

Year 6 Junior Primary Poster Kit Activities

What you need to know

1. To obtain your free set of posters email info@ausmepa.org.au
2. Go to the website www.ausmepa.org.au/poster to download information sheets to be used with the posters
3. The titles of the posters are:
 - a. Anemonefish
 - b. Cuttlefish
 - c. Dangers
 - d. Hermit crab
 - e. Fairy penguin
 - f. Seahorses and seadragons
 - g. Sharks and Rays
 - h. Turtle
4. These activity sheets cover the Australian Curriculum for Foundations Year to Year 4
5. In the future we hope to also provide some smartboard activities which will be available on the AUSMEPA website .

Year 6

Australian Curriculum	Content description
Science	<p>The growth and survival of living things are affected by the physical conditions of their environment (ACSSU094)</p> <p>Changes to materials can be reversible, such as melting, freezing, evaporating; or irreversible, such as burning and rusting (ACSSU095)</p> <p>Sudden geological changes or extreme weather conditions can affect Earth's surface (ACSSU096)</p> <p>Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena (ACSHE098)</p> <p>Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives (ACSHE100)</p> <p>Scientific knowledge is used to inform personal and community decisions (ACSHE220)</p> <p>Decide which variable should be changed and measured in fair tests and accurately observe, measure and record data, using digital technologies as appropriate (AC SIS104)</p> <p>Compare data with predictions and use as evidence in developing explanations (AC SIS221)</p>
Geography	<p>The various connections Australia has with other countries and how these connections change people and places (ACHGK035)</p> <p>The effects that people's connections with, and proximity to, places throughout the world have on shaping their awareness and opinion of those places (ACHGK036)</p> <p>Represent the location and features of places and different types of geographical information by constructing large-scale and small-scale maps that conform to cartographic conventions including border, source, scale, legend, title and north point, using spatial technologies as appropriate (ACHGS043)</p> <p>Present findings and ideas in a range of communication forms, for example, written, oral, graphic, tabular, visual and maps, using geographical terminology and digital technologies as appropriate (ACHGS045)</p>
English	<p>Identify and explain how analytical images like figures, tables, diagrams, maps and graphs contribute to our understanding of verbal information in factual and persuasive texts (ACELA1524)</p> <p>Make connections between students' own experiences and those of characters and events represented in texts drawn from different historical, social and cultural contexts (ACELT1613)</p> <p>Create literary texts that adapt or combine aspects of texts students have experienced in innovative ways (ACELT1618)</p> <p>Participate in and contribute to discussions, clarifying and interrogating ideas, developing and supporting arguments, sharing and evaluating information, experiences and opinions (ACELY1709)</p> <p>Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for defined audiences and purposes, making appropriate choices for modality and emphasis (ACELY1710)</p> <p>Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714)</p>

Teacher planning

If you are considering a beach excursion as part of a marine unit, much of the detailed preparation in the AUSMEPA rockpool section www.ausmepa.org.au/rockpools is very relevant. This section provides ideas for student directed research. Teachers can work with students to plan their investigations at the beach and collect field observations and data.

Surviving the environment

NB: If you wish to take your class on a field trip to the coast you will find our website www.ausmepa.org.au/rockpools with a lot of helpful advice, student research materials and methods for students to design their own investigations on their field trip.

Lesson 1 – What kind of physical environment?

- Divide the class into seven groups.
- Provide each group with one of the following posters and its corresponding fact sheet.
 - Cuttlefish
 - Sharks
 - Penguin
 - Sea turtle
 - Anemonefish
 - Seahorse
 - Hermit crab
- Students will fill in the activity sheet '*What kind of physical environment?*' with the help of the fact sheet.
- Students report back to the class explaining what kind of environment their animal lives in.

Lesson 2 – Experimenting with water and temperature

Experiment 1 – water temperature

Find a large container (not metal) that can hold at least four litres of water. The class will also need a way of measuring temperature. The best alternative is to use an electronic temperature probe (data logger) that can log the change of temperature over 24 hours. It is best if the experiment can be conducted in an area that isn't affected by artificial heating and cooling. With a data logger temperature changes will be recorded automatically. Using a thermometer the temperature between the end of the day and first thing in the morning in winter will have the most interesting result and in summer the change of temperature during the day will be more interesting.

- Ask students how the temperature of a container of water will change over a day compared with the temperature in the air.
- Record the ideas student have put forward and their reasons.
- Make a data recording sheet if using a thermometer that will have a place to record time and the temperature of the air and water.
- With the results find out:
 - If the air or water temperatures goes higher and lower?
 - If the air or water temperature changes faster?
 - Does the water or the air temperature change the most?

