HUNTING FOR A HOME FOR SHARKS

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Grade Level
4th Grade

Subject Area
General Science / Ecology

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Title: Hunting for a Home for Sharks

Focus: This lesson focuses on finding a suitable habitat for different shark species through basic facts about sharks, salinity, temperature, food availability, and human impacts/pollution. An emphasis is placed on graphing. Students will rotate through three interactive stations to explore how environmental factors such as salinity and temperature affect shark habitat suitability.

Grade Level: 4th Grade

Virginia Standards of Learning:

4.3 The student will investigate and understand that organisms, including humans, interact with one another and with the nonliving components in the ecosystem. Key ideas include

a) interrelationships exist in populations, communities, and ecosystems;

b) food webs show the flow of energy within an ecosystem;

c) changes in an organism's niche and habitat may occur at various stages in its life cycle; and

d) classification can be used to identify organisms.

Learning Objectives:

Students will be able to:

- create a bar chart showing the amounts of different prey items available in a habitat.
- interpret a graph showing the intersection of salinity and temperature.
- identify human-related threats posed to sharks.
- select the most suitable habitat for their shark and defend their choice.
- compare and contrast the habitat requirements of different shark species.

Total length of time required for the lesson:

Two 45-minute class periods

Suggestion: Use the first class period to go over the introduction and do 1 station and use the second class period to complete the rest of the stations.

Vocabulary:

Downside: A downside is the negative, or not so good, part of a choice we make.

Habitat: The place where an animal lives and finds everything it needs—like food, water, and shelter—to grow and survive.

Plankton: Very small plants and animals that drift or float in the water and are an important food source for many ocean creatures.

Predator: An animal that hunts and eats other animals for food.

Prey: Animals that are hunted and eaten by other animals.

Salinity: How much salt is in the water. Oceans have high salinity, and rivers have low salinity. Salinity is measured in parts per thousand.

Suitability: How well a habitat meets an animal's needs. A *suitable* habitat has the right food, temperature, and shelter for that animal to live safely.

Background Information:

Sharks are important in keeping oceans healthy. We have discovered over 500 species of sharks across every ocean on Earth. They can live in shallow waters near the coast, all the way to the deepest parts of the sea. Unlike most fish, sharks don't have bones. They are made of cartilage (the same thing that makes up your ears and nose) and this makes them very light and flexible. Sharks are top predators, but they can also be eaten by larger sharks and orcas or caught by human fishermen.

Each shark has a certain type of habitat it wants to live in. The parts of a habitat that we will focus on are salinity, temperature, food, and humans! A habitat is the area that gives an animal everything it needs to survive, like food and shelter. Sharks also want their habitat to have a comfortable temperature and salinity. Salinity means how salty the water is; ocean water is very salty at 35 PPT (parts per thousand), where fresh water is not salty at closer to 0 PPT. Sharks usually have a very specific salinity and temperature that they prefer to live in, but they can go outside of their range if there are really reasons for doing so, like better safety or more food! With climate change, sharks will need to adapt more to changes in temperature and salinity.

Most sharks will eat anything they can find but have a few favorite foods that they will swim large distances to get to. For example, Great White Sharks will swim all the way from Florida to Cape Cod every year to find seals to eat! Sharks also interact with humans in their habitats. We can harm sharks by catching them on fishing poles, polluting the water, or through climate change.

Most of the time, it is hard for sharks to find a habitat that has enough food, is the right temperature and salinity, and is safe from humans. They must make decisions that come with downsides. In this lesson, students will explore how sharks make these trade-offs through interactive activities that go through each part of a habitat.

Materials & Supplies:

Handouts and worksheets

1 Paper Plate (per class)

4 Paper cups (per class)

120 beads- of any size, with at least 5 different colors (per class)

Scissors (enough for 2 stations)

Glue (enough for 2 stations)

Colored pencils or crayons (multiple colors, enough for 2 stations)

Teacher Preparation:

To prepare Station 1:

- Print 1 copy of Salinity and Temperature Station Handout (Handout 2.1). This can be laminated and reused. It is the instructions and example for the station.
- Print 3 copies (one per group) of Salinity and Temperature Worksheet (Handout 2.2), one-sided. The students will use this worksheet as a group and cut out objects from it.
- This station needs colored pencils or crayons, scissors, and glue sticks.

To prepare Station 2:

- Print 1 copy of Diet Station Handout (Handout 3.1). This can be laminated and reused; it is the instructions and example for the station.
- Print 3 copies (1 per group) of Diet Station Worksheet (Handout 3.2). The students will use this worksheet as a group.
- This station needs colored pencils or crayons.
- Set up 4 cups and one paper plate. Label each cup as House 1-4. Place the following number of beads of specific colors in each cup:
  House 1: 2 blue, 8 green, 2 red, 16 orange, 2 purple
  House 2: 4 blue, 4 green, 14 red, 6 orange, 2 purple
  House 3: 2 blue, 7 green, 3 red, 5 orange, 13 purple
  House 4: 15 blue, 5 green, 5 red, 6 orange, 4 purple
  The colors can be changed but the proportions should be kept the same.

To prepare Station 3:

- Print one copy of Human Impact Station Handout (Handout 4.1). This can be laminated and reused. It is the instructions for the station.
- Print one copy of Human Impact Cut-Outs (Handout 4.2). Cut out each card. These cards can be laminated and reused. Put the cards into two stacks face-down. The first 6 cards are for Pile 1 and the last 4 cards are for Pile 2.

- This station needs scissors, glue, and colored pencils/crayons.
- Print 3 copies (one per group) of Human Impact Worksheet (Handout 4.3), one-sided. The students will use this worksheet as a group and cut out objects from it.
- **NOTE:** Students may have questions about what is "allowed" when the cards instruct them to color in certain squares. When a card says to color in any 2/3/4 squares, the squares do not have to be touching—students can pick *any* squares. If a card says to color a whole row or a whole column, it is okay to pick a row or column that contains squares that are already coloredin. Other than this, squares can only be colored in once. The goal is to have the students color as much of the grid as possible to show pollution, then to go back and paste smiley faces on the squares where they have helped to clean up the pollution.

Other preparation:

- Students should be split into 3 (or more) groups to be able to rotate through the stations. *Differentiation strategies can be used to meet your needs— you could prepare enough supplies at each station so that multiple groups can work at the same time if smaller group sizes/more total groups are desired.*

- Print one copy (one-sided) of Shark Information Handout (Handout 1.1). This document has one page for each of the 3 shark characters. Each student group should be assigned to one of the shark characters and given only the page that applies to that character.

- Print 3 copies (one per group) of Choosing a Home (Handout 5.1).

Procedure: Students will rotate through three interactive stations to explore how environmental factors such as salinity and temperature affect shark habitat suitability.

