



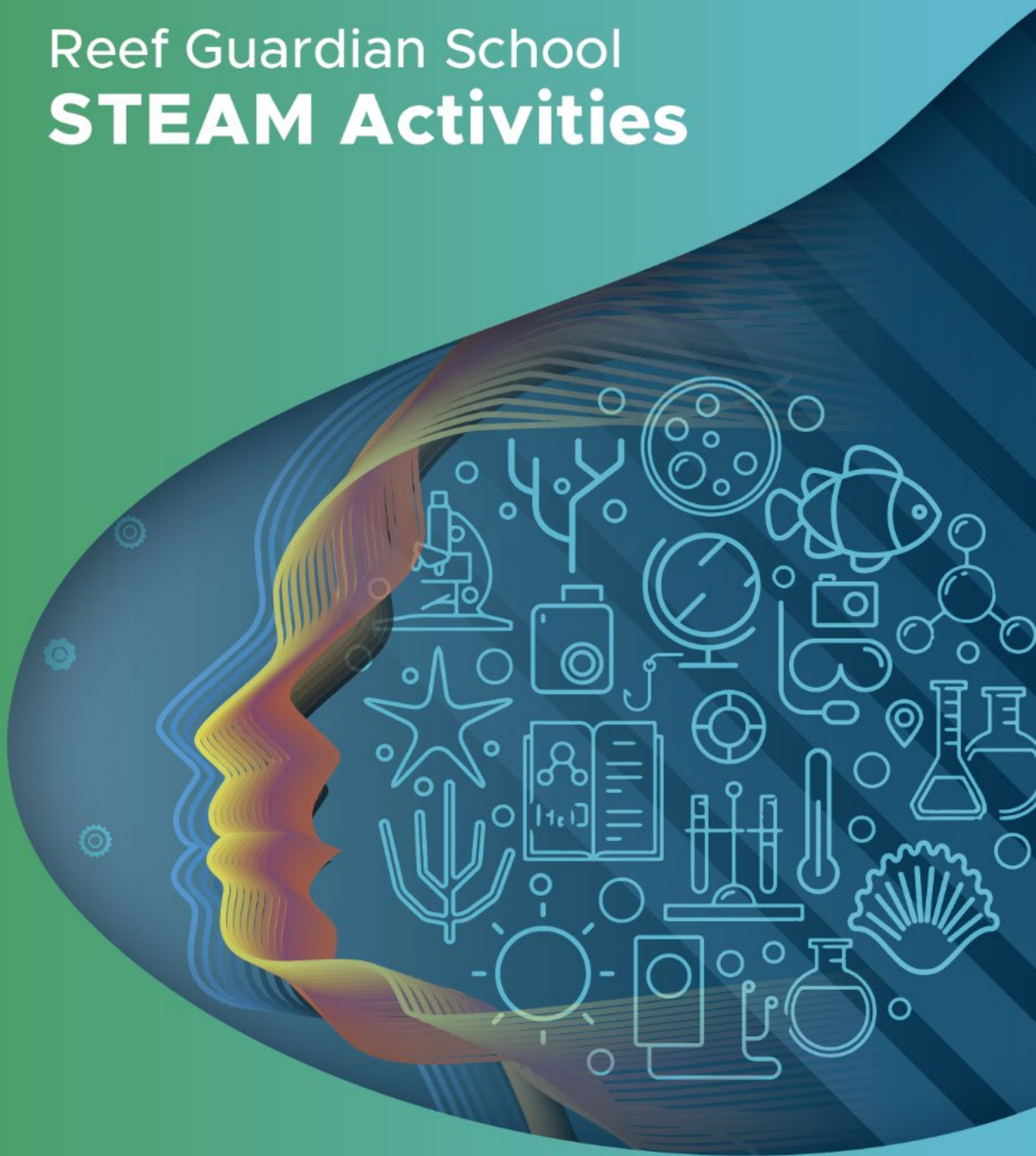
Australian Government

Great Barrier Reef
Marine Park Authority



Reef Guardian
School

Reef Guardian School **STEAM Activities**





First Nations Acknowledgement

The Reef Authority acknowledges the expertise, wisdom, and enduring connections that have informed the guardianship of the Reef for millennia. We pay our respects to the Traditional Owners as the first managers of this land and Sea Country, and value their traditional knowledge which continues to inform the current management and stewardship of the Reef for future generations.

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Overview: Reef Guardian School STEAM Activities

The Reef Guardian School [STEAM](#) Activities encourages schools worldwide to engage in one or all eight unique activities for primary and high school students. It could be conducted as a lunch time project, end of year activity or incorporated into existing units of work.

These activities align with the [UN Sustainability Goals](#) (Appendix 1.0) and the [Australian Curriculum](#) (P-10 links to English, Science, HASS, Geography, Visual Arts).

