your senses.
- Focus on the psychological changes that occur to people when at the seashore. Recall times when you have responded to the electrical charges that are generated by waves at the seashore.
- Encourage students to remember times when they’ve been recharged, revitalized and restored by going down to the coast.
- Choose a view from the poem. Discuss how the view changes throughout the poem. In groups, select a particular view. Create scenes for an animation sequence.
- Compile and publish a book of impressions about the coast and the seashore.

Valuing the seashore

- Using discussion clarify feelings about seashores and coasts. Order sensory expressions from the favourite to least favourite. Explain your reasons.
- Investigate reasons for student’s values and for those of others.
- Discuss the student’s interpretation of how the author values the seashore environment. Discuss whether the author’s values change.
- Invite students to make judgements about the poem. Ask whether the students can think of a place as described in the poem.
- Write sensory poems about watery places, e.g. wetlands, creeks, dams.
- Recall times of feeling in harmony with the environment. Share these. Use them as an inspiration for creativity. Write poetry, draw, sculpt, make a mural or a box diorama highlighting harmonious time.

Changing seashore

- Make a 20th century timeline showing changes to our coastlines. Discuss how these changes have occurred.
- Interview older family members about seashore memories they recall. Ask questions about how they feel about the seashore and changes in the coastal landscape.
- Collect photographs from family members, libraries or historical societies. Identify changes to the coastal landscape and consider the factors that have caused these changes.
- Think about, list and then chart the consequences of changing the landscape.
- Encourage testing and re-evaluation of values. Talk about society making changes to the coastal landscape. Name some of the changes. Discuss the effect these changes might have on the landscape in the poem “Sea Shore”. Consider whether these changes are permanent or temporary.
- Talk about changes student can make to the seashore environment, both good and bad. Discuss the permanency of such changes. Describe solutions that might stop or reverse the factors that bring about adverse changes to the coastal landscape. Discuss what the individual, class, family and community can do to work in harmony with the seashore environment. You might like to visit a coastal area to help students identify the changes that are happening.

Global ocean

Viewed from space, we can see that oceans and seas dominate our planet, covering more than 70% of the surface. Many have described it as the 'Blue Planet' or the 'Global Ocean'. Oceans play an important part in controlling climate and weather, as well as providing us with food, energy, minerals, routes for communication and transport, and of course a large area for recreation. The oceans and their wildlife have provided us with myths and legends, and subjects for painting, music and poetry, yet most people are unaware of how they benefit from the oceans and why it is necessary that we should all be concerned for their future.

- Visit the sea, or locate photographs and pictures, or view videos of seas and oceans. Respond personally by describing them.
- Read "Ocean Song" by Nick Vall. Talk with students about each verse and its meaning.
- Introduce the narrative genre as a form of writing, which is used to entertain, to seek the readers attention and interest and to maintain it through the use of story.
- Describe the setting or location for the song.
- Identify the characters and talk about the plot which is beginning to unravel.
- Describe the atmosphere which is established.
- Focus on verse two. Locate and describe the problem or complication which is highlighted.
- Discuss areas of our planet where oceans are facing problems or complications. List different types of problems. Discuss environmental issues connected with our seas and oceans. Draw cause and effect flow charts to show the issue and the problems.
- Identify the global issue that Nick Vall describes, e.g. overfishing. Describe the effects of this issue on global environments and communities.
- Focus on the third verse. Describe the solution that the author writes about, e.g. people starting to understand.
- Talk about the power of knowledge and understanding. Discuss how people can make a difference once they understand an issue and how they can effect change. Share specific examples of this.
- Discuss the saying:

Tell me and I will forget it

Show me and I may remember

Involve me and I will understand

Relate the significance of the saying to concerns for the marine environment. Devise a list of actions everyone can undertake to care for our coasts, oceans and marine environment.

- Focus on the final commentary and echo of verse one. Think about and share ideas about its meaning and significance.
- Discuss the writer's feelings about oceans and the meaning he is trying to convey to the reader.
- Make a class list of all of the images contained in the song.

Sea Shore

Nick Vall, 1996

Go down to the seashore anytime,
You're always welcome,
Whatever the mood, whatever the tide.
Roaring surf, rip, undertow;
Or choppy, deep green in cloud shadow;
Or when the sea, like a gentle hand,
Lightly strokes the sloping sand.

Go down to the seashore anytime,
You're always charged!
Ozone in the nostrils, sea breeze on the mind.
Ions leap, the heart beats slow,
A richer blood begins to flow...
In flood the sounds of the day!

