



**OCEAN
WISE**

Species at Risk

Student Workbook
Grades 3 - 6

CONTENTS

- 0 Land Acknowledgement
- 1 Climate Change - Humpback Whale
- 2 Ocean Pollution - Killer Whale
- 3 Fishery Bycatch - Great White Shark
- 4 Plastic Pollution - Hawksbill Turtle
- 5 Habitat Loss - Sea Otter

LAND ACKNOWLEDGEMENT

We acknowledge and are grateful that many Ocean Wise employees work and play on the traditional, ancestral and unceded territories of the x^wməθk^wəyəm (Musqueam), S_kwxwú7mesh (Squamish), and səliiwətaʔt (Tseil-Waututh) peoples.



Lesson 1

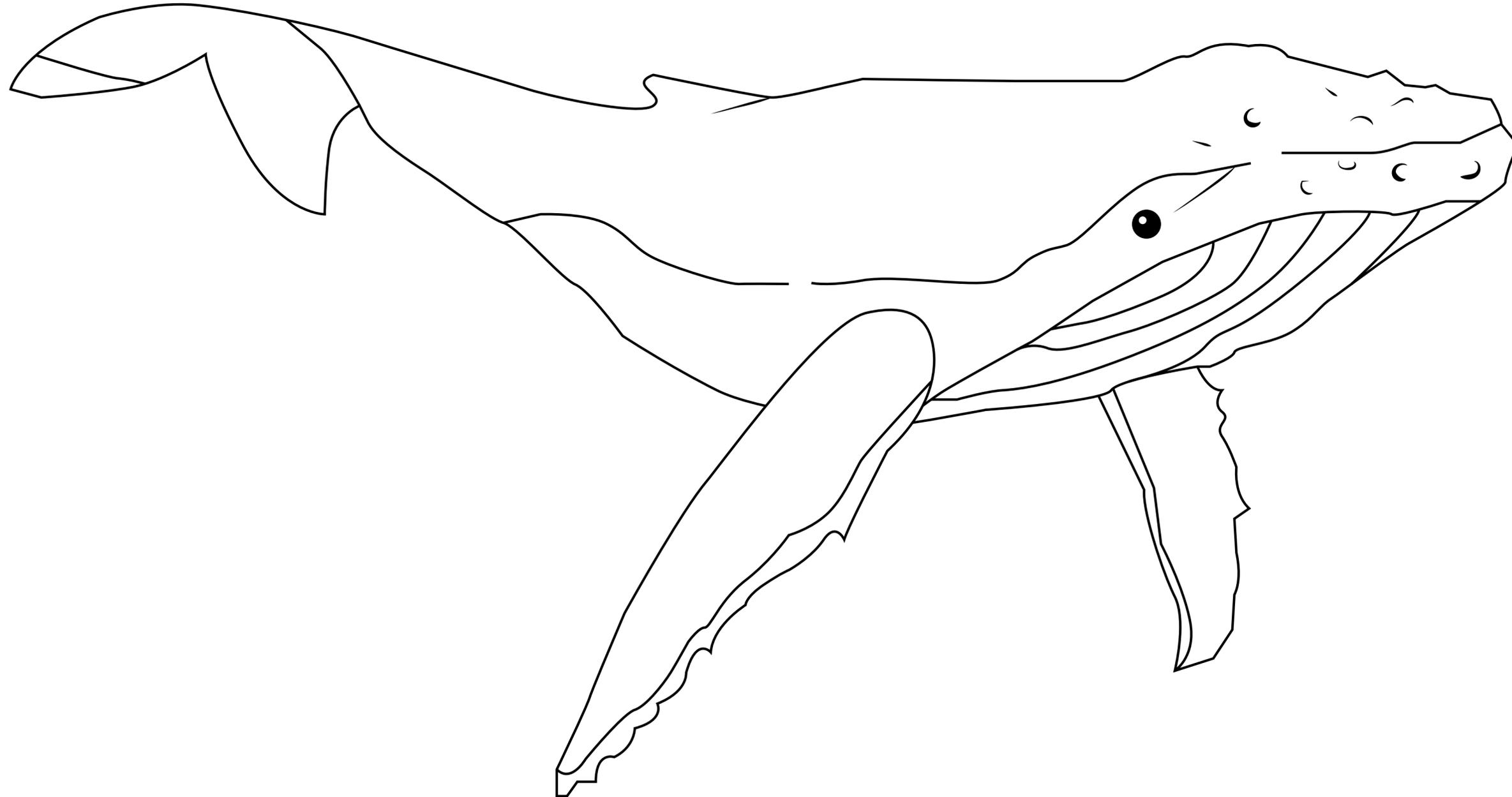
Climate Change - Humpback Whale





ACTIVITIES

1. Complete the humpback whale drawing below and tag the parts of the whale that help reduce climate change.



2. Create a short story about a whale facing the impacts of climate change and make sure it has a happy ending! Your story can be a paragraph, poem, comic strip, or any other creative literary format.

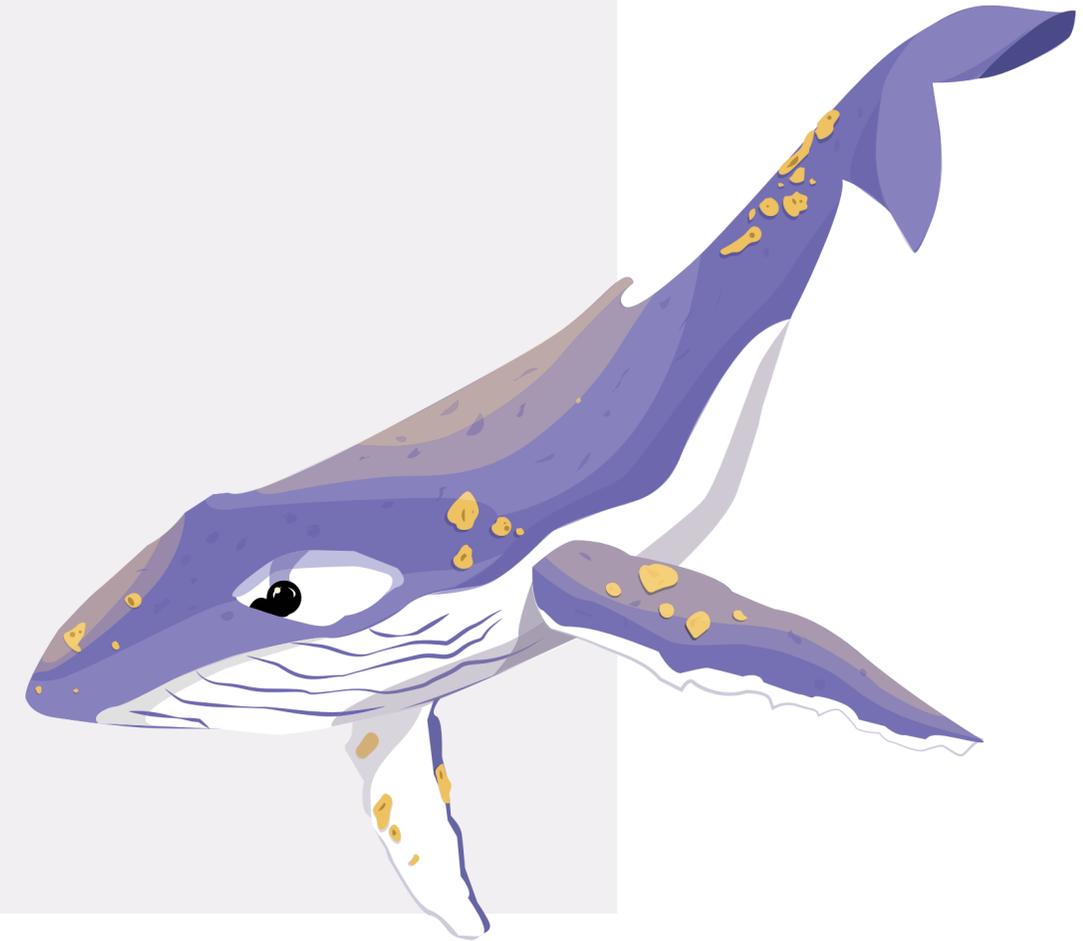
CLIMATE CHANGE
Humpback Whale

OCEAN POLLUTION
Killer Whale

FISHERY BYCATCH
Great White Shark

PLASTIC POLLUTION
Hawksbill Turtle

HABITAT LOSS
Sea Otter





3. Calculate your carbon footprint using the [Footprint Calculator](#). Review your results and the different areas where your actions contribute to your footprint. How can you reduce your footprint?