Each activity is thoughtfully designed to include diverse learners, guided by [Gardner's Multiple Intelligence Framework](#) and [cognitive verbs](#).

These engaging marine-themed activities aim to inspire students to Care, Learn, Act and Share to foster Stewardship (C.L.A.S=S) for the Great Barrier Reef, and coral reefs worldwide.



Curriculum links for the eight activities

	Name	Activity	Gardener Multiple Intelligence	Links to ACARA V9.0
1	Protected Species Shirt, Cap or Hat Design	Create a protected species themed artwork for a polo shirt, cap or hat design. Include an artist's statement about your design.	Visual / Spatial Art and design	AC9AVA4E02 AC9AVA4C01 AC9AVA6C01 AC9AVA8C01 AC9AVA8C02 AC9AVA10C02
2	Turtle Compass	Create a water compass to demonstrate how sea turtles use the Earth's magnetic fields to navigate between their feeding and nesting grounds.	Logical-mathematical	AC9HS5S07 AC9HS5S03 AC9E8LY05
3	Coastal Ecosystems - Micro Museum	Make a <u>MICRO museum</u> of three connected ecosystems in the Great Barrier Reef catchment showing how they are interconnected.	Naturalistic Micro-museum	AC9AVA6C01 AC9HS5S07 AC9E10LE03 AC9HG10K01 AC9HG7K02 AC9S7U01
4	"Great 8" Tourism Brochure	Create an engaging brochure to encourage tourists to see one of the 'Great Eight' animals of the Great Barrier Reef.	Intra-personal Brochure	AC9E4LY06 AC9E5LY06 AC9S8U02 AC9E10LE03 AC9S7U01
5	Water Quality News Reel	Film a short news segment about how water gets contaminated as it flows from land to sea, and how this water can affect the marine environment.	Linguistic Film production	AC9E4LE05 AC9E4LA02 AC9E8LA08 AC9HG7K01
6	Drain Art	Design artwork for your drain(s) that brings attention to their connection to your local creek, river, waterway, or ocean, and the issue of litter in the environment. Include an artist's statement about your design.	Bodily-kinesthetics Art and design	AC9AVA6C01 AC9E8LY01 AC9AVA8C02 AC9AVA10C02
7	Fishing and Zoning Class Activity	Using things found in your classroom (e.g. tables, chairs, bags) create different fishing zones (i.e. blue, green, yellow, orange, and pink). Take a picture/video of students following fishing rules in different zones.	Inter-personal Class activity	AC9HS5S07 AC9S8H04 AC9HG10K02 AC9HG10K04
8	Protect the Reef-Skit	Film yourself or your class performing a skit on the topic "Protect the Reef" or use our 'Captain Popper Stopper' skit about the pros and cons of poppers and reusable bottles.	Musical Drama	AC9E4LE05 AC9E4LA12 AC9AVA8P01



Activity 1. Reef education shirt, cap or hat design

Integrate art, painting, illustration, or computer graphics to create and inspire others to care for the Great Barrier Reef through ecofriendly wearable designs.

