



THE SALISH SEA & ME

A marine activity
and learning book



WHAT DO YOU THINK OF WHEN YOU READ THE WORD MUCKLESHOOT? WHAT ABOUT SUQUAMISH?

These are the names of just some of the groups called tribes that have lived and continue to live in the area now known as Seattle. Indigenous peoples have lived on this land longer than anyone can remember.

Throughout this journal, you will see words that may be new to you. These words are what native peoples call the plants and animals in their language. There are many different languages, and we have chosen just some of the words in the area where the animal is found.

Native peoples have a special relationship to the land and animals that call it home. We, too, honor the ocean and know it's a big responsibility to take care of this amazing place that is home for all animals.

We hope you are inspired to teach people about our shared outdoor spaces and care for them so future generations can have a healthy ocean, too!



Hi, I'm Alki the hermit crab!
People around the world use many different names for the same animal. For example, a sea urchin is called "wana" in Hawaiian and "skwič" in the Lushootseed language.

When you learn a new word, practice saying it out loud with your family to honor all of the people that care about our animals and ocean!

WHAT'S ON THE MENU

One of the most important jobs of animal caretakers is to ensure

EVERY ANIMAL HAS PROPER NUTRITION

and a diet that is the same or is close to what they would eat in the wild.

The seafood that animals at the Aquarium consume is

SUSTAINABLE AND HIGH QUALITY

food, very close to what you would eat at a restaurant!

Sustainable seafood is seafood that is caught or farmed in ways that don't take too much from the ocean, while also considering the needs of the human communities who depend on the ocean.

Students who visit the Aquarium may have a lesson in the classroom where there are animals that they might touch. **Most of these animals are**

INVERTEBRATES, meaning they do not have a backbone.

Each animal at the Aquarium has a

SPECIFIC DIET THAT MEETS THEIR NEEDS.

The animal caretakers know exactly what type of food and how much each creature needs to be healthy.

The caretakers then record what the animal eats and check to make sure that the animal looks well. If the animal does not eat or looks unhealthy, the veterinarian can come for a checkup.

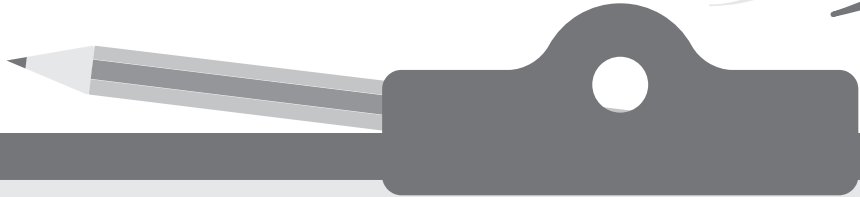
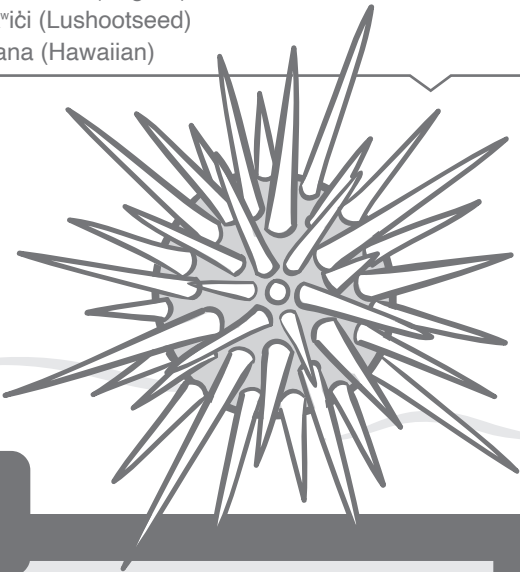


FILL OUT THE MENU

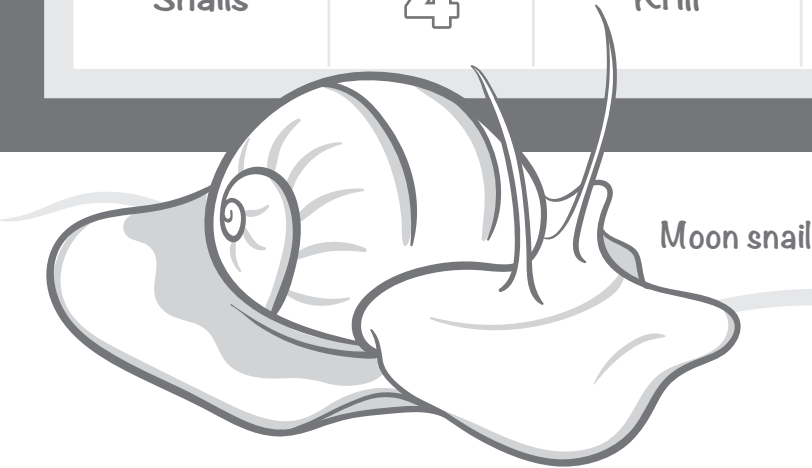
You are the nutritionist in charge of ordering food for the invertebrates in the touch pool. You can only order once a week.

What should you order and how much will you need? Make sure you order enough so every animal gets enough to eat.

Strongylocentrotus purpuratus (scientific name)
sea urchin (English)
skʻīci (Lushootseed)
wana (Hawaiian)



Species	How many animals	Food	Amount per feeding	Feedings per week	Total for the week
Helmet crab	2	Herring	$\frac{1}{2}$ (half a fish)	3	$2 \times \frac{1}{2} = 1$ $1 \times 3 = 3$
Moon snails	2	Manilla Clam	1	2	
Urchins	4	Kelp	1 (sheet each)	3	
Hermit crab	2	Krill	3	3	
Snails	4	Krill	1	3	



VET CARE FOR ANIMALS AT THE AQUARIUM

DID YOU KNOW?

Northern fur seals are one of the animals with the most fur (per square inch).

That's almost
300,000
hairs per square inch!

Males are up to
SIX TIMES
bigger than females during the spring and summer breeding months!

Sometimes males can weigh up to
600 LBS!

It would be difficult to examine their health without training.

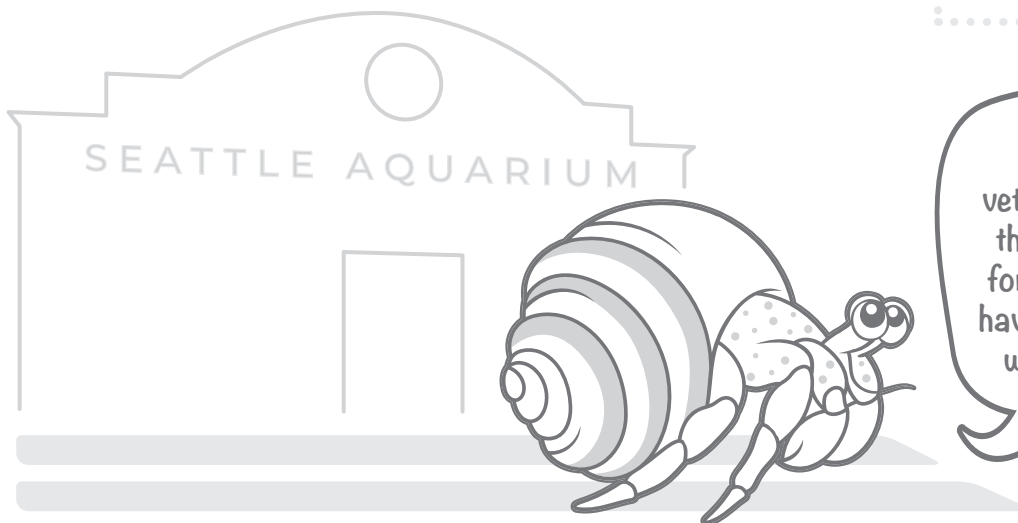
That's why our animal caretakers work so hard to practice behaviors that make their daily care and exams easier.

Northern fur seals spend most of their time out in the open ocean.

Can you imagine being in the water for about
300 DAYS
every year? That's a lot of swimming!

The fur seals at the Aquarium are trained to do behaviors that make them more comfortable during vet exams.

Seattle Aquarium has a veterinary care center onsite that makes it easier to care for the animals. The animals have their teeth brushed, their weight checked and more!

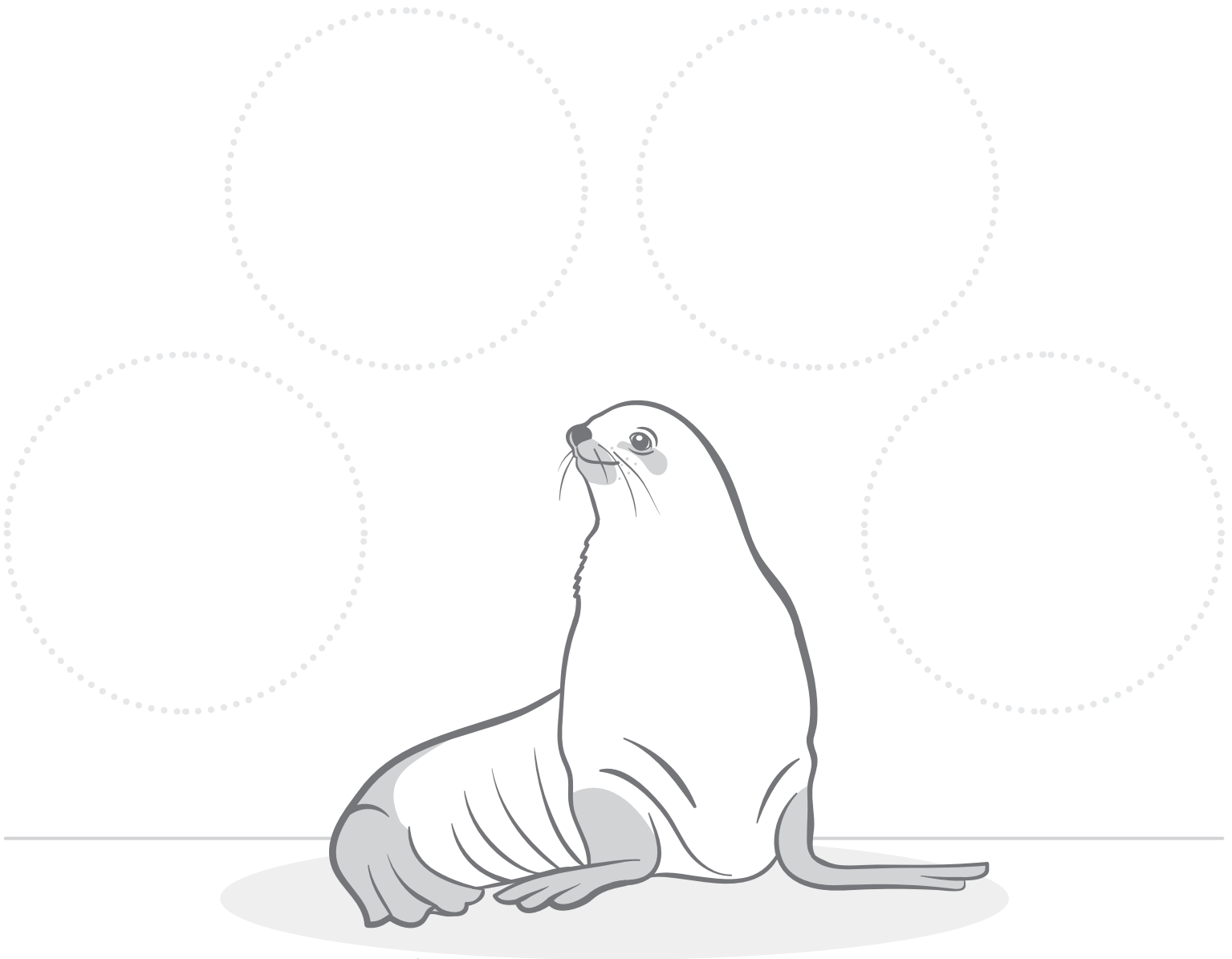
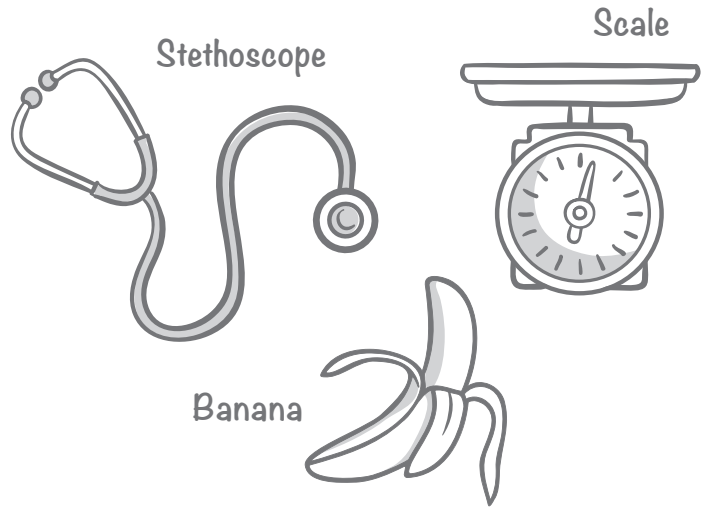


TIME FOR A CHECKUP!