Introduction (15 mins)

- Ask the students if their family has ever moved to a new home with the help of a realtor (someone who helps people find the perfect home). Talk about what might make a home the right place for someone to live and ask students to think about where they live. Here are some suggested questions:
    - Do they live close to a grocery store or restaurants?
    - Do they live near the school or far away?
    - Is their house usually warm or cold or just right in temperature?
    - Do they live close to where their parents work?
- Talk about how these are important parts of their home and how every person has different characteristics of their home.
- Tell the students they are going to work as realtors to help some special ocean creatures find their perfect home. Transition to powerpoint.

Stations (15 minutes per station, 45 minutes total)

- Divide the class into three groups and assign each group a different shark (Will, Tara, or Billy). Distribute the matching shark profile from the *Shark Information Handout (1.1)* to each group.
- Allow 15 minutes for students to read about their shark and annotate the text.
- Afterward, direct each group to a different starting station. Rotate groups every 15 minutes until all groups have completed each station.

Salinity and Temperature Station:

- Students will use the Salinity and Temperature Worksheet (2.2) as a group. Students will read the instructions that are at the station (Salinity and Temperature Handout 2.1) and work through the questions as a group.
- Students cut out the shark and the habitat icons on the second page of the worksheet.
- Students review their shark's preferred salinity and temperature on their Shark Information Page (1.1).
- On the first page of the worksheet, students will color in the **column** that matches their shark's preferred salinity and color in the **row** that matches their shark's preferred temperature.
- At the square where the colored row and column meet, students glue their cut-out shark image.
- Using the chart provided in the station instructions, students will glue each cut-out habitat icon in the grid square that corresponds to its listed salinity and temperature.
- Students determine which habitat is the best home for their shark by identifying the habitat closest to where their shark is placed on the grid. This answer goes on their worksheet.

Diet Station:

- Students read the station instructions (Diet Station Handout 3.2).
- Beginning with the cup labeled Habitat 1, students dump out the beads onto the paper plate and count how many of each color there are.
- Using the color key in the instructions, which shows that each color of bead corresponds to a different type of food, students record their data by filling in the numbers on the worksheet,
- Students return all the beads to the cup and repeat the process for Houses 2-4.
- Students look at the data for all of the habitats and select the habitat that has the highest amount of their shark's favorite food.
- Students will draw a bar chart on Diet Worksheet 3.2 to show the number of each food type at the habitat they identified in the previous step.
- On their Diet Worksheet (3.2), students will write about which habitat is the best home for their shark by selecting the habitat that has the highest amount of their shark's preferred food.

Human Impacts Station:

- Students will cut out the 4 habitats on the 2nd page of the Human Impacts Worksheet (4.3).
- Students will glue each house in a square of their choosing in the grid on the 1st page of the worksheet.
- Students will take turns drawing a card from the face-down pile of ocean events (Human Impacts Cut-outs 4.2)
- Students will follow the directions on each card they draw to color in their grid to show where pollution is occurring in the ocean. They will use a different color for each card and repeat until all of the cards have been drawn.
- Students put the cards back in a face-down pile so that the station is reset for the next group.
- Students look at their colored-in grid and see how their 4 habitats have been impacted. Based on which houses end up in colored-in squares, students will decide which habitats are still safe homes for their sharks and write about it on their worksheet.

Wrap-up activity: 10 minutes

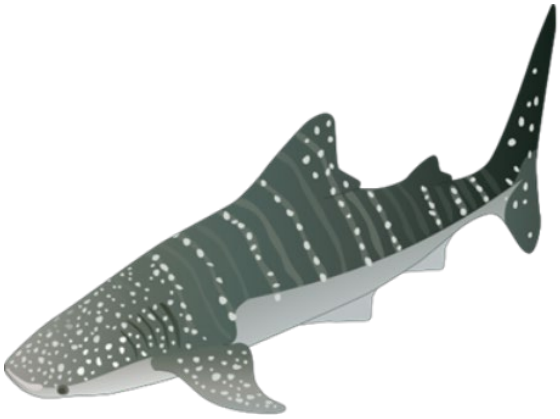
- Students stay with their groups and review the habitats they picked on their 3 station worksheets. Likely, they will have picked different habitats for their sharks at each station. They will talk as a group about all of the characteristics they have explored for these habitats and pick one final habitat to be the home for their shark. This shows the idea of trade-offs in habitat selection. They will record this in Choosing a Home Worksheet 5.1.
- *Optional: Each group presents their shark, their chosen home, and their explanation to the class.*

Handouts/Worksheets:

1.1 Shark Information Handout
2.1 Salinity and Temperature Station Handout
2.2 Salinity and Temperature Worksheet
2.3 Salinity and Temperature Answer Key
3.1 Diet Station Handout
3.2 Diet Worksheet
3.3 Diet Answer Key
4.1 Human Impacts Station Handout
4.2 Human Impacts Cut-Outs
4.3 Human Impacts Worksheet
4.4 Human Impacts Answer Key
5.1 Choosing a Home Worksheet
5.2 Choosing a Home Answer Key

1.1 Shark Information

Will Whale Shark



Hi there! My name is Will, and I am a Whale Shark. I am looking for a new house and would appreciate your help.

Whale sharks live in parts of the ocean where the water is salty. The salinity is usually between 25 and 30 parts per thousand (PPT). Whale sharks also like warm water. The water where they live is usually between 25 and 30 degrees Celsius.

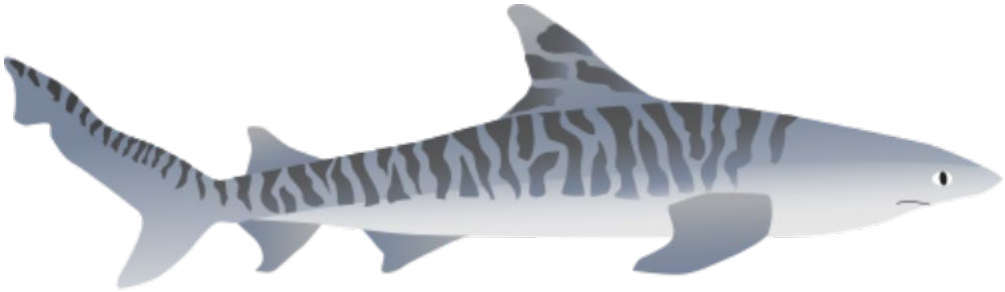
Unlike most sharks, whale sharks do not hunt other animals. They eat plankton, which are tiny plants and animals that float in the ocean. Plankton are so small that you usually need a microscope to see them. Whale sharks swim with their mouths open, and the plankton flows into their mouths so they can eat.

Because whale sharks do not hunt large prey, people often call them "gentle giants." They are also called giants because they are the largest fish in the world. Whale sharks can grow up to 60 feet long and weigh about 30,000 pounds.