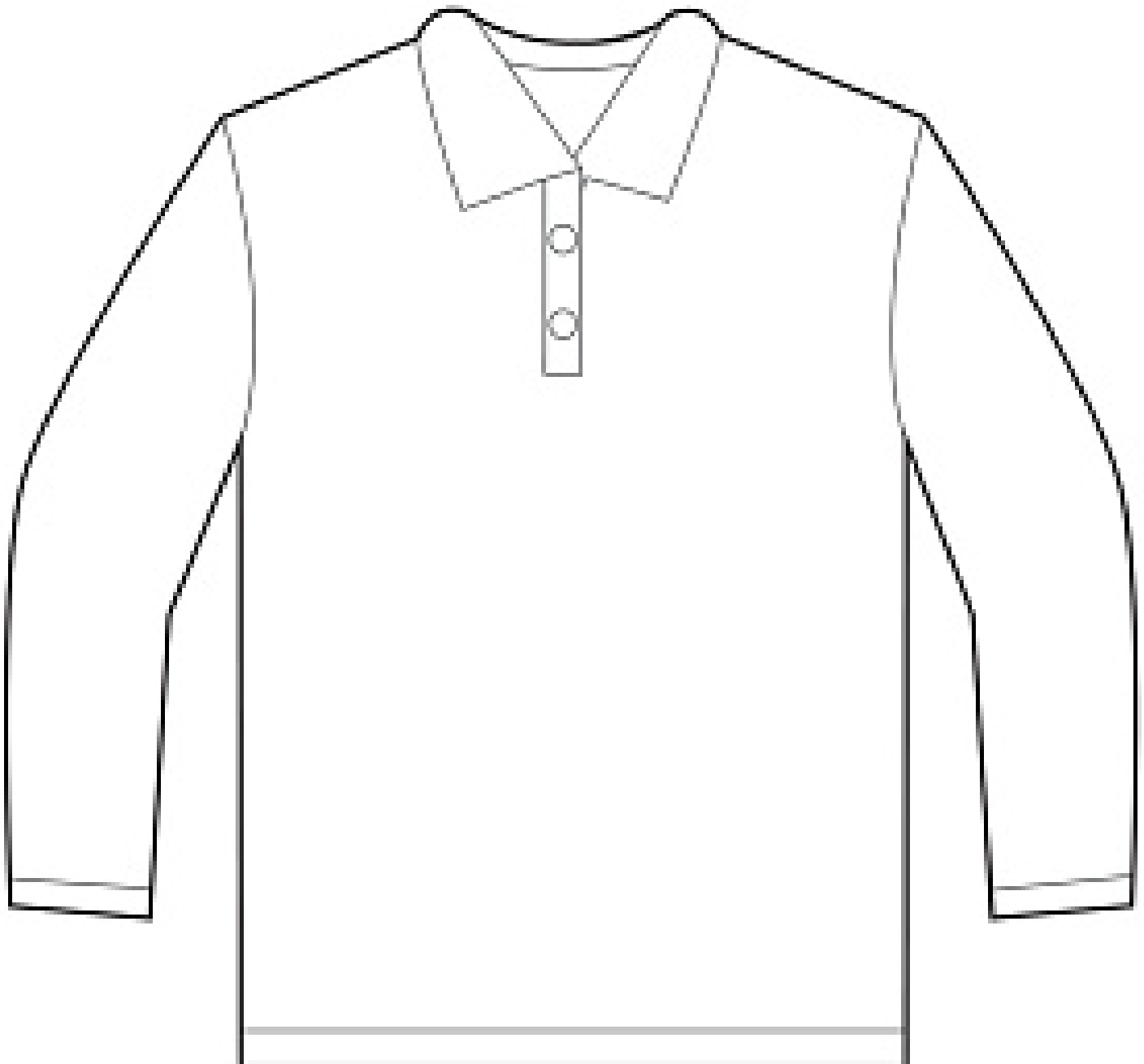
Activity Overview:

1. **Identify** a [protected species found on the Great Barrier Reef](#), or pro-environmental messaging, concepts of sustainability, or biodiversity to include in your design.
2. **Develop** artwork for a shirt, cap or hat.
Using your chosen protected species or environmental concept as the focal point to create a artwork for a shirt, cap or hat. You can use the sample outlines provided to help you design your artwork.
3. **Compare** different materials and methods to design and ecofriendly product.
4. **Develop an Artist's Statement**
Complete an Artist's Statement about your artwork. An example template has been provided on page 10.



Activity 1. Sample shirt (front) for Protected Species Design.

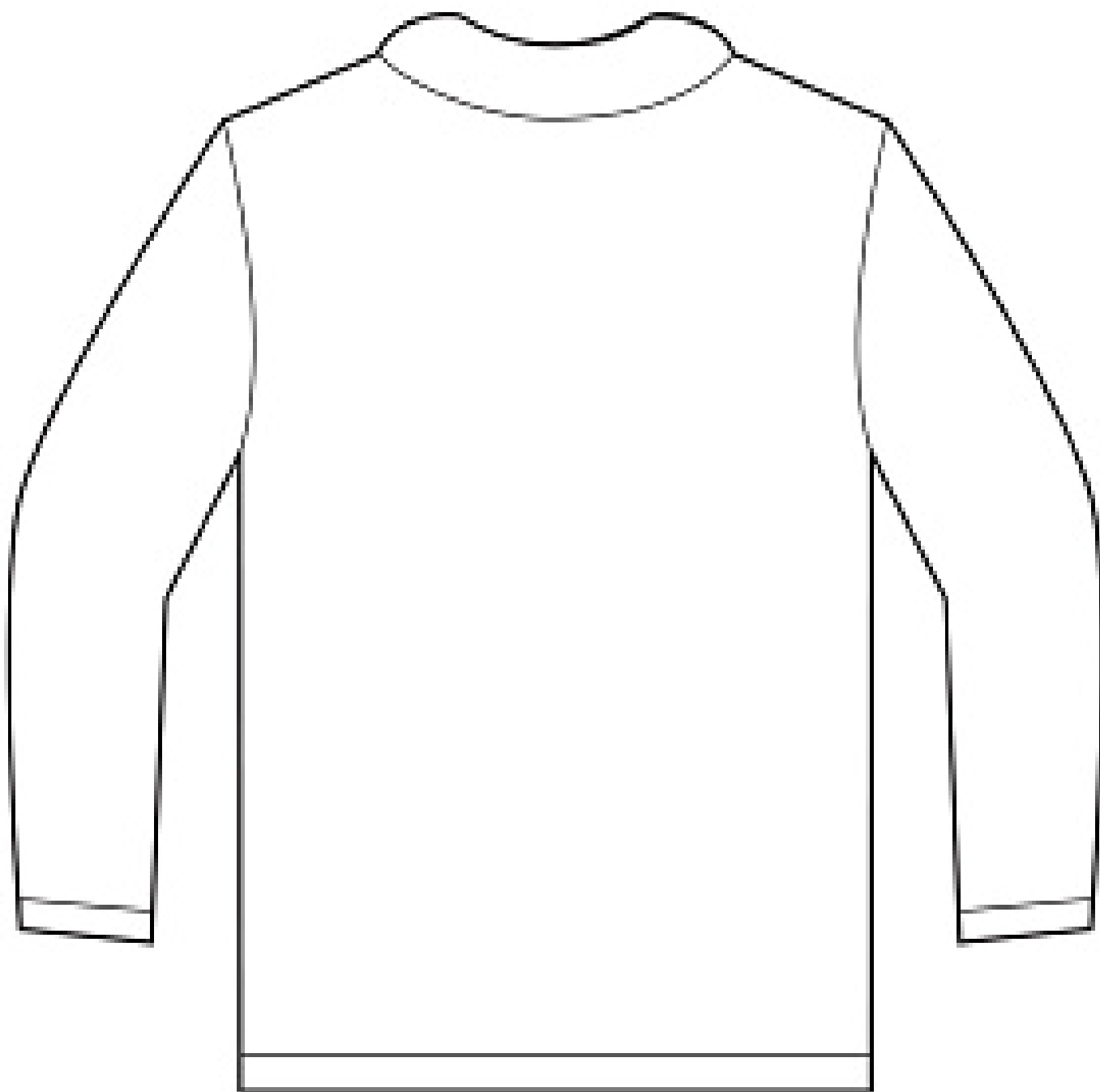
Apply your design to templates such as these outlines. You can change the template to your desired size or style. You could also identify sustainable fibres and manufacturing technique to design an ecofriendly product.