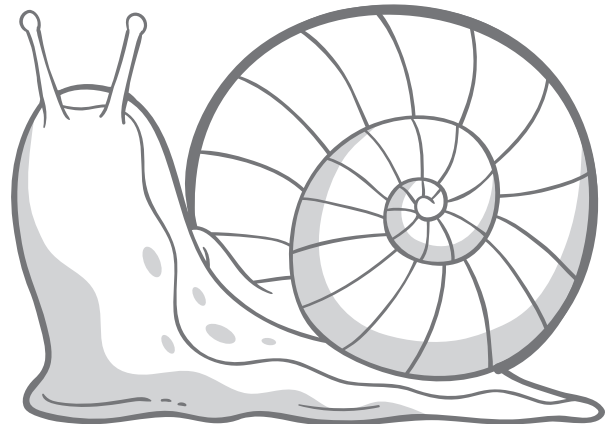
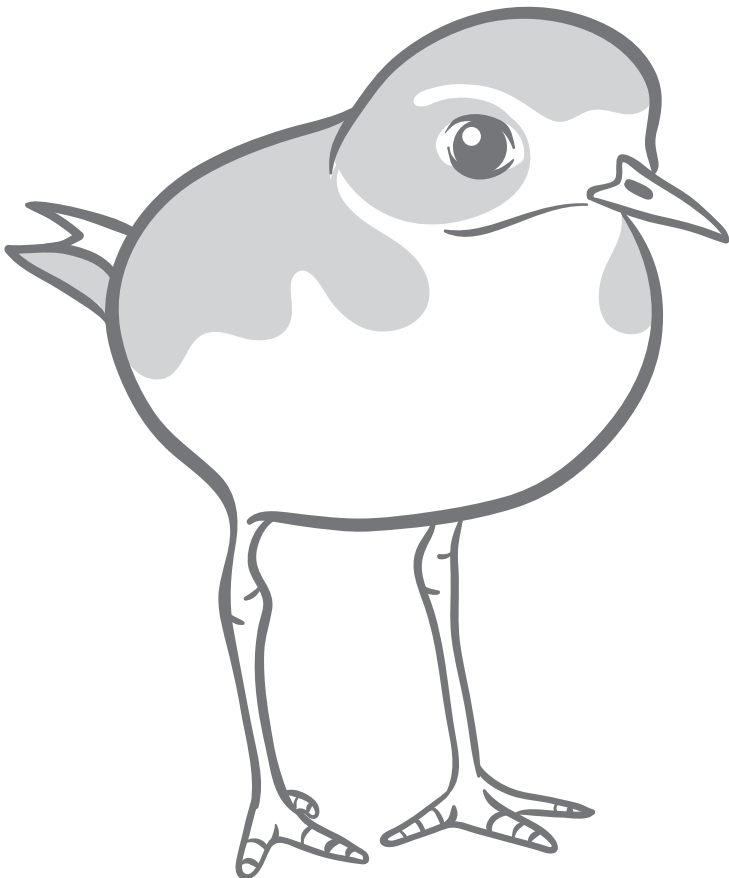
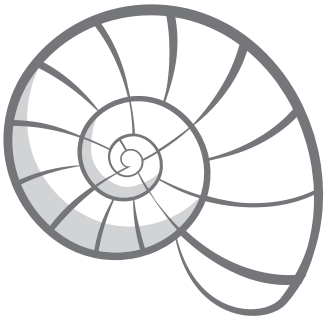
You are on the animal care team for the Aquarium's northern fur seals! It's time for a checkup. For example, the northern fur seals are trained to open their mouth when the trainer gives a signal. This means that a vet can look at their teeth when it's time for a checkup!

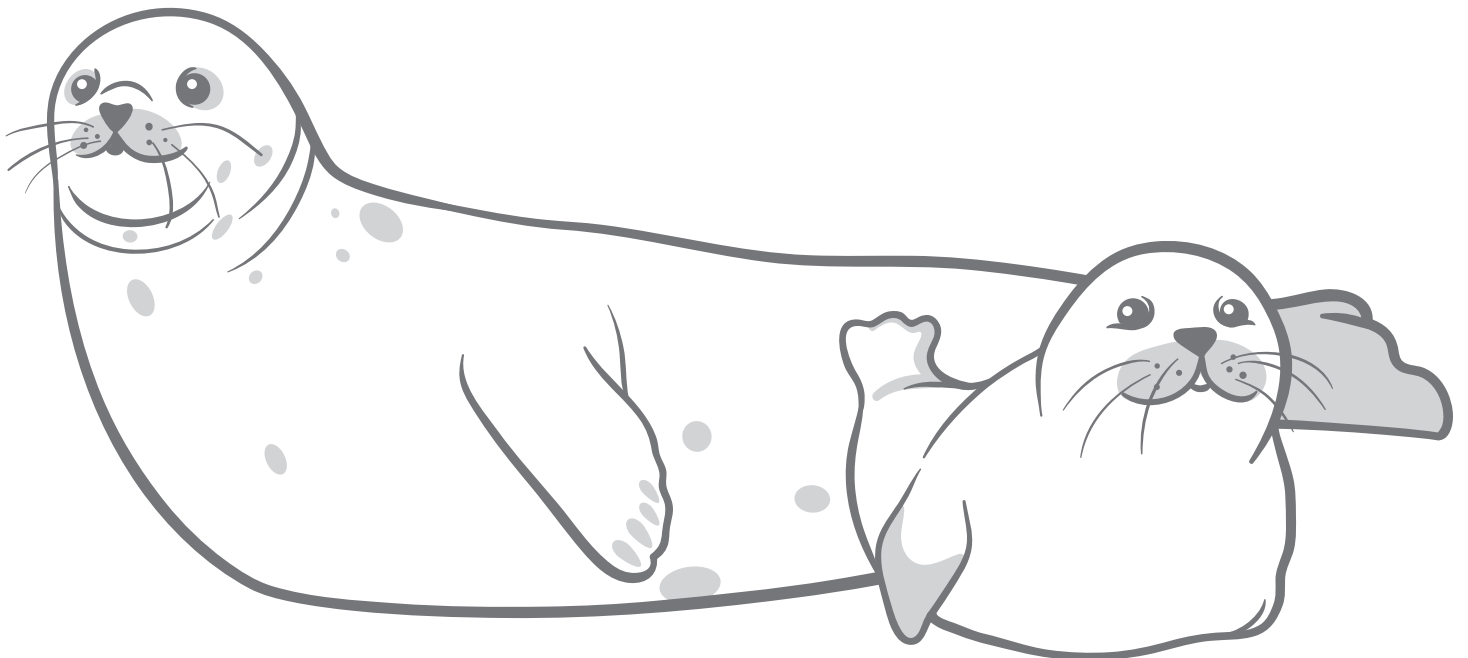
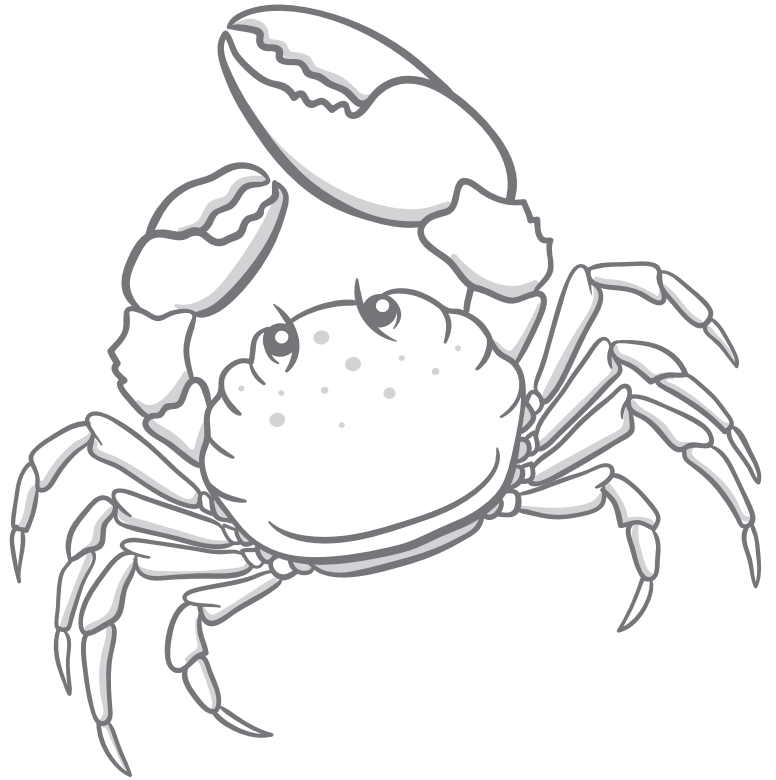
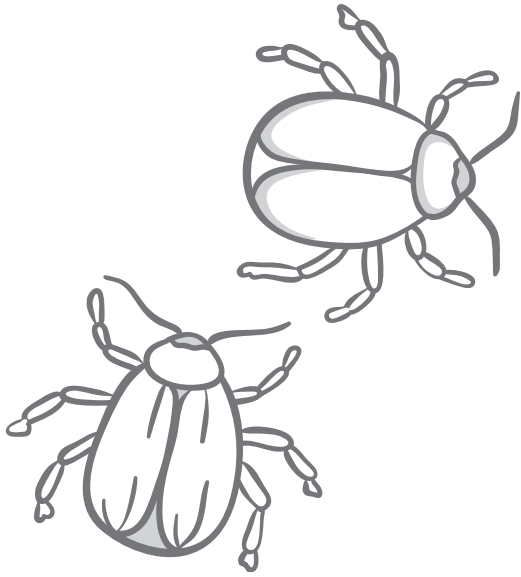
Think about what procedure you would do for the exam. Draw or describe with words the tools you might need.

Here are some ideas:

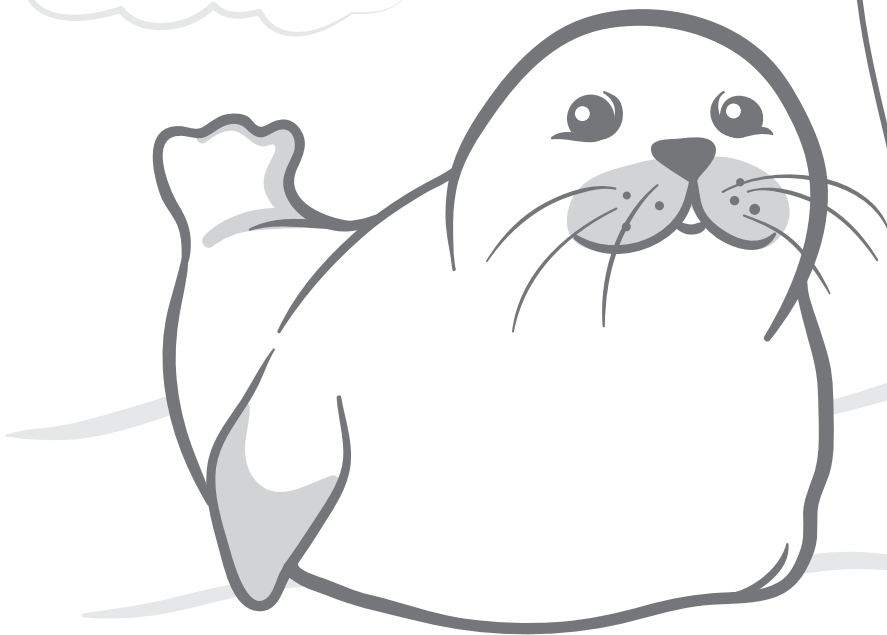


COLOR ME





I'M A BABY HARBOR SEAL



Hi! I'm a harbor seal pup!
My mom went out to sea to get some food, but I'm still too little to follow her... or swim. I like it on the beach, but I'm worried about some of the scary things here! Can you help guide my mom back to me?

Phoca vitulina (scientific name)
harbor seal (English)
supqs (Lushootseed)
Тюлень (Russian)

If you find a pup like her on the beach, please promise that you will leave her alone.

Her mom is probably close by and waiting for you to leave.