Even though they are called whale sharks, they are not whales. Whales are mammals, but whale sharks are fish. Whale sharks can live up to 130 years and may swim hundreds of miles each year.

Whale sharks can also swim very deep in the ocean, sometimes as deep as 950 meters. Their large bodies help them stay warm in the cold, deep water.

Tara Tiger Shark



Hi there! My name is Tara and I am a tiger shark. I am looking for a new home and would appreciate your help!

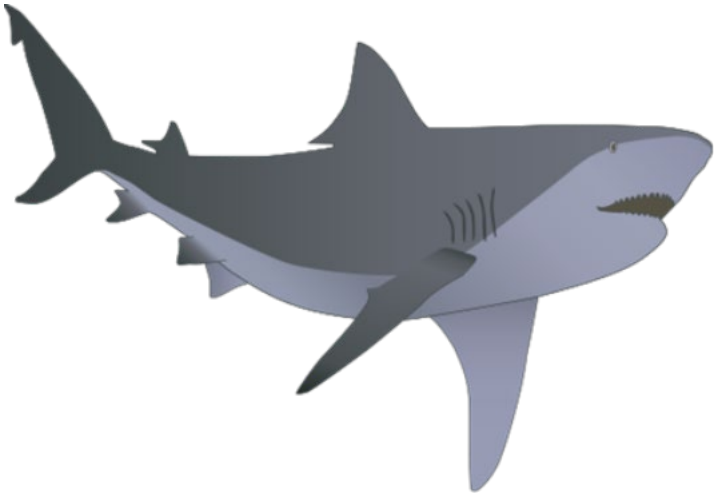
Tiger sharks have dark stripes on their bodies, which is why they are named after tigers. Tiger sharks live in warm ocean water where the temperature is between 20 and 25 degrees Celsius. These sharks are also found in water where the salinity, or salt level, is between 25 and 30 parts per thousand (PPT).

Tiger sharks are predators, which means they hunt for their food. One of the most common animals they eat is sea turtles. Tiger sharks have special teeth that work like a can opener. These teeth help them break open food with hard shells, like turtles.

Tiger sharks are a large species of shark. They can grow up to 20 feet long and weigh about 2,000 pounds. Tiger sharks can live for up to 50 years.

Tiger sharks like to hunt and move around at night. They can see very well in the dark. Sometimes they are called the "garbage cans of the sea" because they often accidentally eat trash. Tiger sharks can also swim deep in the ocean. Scientists have found them in water 350 meters deep.

Billy Bull Shark



Hi! I'm Billy and I am a bull shark. I am looking for a new home and would appreciate your help!

Bull sharks can live in many different ocean environments. They can even swim in freshwater rivers, which most sharks cannot do. Bull sharks prefer water with a salinity, or salt level, of 15 to 20 parts per thousand (PPT).

Bull sharks usually live in warm water, where the temperature is between 25 and 30 degrees Celsius. They are often found in shallow ocean water, but they can also swim far up rivers.

Bull sharks eat many different kinds of animals. One of their most common foods is stingrays, but they also eat fish and other sea animals. Bull sharks are predators, which means they hunt for their food.

Bull sharks are a medium-sized species of shark. They can grow up to 11 feet long and weigh about 500 pounds. Female bull sharks are usually bigger than male bull sharks.

Bull sharks can live for up to 30 years. Female bull sharks can have up to 12 babies at one time, which are called pups. Sometimes bull sharks even work together to hunt for food.

2.1 Salinity and Temperature Station

Salinity and temperature are important parts of your shark's habitat. **Salinity** is the amount of salt that is in a body of water and is measured in parts per thousand (PPT).

You will use the data table below to decide which habitats have the right temperature and salinity for your shark. Read your shark's information on the kind of habitat they want and pay attention to the salinity and temperature they are comfortable in.

Step 1: Cut out the habitats and **your** shark from the cut-out page

Step 2: Color the **row** ⟶ on your grid that is the right temperature for your shark in blue.

Step 3: Color the **column** ↑ on your grid that is the right salinity for your shark in red.

Step 4: Find the square where the right temperature and salinity meet. Draw an x on this box and then glue your shark cut-out in that square.

Step 5: Find where each habitat cutout should go on the grid using the table on the next page.

You can use your fingers to help find the right square:

- Place one finger on the **temperature row**.
- Place your other finger on the **salinity column**.
- Slowly slide your fingers across the grid until they **meet in one square**. Put an X on this square.
- Glue each habitat cutout in the square that matches the correct temperature and salinity.

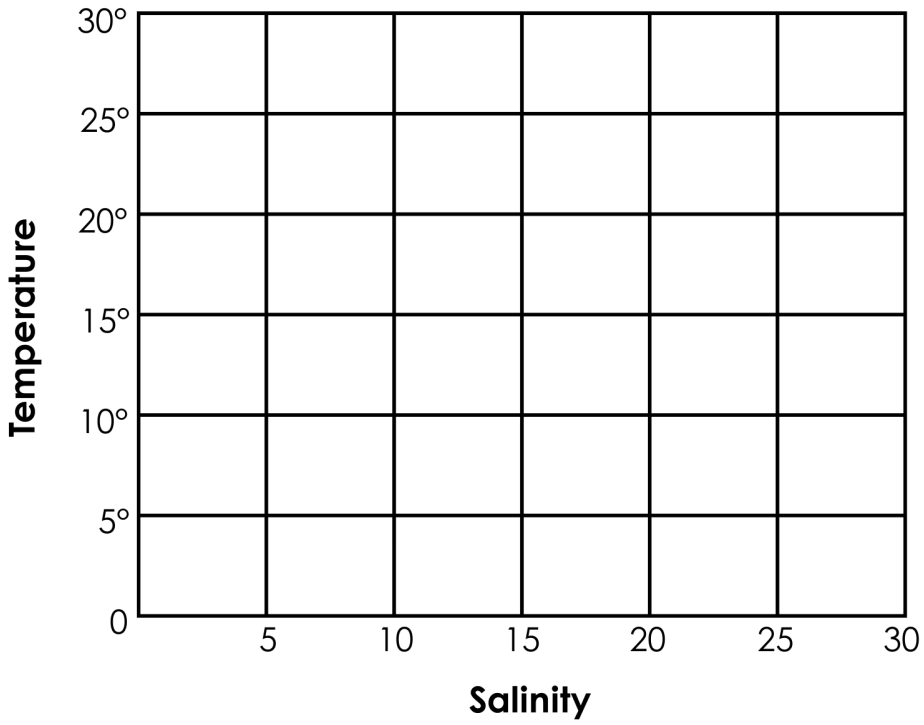
Step 6: Look at which habitats are closest to the salinity and temperature your shark would prefer. Decide which habitat should be your shark's new home.