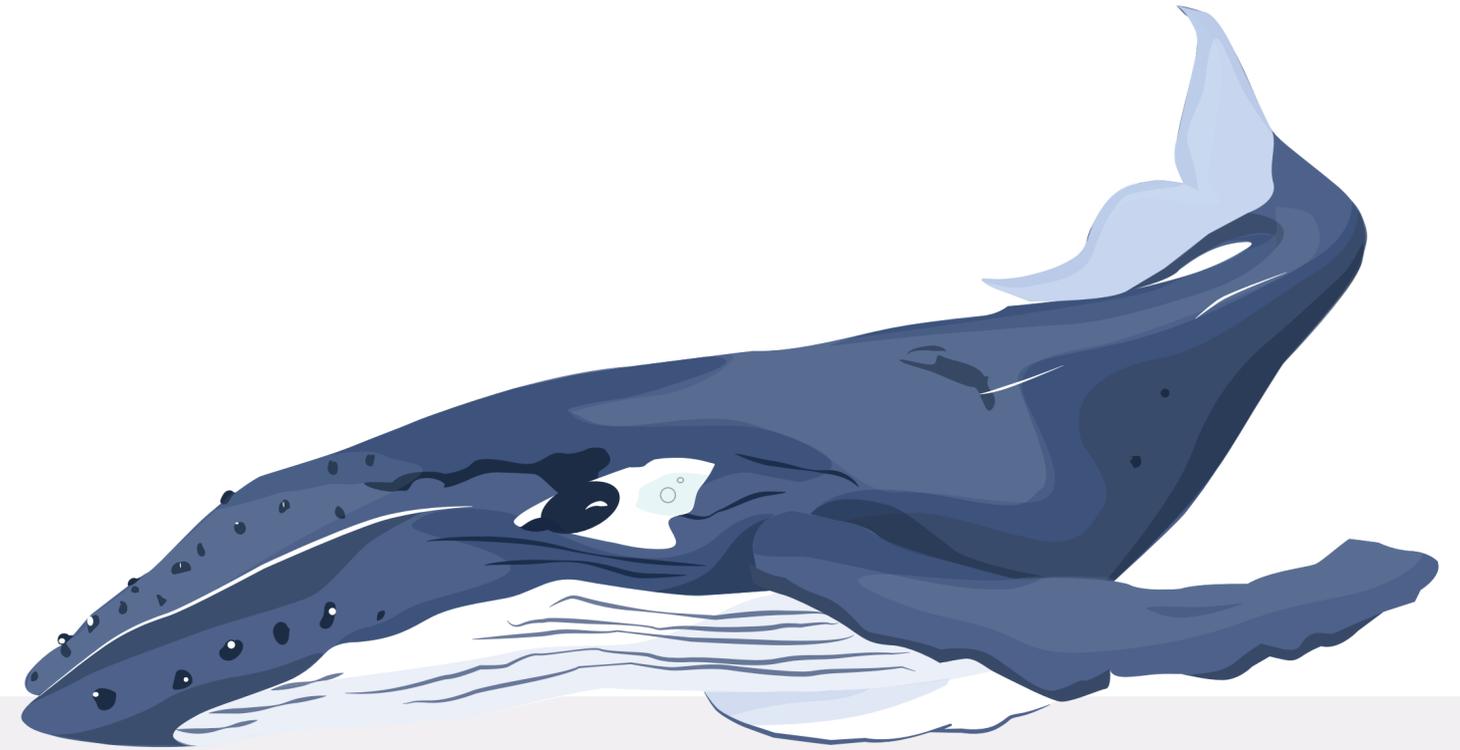


THOUGHTBOOK

This lesson focused on the different ways we contribute to climate change and how we can change our practices to reduce our impacts. Take time to journal on your thoughts and things you have learned.

REFLECT

1. How does climate change affect marine animals?



2. What are some of the ways marine animals can reduce the impacts of climate change? 3. What role(s) do humans have in contributing to climate change?



TAKE ACTION

Report a whale sighting using the *Ocean Wise Whale Report Alert System*.

THE WHY

Reporting a whale sighting provides scientists with information about the number of individuals in order to properly determine if the population is doing good or bad. It also helps scientists understand where the whales are having babies and eating food and how these locations may have changed due to climate change. With a better understanding of their abundance and location, people near them can be made aware of their presence so they can avoid them, reducing the risk of vessel strikes and other disturbances. By helping provide more information to scientists and the community, you can have a role in contributing to climate change mitigation and conservation measures to help protect animals like the humpback whale!



Lesson 2

Ocean Pollution - Killer Whale



ACTIVITIES

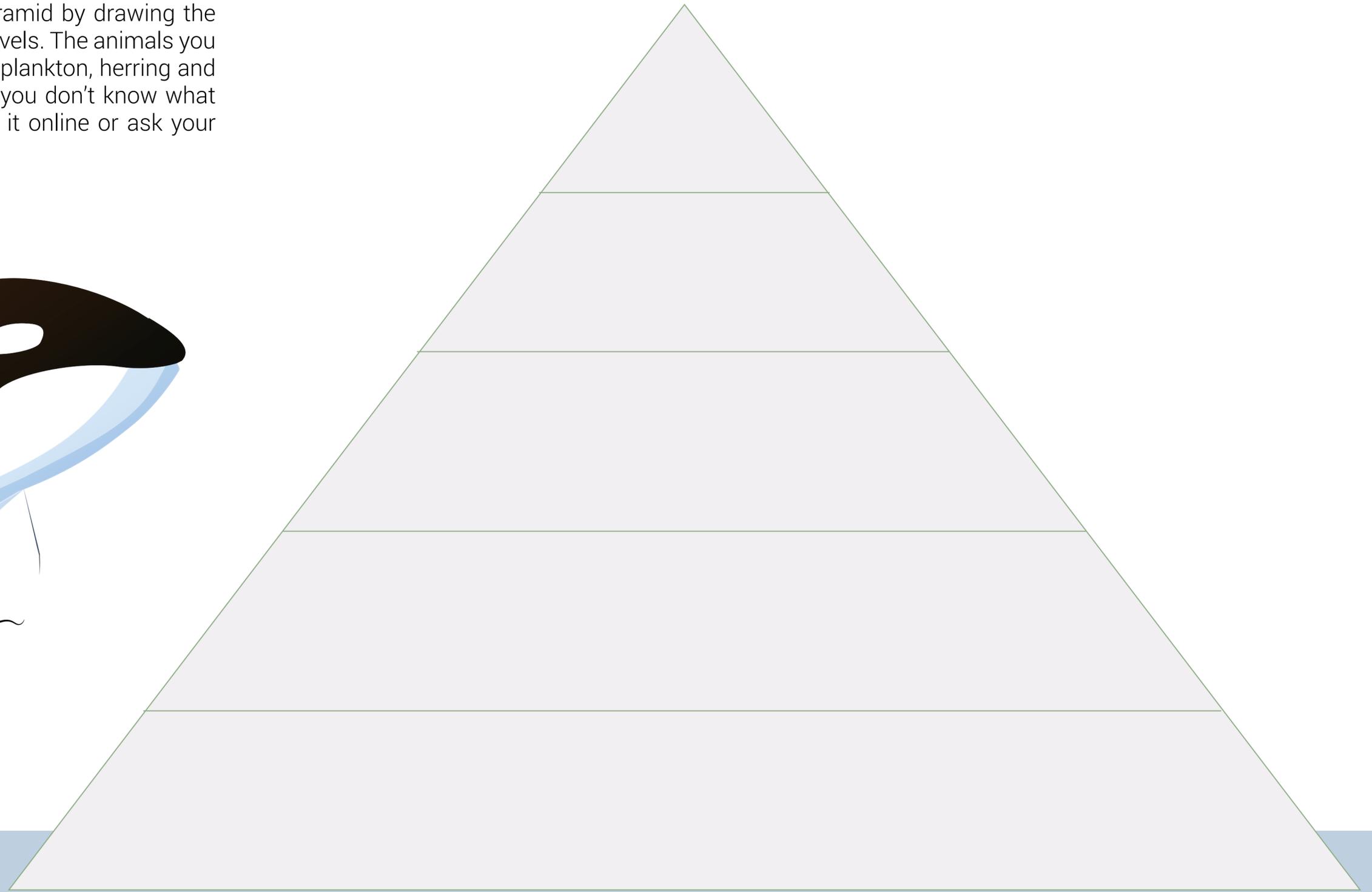
1. a) What are some surprising animals that the killer whale eats?

b) What makes the killer whale such a good hunter?

c) What physical and/or behavioral characteristics of the killer whale allows them to hunt for big animals like the blue whale?



2. Complete the killer whale's food chain pyramid by drawing the animals listed below into the appropriate levels. The animals you should include are: phytoplankton and zooplankton, herring and krill, salmon, seals and the killer whale. If you don't know what these animals look like, you can research it online or ask your educator.





THOUGHTBOOK

In this lesson, you learned about ocean pollution and how it impacts nearly all species in a food chain or ecosystem, as well as pollution's direct negative impact on all species. Take a moment to reflect on what you have learned and how it made you feel.