Waves boom and crash and fizz and bubble,
Kids squeal and laugh, the seagulls squabble...
Smells and sights and sounds will reach you,
Eyes and ear and nose will teach you,
Skin receptors wkey-wke,
Give the sleepy limbs a shake,
Don't tippy-toe!
Take the plunge!

Go down to the seashore anytime
You're always calmed.
Curve of the horizon, space on every side.
Brain waves level, knots unwind,
New eyes see the old design...
And the sun unites in harmony,
The watcher, the shore, the sky, the sea!

Ocean Song

Nick Vall, 1996

1. Where the sea meets land and the waves begin,
And the ocean swells roll in, roll in;
The sound gets into the heads of sleepers,
The sound connects all seaside dreamers,

Slowly, slowly in every land
People start to understand what the sea speaks ... (What the sea speaks)
She's everywhere ...

In the clouds that roll and gather,
In the streams that wind and flow.
In the air we breathe [Ah! Ah! Ah!],
Life of a continent ... El Nino!

2. Where the sea meets land and the waves begin,
And ocean swells roll in, roll in;
The sound gets into the hearts of thinkers,
The sound unites, it joins and links us,

Slowly, slowly in every land
People start to understand what the sea speaks ... (What the sea speaks)
She's under pressure ...

She's fed us through the countless seasons
Always given what we need,
Now a huge fleet combs the oceans;
Too many ... and too many to feed!

3. Where the sea meets land and the waves begin,
And ocean swells roll in, roll in;
Kids become the castle makers,
Surfers find the perfect breakers,

Slowly, slowly in every land
People start to understand what the sea speaks ... (What the sea speaks)
The tide will tell ... the sea is everywhere!

In the clouds that roll and gather,
In the streams that wind and flow.
In the air we breathe [Ah! Ah! Ah!],
Life of a planet ... Who-oo!



Marine Fun!!!

Copy the template on the next page, adjust it to any size you like.

Fold it all up along the lines and you will see that it becomes a hand game that you are probably familiar with.

The numbers on the template indicate which panels are revealed when you open particular flaps.

Now create your own design of questions and answers based on a marine theme. You could use just words, but it would be much more interesting to use pictures. Create your own marine question game and try it out on your class mates to see how much they know.

The four corners of the paper, when you bring them together with your fingers, can create one whole image, so you could find a picture that you like, cut it into four equal parts, to fit into each corner and glue down. Make sure they face the right way.

On the back of the paper, you could suggest activities to help keep the ocean clean, or you could draw your own marine picture.



Crocodile Capers by Roana O'Neill (NT)

Aim: To provide an awareness of the two different species of crocodiles in the Northern Territory and some of their similarities and differences. The more that we can learn about these animals the safer we can be when we enter their habitats.

The group will be able to:

- Learn how people and crocodiles are the similar and different
- Learn how the 2 crocodile species in Australia are similar and different
- “Taste” the different crocodile habitats
- Build crocodile nests
- Discuss crocodile eggs
- Play a guessing game

Format: Discussion and practical

Level: this activity has been run for pre-school children aged 4 – 5 years. It can be adapted for primary children as well.

Length: One hour. You can choose to only present certain components of the activity and make it shorter if required.

Introduction

Equipment required

- Walnut
- Basketball
- Newspaper or Styrofoam balls for the guessing game
- Measuring tape
- Sand, grass, leaves and earth
- Cups to use for moving the sand and earth from its container to the nest site
- Two large trays for the nests
- Newspaper to place under the nests
- Re-usable cups for the group tasting
- Fresh water for tasting
- Salt water for tasting
- Pictures of a saltwater crocodile and a freshwater crocodile
- Two different crocodile heads, tails and front and back limbs. You could make these out of paper or if you are creative make two crocodile suits out of materials.

Introduction

Introduce the topic to the group. Crocodiles like any other Northern Territory animals play an important part in the natural environment. The more we can learn about how their bodies work, where they live and what they eat the safer we can be when we go into their habitats.

Explain that there are 22 species of crocodylians in the world and there are 2 different species of crocodiles living in the Northern Territory.

Ask the group if they know what the names of these 2 species are; the saltwater crocodile and the freshwater crocodile. Show the group pictures of these two animals.

Comparing the similarities and differences between crocodiles and people

Ask for 2 volunteers from the audience to dress up in the crocodile suits. One child becomes the freshwater one and the other child the saltwater crocodile.

Discuss how crocodiles are different and the same to humans in terms of body parts starting from the head area working down to the feet/tail area.

Ask everyone to point to their eyes. How many eyes do we have? Does a crocodile have eyes? Ask the children dressed up as crocodiles to point to their eyes. How many eyes does a crocodile have? So people and crocodiles are the same because we both have two eyes. But how are they different? Ask the group where their eyes and the crocodile eyes are located. Humans are on the front of the head while the crocodiles are on the side of their head, so that is a difference. If time permits you can also ask the group what the function of each body part for example to see, smell, walk etc and how this is important for the animal.