DATA TABLE		
House	**Temperature**	**Salinity**
House 1 	25-30°C	20-25 PPT
House 2 	15-20°C	15-20 PPT
House 3 	25-30°C	10-15 PPT
House 4 	15-20°C	25-30 PPT

2.2 Salinity and Temperature Worksheet

Names _____

Salinity and Temperature

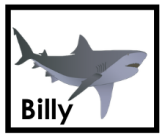


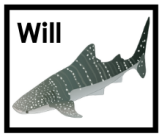
My shark should live in Habitat _____ because _____

_____

_____

Cut out each habitat and the shark that matches your assigned shark.





3.1 Diet Station

Let's see what's on the menu at each habitat! There is a cup for each habitat your shark is thinking about living in. Inside each cup are beads, and each color of bead represents a different type of food that is in that house. Read your shark's information on what kind of food they eat.

Here's what the color of the bead means:

Blue: Plankton **Green: Fish** **Red: Turtle** **Orange: Crabs** **Purple: Stingrays**

Part A:

Step 1: Pour out the beads from the cup that says Habitat 1 onto the paper plate.

Step 2: Count the number of beads of each color. Look at the key to see what food each color represents.

Step 3: Fill in the worksheet to show the number of each food type you found at House 1.

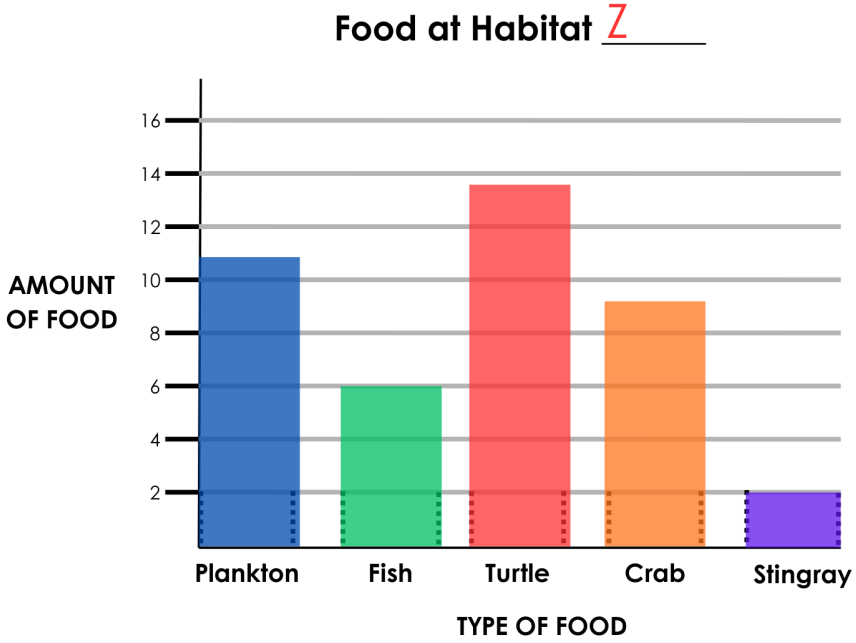
Step 4: Put the beads back in the right cup and repeat the steps with the other 3 cups.

Part B:

Step 5: Look back at your worksheet. Which habitat had the right food for your shark? Circle that house.

Step 6: Now, you will make a bar chart for the habitat you just picked. You will color in bars to show how many of each food type you found. Use the same colors in the chart that were used with the beads.

Here is an example of what your bar chart should look like.



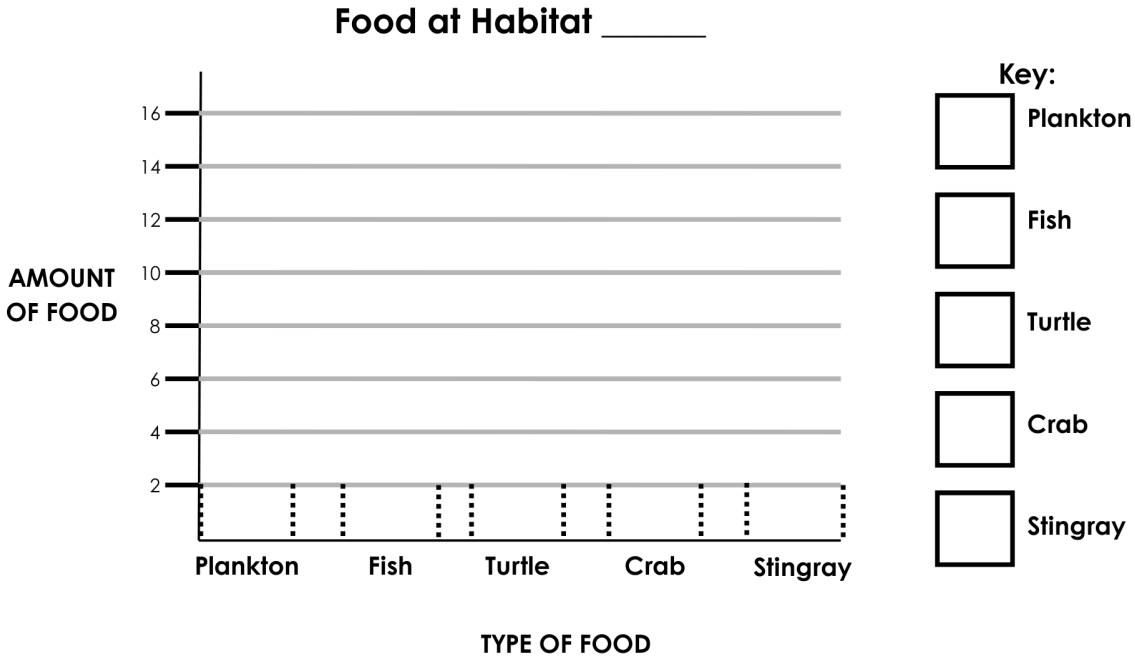
3.2 Diet Worksheet

Names _____

Part A: Fill out each blank with the number of each type of food you find at each habitat.

Habitat 1:	**Habitat 2:**	**Habitat 3:**	**Habitat 4:**
____Plankton	____Plankton	____Plankton	___Plankton
____Fish	____Fish	____Fish	___Fish
____Turtles	____Turtles	____Turtles	___Turtles
____Crabs	____Crabs	____Crabs	___Crabs
____Stingrays	____Stingrays	____Stingrays	___Stingrays

Part B: Circle the habitat that has the right kind of food for your shark. Fill out the bar graph for that house. Make sure to title your graph and color in the key.



4.1 Human Impacts Station

Sharks need healthy oceans to survive and grow. There are lots of activities done by humans that can make the ocean less clean or less healthy for sharks to live in. For example, humans can add trash and dangerous chemicals to the ocean, do construction in the water that adds noise to the environment, or accidentally catch sharks while fishing.