Activity 1. Sample shirt (back) for Protected Species Design.

Apply your design to templates such as these outlines. You can change the template to your desired size or style. You could also identify sustainable fibres and manufacturing techniques to design an ecofriendly product.



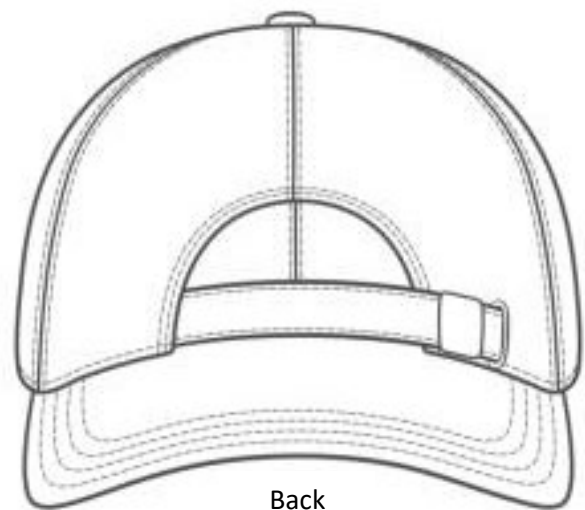


Activity 1. Sample cap outline for Protected Species Design.

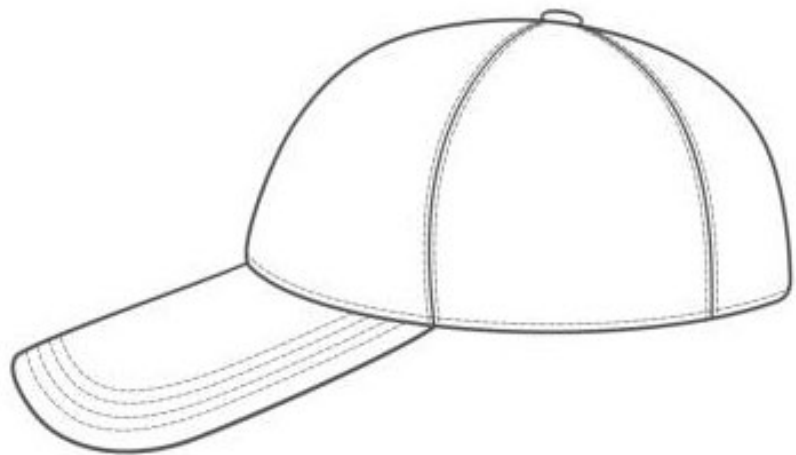
Apply your design to templates such as these outlines. You can change the template to your desired size or style. You could also identify sustainable fibres and manufacturing techniques to design an ecofriendly product.