REFLECT

1. What are the most significant ways that humans impact ocean health?



2. Why are some species more affected by ocean pollutants than others?

3. How can a single pollutant affect all species in a food chain?





TAKE ACTION

Take [*The Ocean Wise Plastic Pledge*](#). Reduce your consumption of single-use plastic, for example: bring a reusable water bottle or reusable containers in your lunchbox!

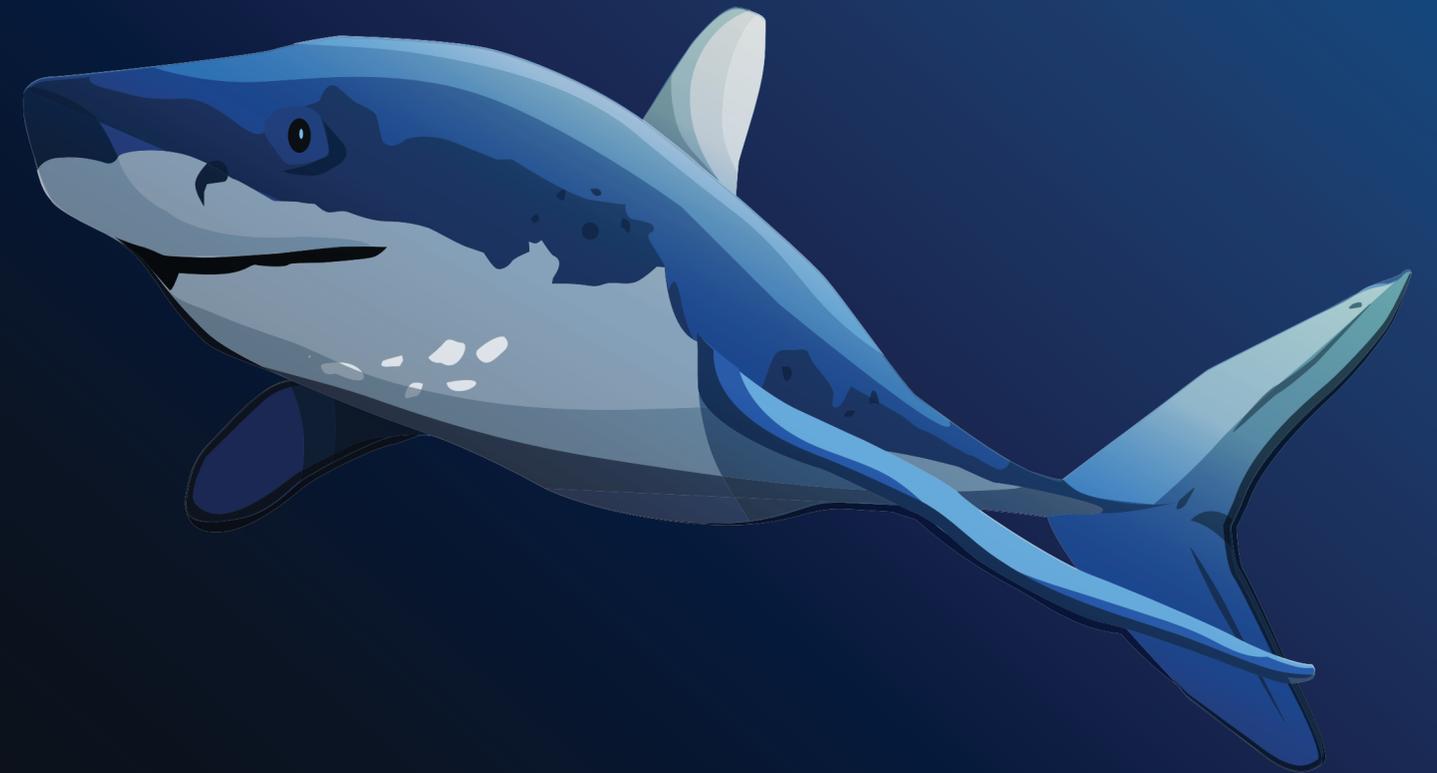
THE WHY

Not only does reducing your consumption of single-use plastic (such as plastic straws or bags) prevent plastics from entering the environment, but it also discourages their production and the release of harmful chemicals used to create them (including the industrial chemicals harming killer whales!) By taking The Ocean Wise Plastic Pledge and reducing your use of plastics, you are contributing to the reduction of not one, but two types of ocean pollutants from entering our waterways.



Lesson 3

Fishery Bycatch - Great White Shark





ACTIVITIES

Using the [OCEARCH Shark Tracker](#), draw a picture of the shark you have selected and fill in the information below:

- Species Name
- Given Name
- Male or Female
- Age
- Weight
- Length
- Tag Date
- Last Known Location



CLIMATE CHANGE
Humpback Whale

OCEAN POLLUTION
Killer Whale

FISHERY BYCATCH
Great White Shark

PLASTIC POLLUTION
Hawksbill Turtle

HABITAT LOSS
Sea Otter

CLIMATE CHANGE
Humpback Whale

OCEAN POLLUTION
Killer Whale

FISHERY BYCATCH
Great White Shark

PLASTIC POLLUTION
Hawksbill Turtle

HABITAT LOSS
Sea Otter

Species Name:

Given Name:

Male or Female:

Age:

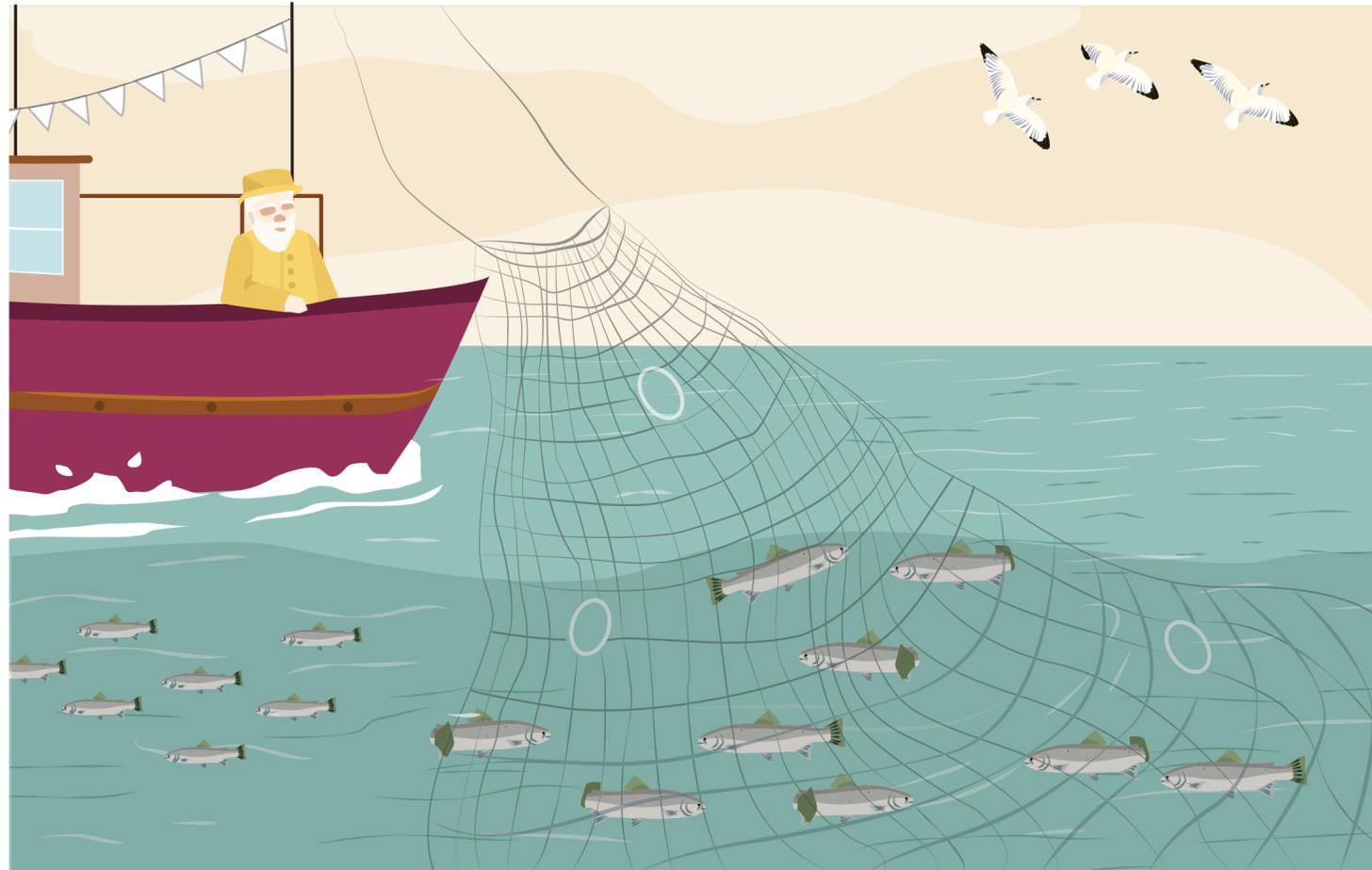
Weight:

Length:

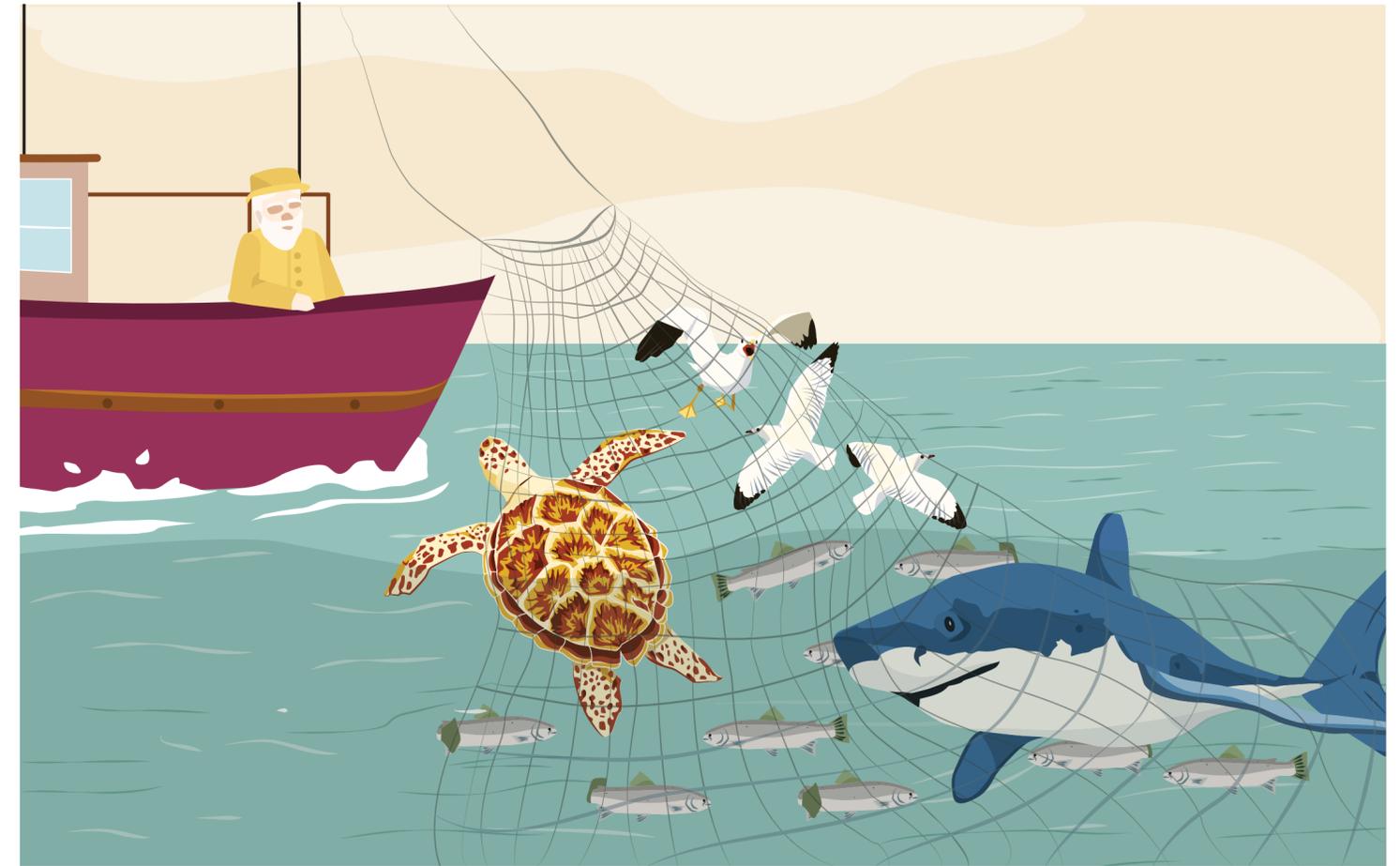
Tag Date:

Last Known Location:

2. a) Spot the difference between these two images! Circle elements which you can see in one picture but not in the other.



a



b

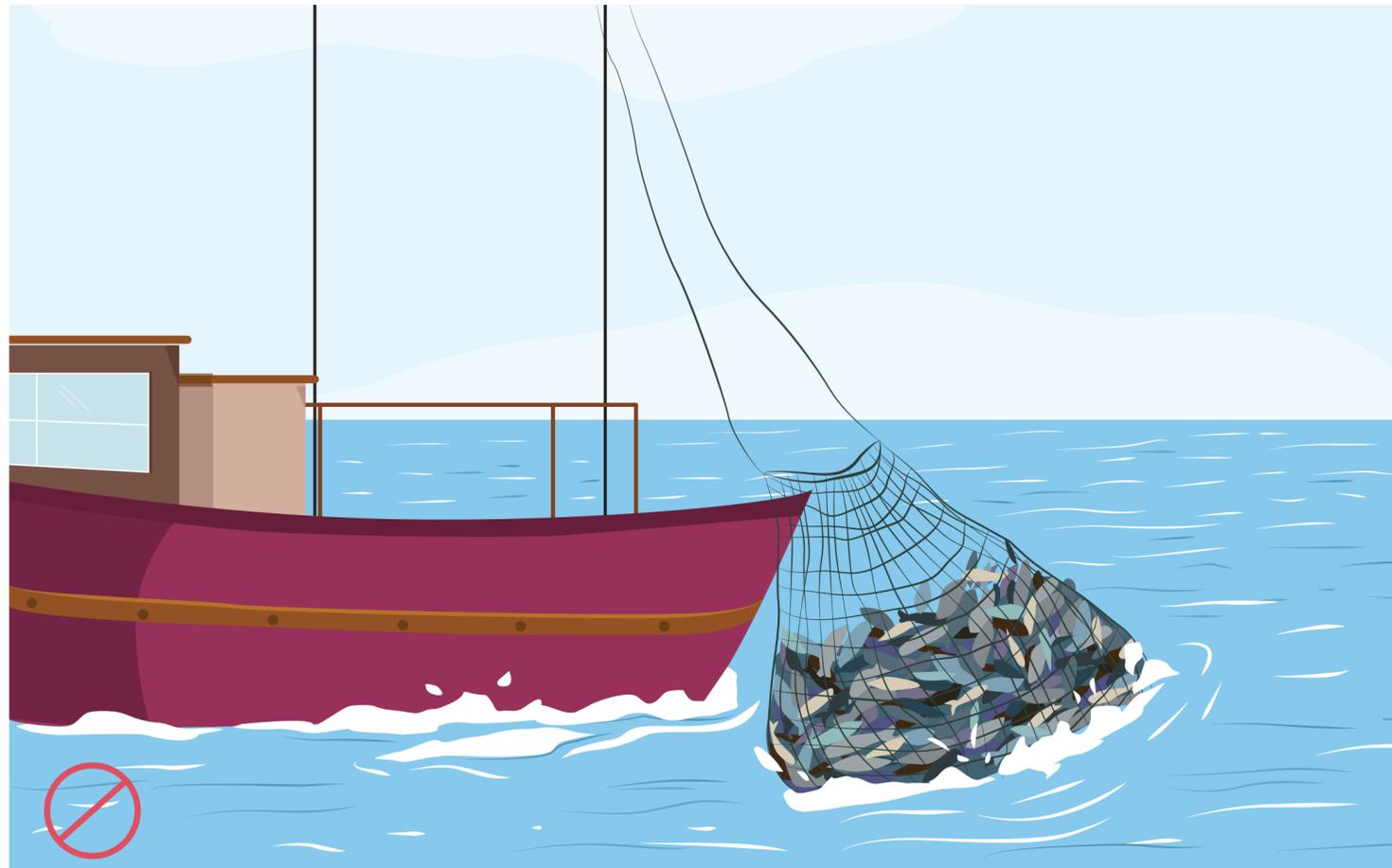
b) Which of these two pictures shows a more sustainable/environmentally friendly way of fishing, picture a) or picture b)?

3. How do you perceive the relationship that Indigenous communities have with local salmon populations? How is this relationship different from that of the western world? Write or draw your answer.