Let's see how human activities change the habitats where your shark is thinking about living.

Step 1: Cut out the 4 habitats and glue them each in a square of your choosing on the grid.

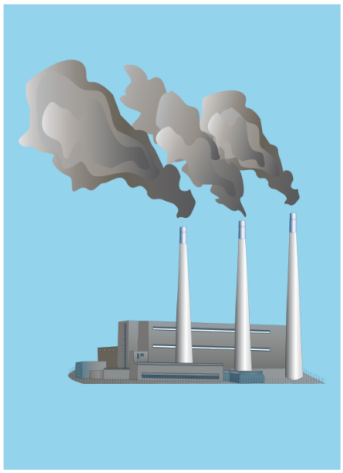
Step 2: Take turns drawing a card from Set 1 and following the directions on it to color in your grid in different colors. Fill out the color key to remind yourself what each color means.

Step 3: After using all of the cards in Set 1, take turns drawning a card from Set 2 and following the directions to paste pictures on your grid.

Step 4: See how the ocean neighborhood has changed and decide which habitats are still safe for your shark to live in!

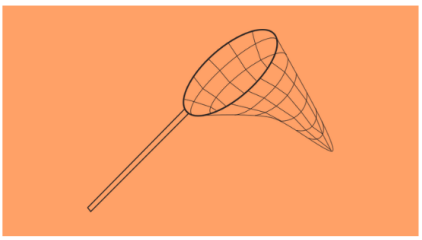
4.2 Human Impacts Cut-Outs

Pile 1:



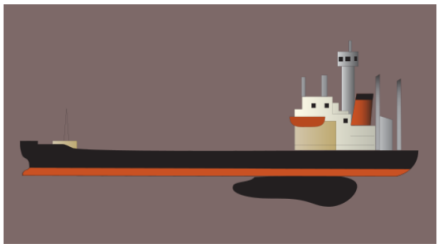
There is a factory near the beach that has a leak! Chemicals from the factory are now in the water and can make ocean animals sick. Color Color in one column of your ocean BLUE to show where the chemicals are. Your shark does not want to live here!

A big storm came through last night and blew a bunch of trash into the ocean. Now, there is plastic floating everywhere. Sharks can accidentally eat this plastic and become very sick. Color in 4 squares of your ocean RED to show where the plastic is. Your shark does not want to live here!



There is a lot of trash in this part of the ocean left behind by fishing boats, like old nets. Sharks can get stuck in these, which can prevent them from swimming or eating. Color in 3 squares of your grid ORANGE to show where the fishing trash is. Your shark does not want to live here!

The ocean is getting warmer because the climate of our planet is changing. Sharks are very picky about what temperature the water should be. Color in 3 squares of your grid YELLOW to show where the water is too warm. Your shark does not want to live here!



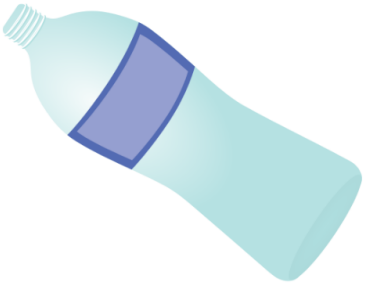
An oil spill has happened! This means that many harmful chemicals are now in the ocean that can make sharks and the fish they eat very, very sick. Color in one row of your grid BROWN to show where the oil is. Your shark does not want to live here!

It is a beautiful, sunny day, so many people decide to go fishing-- for sharks! Sharks can be injured when caught on fishing lines. Color in 5 squares your ocean GREEN to show where the fishing happens. Your shark does not want to live here!

Pile 2:

You and your friends organize a beach clean-up! Together, you pick up all of the garbage at your local beach. Paste smiley faces in one row on your grid. The water near the beach is now safe for sharks again!

Reduce, reuse, recycle! Your family starts to recycle all of the plastic bottles and containers you use instead of throwing them in the trash. This keeps more plastic from going into the ocean. Paste smiley faces in one column anywhere on your grid. This water is safe for sharks again!

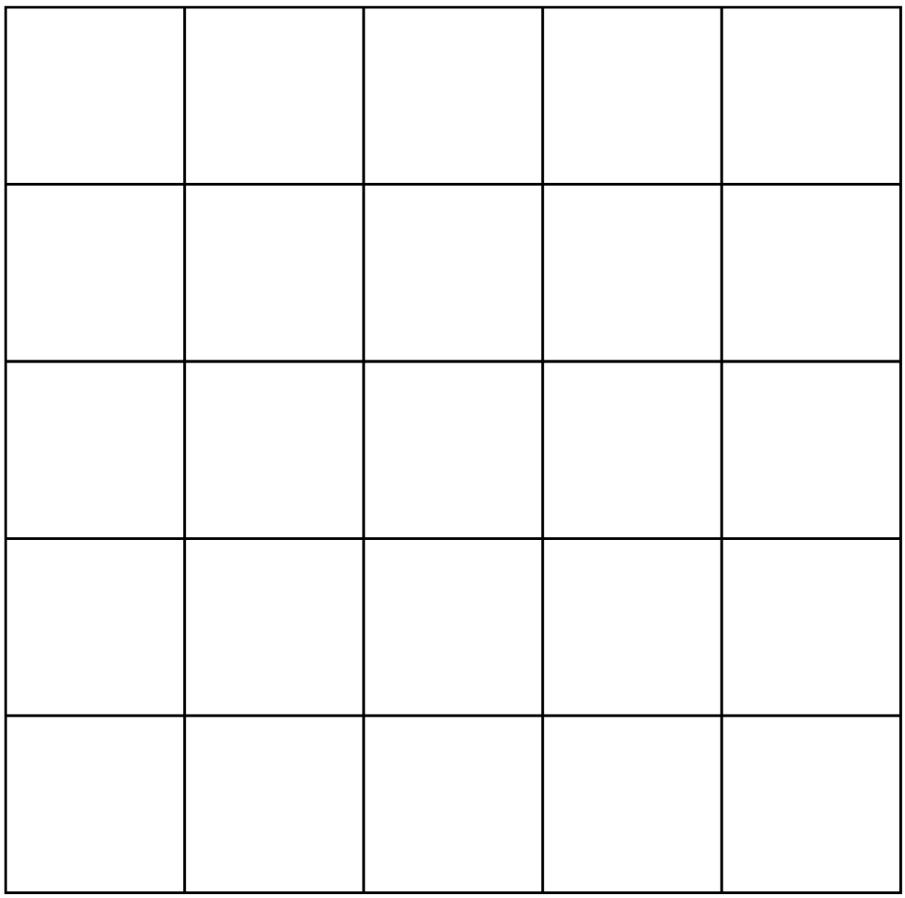


You decide to switch to reusable items at home instead of plastic-- reusable shopping bags, reusable water bottles, and more! This keeps more plastic out of the ocean. Paste one smiley face anywhere on your grid. This water is safe for sharks again!