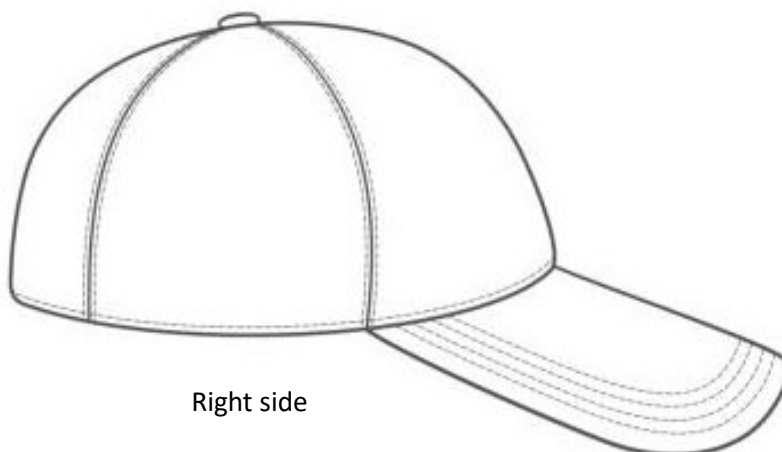
Front



Back



Left side

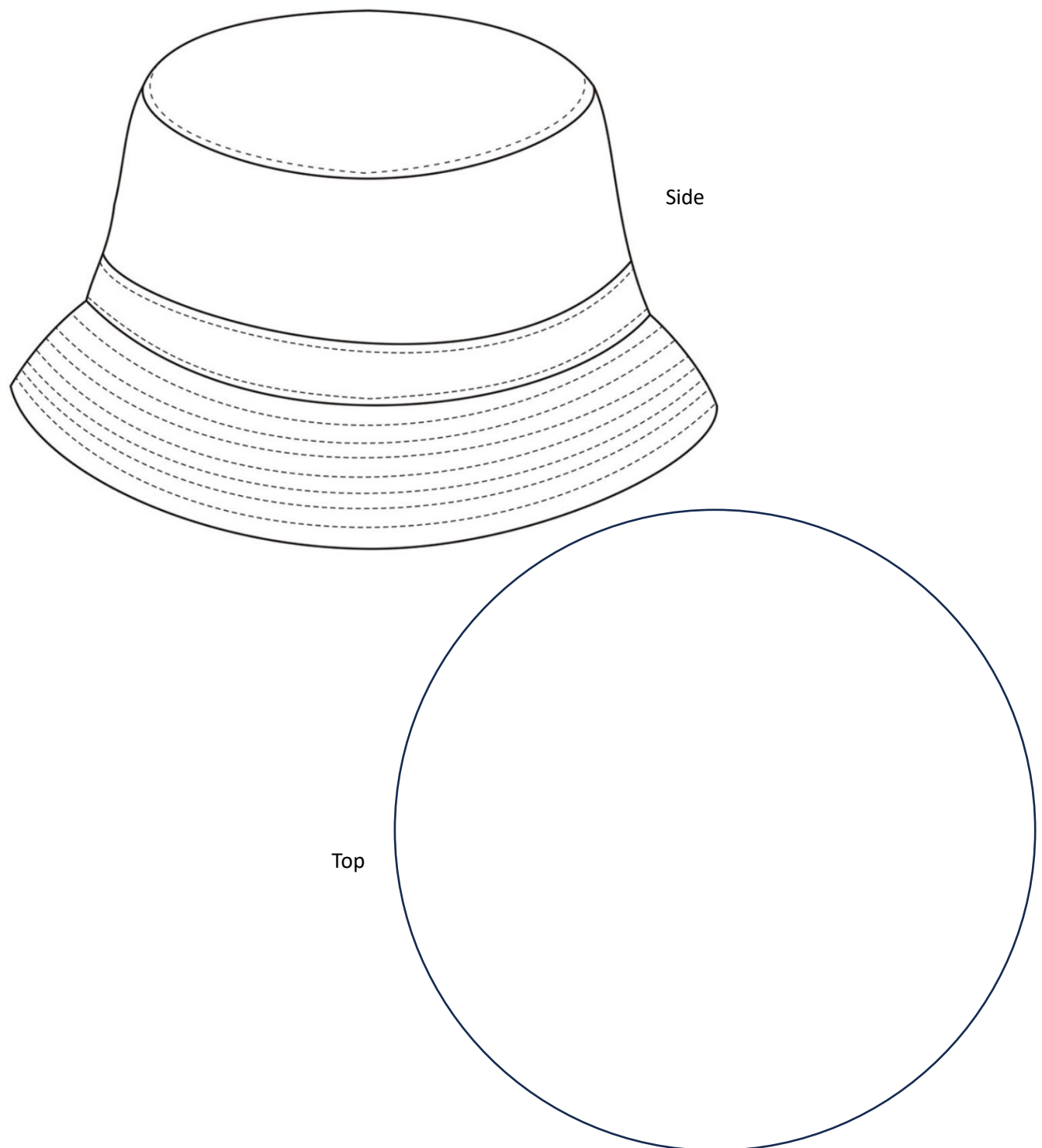


Right side



Activity 1. Sample hat outline for Protected Species Design.