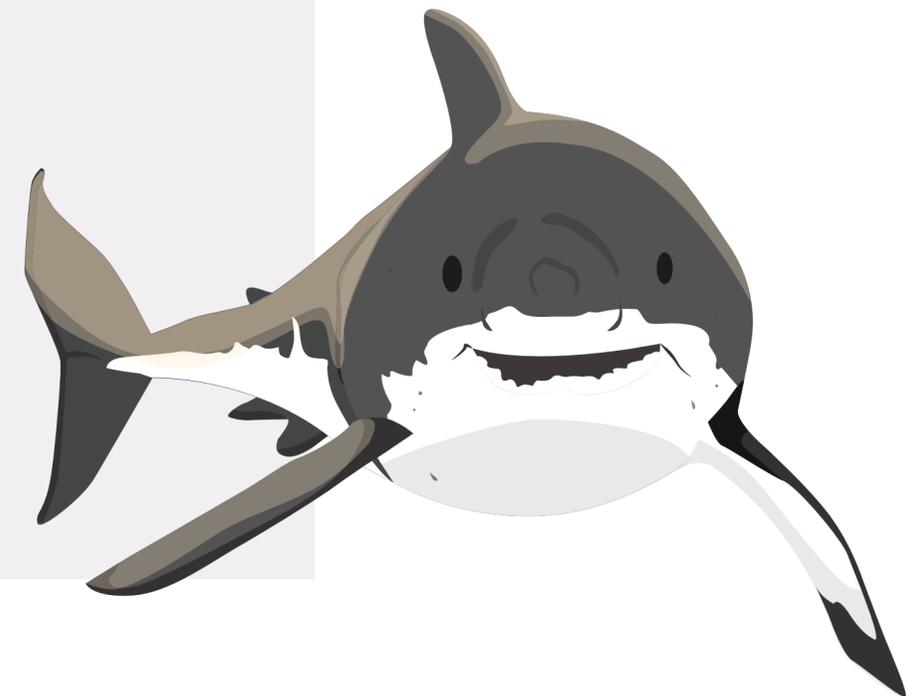
THOUGHTBOOK

From these activities, you should understand the different perspectives and methods which lead to a more sustainable way of fishing with limited by-catch and overfishing.



REFLECT

1. What are the differences between the sustainable and unsustainable use of ocean resources?



2. How does eating seafood hurt the environment?

3. What can we do to minimize the impacts of fishing on the environment?



The Ocean Wise Seafood symbol is your assurance of an ocean-friendly choice.

TAKE ACTION

Use the [Ocean Wise Seafood Partner Map](#) and the [Ocean Wise Seafood Recommendations](#) before purchasing a seafood product and look for our logo on seafood packaging!

THE WHY

Ocean Wise's seafood recommendations identify sustainably farmed or fished seafood products. By using the variety of tools created by Ocean Wise, such as the Seafood Partner Map and Seafood Recommendations Search Tool, you can easily make an informed choice regarding the sustainability of the seafood that you are purchasing. By doing so, you will be directly contributing to ocean sustainability by supporting fisheries which have implemented the appropriate measures to protect and respect our ocean and its resources and encouraging others to do the same.



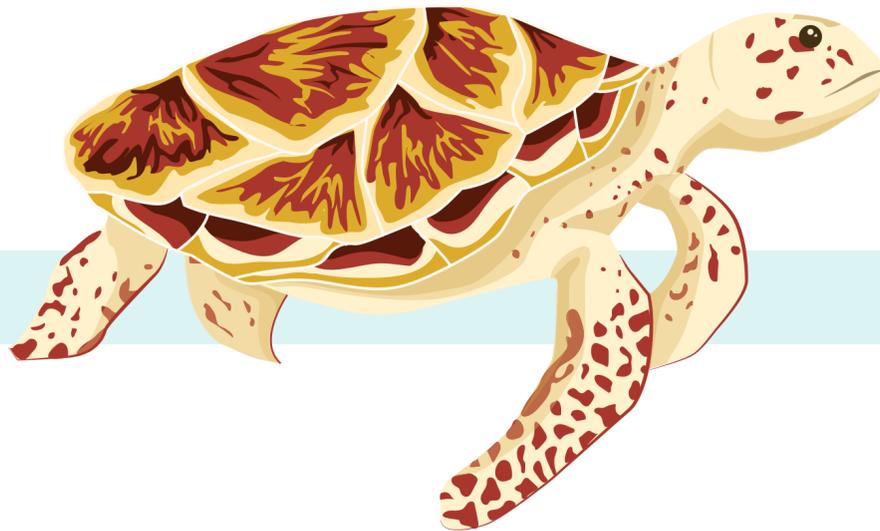
Lesson 4

Plastic Pollution - Hawksbill Turtle

ACTIVITIES

1. GARBAGE CLEAN UP X CITIZEN SCIENCE

a. Identify and record the different types of plastic garbage gathered using the [Ocean Wise Shoreline Cleanup Data Card](#).



OCEAN WISE

SHORELINE CLEANUP

Presented by Loblaw Companies Limited

Individual Data Card

SITE INFORMATION:

<input type="text" value="Cleanup Site Name"/>	<input type="text" value="Cleanup Date"/>
<input type="text" value="Site Coordinator"/>	<input type="text" value="Distance Cleaned (KM)"/>
<input type="text" value="Total Weight (KG)"/>	<input type="text" value="# of Garbage Bags"/>
	<input type="text" value="# of Recycling Bags"/>
<input type="text" value="# of Volunteers Working On This Card"/>	<input type="text" value="Most Unusual Item"/>

Citizen scientists: Pick up all litter that you find and record data only for the items listed on the back. Please do not use words or check marks. Only numbers are useful. Please return this card to the Site Coordinator when complete.

EXAMPLE:

Plastic Bags:		TOTAL # = 8
---------------	--	-------------

PRESENTING SPONSOR

Loblaw Companies Limited

NATIONAL SPONSORS

- CLIMATE CHANGE
Humpback Whale
- OCEAN POLLUTION
Killer Whale
- FISHERY BYCATCH
Great White Shark
- PLASTIC POLLUTION
Hawksbill Turtle
- HABITAT LOSS
Sea Otter

Trash Collected

<p>MOST LIKELY TO FIND ITEMS: TOTAL #</p> <ul style="list-style-type: none"> <input type="text" value="Cigarette Butts: ="/> <input type="text" value="Beverage Cans: ="/> <input type="text" value="Bottle Caps: ="/> <input type="text" value="Coffee Cups and Lids: ="/> <input type="text" value="Food Containers: (i.e. yogurt or snack cups, milk containers) ="/> <input type="text" value="Food Wrappers: ="/> <input type="text" value="Glass Bottles: ="/> <input type="text" value="Paper: ="/> <input type="text" value="Plastic Bags: ="/> <input type="text" value="Plastic Bottles: ="/> <input type="text" value="Plastic Cups: ="/> <input type="text" value="Six Pack Holders: ="/> <input type="text" value="Straws: ="/> <input type="text" value="Takeout Containers: ="/> <input type="text" value="Utensils: ="/> <p>TOP 3 ADDITIONAL ITEMS: TOTAL # Identify the top 3 items found that are not listed on the card</p> <ul style="list-style-type: none"> <input type="text" value="1: ="/> <input type="text" value="2: ="/> <input type="text" value="3: ="/> 	<p>FISHING GEAR: TOTAL #</p> <ul style="list-style-type: none"> <input type="text" value="Fishing Buoys, Pots or Traps: ="/> <input type="text" value="Fishing Net and Line: ="/> <input type="text" value="Rope (1 metre = 1 piece): ="/> <p>PRODUCT PACKAGING: TOTAL #</p> <ul style="list-style-type: none"> <input type="text" value="Soft Plastic Packaging: ="/> <input type="text" value="Rigid Bottles and Jugs: ="/> <p>PERSONAL HYGIENE: TOTAL #</p> <ul style="list-style-type: none"> <input type="text" value="Diapers, Wipes, Tampons, Condoms: ="/> <input type="text" value="Syringes: ="/> <input type="text" value="Personal Protective Equipment: (i.e. gloves, masks) ="/> <p>TINY TRASH LESS THAN 2.5 CM: TOTAL #</p> <ul style="list-style-type: none"> <input type="text" value="Styrofoam Pieces: ="/> <input type="text" value="Plastic Pieces: ="/> <p>OTHER TRASH: TOTAL #</p> <ul style="list-style-type: none"> <input type="text" value="Balloons: ="/> <input type="text" value="Clothing, Shoes: ="/> <input type="text" value="Construction Materials: ="/> <input type="text" value="Large Styrofoam: ="/> <input type="text" value="Tires: ="/> <input type="text" value="Toys: ="/>
---	---

Thank you for contributing to trash free shorelines.

#teamshoreline /shorelinecleanup @shorelinecleanup @cleanshorelines

b. Triage the garbage you gathered and dispose of it in the appropriate bins.

c. Open the [*iNaturalist app*](#) OR take out your local species ID guide and Identify animals or insects within your designated clean-up area.