Explain to students at the end of the experiment that the sea takes a very long time to change temperature compared to the air. The bottom of deep oceans are always the same temperature and the surface of the ocean takes months to change.

Experiment 2 – Getting cooked

This experiment needs to be done on a sunny day in the afternoon. Students will need to use thermometers that are not made from glass.

- Ask students to design an experiment that shows how some environments on the coast get very hot. Students will choose locations around the school and measure the temperature of surfaces that are similar to environments at the beach. Examples of temperatures to measure are:
 - The air temperature
 - The surface of sand in the sandpit
 - Lower layers of sand in the sandpit
 - Asphalt surface in the sun (like a rock platform)
 - Any garden rocks
 - Any exposed water – they will need to measure the container
 - If the school has a water tank, water that comes out of the tank.
- Students will need to make a data record sheet and confirm they understand how to use the equipment provided eg thermometer, temperature probe etc.
- Discuss the different results students recorded. What might be the most challenging environments along the coast?
- The experiment can be extended by looking at the change on the Asphalt when a very small amount of water is poured onto it.

Experiment 3 – Wow man, that's cool

In this experiment you will need two thermometers, two shallow bowls eg soup bowls, water in each bowl plus a small fan. The water in the bowls should be allowed to stand a few hours (or use warm water by mixing from a hot water tap) to reach a similar temperature to the room.

- Ask students if blowing air across water might affect the temperature of the water. How might wind affect the water temperature? Can students think of an experience with water and wind that would help them with an answer?
- Make a data sheet to record any change in temperature of the water in the two bowls.
- Set up each bowl in a different part of the room so when the fan blows across one of the bowls. Measure the temperature of each bowl at the start of the experiment and then turn on the fan so it blows across one of the bowl. Measure the temperature every five minutes. After 20 minutes compare the bowls and note any change.
- Ask students what happens when they blow across a wet arm? How does it feel?
- Students are to make the back of the arm damp. They use their mouths to blow across their arms.
- Why does it feel colder when students are blowing?

The explanation is that for water to evaporate it needs a lot of heat. Those water molecules with the most heat evaporate. When they do they take the heat with them leaving the cooler molecules behind. When air blows across water, more water molecules can escape or evaporate taking even more heat with them leaving the water with less heat. When something has less heat we call it cold or colder.

Lesson 3 – Shaping the coast

- Start the lesson by asking students how weather can shape the coast? Write their ideas down on the board.
- As a class go through the powerpoint 'shaping the coast'
- Divide the class into groups to do some research and report back to the class about how weather impacts and shapes the coast. Topics that groups could choose include:
 - Waves
 - Wind

- Cyclones
- Tsunamis
- Tidal waves
- Coastal erosion
- Shifting beach sands
- King tides
- Perfect storm
- London bridge great ocean road
- Great Australian Bight
- Following the student reports, as a class summarise how the sea and the weather shapes the coastline.

Lesson 4 – Surviving the extremes in a rockpool

- Start with a discussion about why large sharks can't live in rockpools. Make a list of reasons why they couldn't survive.

Use the section of the AUSMEPA website www.ausmepa.org.au/rockpools The activity sheet 'Surviving in a rockpool' will provide students with some guidelines and links.

- Divide the class into groups of two. Assign each group a different animal or plant that is described in the AUSMEPA rockpool website.
- Students are to describe how their animal or plant is able to survive:
 - Being exposed to the air when the tide goes out
 - Being belted by waves
 - Getting cooked by the sun when the tide is out on hot days
 - Protection from being eaten by other animals
 - How the organism obtains its food
 - Any other feature or method it uses to survive.
- They can start with this website and then source information from other sources.
- They are to develop a short report that describes how their plant and animal survives. The report should include:
 - Three references where they obtained their information
 - A photo that can be downloaded from the AUSMEPA photo library <http://www.ausmepa.org.au/photos.asp>
 - A labelled photo using software or a hand written drawing showing the main features that help their animal or plant's survival in a rockpool.
- The reports can be assembled into a classroom book. Students can take turns to read through the book over the next few weeks.

Lesson 5 – Migratory shorebirds

(Also relevant to year 6 geography as well as science.)

NB – the video resources are embedded into Youtube.