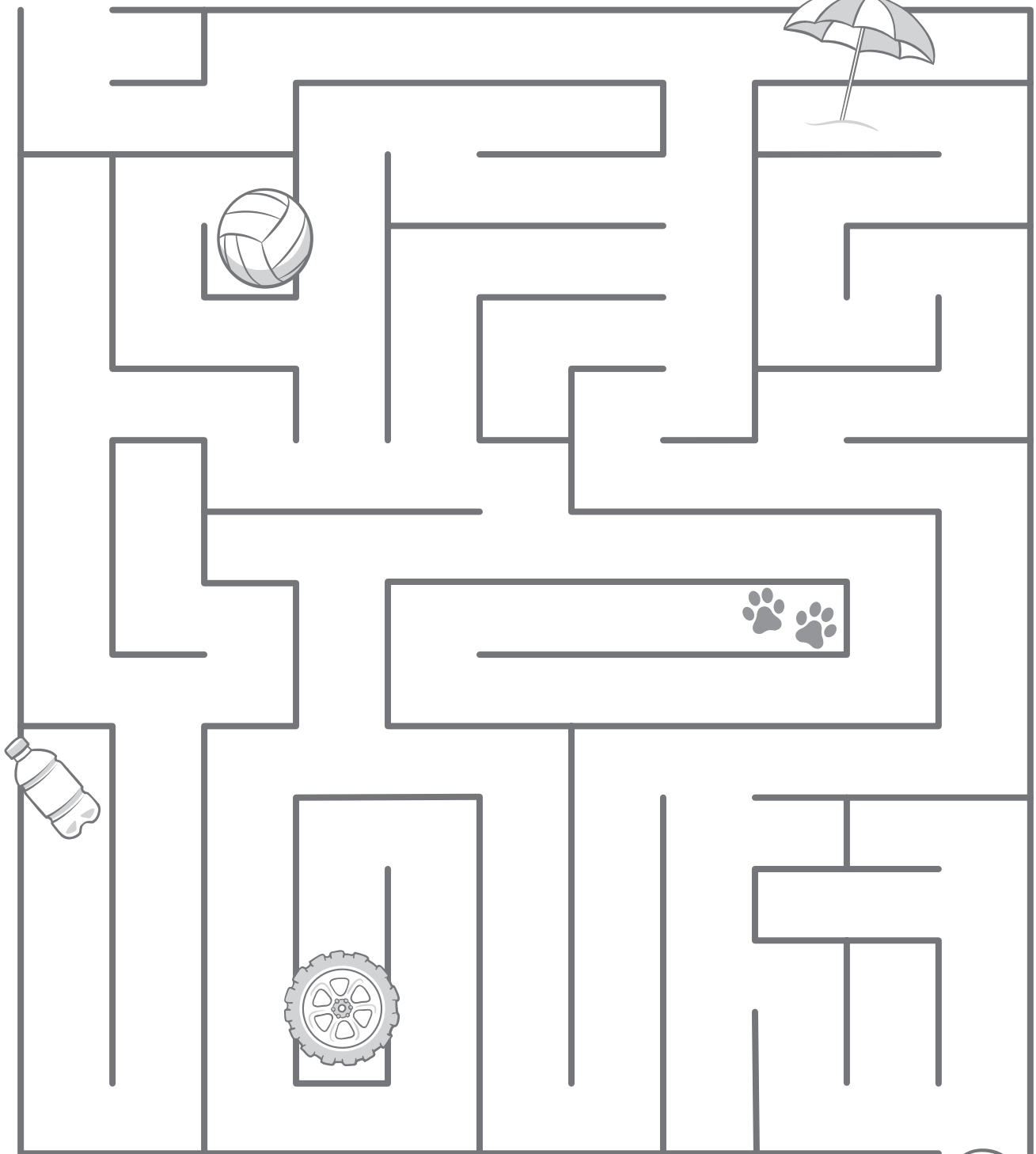
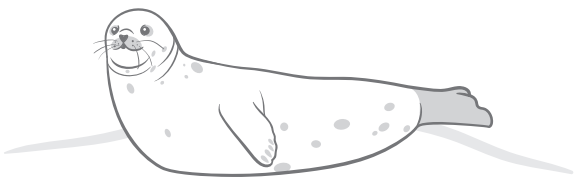
If you're really worried about her, you can have an adult call the

**MARINE MAMMAL
STRANDING NETWORK**

and report where the baby seal is.

They can help!

HELP THE MOTHER HARBOR SEAL FIND HER PUP



ANIMAL ETHOGRAM

An ethogram is an observation tool used to track and describe animal behavior.

Scientists use ethograms to learn more about the behaviors animals do and how often they do them.

Use the chart below to make observations about an animal. You could try this on a house pet, a squirrel in a park, a caterpillar on a leaf, or even an animal at an aquarium or a zoo.

There are two parts to this activity.

PART 1

is about listing the common behaviors of the animal you are observing.

PART 2

is about noticing how often the animal does the behavior and writing the behavior's number from Part 1 next to the time.



ETHOGRAM EXAMPLE

Name of animal: sea otter

Location: Seattle Aquarium

PART ONE: Look and List

- | | |
|-------------|------------|
| 1. grooming | 6. playing |
| 2. swimming | 7. |
| 3. diving | 8. |
| 4. eating | 9. |
| 5. floating | 10. |

PART TWO: Observe and Record (minutes : seconds)

00:00	2	01:00	1	02:00	6
00:15	2	01:15	1	02:15	2
00:30	5	01:30	2	02:30	2
00:45	1	01:45	6	02:45	1

FILL OUT YOUR ETHOGRAM

NAME OF ANIMAL: _____

LOCATION: _____

PART 1: Look and List

1. _____	6. _____
2. _____	7. _____
3. _____	8. _____
4. _____	9. _____
5. _____	10. _____

PART 2: Observe and Record (minutes : seconds)

00:00 _____	01:00 _____	02:00 _____
00:15 _____	01:15 _____	02:15 _____
00:30 _____	01:30 _____	02:30 _____
00:45 _____	01:45 _____	02:45 _____

DRAW YOUR ANIMAL HERE!

BUILD AN ANIMAL HABITAT

A SEA OTTER BIOGRAPHY



BORN IN: 2014

She was found entangled in a fishing net and rehabilitated by the Alaska SeaLife Center.

FAVORITE FOOD: SHRIMP

She even loves to eat the shrimp tails, too! These are a good source of fiber, which is extremely important for a sea otter's digestive system.

FAVORITE THINGS: ICE

She loves to crunch on ice and sit in a barrel of ice.

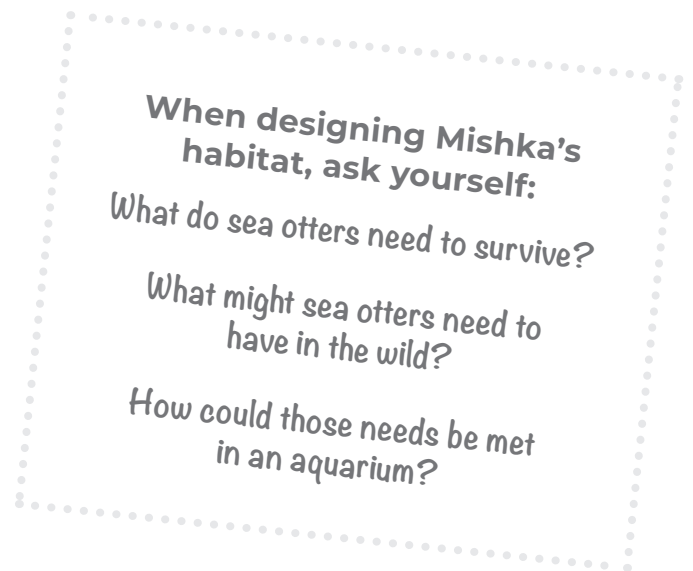
DRAW A PLAN FOR MISHKA'S HABITAT

A habitat is a place that has everything needed for a living thing to survive and grow.

The 4 things all animals need from their habitat:

FOOD
WATER
SHELTER
SPACE

Draw or describe with words a plan below for a sea otter habitat like Mishka would need.



BRING YOUR PLANS TO LIFE!

Using your drawing above as a guide, create a model of your sea otter habitat using a box and art supplies.

You could use a shoebox (or similarly sized box), some paper, glue or tape, art supplies and your creativity!

DREAM HOME

WHAT DOES A HABITAT PROVIDE FOR ANIMALS?

- | | |
|----------|----------|
| 1. _____ | 3. _____ |
| 2. _____ | 4. _____ |

**HOW WOULD YOU PROVIDE FOR
YOUR OWN NEEDS?**

Use the space below to draw or write about YOUR ideal home.

A HERMIT CRAB'S DREAM HOME

There are more than

500 SPECIES

of hermit crabs around the world!

Each hermit crab might think different things make a dream home.

Alki the hermit crab is trying to find a

NEW SHELL

that will be his dream home.

His abdomen isn't covered by a tough

EXOSKELETON

like the rest of his body, so he wants a shell that is hard to protect him.

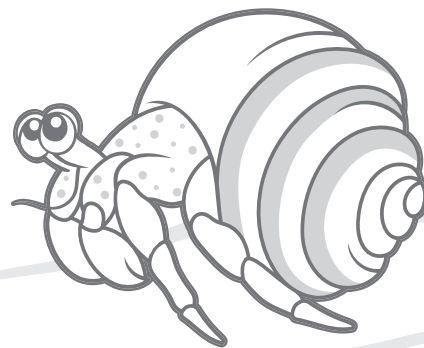
Hermit crabs can smell dead or dying snails and follow the scent to find newly emptied shells.

As Alki gets older, he will

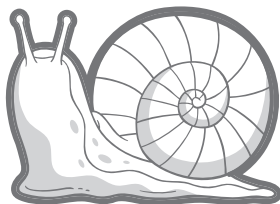
MOLT

his exoskeleton and will also need to find new, bigger shells.

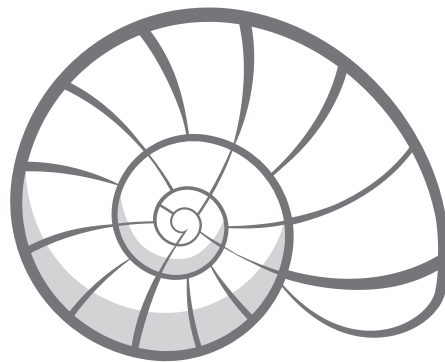
This shell is getting tight!
I need a bigger shell with plenty of space inside.
It needs to be solid so it will protect me from predators.



Which of these do you think Alki the hermit crab would like as his next shell?



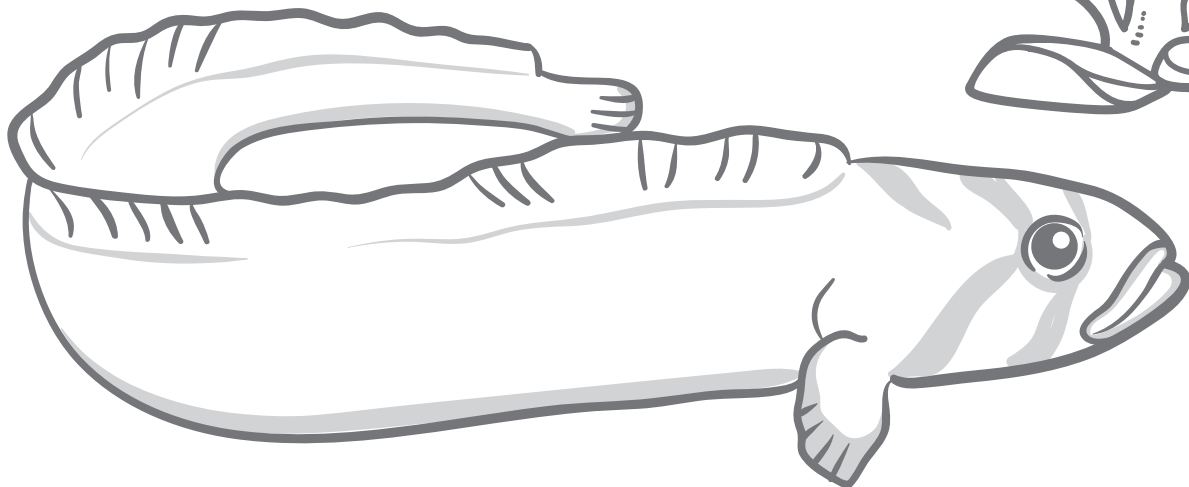
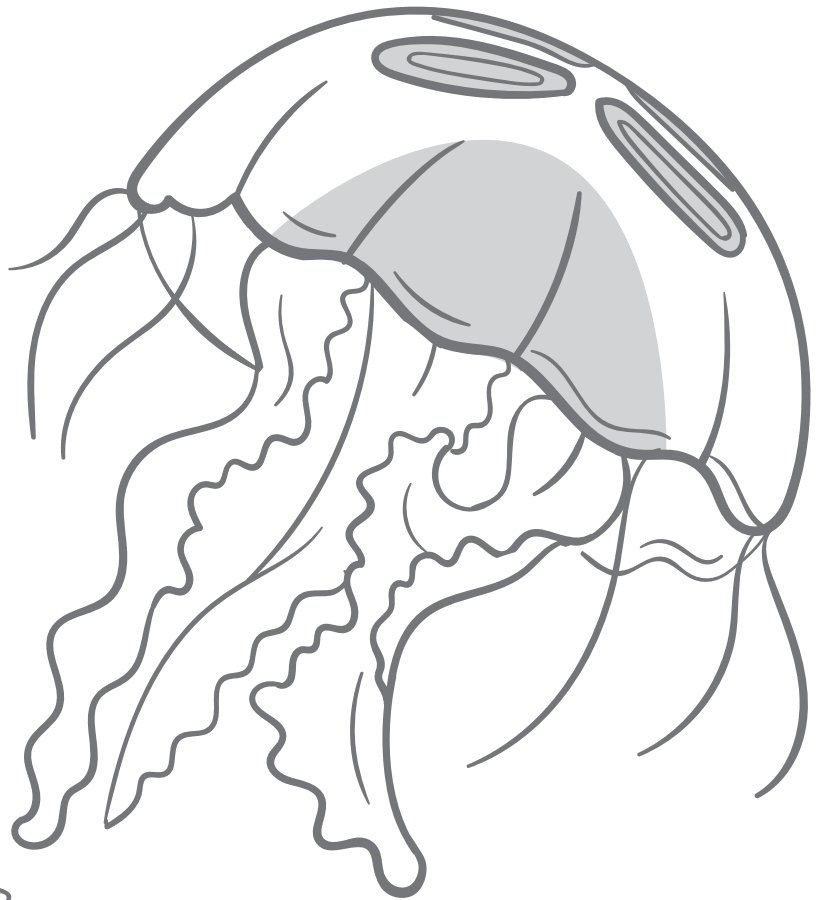
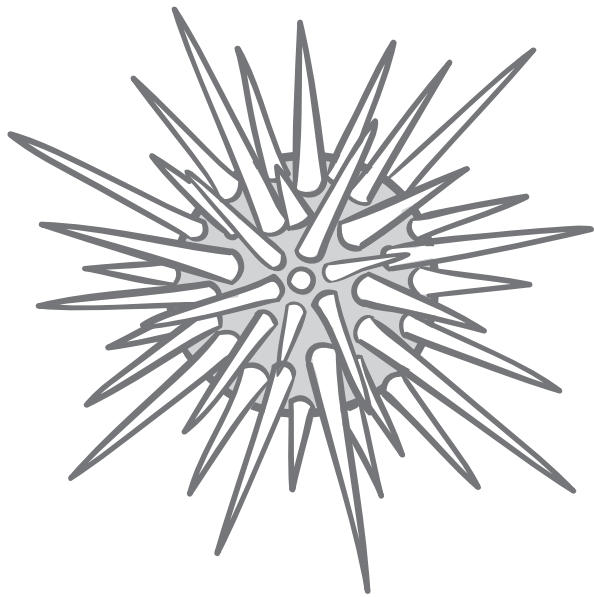
A.