Apply your design to templates such as these outlines. You can change the template to your desired size or style. You could also identify sustainable fibres and manufacturing techniques to design an ecofriendly product.





Activity 1. Artist Statement - Protected species design

Student Name: _____ Class: _____

Describe your artwork.

How would you create and ecofriendly product?

What were your goals for this artwork?

Why are ecofriendly products and pro environmental messaging important?

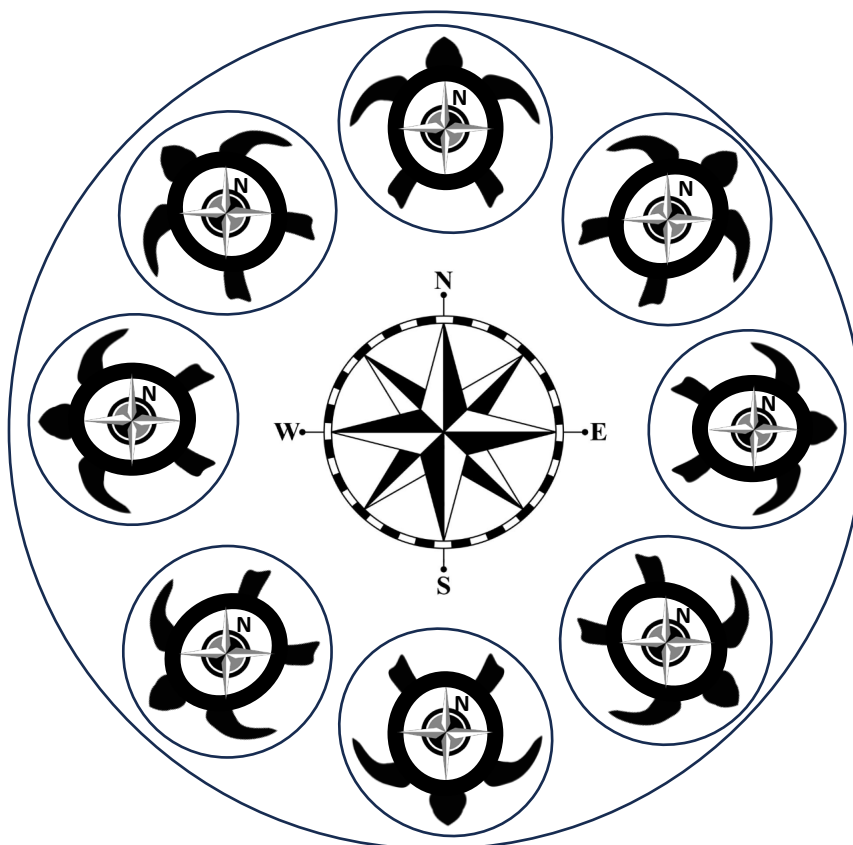
Insert a sketch or photo of your artwork here.

Activity 2. Turtle Compass

Birds, bees, butterflies, lobsters, and marine turtles are just some of the incredible animals that use an internal compass to detect the Earth's magnetic field to navigate.

Activity overview:

- 1) **Identify** how sea turtles navigate between their feeding and breeding areas.
- 2) **Develop** a sea turtle water compass (see next page for useful links on water compasses).
- 3) **Explain** how sea turtles use the Earth's magnetic field and other strategies to navigate between their feeding grounds and nesting grounds. You could record a video of your explanation (2- 3 minutes).





Activity 2. Turtle Compass Links

[2020ASTA-DeepBlue_ResourceBook_FINAL.pdf](#) (Activity 4, Page 43)

[How Birds \(Might\) Navigate with Quantum Mechanics](#)

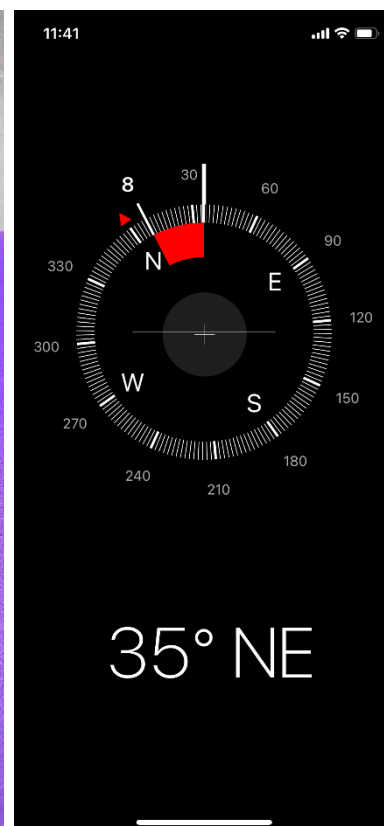
[How to Make a Compass: 8 Steps \(with Pictures\) – wikiHow](#)

[How to Make a Compass | Science with Kids.com](#)

[How to Make a Compass | The Powerpuff Kids Z](#)

[How to Make a Simple Compass at Home](#)

[How to Make a DIY Compass](#)



Activity 3. Coastal Ecosystems – Micro Museum

Many animals use different habitats at various stages of their life. Connectivity between ecosystems in the Great Barrier Reef Marine Park and the Great Barrier Reef catchment allows animals to move between different habitats easily.