Suggestions for discussion include:

<i>Similar</i>	<i>Different</i>
2 eyes	Placement of the eyes
Nose	Different shaped nose
Mouth	Different shaped mouth
Teeth	Different shaped teeth and different numbers of teeth
2 ears	Different shaped ears
Skin	Crocodiles have scales
2 arms and 2 legs	Different shapes and sizes
5 fingers and 5 toes	Hind limbs of a crocodile have 5 toes 3 of which are webbed
	Crocodiles have tails

Another difference between people and crocodiles is the size of each. How tall are the children in the class? You may like to measure each child in the class and mark this on a large sheet of paper or mark it using something removable on the wall.

Ask the group how long they think crocodiles can grow to? Bigger or smaller than themselves? The size depends on the type of crocodile.

The **saltwater crocodile** is the biggest crocodile in the world. Some males have been found to reach just over 7 metres long.

Freshwater crocodiles don't grow as large as saltwater crocodiles. Males can grow up to 3 metres long. Measure this out using a tape measure.

What can you compare these lengths to? Is the crocodile as long as the room, as long as two cars? Ask some of the children to lie down along the tape measure. How many children does it take to make up the length of a saltwater crocodile? How many for a freshwater crocodile? This information could be written up on a sheet of paper to display on the wall.

Habitat tasting

Discuss the habitats of these 2 crocodiles. Freshwater crocodiles can be found in rivers, creeks and billabongs and swamps. They can also be found living in some tidal rivers. Saltwater crocodiles can be found in these places as well and also in the ocean. If you have pictures of these habitats place these where the children can see the different habitats.

Explain that we are now going to taste the habitat of these two crocodiles. Hand around 3 cups to each child, two marked "F" and one marked "S". Instruct the group not to drink until you say so.

Invite them to drink from one of the "F" marked cups and ask the group how it tastes/do they like the taste? This is the habitat of the freshwater crocodile. Then ask them to drink from the cup marked "S" and discuss how this tastes/how is it different from the "F" cup? Which crocodile lives in salty water? The saltwater crocodile. Ask the group why they think they have been given a second "F" cup. This is because the saltwater crocodile can also live in freshwater. Which do they prefer the taste of?

Crocodile nests

Although their habitats are watery they also need to come out onto land for different reasons. Ask the group if crocodiles are similar to us and give birth to live young or do they do something different? Crocodiles lay eggs. Where do they put their eggs? Into a nest. Why do they put their eggs into a nest? why don't they just lay them on the ground? If the eggs were laid on the ground what animals might find them and eat them? Feral pigs, goannas, people and snakes. The eggs also need to be warm to be able to develop and the nest provides that warmth.

What do crocodiles make their nests out of? This depends on the species of crocodiles. The **freshwater crocodiles** make a hole in the ground to lay their eggs in. Therefore the eggs may be surrounded by earth and decaying vegetation or sand depending on the habitat. The **saltwater crocodiles** make their nests out of vegetation and earth.

How big are their nests? The **saltwater crocodile** nests can be up to 80cm high, 250cm long and 225cm wide, while the **freshwater crocodiles** nests are dug down to an average level of 13cm and are 20cm long and 14cm wide. Show the group how high/wide and long these measurements are with a tape measure or provide them with a tape measure and ask them to find a certain number on the tape and hold it up to show the height/length and width of the nests.

Explain to the group that crocodiles look for the best place to build their nest. Female **saltwater crocodiles** like to choose a site next to permanent water. Nesting takes place during the wet season. The crocodile lays her eggs during or after rain. The female can lay 50 eggs in one hour. They are covered up and left to develop.

The female **freshwater crocodiles** nest in the dry season. They dig a series of test holes within 10 metres of water to find the best location. They dig into the sand and lay their eggs usually at night. They lay an average of 13 eggs. Freshwater crocodiles will stay near the nest but rarely defend it against predators.

Explain that we will now be making crocodile nests. Divide the group into smaller groups. This number will depend on how much of each of the materials (grass, sand and earth) you have available. Each group is going to pretend it is a female crocodile building her nest. Assign each group one of the two crocodile species and hand out their nest building materials accordingly. You may like to cover the ground with newspaper first and some large trays to contain the debris. Hand out the materials and explain how to construct each of the nests. It is important that each person has the opportunity to contribute to the building of the nest.

Depending on the amount of time you have the group can build their nest to life size or just a small replica. If time permits each group could build a saltwater and a freshwater crocodile nest.