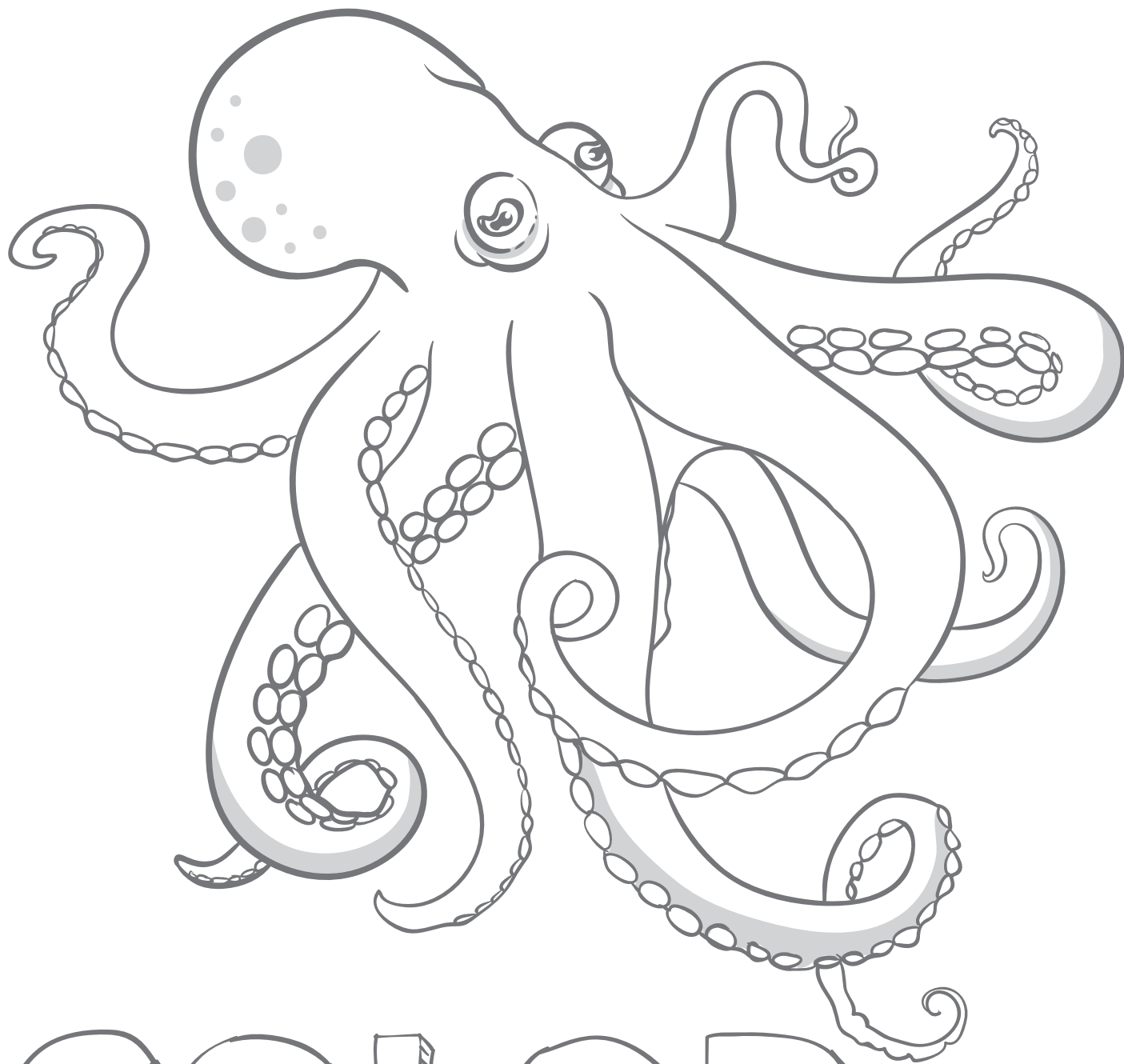


B.



C.





COLOR
ME



YOU OTTER KNOW

WHAT DOES A SEA OTTER AT THE AQUARIUM NEED?

All animals need

**FOOD, WATER,
SHELTER AND SPACE.**

The caretakers at the Aquarium need to make sure each animal in their care has the four elements above, but they also want to do even more to enrich the lives of the animals.

For sea otters, this can be

TOYS, GAMES
or even other otters to play with.

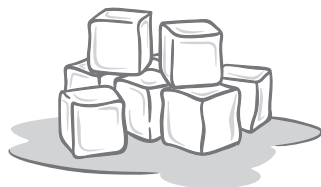
The sea otter below is surrounded by some of the things that make it happy and healthy at the Aquarium.



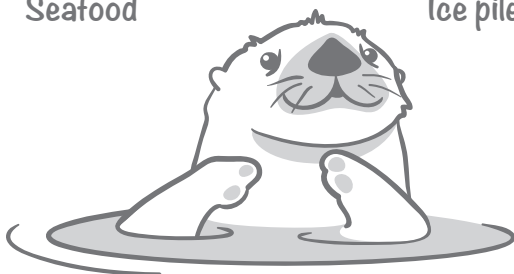
Enrichment toy



Seafood



Ice pile



Sea otter friend



Enhydra lutris (scientific name)
sea otter (English)
sq̓aʕ (Lushootseed)
nutria de mar (Spanish)



WHAT ARE THE THINGS THAT YOU NEED?

Draw yourself below. With words or drawings, surround yourself with things YOU need to be happy and healthy.

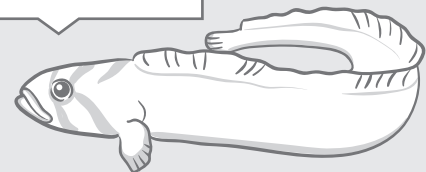
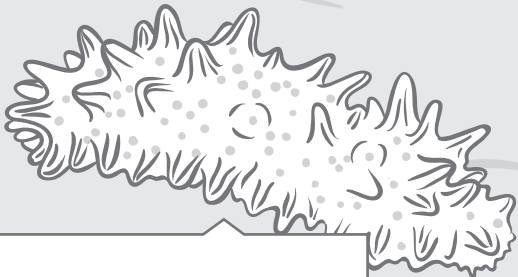
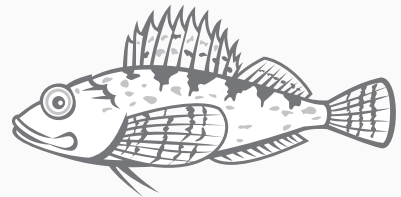
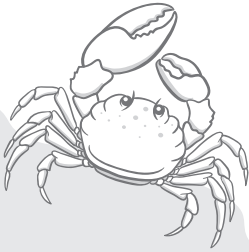
What is just like the sea otter? What is different?

IMAGINE YOUR MIND IS A TIDE POOL

Imagine your mind is a tide pool and
**EACH TIDE
POOL ANIMAL
IS A DIFFERENT
FEELING.**

There are so many different tide pool animals. Some of them swim and others are attached to rocks.

When low tide comes, some animals may get stuck in a tide pool, but they are safe until the high tide returns.



**Your mind has many different feelings in it.
You aren't just one feeling.**

**YOUR MIND IS THE
WHOLE TIDE POOL**

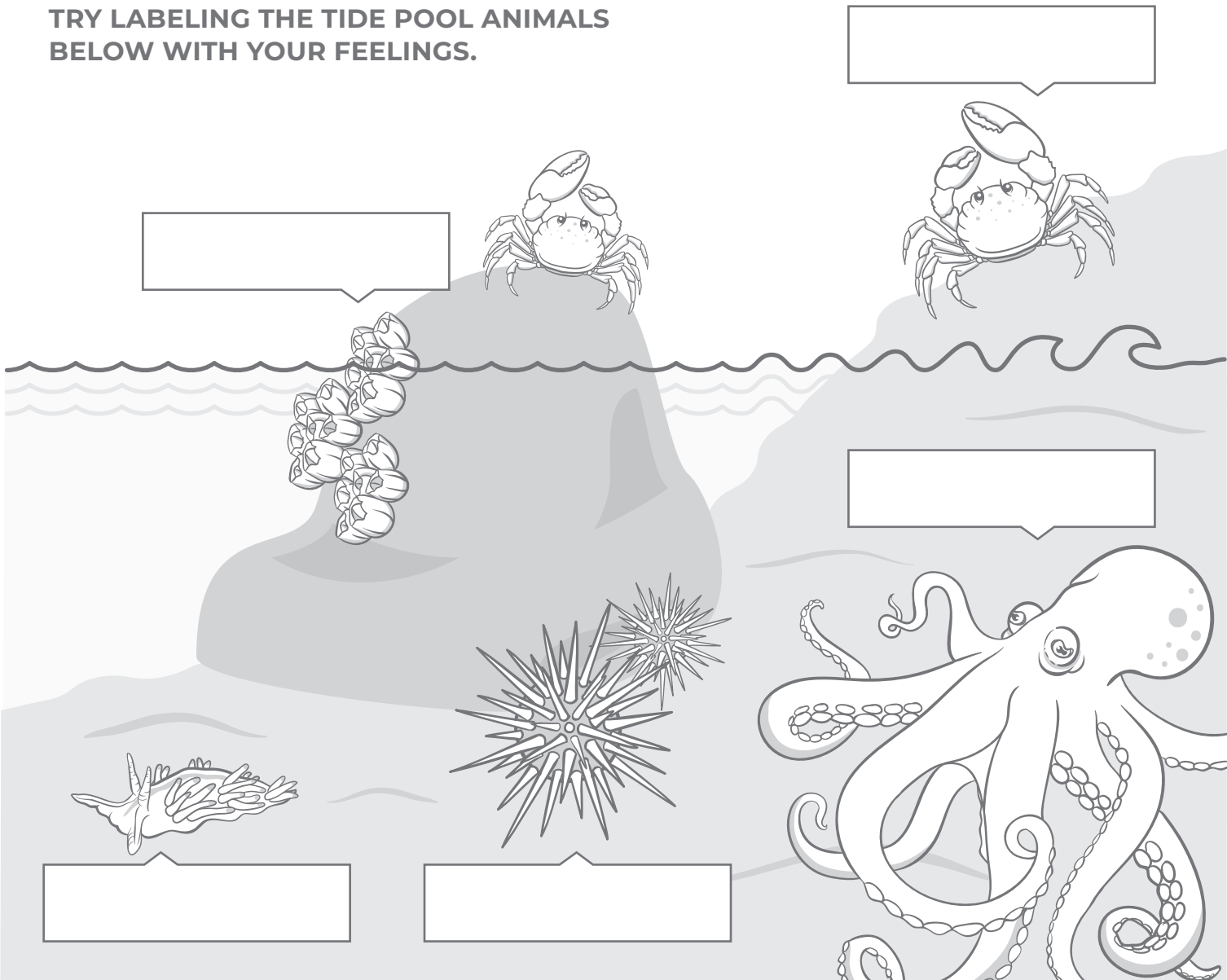
filled with as many different tide pool animals
as your feelings.

Feel those feelings, but know that as the tide
comes in and covers the tide pool of your mind
some of those feelings may rush out with the
water and others may stay.