When you go fishing, you remember to always clean up after yourself and take your gear back home with you instead of leaving it in the ocean. Paste one smiley face anywhere on your grid. This water is safe for sharks again!

4.3 Human Impacts Worksheet

Names _____



Color Key

Oil spill

Chemicals

Shark fishing

Too warm

Plastic from storm

Fishing net trash

My shark should not live in Habitat(s) _____ because

_____

_____

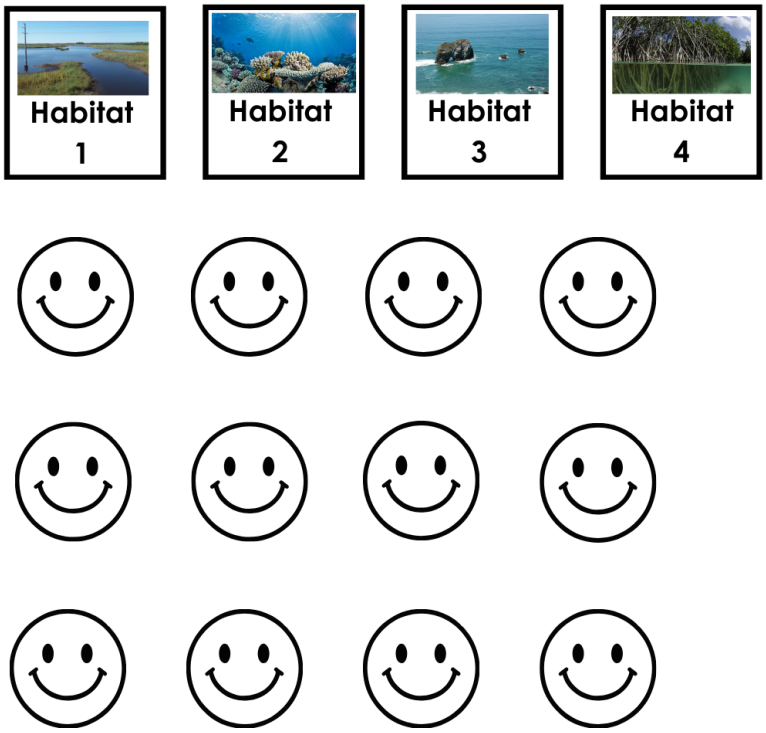
_____.

I can help keep the ocean safe for sharks by _____

_____

_____.

Cut out the pictures of the habitats and smiley faces.



5.1 Choosing a Habitat Worksheet

Names _____

Look at the worksheets you did at each station. There are 4 habitats your shark is thinking about making their home. Each habitat has different salinities, temperatures, food options, and pollution. Talk with your group about the characteristics of each habitat and pick one that you think is the most suitable for your shark to make their home. Use the word bank below when answering the questions.

Salinity **Temperature** **Prey** **Pollution** **Diet**

Habitat _____ is the most suitable home for my shark because

_____

_____

_____.

However, some downsides to this habitat are _____

_____

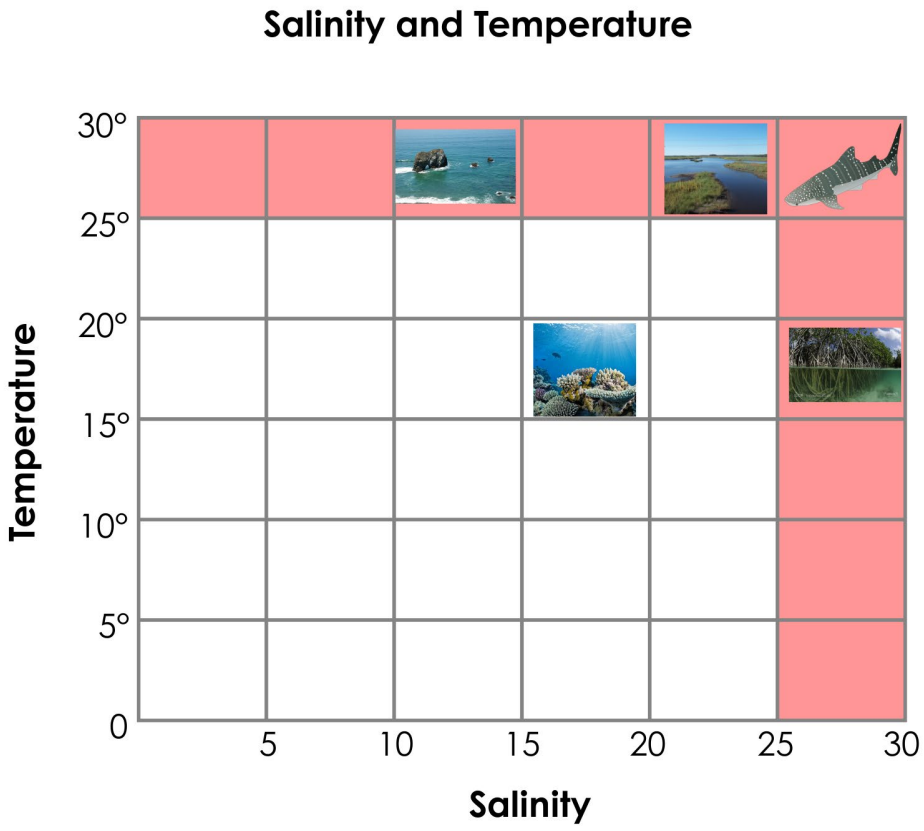
_____

_____.

Answer Keys:

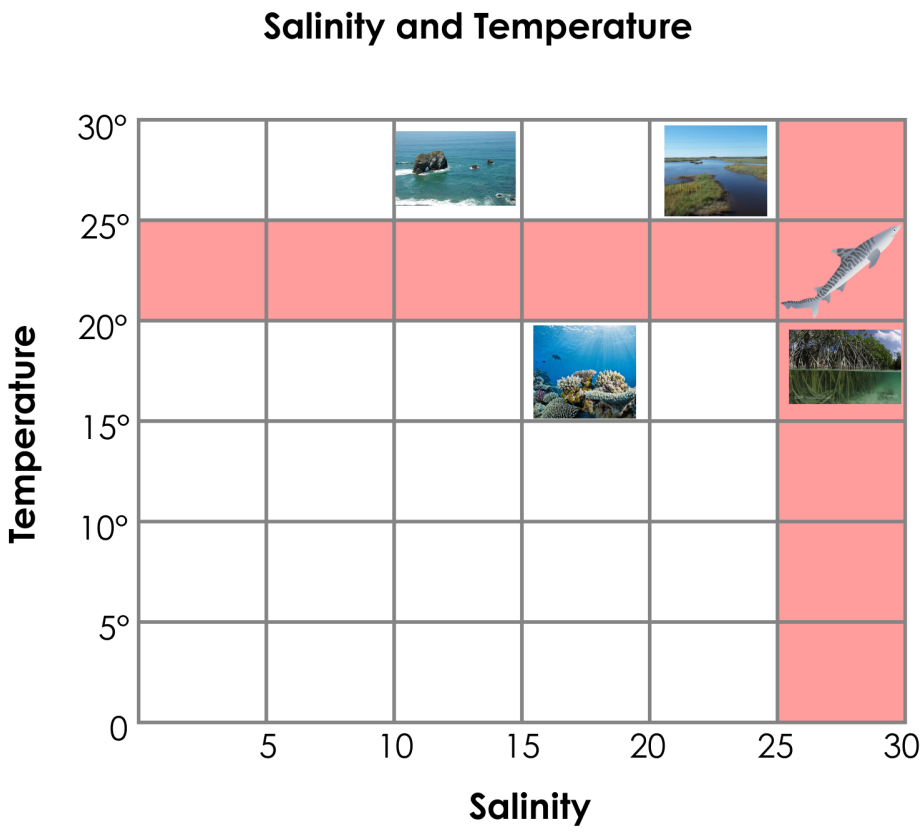
2.3 Salinity and Temperature Answer Key

Will Whale Shark group:



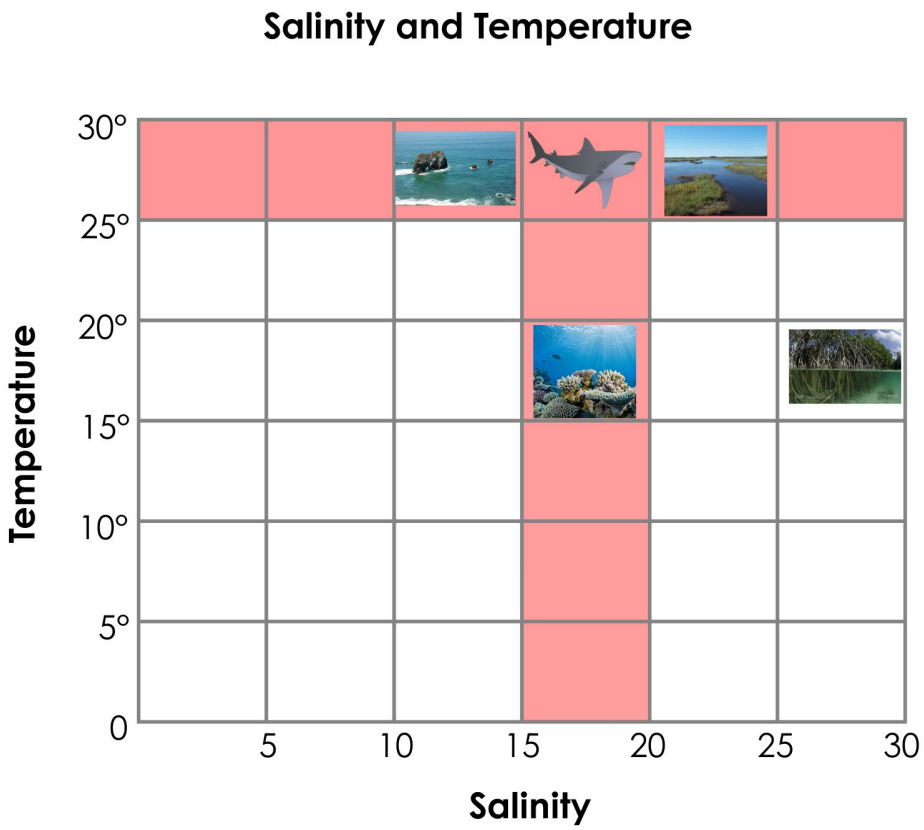
My shark should live in Habitat 1 because it is the closest habitat to the correct temperature and salinity. It has the correct temperature and a salinity close to what my shark is looking for.

Tara Tiger Shark group:



My shark should live in Habitat 4 because it is the closest habitat to the correct temperature and salinity. It has the correct salinity and a similar temperature to what my shark is looking for.

Billy Bull Shark group:



My shark should live in Habitat 1 OR 3 (students can pick one of the two or identify both) because this/these habitat(s) are the closest to the correct temperature and salinity. They have the correct temperature and a salinity that is close to what my shark is looking for.

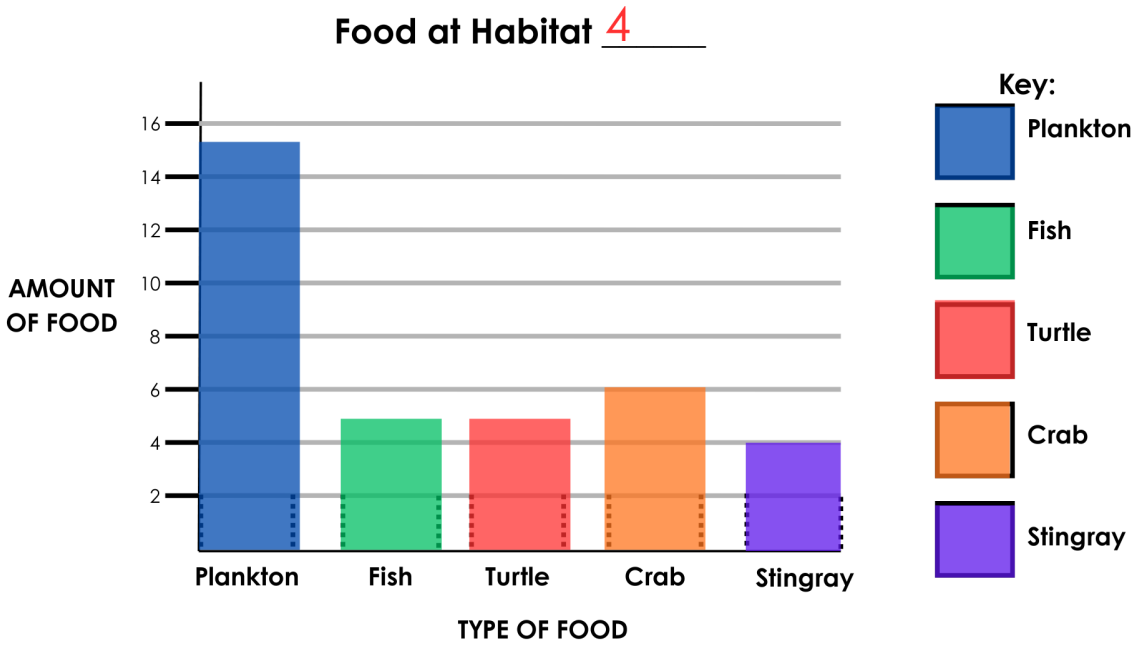
3.2 Diet Answer Key

Will Whale Shark Group

Part A: Fill out each blank with the number of each type of food you find at each habitat.