Crocodile eggs

After the groups have finished their nests ask them what is missing? The eggs. The group could have already made crocodile eggs prior to this activity for use in this activity or you could use Styrofoam balls or cotton wool for the eggs.

If you have enough materials hand out the number of eggs that the crocodiles lay on average, otherwise hand an egg to each group to place in their nest.

Discuss how the saltwater and freshwater eggs are different. **Saltwater crocodile eggs** are hard shelled and contain a yolk and white like a chicken egg and are about 8cm long and 5cm wide.

Freshwater crocodile's eggs are hard shelled and contain a yolk and white. The average egg is 6.6cm long and 4.2cm wide

Guessing game

Ask the group to think about a crocodile's stomach. They will play a game where they have to guess how big it is. You can do this a number of ways. One way is to offer the group a number of different sized Styrofoam balls and ask them to pick from these sizes. An alternative is to provide them with some materials such as newspaper, which they can scrunch up into different sized balls.

Once everyone has completed choosing or building the size of the stomach they think it is ask the group to look around and see what some of the choices were that people made. Show them a basketball. This is the size of a crocodiles' stomach. Who chose or built similar sized stomachs? Did anyone think it would be smaller or larger?

Now ask the group to think about the size of a crocodile's brain. Again they may like to choose from some pre-made models or may like to construct their own size. Show the group a walnut. This is the size of a crocodile's brain. Did anyone think it would be bigger or smaller?

Ask the group about some of the things the children learned about today and reiterate the aims of the activity.

Design your own marine park! by Roana O'Neill (NT)

Aim: To provide an awareness of the park system in the Northern Territory with a specific focus on marine parks, and to better understand the issues involved in planning a marine park. Note, although this activity has been developed for the Northern Territory park system this can be easily adapted to the park system in other areas.

The group will be able to:

- Discuss why we have parks and reserves
- Understand the different types of parks and reserves
- Discuss the different user groups that utilise parks
- Discuss zoning of parks
- Have the opportunity to design their own marine park and take the rest of the group on a guided tour and explain the features of their park

Format: Discussion and art and craft

Level: This activity can be adapted to all age groups, however this activity has been written in mind for primary age students and has already been trialed at the upper primary level with success.

Length: 1 and a half-hours

Introduction

Equipment required

- Whiteboard/pen/eraser
- Map of Garig Gunak Barlu National Park, replace with a marine park in your area
- Management plan of a marine park in your area
- Cardboard or polystyrene (the latter can be sourced from supermarkets free of charge). This will form the base of the park.
- Fabric paints and/or general paints, these can be used to paint streams/roads
- Cotton wool, this can be used to make crocodile or turtle eggs in a nest or for the tops of trees which can then be painted over
- Air drying clay, to model rangers, visitors, termite mounds, rocks, animals, plants
- Ruler or fishing line to cut the clay with
- Variety of cloth material, this could be used to show where the water is or other natural features
- Small plastic native and feral animals, to show what animals live in the park
- Sand for the beach areas
- Glue
- Sticky tape
- Scissors
- Variety of coloured foam, for example to make ranger stations, visitor centres or natural features out of
- Newspaper to catch all the glue, paint and other bits and pieces!

The more items/materials provided the more the group can use their imagination to create their works of art.

Explain what the group will be doing in the activity.

Discussion

- Ask the group to think about their favourite park or reserve and to think about why they enjoyed visiting that particular area.

Divide the whiteboard into four parts. In the first section make a list of the names of the parks and reserves they provide you with. Spend some time discussing each of the children's choices.

For example:

Litchfield National Park: swimming at Buley rock hole

Fogg Dam Conservation Reserve: bird-watching

Charles Darwin National Park: bike riding

Howard Springs Nature Park: watching the fish and the turtles in the weir

- The next step is to ask the group about some of the activities that people can do in parks and reserves. This should be easy to do as they have previously told you why they enjoyed visiting particular areas.

Make a list of the activities in the second section on the whiteboard. You will find that you can group many of the activities into broader categories such as "recreation" including picnicking, "cultural" including visiting Rock Art sites and historical locations, "special interests", including sightseeing, photography, painting and bird-watching.

- Now ask the group to go back to the first section on the whiteboard. Ask them to look at the last two words of their favoured parks and reserves. Who can notice what the differences are?

The difference is in the name of the park or reserve. Some are called National Parks, some Conservation Reserves, others Nature Park, Historical Reserves and Marine Parks.

Discuss why there are differences in the names between parks and reserves:

National Parks are relatively large areas of unspoilt landscape, which are managed so that their natural features are protected and preserved.

Nature Reserves are smaller, natural areas set aside for public recreation and enjoyment.