Examples of feelings:

- | | |
|---------|----------|
| Happy | Bored |
| Sad | Tired |
| Angry | Grumpy |
| Excited | Playful |
| Brave | Confused |
| Silly | Worried |

**TRY LABELING THE TIDE POOL ANIMALS
BELOW WITH YOUR FEELINGS.**



DESIGN A SEA JELLY

All humans are unique and special in their own way. Animals are the same!

Animals like jellies may appear to look alike, but there are differences between jellies if you look closely.

Some jellies are

SMALL,

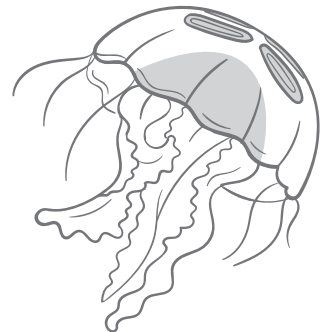
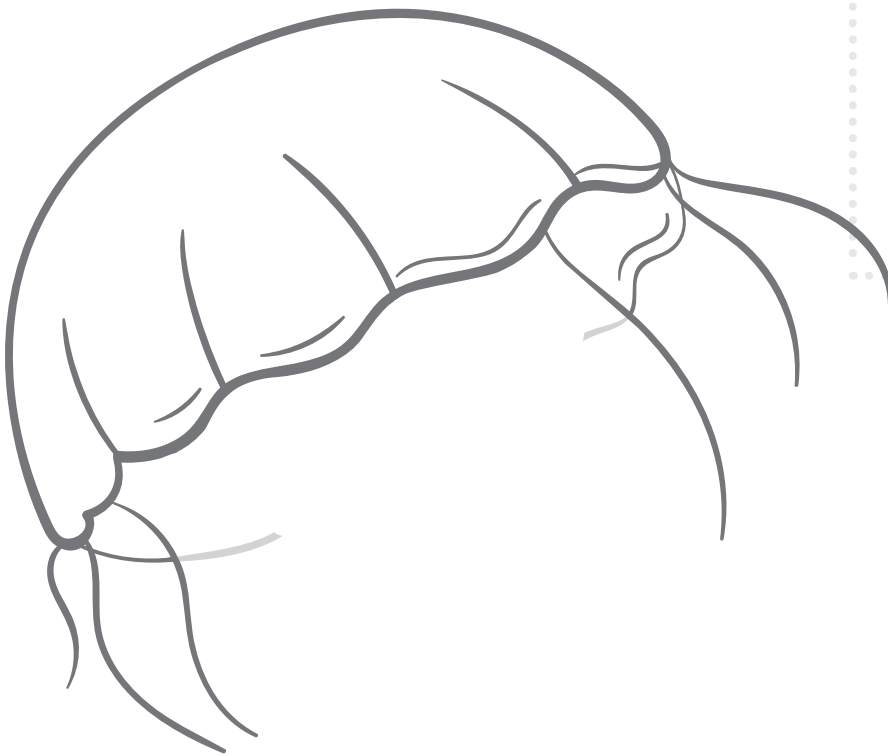
some are

**DIFFERENT
SHAPES**

and some have

**LONG
TENTACLES.**

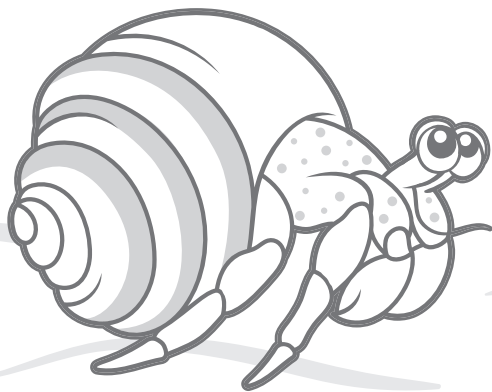
They appear in almost every color we can imagine.



Decorate the jelly above to make it as unique as you!

What makes your jelly special? What does it eat? Where does it live?

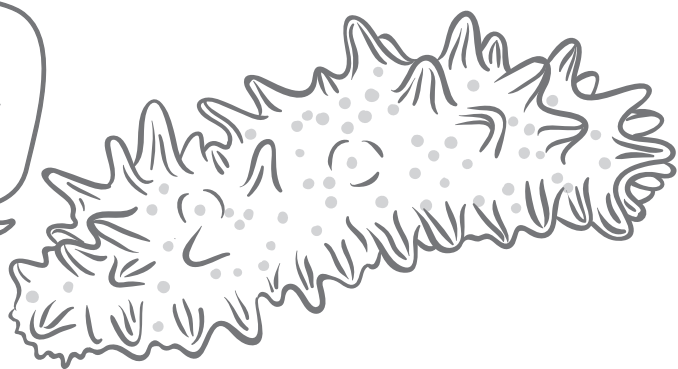
ASSUMPTIONS



An assumption is when you believe something is true without having proof. It's like guessing based on things you know. Sometimes assumptions are true, but sometimes they are false.

Many animals rely on predators' false assumptions about them.

Many assume I am pointy, but I am soft and squishy!



If someone just met you, what assumptions might they make about you?

_____	_____
_____	_____
_____	_____

Which ones are TRUE? Which ones are FALSE?

True:

False:

_____	_____
_____	_____
_____	_____

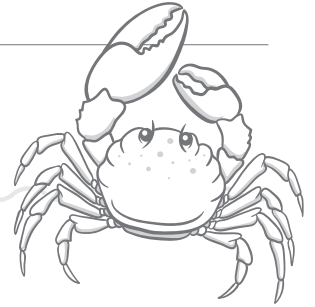
HOW ANIMALS COMMUNICATE

CRUSTACEANS

Crustaceans, a group of animals that includes

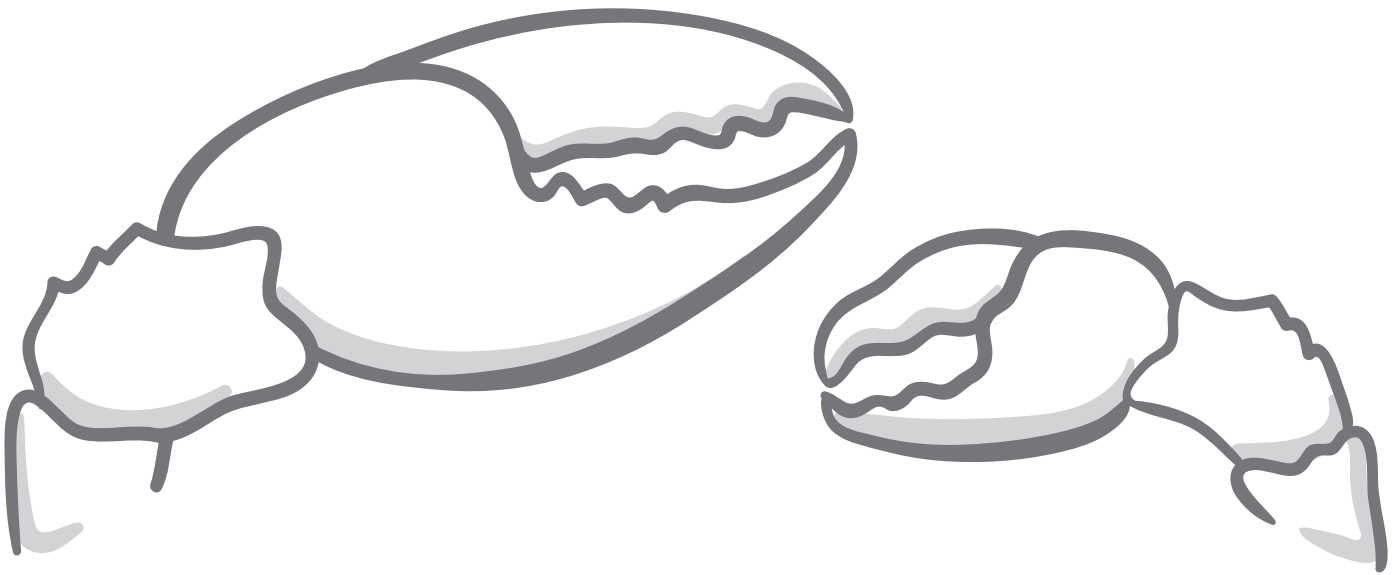
CRABS, LOBSTERS AND SHRIMP, communicate with each other on land and in water.

Some crabs rub parts of their body together and **use ridges on their claws or arms to make sounds.** Other crabs have front claws that are different sizes.



The males use the **LARGE CLAW TO WAVE** to the females to get attention.

Females usually choose the male with the largest claw because that means that crab could make **A LARGE BURROW,** which helps keep eggs warm.



Trace these claws on another piece of paper and cut out the claws. Try to tell a friend what you want by just waving your claws in the air, without using words!

CEPHALOPODS

Cuttlefish are a type of cephalopod in the same group as octopuses.

Dwarf cuttlefish can grow up to
4 INCHES,
about the size of a large strawberry!

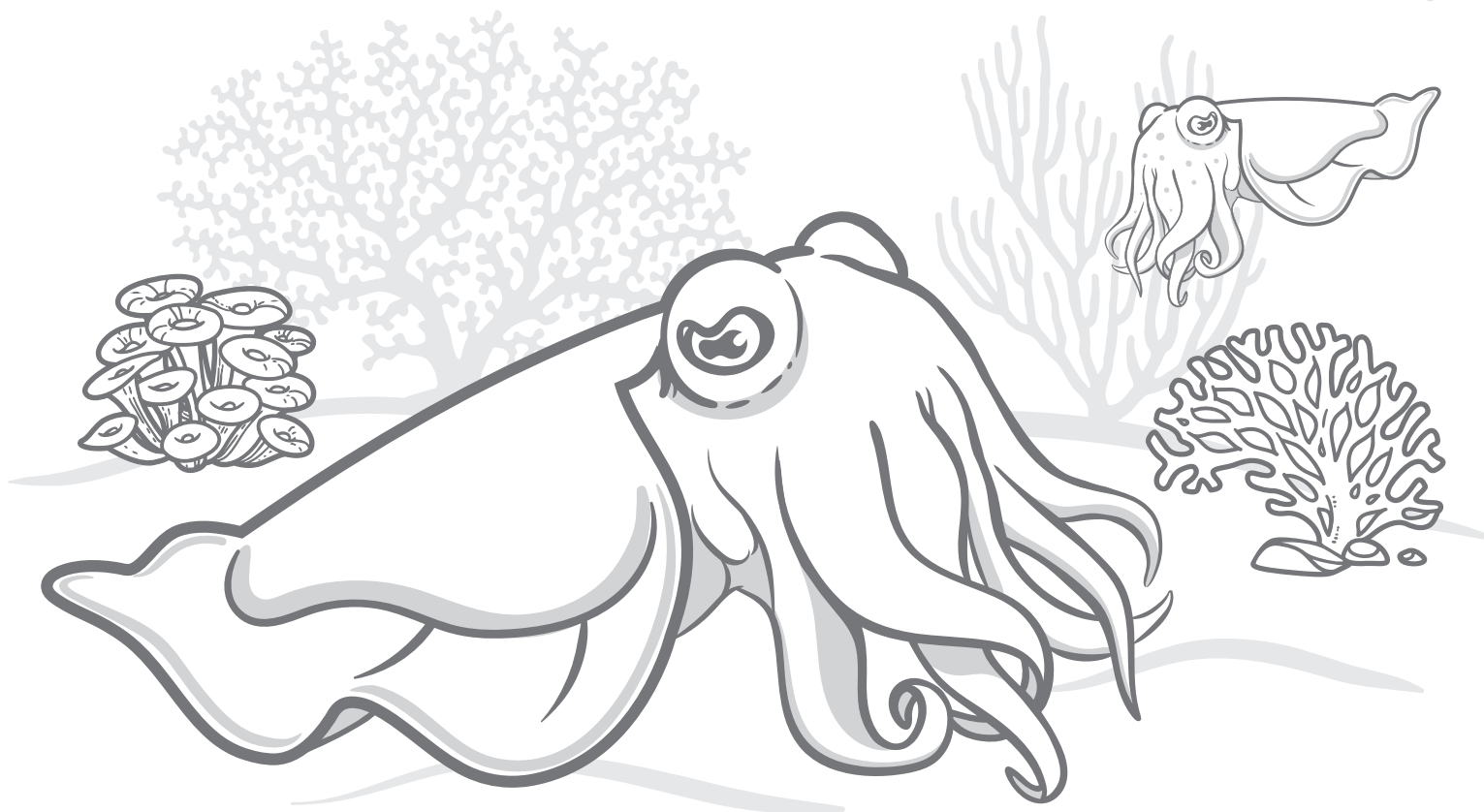
When they hatch from their eggs, they're only the size of
A PEA!

This means they need to be able to hide quickly and tell other cuttlefish what is going on.

Cuttlefish have special cells along their bodies called **chromatophores** that can quickly flash in color patterns. This helps them to sneak up on prey or communicate with other cuttlefish.

Male and female cuttlefish might even display different color patterns.

It's hard to find a mate if you are a smaller male cuttlefish, so sometimes these cuttlefish will flash colors pretending they are a female to sneak past their larger competition!