Notes For Species ID Guide Users:

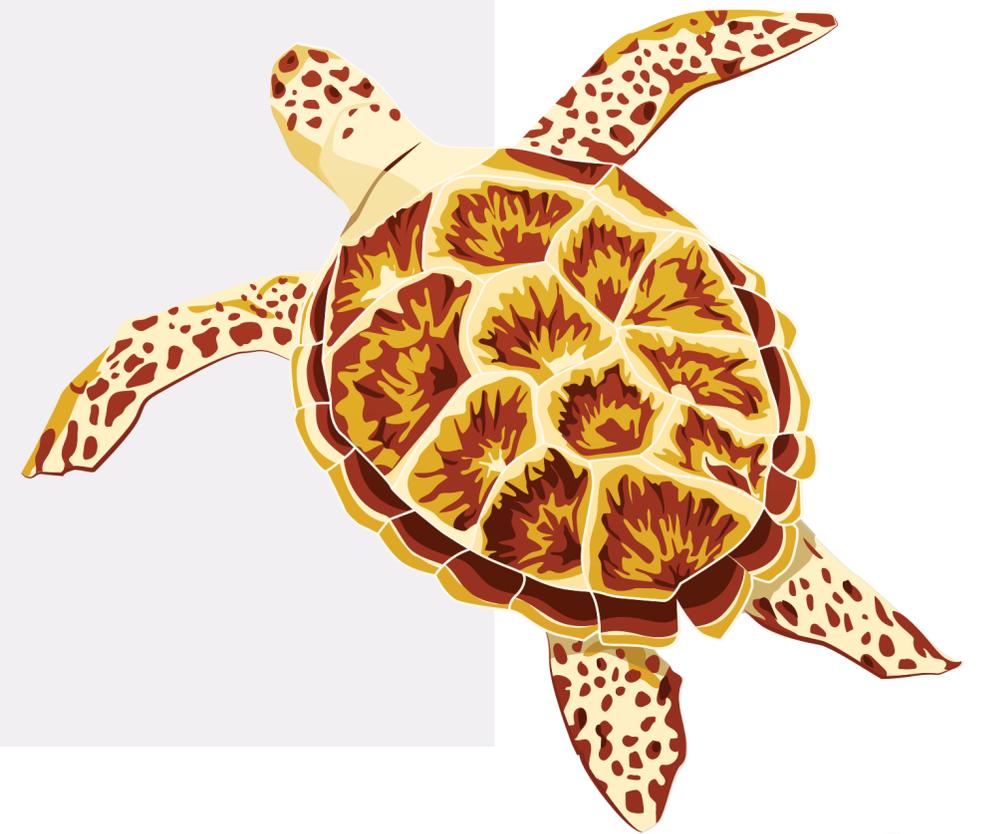
CLIMATE CHANGE
Humpback Whale

OCEAN POLLUTION
Killer Whale

FISHERY BYCATCH
Great White Shark

PLASTIC POLLUTION
Hawksbill Turtle

HABITAT LOSS
Sea Otter



- d) How do the animals you observed interact with the garbage you collected? How could plastic pollution harm the animals you saw?
- e) How could the plastic pollution you observed harm the hawksbill turtle if it ended up in our waterways?

2. Create a poster that encourages people to use single-use plastic alternatives. Focus on how this can be beneficial for saving sea turtles. Get creative with your poster!



THOUGHTBOOK

Now that you have participated in your own garbage clean up and citizen science project targeting plastic pollution, reflect on the positive impact you brought to your school, your community, marine species, and the environment!

REFLECT

1. How does plastic pollution negatively impact ocean health and marine species?



2. What are some alternatives to single-use plastic that are less harmful to the environment?

3. How do garbage clean up projects help animals and Indigenous communities?



Ocean Wise | Shoreline Cleanup



TAKE ACTION

Take part in an [Ocean Wise Shoreline Cleanup](#) with your classmates or within your community!

THE WHY

So far, the Ocean Wise Shoreline Cleanup has removed 13,915kg of litter from coastlines in Canada and the United States. That's the equivalent of 140 hawksbill sea turtles in weight! Shoreline cleanups have prevented these plastics from entering marine ecosystems, reducing fatal impacts on thousands of species, such as the hawksbill sea turtle. Since plastics travel with ocean currents around the world, by participating in a shoreline cleanup, you are directly contributing to the removal of plastics in every ocean and shoreline around the world!

CLIMATE CHANGE
Humpback Whale

OCEAN POLLUTION
Killer Whale

FISHERY BYCATCH
Great White Shark

PLASTIC POLLUTION
Hawksbill Turtle

HABITAT LOSS
Sea Otter

Lesson 5

Habitat Loss - Sea Otter

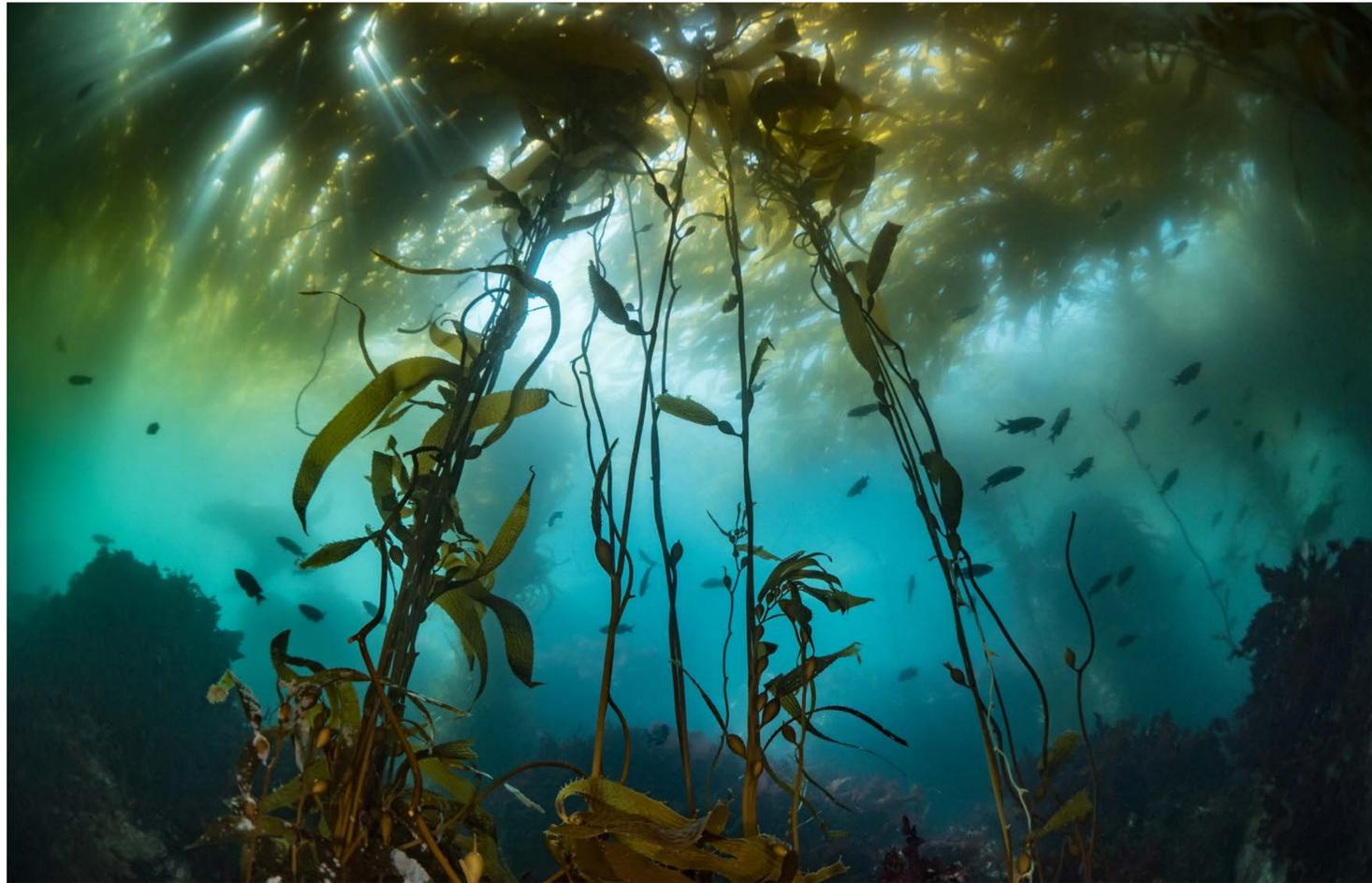




ACTIVITIES

1.a) Draw the relationship circle between kelp, sea urchins, and sea otters using the appropriate arrows. Over each arrow, describe how one species is using the other or the benefits one brings to the other (i.e., grazing, eating, protecting, habitat, etc).

b) Identify which picture illustrates an ecosystem where you could find sea otters and explain why.