Marine Parks are sections of the coast, and the underlying seabed containing flora and fauna and natural features of significance.

Conservation Reserves are established specifically to protect significant natural features, rare plants or animals.

Historic Reserves are established to protect historic sites, as well as buildings and objects associated with them.

- Indicate that the group will be looking at marine parks in this activity.

In the Northern Territory we have 93 parks and reserves covering 3.20% of the Northern Territory's land surface. Of these mostly terrestrial (land based) parks a number of them include associated marine elements within their intertidal and estuarine sections. Such parks include Casuarina Coastal Reserve and Berry Springs Nature Park.

The Northern Territory currently has a single marine park, Garig Gunak Barlu National Park. This holds the special honour of being one of the two first protected areas in the Territory, the other park was Palm Valley in 1924. The newly proposed Beagle Marine Park will provide a second marine park. Show the group the map of the park.

Discuss the reasons for having marine parks:

- protect samples of each of our major marine habitats from the direct impact of development
- protect marine plant and animal life
- offer opportunities for visitors to observe marine animals
- provide areas for scientific research
- protect breeding habitats

- **Discuss the different zones that occur in your Marine Park:**

Discuss why the park has different zones.

Zoning provides a way of regulating activities and developments within the Park so that human uses of the Park are compatible with the overall need to conserve the natural values of the area.

Examples of zoning:

*** Multiple Use A Zone**

In this zone you can carry out recreational activities, commercial and recreational fishing, traditional hunting and fishing, anchor boats

*** Multiple Use B Zone**

In this zone you can carry out recreational activities, commercial and recreational fishing but no netting, trawling or aquarium fishing is allowed. Traditional hunting and fishing and anchoring your boat is allowed.

*** Conservation Zone**

This area is for the protection of the natural resources of the area and the maintenance of biodiversity. No traditional hunting or fishing takes place here.

*** Scientific Reference Zone**

Protects areas of significant conservation value and of scientific interest. To access these areas will require a permit.

Marine Parks

Show the group a copy of the management plan of a marine park in your area. Explain that once an area becomes a park a management plan is drawn up for it. Ask them to guess what might be contained in the management plan. This will include flora and fauna lists, the zones, historical and cultural information maps and so forth. Park rangers use the management plan to help them manage the park.

- Discuss the different groups of people who may visit the park and note these groups in the third section of the board. Discuss what they hope to experience by visiting the park and note this in the fourth section on the board. This may include people who want to fish, scuba-dive, snorkel, go walking, bird watching, take nature photographs, film crews and so forth. Spend some time discussing which zones they can carry out their activities in. What would happen if some of these user groups were not catered for such as the people who wished to fish? What could be a reason for not allowing fishing at the park? Where could these people go instead?

Marine Park Design

- Now the group has the opportunity to design their own marine park for the Territory using the craft materials.

They will need to be able to take the rest of the group on a guided tour of their park and explain what activities you can do in the park, what user groups the park caters for and what zones if any there are.

After the group has finished making their park they can explain to the rest of the group what the name of their park is, the types of flora and fauna that can be found in their park, what activities you can do there, the types of zones they have made up and the people that can use the park.

If there is not enough time to go around the whole group then children can give the person next to them their guided tour and vice versa.

Leafy Seadragon Marine Education Activities by Tim Hoile (SA)

Background Teacher Information

The Leafy Seadragon is arguably regarded as the world's most interesting fish and it is most commonly found in Southern Australian Waters. The Weedy Seadragon is its closest relative.

They belong to the Syngnathidae (sig-nath-id) family which includes seahorses and pipefish. They are commonly found in South Australian waters and particularly Rapid Bay Jetty and Kangaroo Island.

In this family the males carry the eggs and they are hatched by the father. They take 2 years to reach maturity.

They are very hard to see in the wild, in their habitat of algae and seagrass as they often look like floating seaweed.

Adult 'leafies' are green to yellow-brown in colour, live in shallow waters and feed on mysids (tiny shrimp-like crustaceans), plankton and fish larvae.

Dragon Search is a community-based program which collects Seadragon sightings, if sighted please contact: Dragon Search (SA): 08 - 8223 5155

The valuable information is being used to determine the distribution and habitat requirements of Seadragons. It is an offense to collect live or washed up Leafy Seadragons, as they are considered a protected species and there is a hefty fine for offenders (up to \$20 000).

Puff the Magic Dragon



This song can be sung to the tune of "Puff the Magic Dragon"

Can you make up a song using a friend's name?