Color a pattern on the cuttlefish that you feel represents your mood right now! Cuttlefish communicate with these colors, so what is your cuttlefish trying to say to the other cuttlefish?

EMOTIONAL TOOLBOX

DID YOU KNOW?

TOOLS

are used by humans and many other animals to help solve problems.

Usually there is a specific tool that best helps to solve a problem.

Tools can be things like

**PHONES,
HAMMERS
OR
SPOONS.**

Tools don't have to be something you hold in your hand. They can also be emotional tools like taking a few

**BREATHS,
saying "Please"
and "Thank you," or
LISTENING.**

**You will gain new tools to use throughout your life.
A tool works best when you have practiced using it.**

Here are some animals that use tools:

SOME WRASSE FISH

species have been seen throwing their shelled food (like clams) against rocks to get to the soft yummy parts.

SEA OTTERS

often have a favorite rock that they keep in their armpit pockets. They use their rock to crack open shells.

DECORATOR CRABS

place things on their bodies to camouflage and protect themselves.

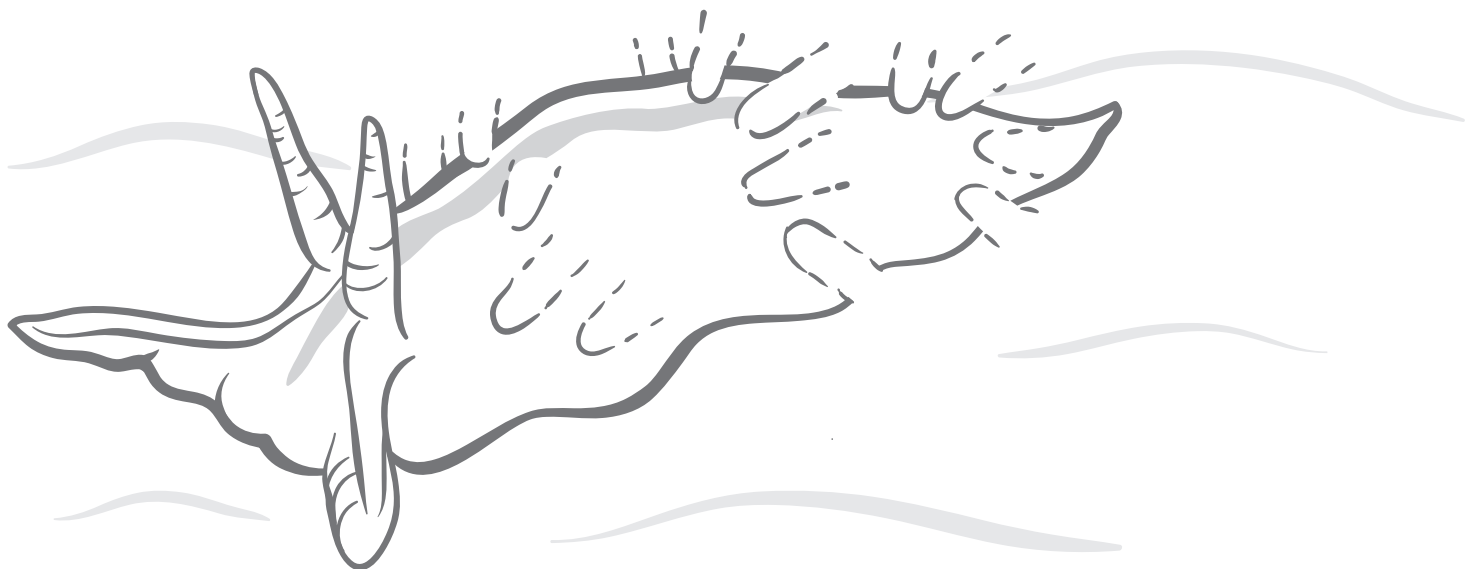
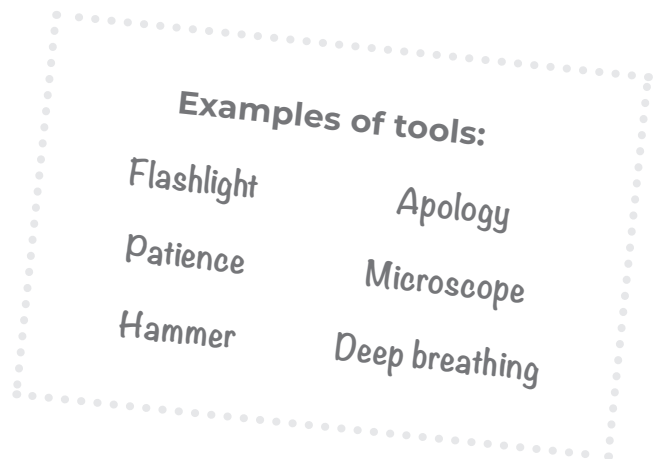


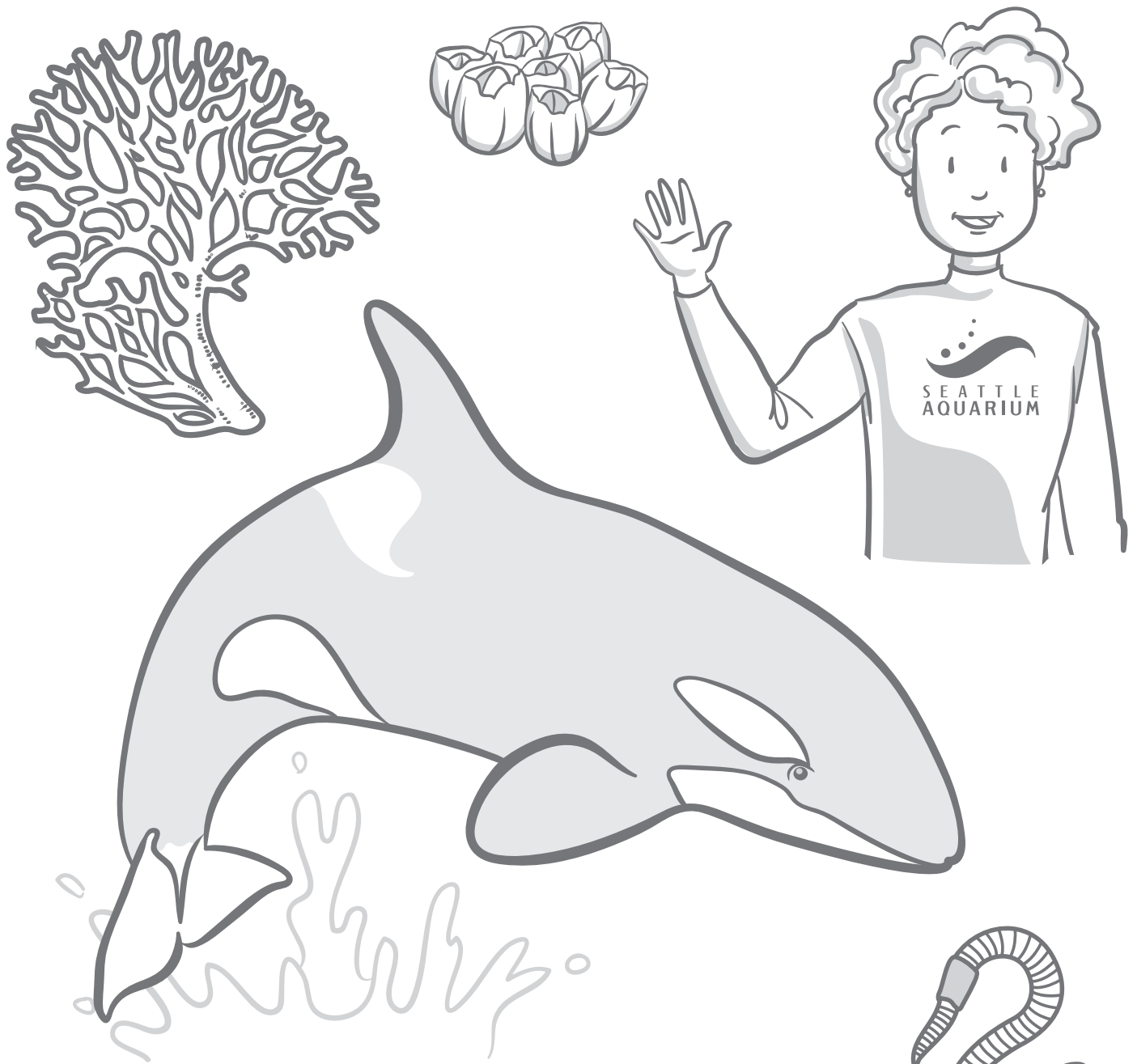
Some octopuses have been seen using empty coconut shells for protection!

NUDIBRANCH TOOLS

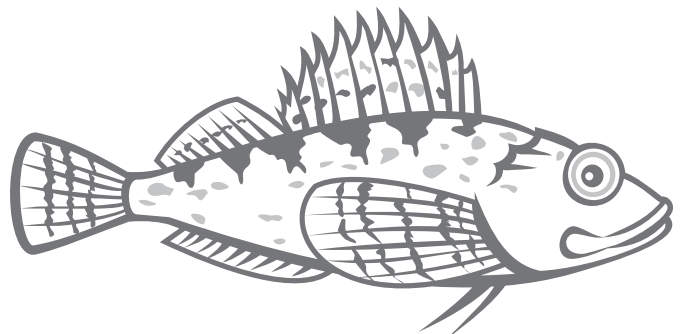
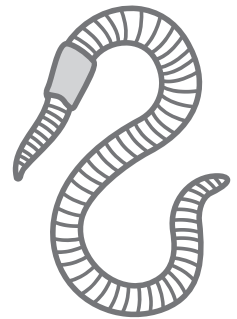
Some nudibranchs, or sea slugs, can reuse things they eat. Some nudibranchs eat stinging animals, but instead of digesting the nematocysts (stinging cells) their body moves them to their back where they can use the stinging cells to defend themselves.