Activity overview:

- 1) **Explain** how coastal ecosystems are connected from the rainforest to the reef and choose a coastal ecosystem along the water cycle journey. This link could be used to get you started [Coastal ecosystems | Reef Authority](#).
- 2) **Develop** a [MICRO museum](#) of your ecosystem and two other adjacent ecosystems and show how they are connected.
- 3) **Explain** your ecosystem, it's importance and how it is connected to other ecosystems. You could film a video of yourself (2- 3 minutes).





Activity 4. “Great 8” Tourism Brochure

People from all over the world travel to see the many species that live on the Great Barrier Reef. However, most visitors want to see the “Great 8” - these animals are whales, manta rays, anemone fish, turtles, potato cod, giant clams, Māori wrasse, and sharks.

Your challenge is:

- 1) **Identify** one of the “Great 8” animals of the Reef. You can use this link to get you started [Great 8 | Reef Authority](#)
- 2) **Develop** an engaging A4 colour brochure about your chosen animal to encourage tourists to visit the Great Barrier Reef. Include interesting facts, threats and actions that can be taken to protect your chosen species.



Activity 5. Water Quality News Reel

Good water quality is vital for supporting the Great Barrier Reef's ecosystems and social values including recreation, tourism, and food production. It keeps habitats like coral reefs and seagrass beds healthy, and protects the many animals that live there, including endangered species like turtles and dugongs.

Activity overview:

- 1) **Identify** how water quality is declining on the Great Barrier Reef. This link could get you started [Declining water quality | Reef Authority](#) .
- 2) **Develop** a news segment (2-3 minutes) and record yourself presenting the news segment about how water gets contaminated as it flows from land to sea, and how this water can affect the marine life and the environment. Be sure to include behavioural actions we can take to help protect water quality.



Activity 6. Drain Art

Marine debris is rubbish that finds its way into the marine environment, especially during rainfall and severe weather events like floods and cyclones. It is an ever-increasing threat to marine wildlife. You can find out more at this link [Marine debris | Reef Authority](#) . This can be an individual or small group activity.

Activity overview:

- 1) **Identify** the drains in your school suitable for creating drain art.
- 2) **Develop** a design that brings attention to the drain's connection to a local creek, river, waterway, or ocean, and the issue of litter in the environment.
- 3) **Represent** animals found in local water ways or the Great Barrier Reef in your drain art. You could create a slogan to include in your drain art to promote positive environmental actions.
- 4) **Identify** environmentally safe paint to use on your drain art and paint your designated drain with your design and slogan.
- 5) Take a photo of your finished drain art and complete an Artist's Statement about your artwork (template on page 19).



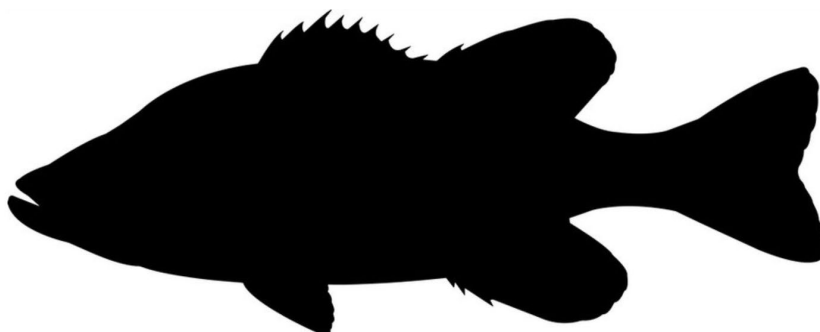
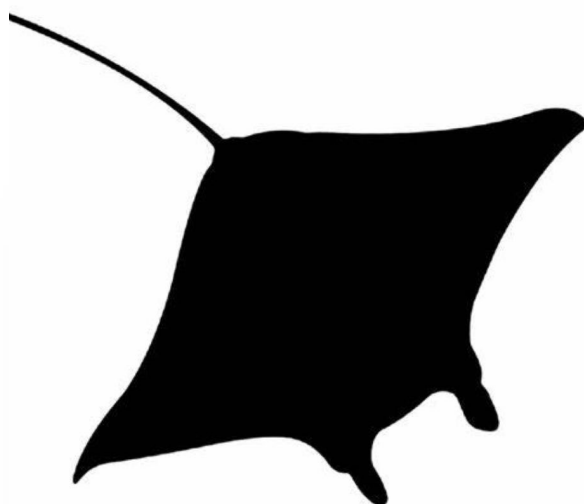
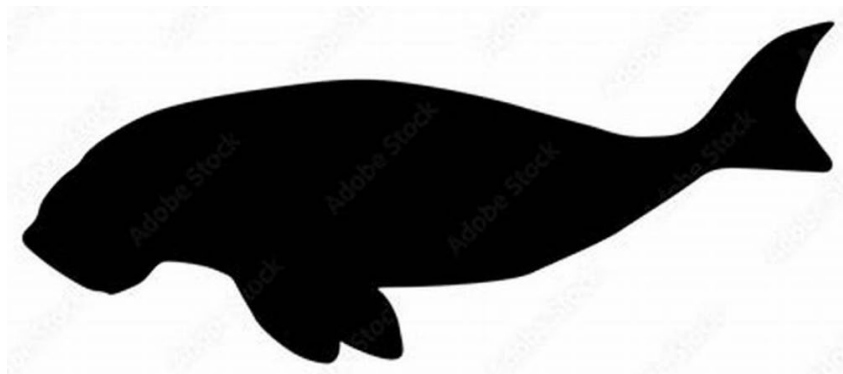