*Laura the Leafy Seadragon lives in the sea
she frolics in the seagrass beds
in the beach of the Southern Sea*

Laura the Leafy Seadragon

*John the Leafy Seadragon lives in the sea
he jumps in the ocean waves
in the water with such glee*

John the Leafy Seadragon



Suggestion

Make one up as a whole class first.

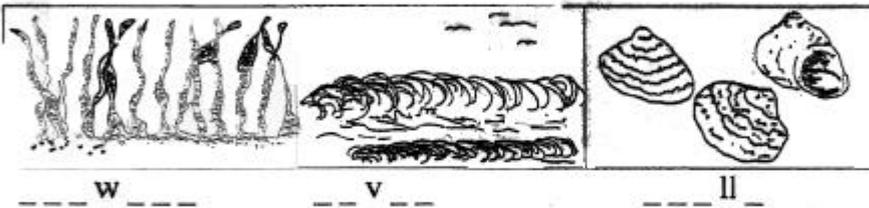
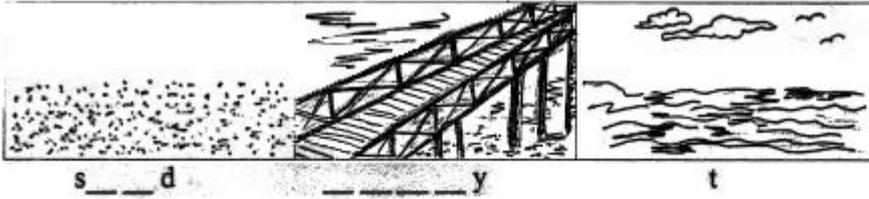


What can you find at the beach?

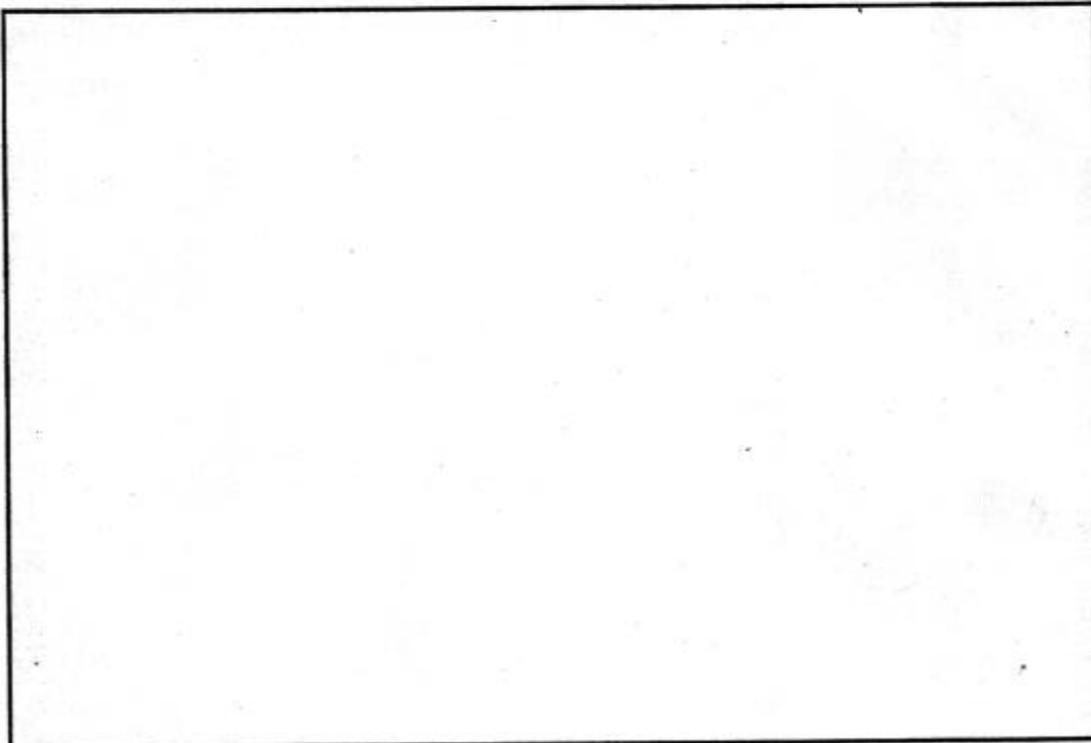
What can you find at the beach?

From the list below fill in the spaces and finish the words.

Sand, water, shells, seaweed, waves, jetty.