Background:

There are 35 species of wading birds (shorebirds) that migrate between Australia and their breeding grounds in the northern hemisphere. There are many threats to their survival and over 20 countries need to work together for their continued protection. A new website <http://farewellshorebirds.org.au> has been developed called 'Farwell shorebirds' is designed to get people involved when these birds start leaving Australia in mid-Autumn.

A map of the flyway one species, Ruddy Turnstone, can be found the webpage <http://farewellshorebirds.org.au/ruddy-turnstones> It shows how many countries this species passes through on its way to and from Siberia or Alaska.

This website has five instructive and amusing videos that goes through the preparation and movement of migratory shorebirds (waders) over a five week period. The videos contain enough information for students to be able to answer questions about animal survival along with some of the locations the animals need to rest up and refuel. It talks about the needs for countries to cooperate. The videos range from 7 to 10 minutes, but the last 2 minutes are credits. The sequence of videos can be found on <http://farewellshorebirds.org.au/webcasts/> and a wider selection with the Clarke and Dawe extracted on youtube <https://www.youtube.com/channel/UCTKLS4Otm3PmpTBGv3nEC6A>

Lesson:

- As a class look at the webpage <http://farewellshorebirds.org.au/ruddy-turnstones/> Look at the map at the bottom of the page. Explain that the bird is about the size of a blackbird. The map is the route taken by just one Ruddy Turnstone over two consecutive years. This bird had a tiny satellite GPS tracker glued to its back.
 - What information can be seen on the map?
 - Make a timeline of departure and arrival to the breeding grounds.
 - Discuss why some animals migrate.
 - Make a list of survival advantages and disadvantages students think apply to shorebirds migrating.
- As a class look at the webpage <http://farewellshorebirds.org.au/webcasts/> Play the first video called 'Teaser Video'
 - What have students found out about shorebirds and migration?
 - What is the most amazing piece of information about these birds?
- Students will use the next five videos to answer questions about their migration:
 - What must shorebirds do before they migrate?
 - Why do they migrate?
 - Why do they stopover on their migration?
 - What are some of the problems they have when they migrate?
 - What countries are mentioned during the videos?
 - Why do many countries need to work together to protect shorebirds?
- Use the internet, maps and atlases to find out which countries the shorebirds fly over and rest on their way to their breeding grounds. Try to find out some location shorebirds feed in, in your State. Even in Alice Springs, migrating shorebirds hang out at the Alice Springs sewerage treatment plant.

Web links referred to in this lesson.

<http://farewellshorebirds.org.au/>

<http://farewellshorebirds.org.au/ruddy-turnstones/>

<http://farewellshorebirds.org.au/webcasts/>

<https://www.youtube.com/channel/UCTKLS4Otm3PmpTBGv3nEC6A>

Our coastal and marine environments

Lesson 1 – Fame

Four of the posters have famous Australian marine creatures. These are the anemonefish (nemo), fairy penguin, sharks and rays and the seadragon and seahorses posters. Students can use the posters and information sheets to find out about the animals. They can use the internet to find out more about these famous creatures. Not all the creatures are famous for the same reasons. Small groups could choose one of the posters to work on. Examples of questions they could answer are:

- Looking at websites, why are people interested in the animals?
- Where and how can people see these animals? How can they see them in the wild? Do people want to see them in the wild? Are they more likely to see them in an aquarium or zoo?
- Who wants to see the animals? Do tourists from overseas want to see these animals?
- What is being talked about in the media? Are there any controversies? Does the animal need special conservation measures?

As a class compare the student's findings. Which animals are popular? Which animals have made places popular? Did they find that any of the animals make some locations scary?

Look at the blue ringed octopus on the Danger poster. Discuss their opinions why this creature hasn't made places famous while sharks have?

Lesson 2 – Survey

Students will do a survey of their class's opinions about their values concerning the coastal and marine environments. A sample survey form is provided in a word document '*Sample survey.*' Students can use the survey as is, modify it or develop their own.

This is what students should know about conducting surveys:

1. Information should be recorded so it remains anonymous. For the information to be anonymous, it should not be possible to work out what an individual had to say. To do a class survey, survey forms could be filled in. Students should not put their names on the form or use distinctive pens or pencils.
2. It is easier to have answers such as yes/no a choice of numbers or a choice of answers to collate and analyse the information. Students should ask themselves if they can present the data in the form of a graph. Writing descriptive answers is very difficult to present, interpret and analyse data.
3. How the questions are asked is really important. Many surveys are written with tricky questions to give an answer that is wanted. A survey on sharks would give different answers depending on the way questions are asked:
 - a. If you wanted to protect sharks you would ask questions about conservation
 - b. If you wanted to kill sharks you would ask questions about dangers to people
 - c. If you really wanted to know what people think about sharks you would have questions with lots of alternatives.