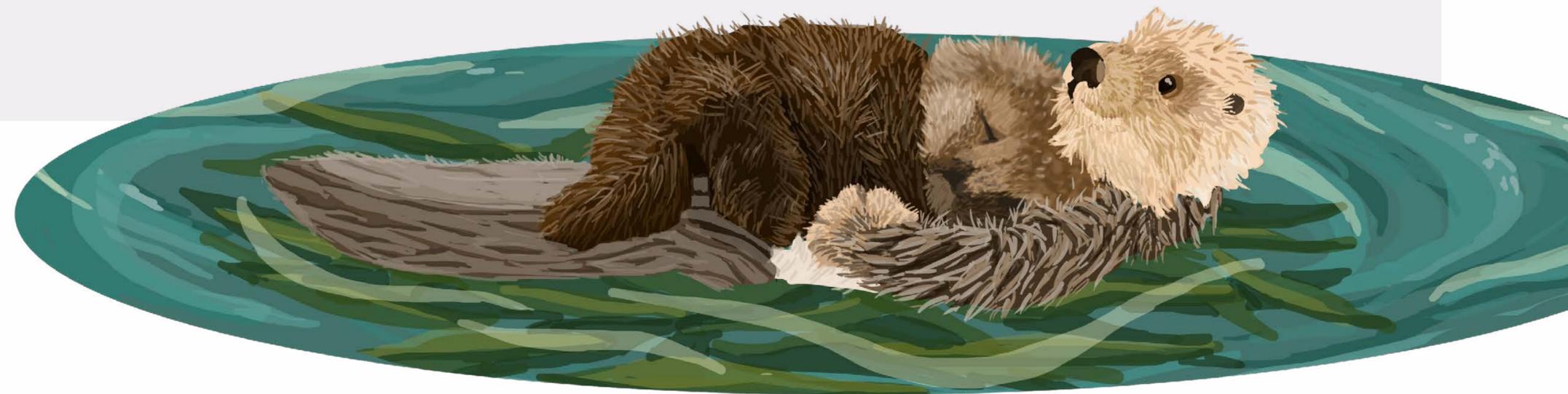
CLIMATE CHANGE
Humpback Whale

OCEAN POLLUTION
Killer Whale

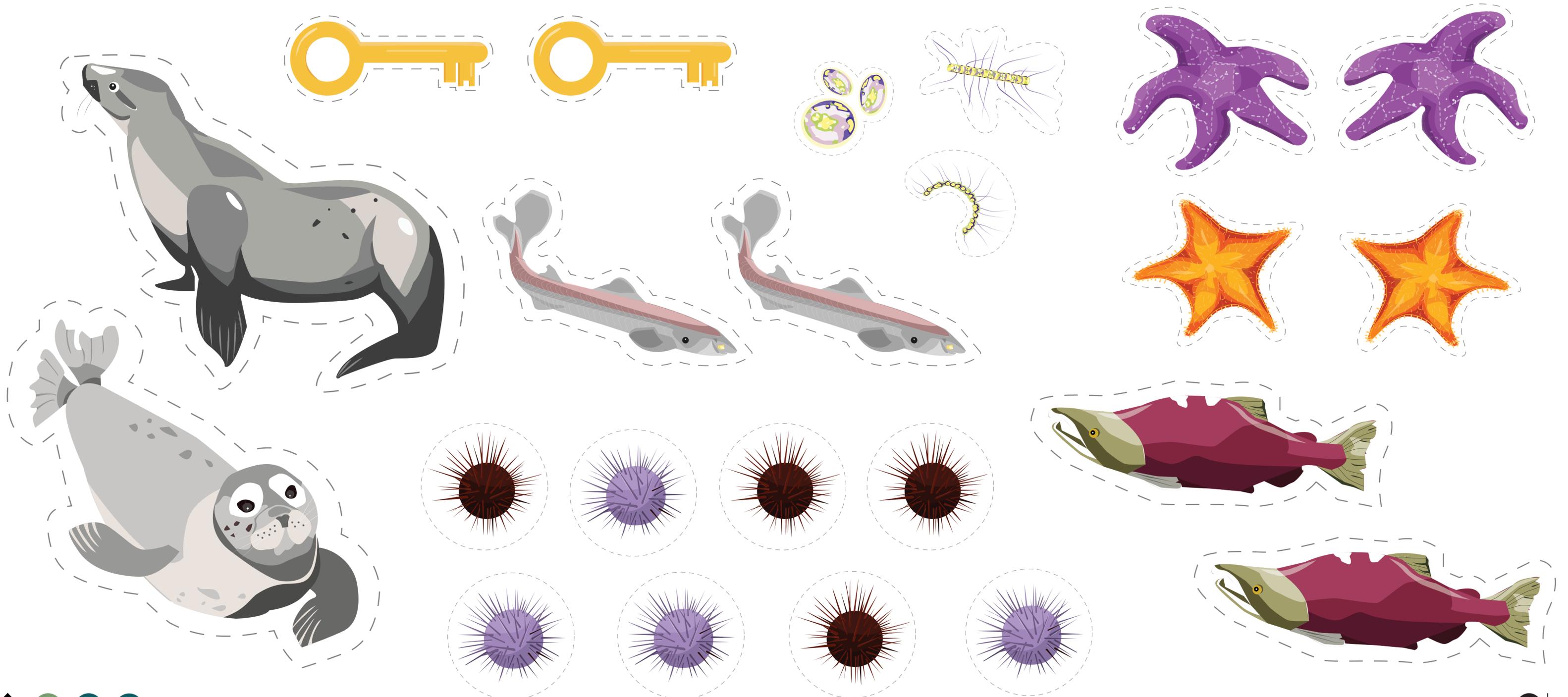
FISHERY BYCATCH
Great White Shark

PLASTIC POLLUTION
Hawksbill Turtle

HABITAT LOSS
Sea Otter



2. Cut out the prints of the kelp ecosystem species below and create a kelp forest collage. In your collage, you should indicate which animal is the keystone species by placing the key print outs next to it. You can add other arts and crafts materials to your collage.



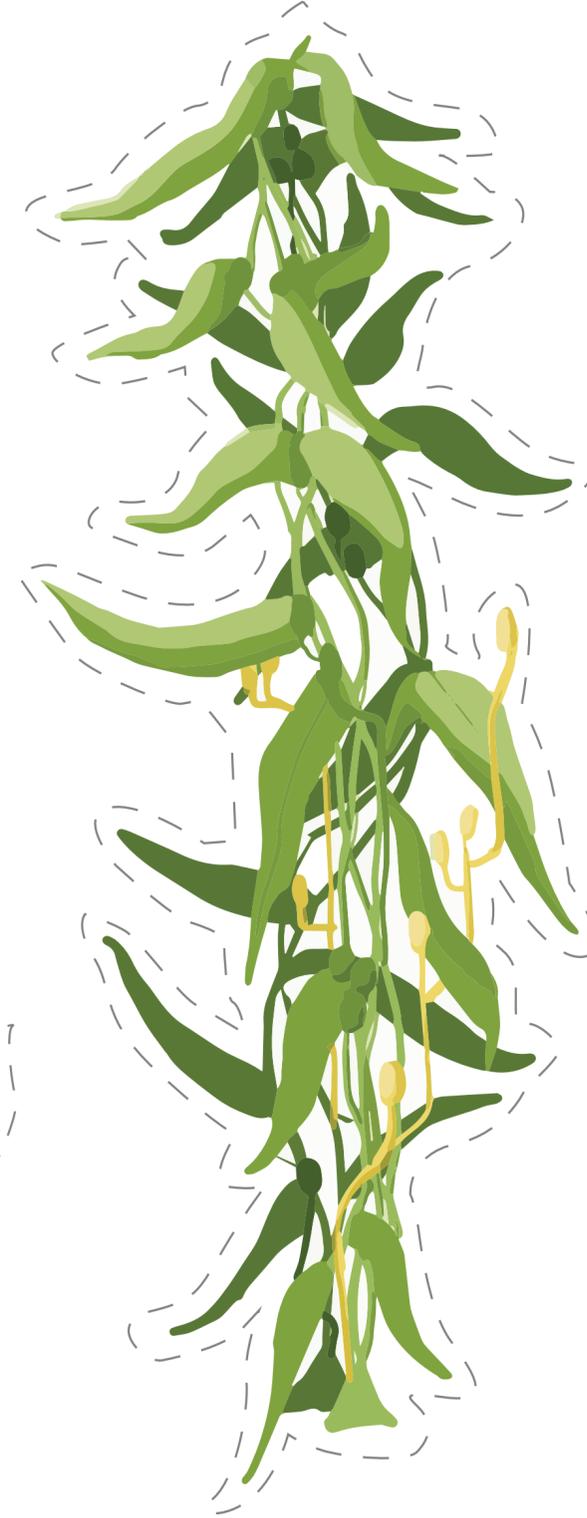
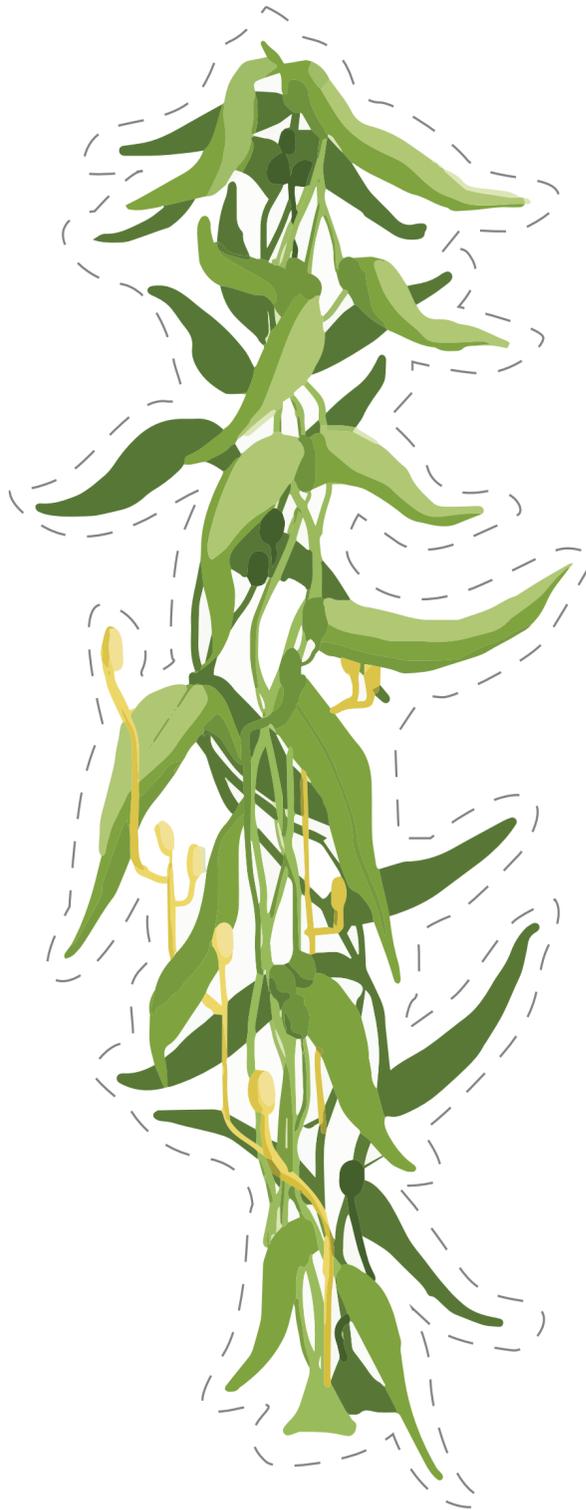
CLIMATE CHANGE
Humpback Whale