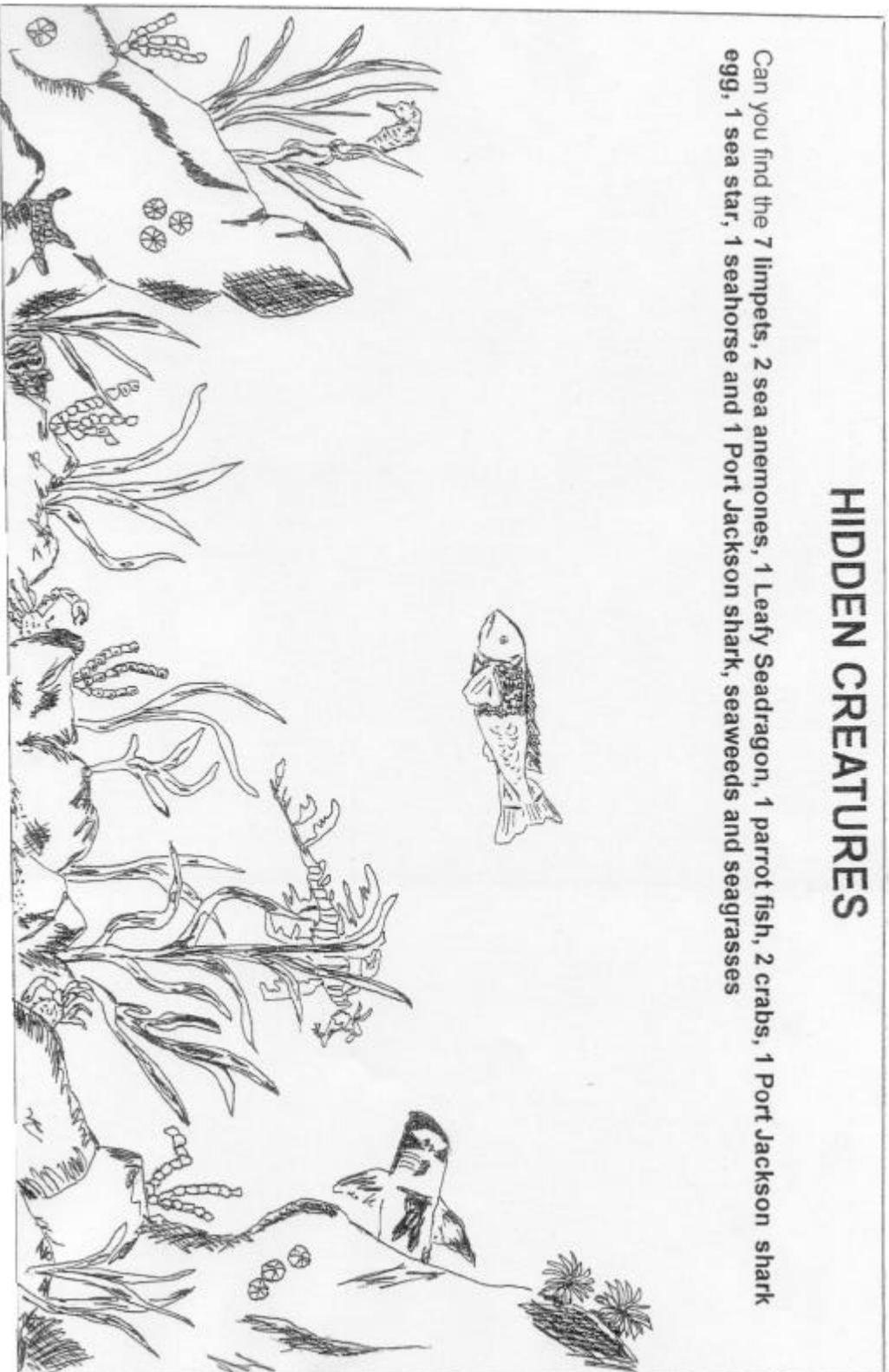


Draw a picture of yourself at the beach and include some of the above features.



HIDDEN CREATURES

Can you find the 7 limpets, 2 sea anemones, 1 Leafy Seadragon, 1 parrot fish, 2 crabs, 1 Port Jackson shark egg, 1 sea star, 1 seahorse and 1 Port Jackson shark, seaweeds and seagrasses



Design a hidden creature picture for friends

LEAFY SEADRAGON RESEARCH

Your Task

Choose at least 1 activity from each section. That is the minimum you must do, but you may do more.

Draft

You must do a draft for each activity in your draft book, except maps or illustrations.

Presentation

Your work will be published on Hyperstudio or Powerpoint for others in the school to read.

Pictures and maps can be scanned for the presentation.

Assessment: You will be given an A, B, or C with a teacher comment for your research. This will be given on your effort, the quality of your research, and your Hyperstudio/Powerpoint presentation.