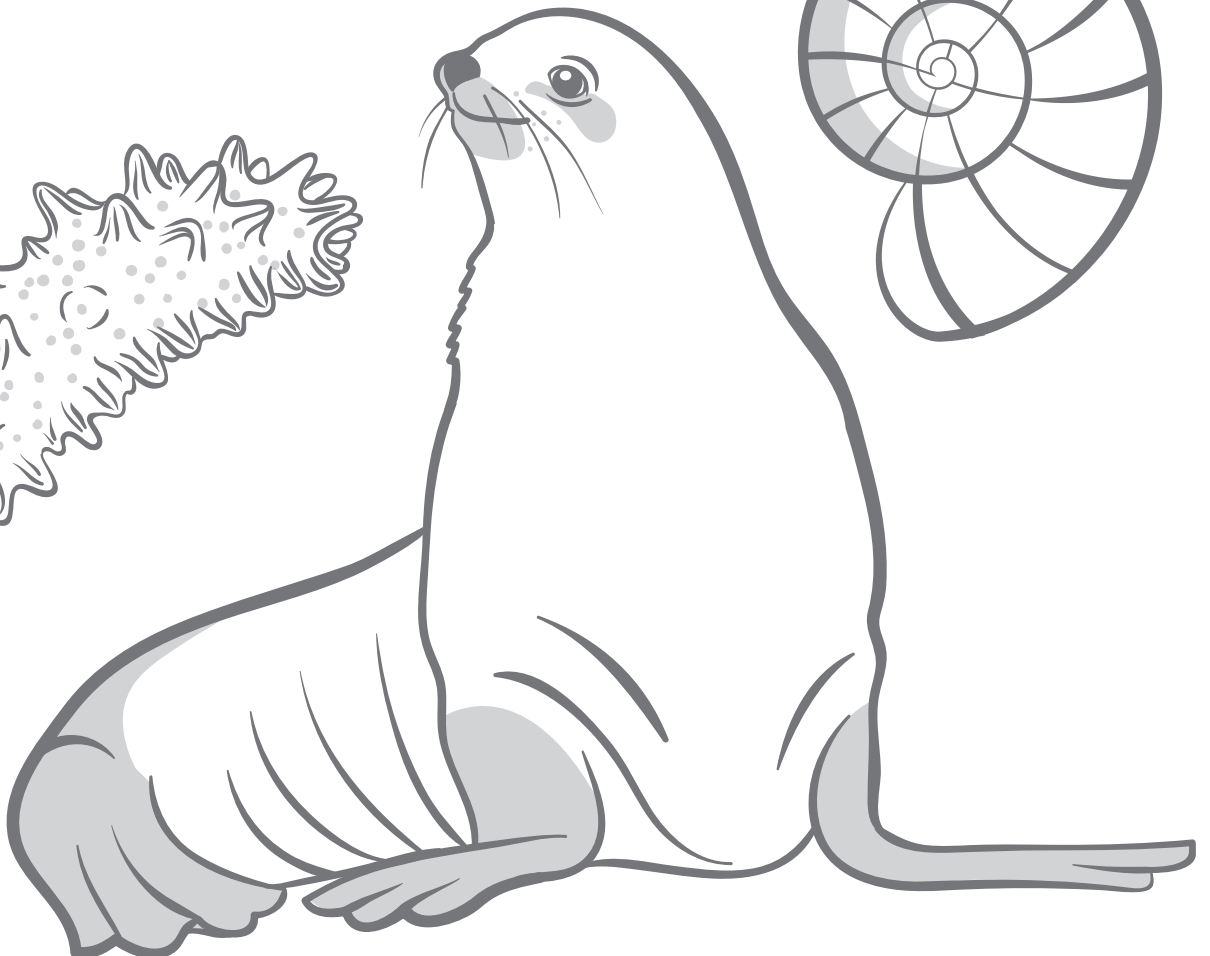
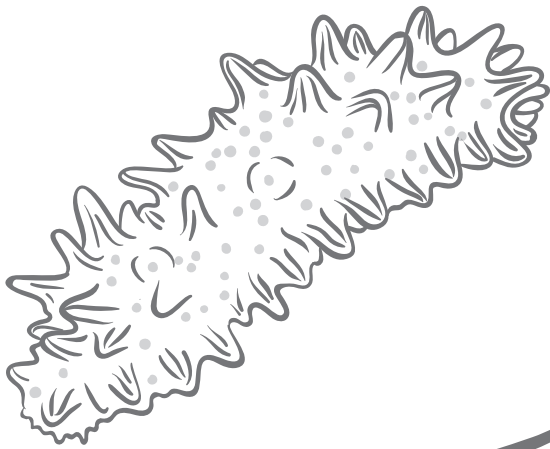
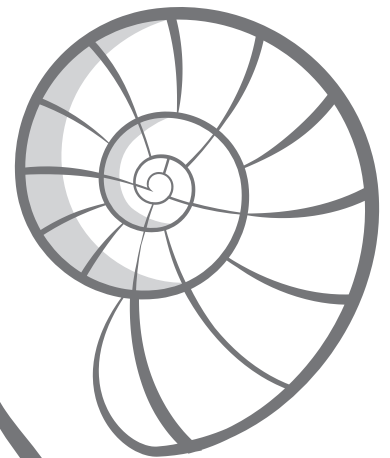
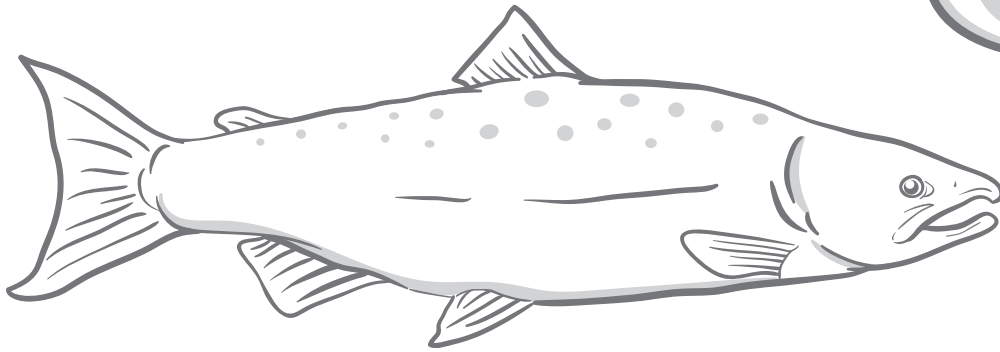
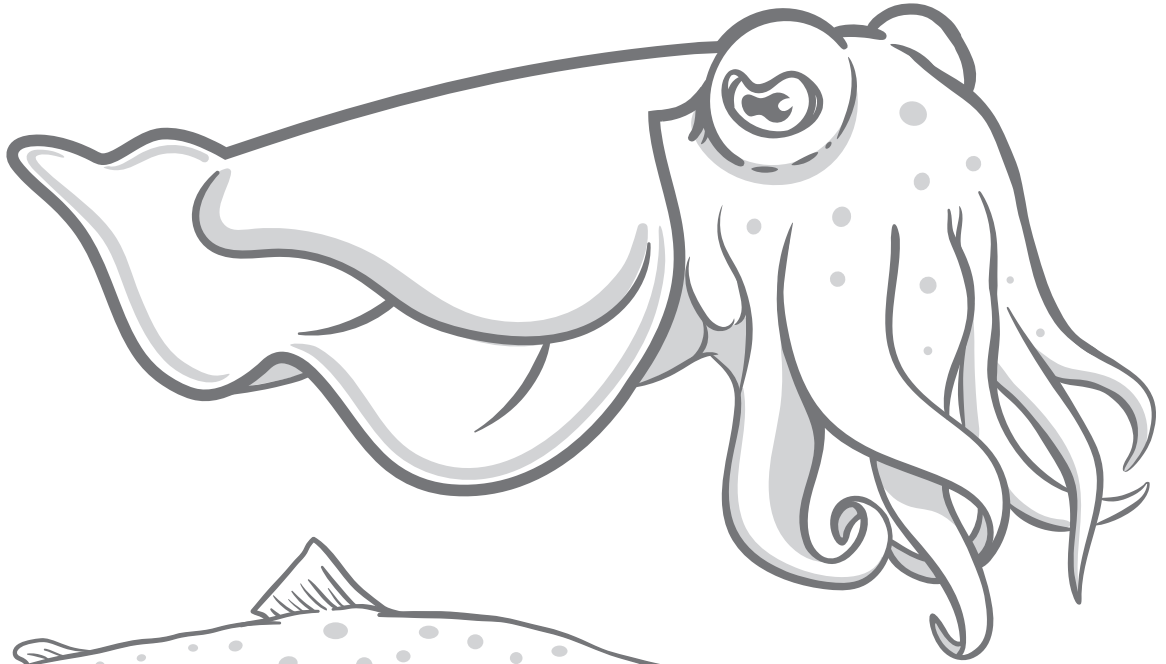
Attach tools YOU use to the nudibranch below. You can draw physical tools or write emotional tools that you use.





COLOR
ME





BIAS

WHEN WE MAKE NEGATIVE ASSUMPTIONS

Sometimes we're scared by things that look or act different from us. Some people think eels are scary, but they have many adaptations that make them **vital members of the ocean food web!**

Most eels have teeth that stick out of their mouth and **STRONG JAWS** used to crack open hard prey such as urchins and crustaceans. That's why they have faces that might look a bit fearsome to us.

Male and female wolf eels live together in a den.

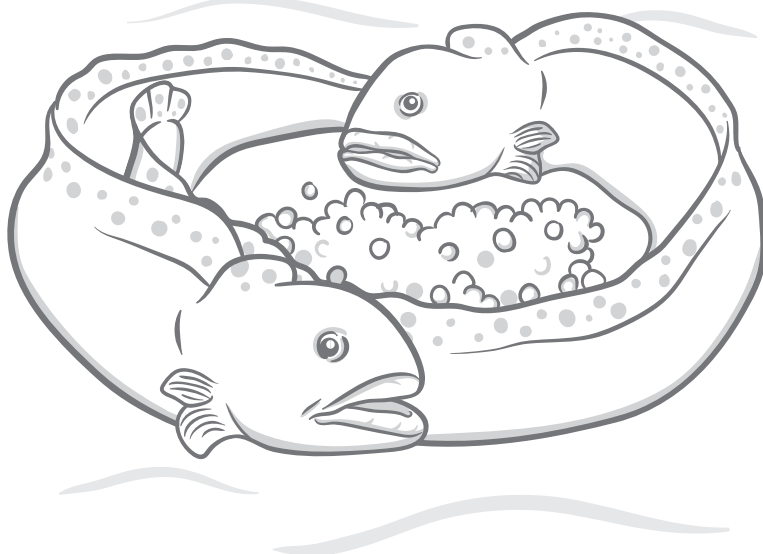
Females can lay up to **10,000 EGGS** and both the males and females take care of the eggs.

They even wrap their bodies around the eggs to keep them safe. Very few fish take care of their eggs with such care.

These animals may seem scary, but they are **AMAZING AND CARING PARENTS!**

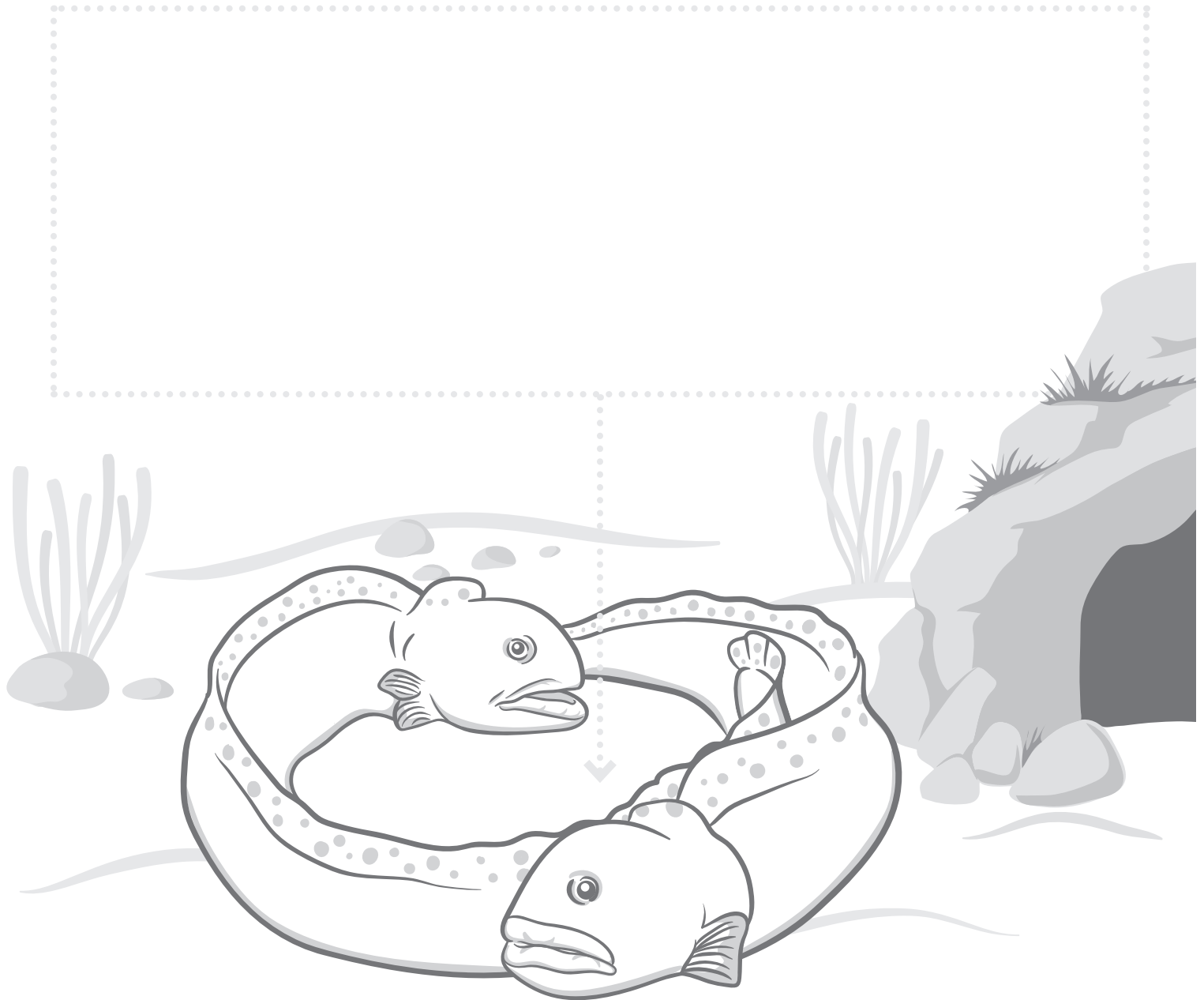
Now that you know how amazing wolf eels are, how do you feel about creatures that may look scary? Is there another animal that you think is scary?

Research them, and see if your opinion changes after you learn about them!



A WOLF EEL DEN

In the space below, draw something that you want to protect, being kept safe by the wolf eels.



Eels are sometimes caught in fishing gear or discarded trash, like plastic bags. You can help eels and all ocean life by

PICKING UP TRASH AT THE BEACH AND ON THE STREET.

RESEARCH YOUR FAVORITE ANIMAL

The diversity of animals in our ocean is incredible! Use this fact sheet to become an animal expert on your favorite critter.

HERE'S A SEATTLE AQUARIUM SEA-LEBRITY TO GET YOU STARTED!



ANIMAL NAME: western snowy plover

SCIENTIFIC NAME: *Charadrius nivosus nivosus*

SIZE: up to 6 inches

RANGE: Pacific Coast from Washington to Mexico and along Texas

DIET: flies, beetles, worms, small crabs

UNIQUE FACTS:

Males and females have a black stripe around their eyes during the summer.

Plover chicks can leave the nest to find food just 3 hours after hatching.