Challenge 6. Drain Art - examples





Activity 6. Examples of Drain Art silhouettes





Activity 6. Artist Statement – Drain Art

Name: _____ Class: _____

Describe your artwork.

How did you create your drain art?

What were your goals for this artwork?

Why is pro-environmental messaging important?

Insert a sketch or photo of your artwork here.

Activity 7. Fishing and Zoning Class Activity

The Great Barrier Reef Marine Park supports commercial, recreational, and Traditional Owner fishing. It is important that fishing pressure is kept at a sustainable level to protect the amazing biodiversity of the Reef. The Great Barrier Reef Marine Park Authority uses Ocean Zoning to identify where and how you can fish in different areas of the Reef. This challenge is a class activity.

Activity Overview:

- 1) **Compare** the different zones in the Great Barrier Reef Marine Park and the types of fishing activities allowed in each. You can find all the information you need here [Zoning maps | Reef Authority](#).
- 2) **Represent** different fishing zones (i.e. blue, green, yellow, orange, and pink), using things found in your classroom (e.g. tables, chairs, bags).
- 3) **Explain** the fishing rules for each zone e.g. video of your students (2-3 minutes).



Activity 8. Protect the Reef Skit

Showcase your flair for theatre! Working in small groups, create a skit of a superhero adopting simple everyday actions to protect reefs. You may find some inspiration here [Other ways to help | Reef Authority](#). You can write your own skit or use the “[Captain Popper Stopper Script](#)” skit about the pros and cons of poppers and reusable bottles.

Activity overview:

- 1) **Develop** your own script (should be no longer than 3 minutes), or choose the [Captain Popper Stopper Script](#) to practice.
- 2) **Identify** any props that could be made or found to help tell your story.
- 3) **Apply** your drama skills to perform your skit.
- 4) **Record** your performance on video.



Appendix 1.0 – United Nations Sustainable Development Goals

[The UN Sustainable Development Goals \(SDGs\)](#), were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.

The nine goals below align to the outcomes of the Reef Guardian School 2025 Eco Challenge.

Students could investigate how their country is tracking towards these goals.



4 QUALITY
EDUCATION



6 CLEAN WATER
AND SANITATION



7 AFFORDABLE AND
CLEAN ENERGY



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



11 SUSTAINABLE CITIES
AND COMMUNITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



14 LIFE
BELOW WATER



15 LIFE
ON LAND



Appendix 2.0. About the Reef Guardian School program

The [Reef Guardian Schools program](#), an initiative of the Great Barrier Reef Marine Park Authority (Reef Authority), was founded in 2003. The aim of the program is to form a global network of educational organisations that follow a five-pillar framework **C.L.A.S=S**

CARE and connect to foster a sense of shared reef responsibility.

LEARN about the reef with curriculum aligned educational resources and information.

ACT for environmental sustainability and appreciate that all actions collectively matter.

SHARE learnings with others to encourage wider positive influence.

STEWARDS, building reef resilience for future generations.

“ Our world is more connected now than ever before and we all rely on healthy oceans and seas. The Reef Authority recognises the need for a global network of Reef Guardians to help protect the Great Barrier Reef and reefs all around the world. Josh Thomas CEO The Reef Authority.

For more information see [Reef Guardian School program overview](#).

If you haven't already, we encourage you to [join the Reef Guardian Schools program](#) and undertake positive actions that contribute towards reef resilience in your local school and community. Use our online portal to show how your school cares for reefs and to connect with Reef Guardian Schools around the world, [register today](#).

You are also invited to request access to the closed Facebook Group: [Reef Guardian School Educator Network | Facebook](#).

For more free reef education resources visit [Reef Education Resources | Reef Guardian School](#) or go to www.reefed.edu.au