OCEAN POLLUTION
Killer Whale

FISHERY BYCATCH
Great White Shark

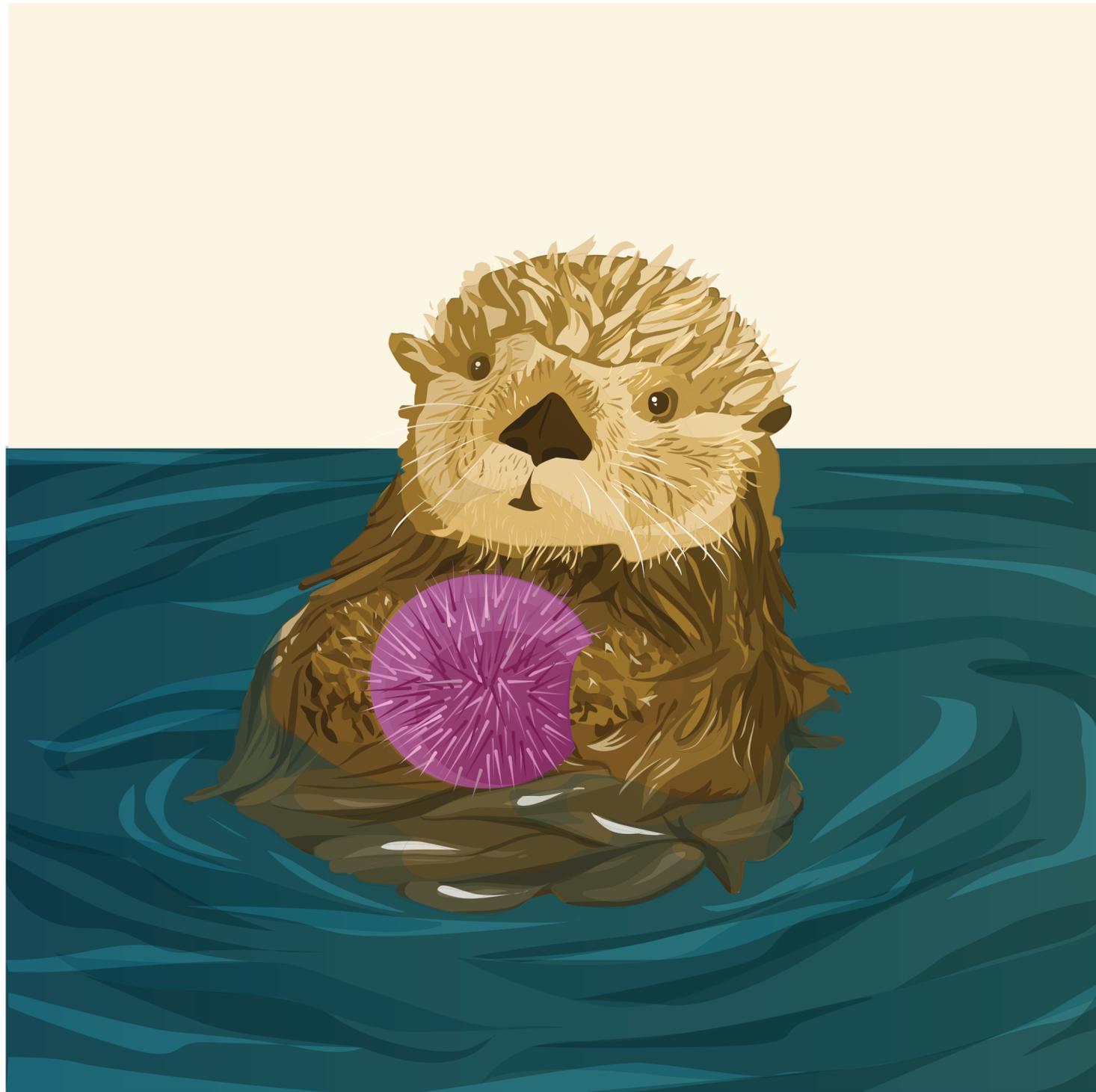
PLASTIC POLLUTION
Hawksbill Turtle

HABITAT LOSS
Sea Otter



3. Come up with your dream kelp product and create a product design. You will present your product design to the class.





THOUGHTBOOK

Now that you have a better understanding of how each species has a special role in an ecosystem, especially keystone species, you should also better understand the consequences if one of those species disappears. Reflect on the role of all species as it relates to the integrity of an ecosystem.

REFLECT

1. What are the potential effects of removing a species from an ecosystem?

2. How does ocean health depend on ecosystem relationships?

3. How can we help protect ocean health with kelp products?



TAKE ACTION

Buy a sustainable kelp product!

THE WHY

Similar to your business ideas, there are many great products with kelp in them! Next time you go to the grocery store, take a look at the toothpaste, shampoo, salad dressings, dairy products, and/or frozen foods to see if they contain kelp. By buying sustainable kelp you are supporting and ensuring the planting of kelp. In other words, you are enabling greater carbon storage by kelp and better protection of sea otters and other ocean creatures which rely on kelp for a home! Kelp is also incredibly healthy and considered to be an excellent source of micronutrients, antioxidants, vitamins, and dietary fiber. So, buy a sustainable kelp product to make sure you and the ocean stay healthy!

WHAT IS OCEAN WISE?

Ocean Wise is a non-profit organization whose mission is to empower communities and individuals to take action to protect and restore our world's ocean.

Ocean Wise does this by tackling three critical ocean challenges - climate change, overfishing and plastic pollution – through six intersecting initiatives: seaforestation, changing arctic, plastics, fisheries and seafood, youth, and whales. Through our work we make a real and measurable difference to the health and well-being of the ocean and the people who depend on it. You can learn more about the actions you can take at ocean.org.

Looking for more Ocean education?

Ocean Wise's Education team offers in-person mobile education opportunities, online virtual programs, and more. Ocean Wise's Professional Development Workshops are designed to train educators on discussing ocean health and literacy for students K-12. Visit ocean.org or email education@ocean.org to learn more.

Follow us on Social Media

IG: [@oceanwise](https://www.instagram.com/oceanwise), FB: [@oceanwise](https://www.facebook.com/oceanwise), TW: [@oceanwise](https://twitter.com/oceanwise), LK: [@oceanwise](https://www.linkedin.com/company/oceanwise)

Sign up for our [newsletter](#).

Have feedback? We would love to hear from you!

Please take 4 minutes to [rate us](#).

This project was undertaken with the financial support of the Government of Canada.