Knowledge

- Make a list of important facts about Seadragons
- Show the areas of their habitat
- List and / or describe areas where Seadragons are found

Comprehension

- Draw or paint a picture labeling parts of your Seadragon
- Describe the habitat that the Seadragon likes to live in
- Describe some of the special features of the Seadragon

Application

- Make a page advertising a Leafy Seadragon or an aspect of it
- Group features of your Seadragon under headings Feeding, Reproducing their young and Other Features

Analysis

- Draw up a similarities and differences chart of the Weedy and Leafy Seadragon
- Design a quiz with multiple choice answers
- Make an advertisement for an aspect of the Leafy Seadragon

Synthesis

- Write a song or poem about Leafy Seadragons
- Predict what its habitat might be like in 50 or 100 years. Draw or write to show this
- Design a front cover for a pamphlet about the Leafy Seadragon

Evaluation

- Write a letter to a friend trying to persuade them to help to protect Seadragons
- Design a best features page to attract others to like Seadragons
- Write or list changes you would make to the habitat to improve living conditions for Seadragons

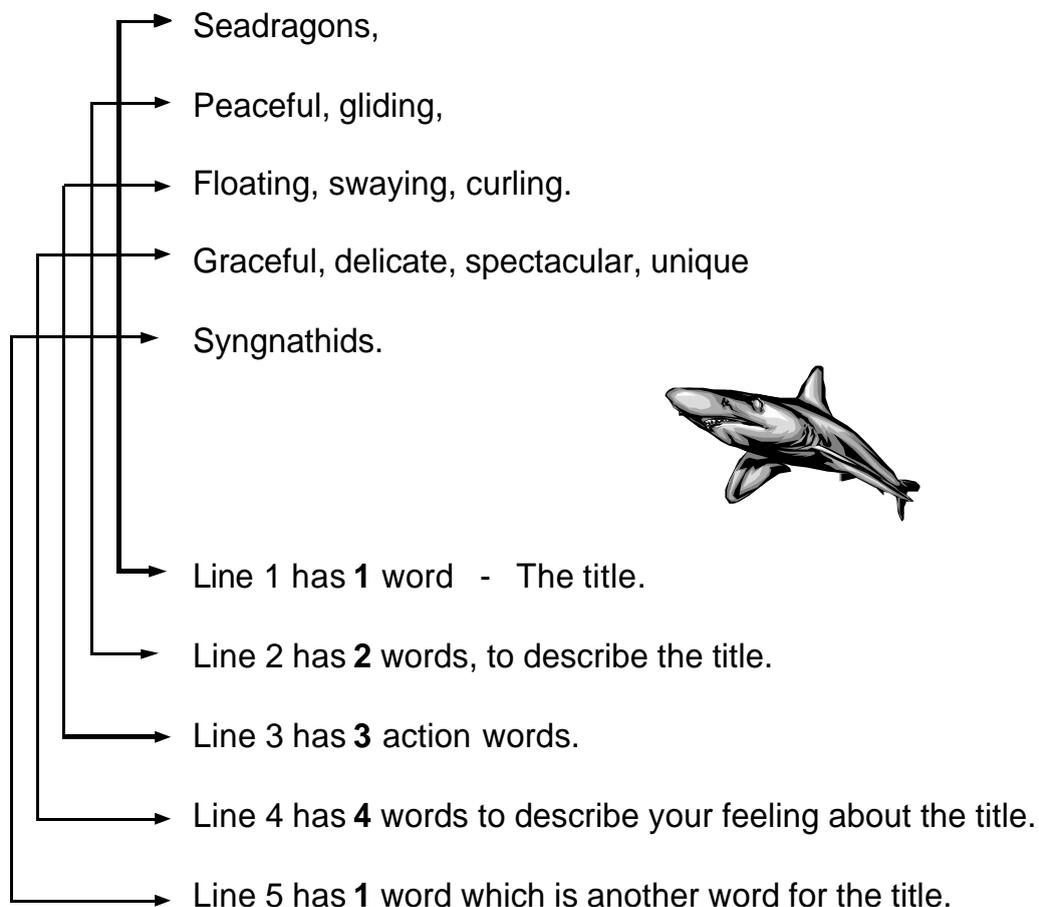
LEAFY SEADRAGON CARD

1. Decorate your Leafy.
 2. Trim off these Instructions.
 3. Fold into a card, write a marine message and give to a special friend.
-

POETRY BY THE SEA

A cinquain poem is a 5 lined poem. Cinq in French means 5.

To illustrate here's a Poem about Seadragon.



Note: that each line started with a capital.
check the punctuation carefully.



As a group or class you could write a collection of sea cinquain poems and display them on a feature wall. Possible 1st lines, Seagulls, Waves, Sharks, Storm, etc. etc.

ENJOY!