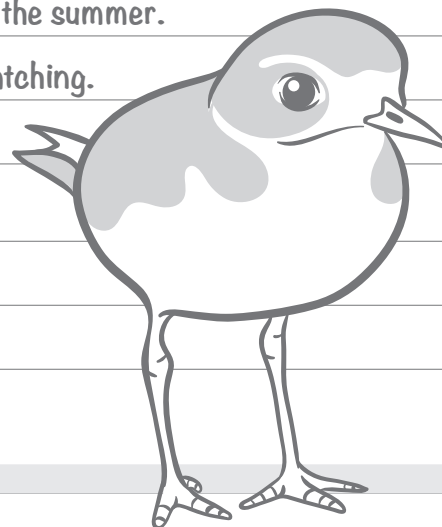
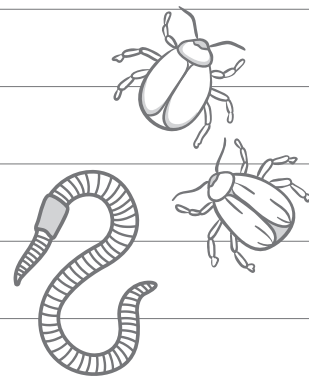
Their feathers camouflage perfectly with the sandy shores.

CONSERVATION STATUS:

Decreasing due to human disturbance.

Watch out for camouflaged nests on the beach!

DRAW YOUR ANIMAL HERE!



FILL OUT YOUR CHOSEN ANIMAL

ANIMAL NAME:

SCIENTIFIC NAME:

SIZE:

RANGE:

DIET:

UNIQUE FACTS:

CONSERVATION STATUS:

DRAW YOUR ANIMAL HERE!

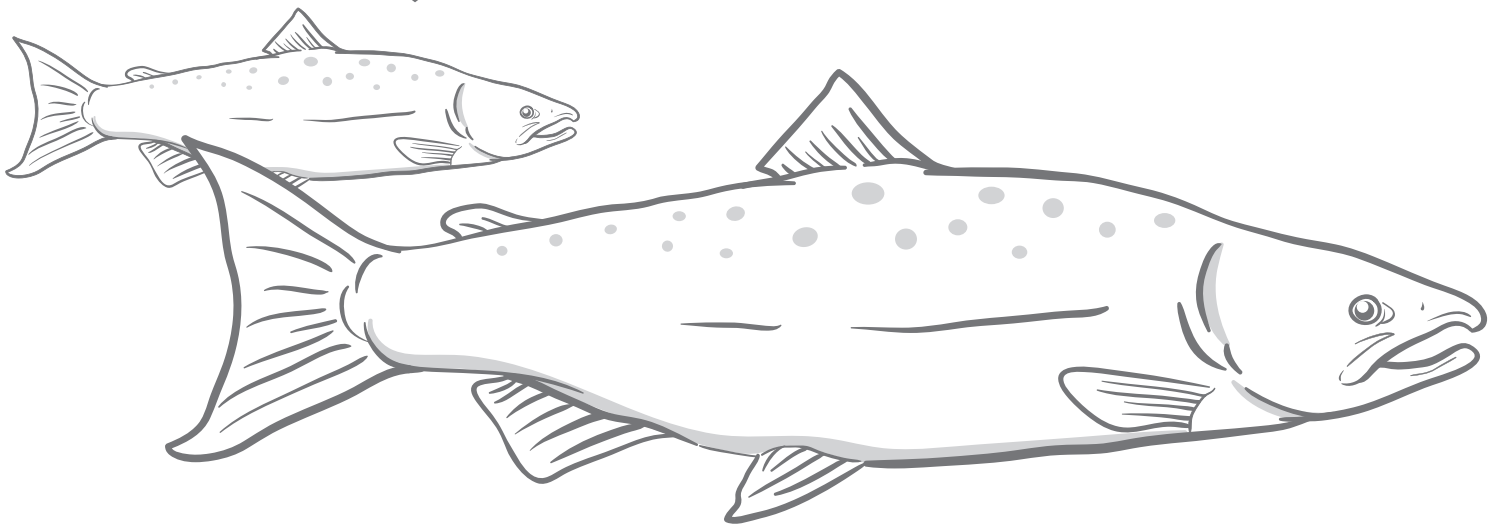
THE SALISH SEA & SALMON

The Salish Sea is the name for the body of water that includes Puget Sound, the Strait of Juan de Fuca, the Strait of Georgia and other waterways in Western Washington, USA and British Columbia, Canada.

Oncorhynchus kisutch (scientific name)
salmon (English)
sʔuladxʷ (Lushootseed)
kalluun maqaar qalin ah leh (Somali)

PUT A DOT ON
THE MAP WHERE
YOU LIVE.>

If you don't live in the Pacific Northwest, find another map of where you live. You can use a map on the internet to help find the exact place to put the dot.



Salmon begin their lives as eggs in creeks and rivers, sometimes far from the ocean.

When they hatch as fry (a word for baby fish), they make their way to the ocean where they grow into adults.

Salmon face a lot of challenges on their way to the ocean.

Circle which of these are caused by people.

How do you think we could make life easier for salmon?

Drought
Pollution & trash
Predators
Dams
Heat or cold
Fishing

A SALMON'S JOURNEY

Pretend that you are a salmon making your way to the ocean.

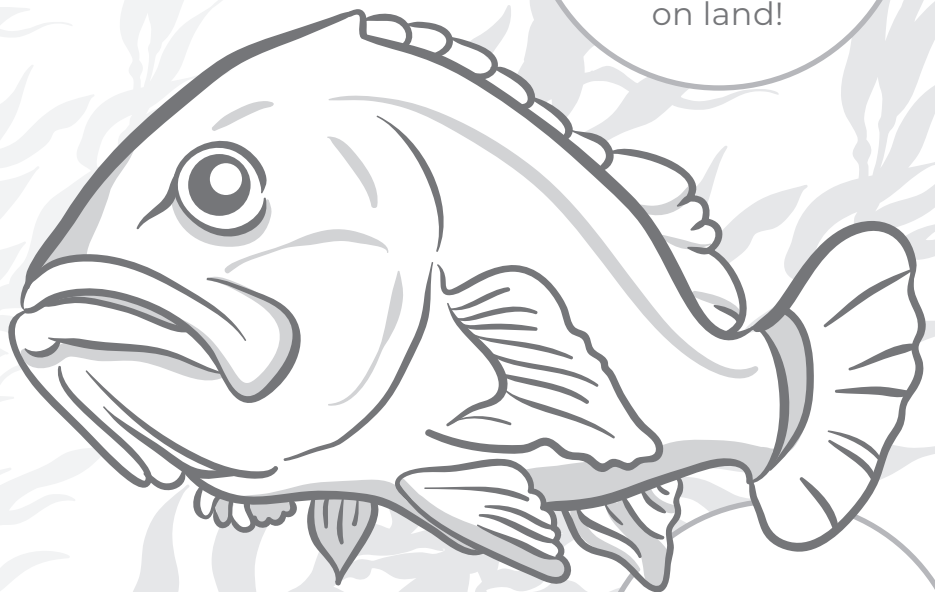
Start on the dot you made on the map at your home. Draw a line out into the ocean using your local waterways (like rivers).



PLEDGE TO HELP AN OCEAN ANIMAL

Our coastline includes a series of **marine-protected areas** that safeguard the species living nearby.

Ocean habitats are disappearing fast, some scientists say **four times faster** than areas on land!



Washington state alone has over **45 animal species** that are endangered or threatened.

Rockfish are often found in kelp forests and can live to be **over 100 years old!**

You can help rockfish by choosing **sustainable seafood** and **doing cleanups** to help their vulnerable habitats.

CREATE A KELP FOREST HABITAT AS A SAFE SPACE FOR OCEAN CREATURES

OCEAN HEROES
LIKE YOU ARE
PLEDGING
TO HELP OUR
ANIMALS!

Create your own kelp forest habitat below as a safe space for ocean creatures.

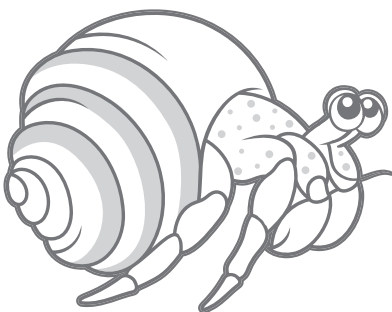
Remember what things animals need to survive and feel safe. Take action to help our ecosystem, and spread the word about all the amazing things you are doing!



I, _____, pledge to help an animal.

I will protect _____.

MAKE THESE



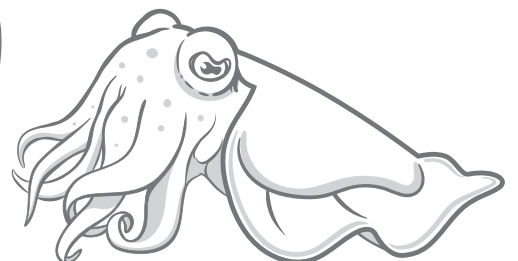
Maybe some mud?
Or some sand?

Tape in a dried leaf
you found?



PAGES MESSY

Oh! Maybe some
tracings of rocks
with crayons?

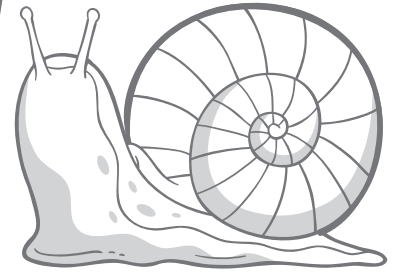


MAKE THESE

How many different
kinds of art supplies can
you use on one page?

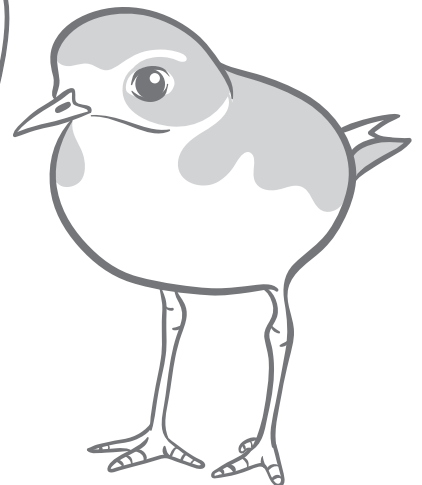


Add something for
every color of the
rainbow!



PAGES MESSY

Make a crayon
rubbing of something
you find outside!

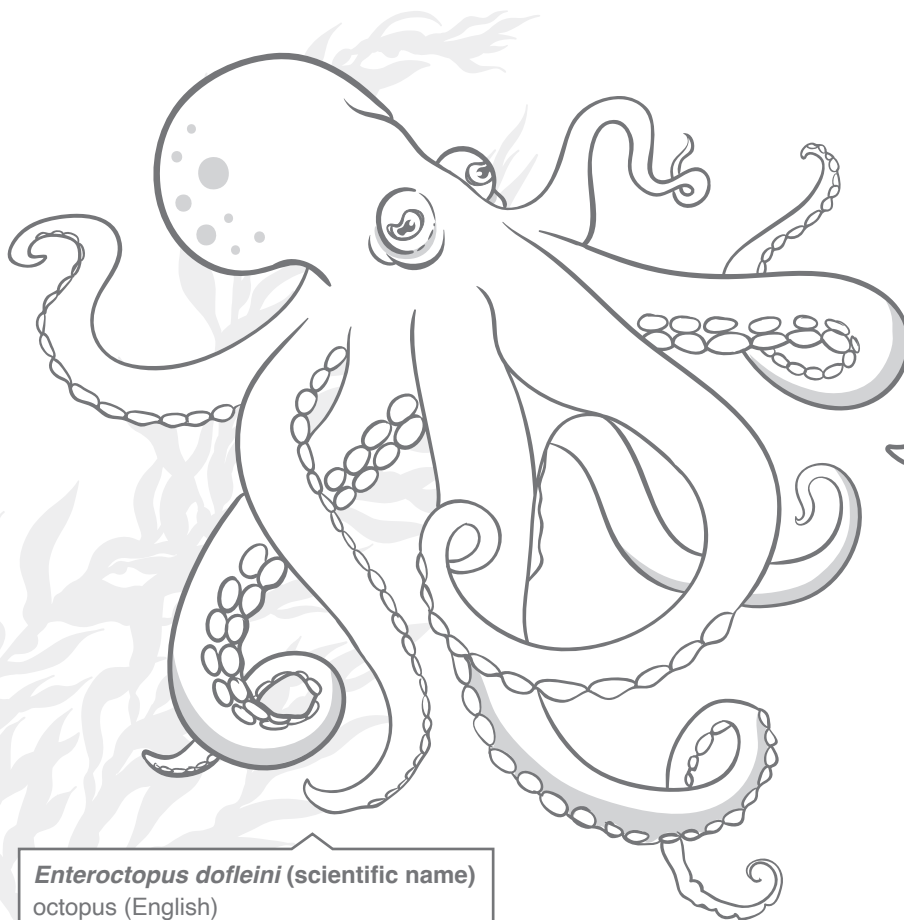


BE HELPFUL.
BE KIND.

WHAT ARE SOME THINGS YOU HAVE LEARNED FROM THIS JOURNAL?

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

WHO WILL YOU TELL ABOUT THIS?



Come visit my ocean friends and me at the Seattle Aquarium!

Enteroctopus dofleini (scientific name)
octopus (English)
sqibk™ (Lushootseed)
he'e (Hawaiian)



NOTES