Students should look at the sample survey. Discuss the questions and how the data could be presented when the surveys are done. As a class decide if the survey will be used as it is, modified or a new survey with different questions will be prepared.

The purpose of the survey is to find out **how people value our coastal and marine environments** and the **kind of threats they may be aware of**. This survey does not explore values about coastal development and conservation.

When students fill in their survey form, they shouldn't discuss their answers. The forms need to be placed in a box so it isn't obvious who filled individual forms.

Once the forms are completed:

1. The data for each question needs to be numerically collated and presented on a form.
2. The data then needs to be presented so it can be easily analyse – often bar graphs are visually easy to interpret.
3. The data needs to be analysed looking for:
 - a. Trends
 - b. Or a mix of views
 - c. Interesting variations or comparisons
4. After analysing draw some conclusions. As part of the conclusions relate these to our two main questions:
 - a. How do people value our coastal and marine environments?
 - b. What kinds of threats are they aware of?

With students discuss some of the limitations of doing surveys.

Lesson 3 – Famous coastal places

This activity can be done as individuals or as pair of students. They will need to be able to access the internet.

Step 1

Discuss with students why some coastal and sea locations are famous.

- Recreation – places like Bondi Beach and Nice in France are famous places to visit, enjoy the sun and swim
- Sports – places like Bells Beach and Banzai Pipeline in Hawaii is are famous for surfing competitions
- Fishing – Cairns and Florida are well known for sports fishing
- Tourist destination – Tourists go to Ningaloo to see whale sharks and Phillip Island to see penguins.
- Scientific – Monterey Bay in California is famous for its marine research.

Step 2

Inform students they will choose a location along the coast or at sea that is famous. Each individual or group will need to choose a different location. When they have chosen their location, they are to write in a board. Once a location has been written on the board it can't be used again by others.

Step 3

Students will research these places and answer these main questions in their report

- Location – country within country, how the location accessed
- Describe the location in one paragraph
- Why is the area famous and what happens at the locations
- Who is attracted to the location
- What does the media say about the location

Step 4

Have a map of the world on display. Each student/group has 40 seconds to present their famous place to the class.

Lesson 4 – Our seaside adventure

Students are to do some creative writing about an adventure. (Please consider options other than adventure for some of your students if you feel it would suit them better.)

Step 1

Discuss with students that many fictional books are based on places that exist. In many of these books, these locations are accurately described. Many of the world's most popular authors spend months and even years

doing background research for their books. While their plot and characters might be fiction the story might be possible and everything described in the story is accurate.

Some authors in places have no idea what they are talking about. Some science fiction stories and other adventures have parts in them that are scientifically impossible and even ridiculous. An example is a book that describes a hovercraft that can travel at 60 kph and is moving in full control through a blizzard blowing at more than 100 kph.

Step 2

Students are to write an adventure story.

- The adventure is to be in a location on or in the sea that actually exists. Students should accurately describe the location including the weather. The location can be anywhere in the world.
- They will need one or two characters for their short story. They should avoid any more than two characters as the story will get more complicated and become too long. They will need to say what the relationship is between the location and the characters eg local life saver, tourist etc.
- As part of their story, someone is reading a local newspaper and they read an article about how the locals feel about their area. Students are to describe the headline and the first paragraph and make it part of their story.
- Whatever happens in the story needs to be scientifically accurate or possible. So a horror story that piranha killing people in the sea would not be suitable as they live in freshwater, but a rescue from a shark attack would be suitable.
- Provide students with a timeline and number of pages or words for their story.

Step 3

1. Students identify their plot or story
2. They choose one or two characters
3. They decide on a location
4. They do research on the location
5. They try to find out some of the issues of concern people have who live in the location
6. They decide if their plot is scientifically possible
7. They write their first draft.

Step 4

Each draft is read by two to three students. When they read the stories they look for gaps of missing information about the location, the people, the plot etc. They then write at the bottom of the draft some questions they would like the story to answer.

Step 5

Students get their drafts back, look at the questions and modify their text to answer the questions. Students may need to discuss the questions if they are not sure what the person would like to see added to the story.

Step 6

Students read several of the stories written by other students.

Step 7

As a class discuss what they have learnt about writing fictional material. Ask the question 'How much of a good fiction story is really fiction?'