Habitat 1:	**Habitat 2:**	**Habitat 3:**	**Habitat 4:**
2 Plankton	4 Plankton	2 Plankton	15 Plankton
8 Fish	4 Fish	7 Fish	5 Fish
2 Turtles	14 Turtles	3 Turtles	5 Turtles
16 Crabs	6 Crabs	5 Crabs	6 Crabs
2 Stingrays	2 Stingrays	13 Stingrays	4 Stingrays

Part B: Circle the habitat that has the right kind of food for your shark. Fill out the bar graph for that habitat. Make sure to title your graph and color in the key.

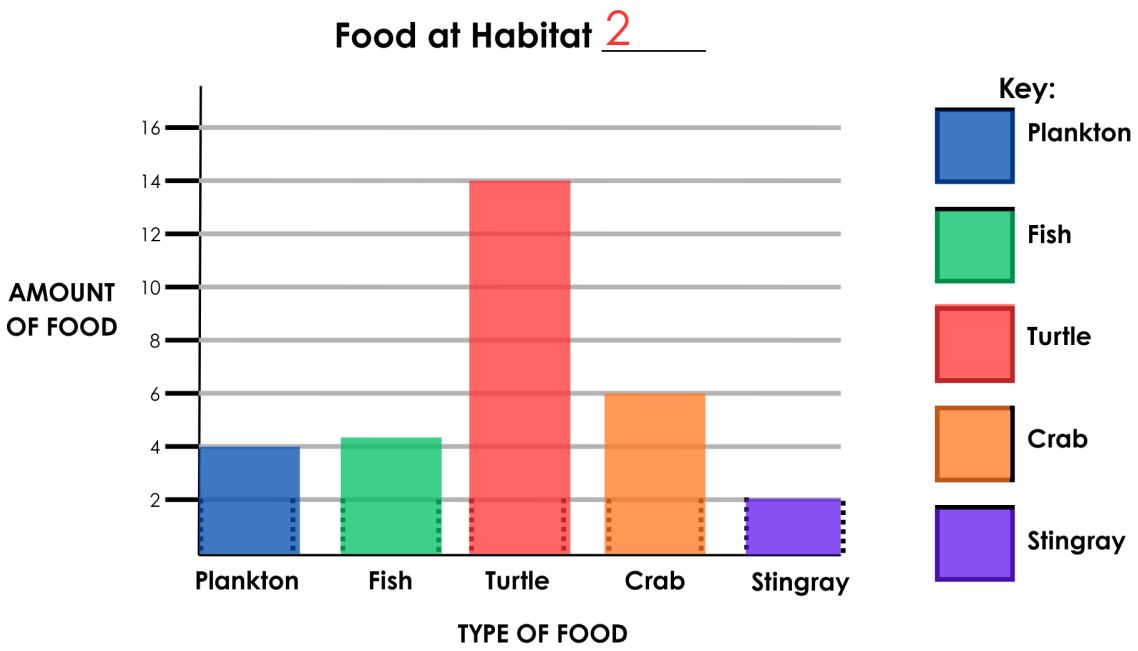


Tara Tiger Shark Group

Part A: Fill out each blank with the number of each type of food you find at each habitat.

Habitat 1:	**Habitat 2:**	**Habitat 3:**	**Habitat 4:**
2 Plankton	4 Plankton	2 Plankton	15 Plankton
8 Fish	4 Fish	7 Fish	5 Fish
2 Turtles	14 Turtles	3 Turtles	5 Turtles
16 Crabs	6 Crabs	5 Crabs	6 Crabs
2 Stingrays	2 Stingrays	13 Stingrays	4 Stingrays

Part B: Circle the habitat that has the right kind of food for your shark. Fill out the bar graph for that habitat. Make sure to title your graph and color in the key.

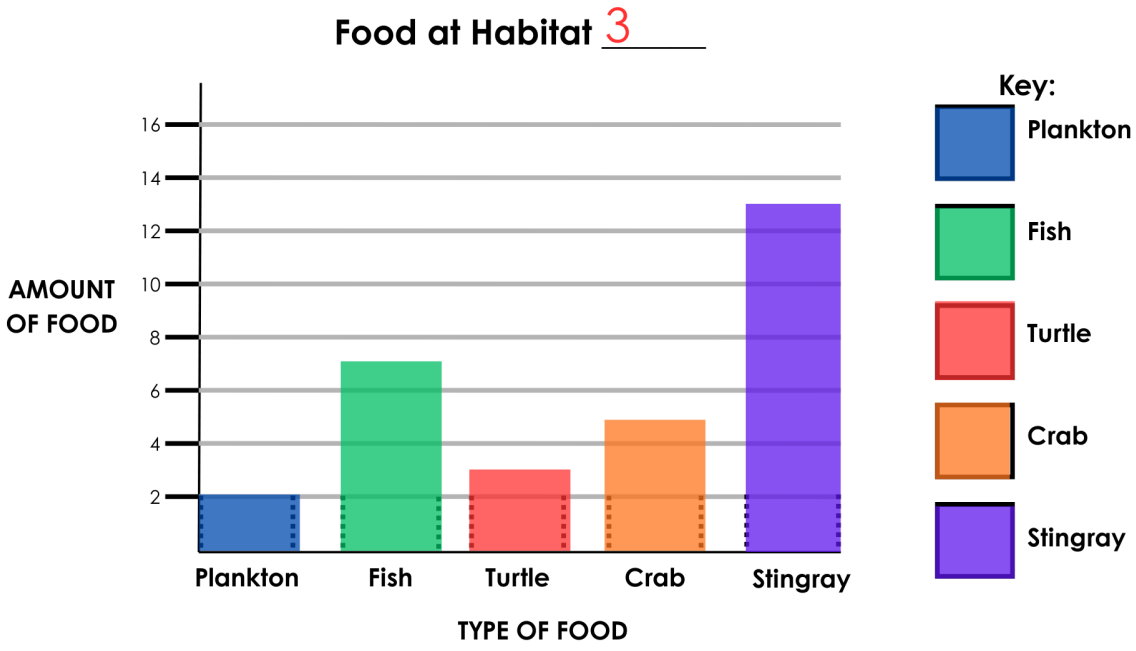


Billy Bull Shark Group

Part A: Fill out each blank with the number of each type of food you find at each habitat.

Habitat 1:	**Habitat 2:**	**Habitat 3:**	**Habitat 4:**
2 Plankton	4 Plankton	2 Plankton	15 Plankton
8 Fish	4 Fish	7 Fish	5 Fish
2 Turtles	14 Turtles	3 Turtles	5 Turtles
16 Crabs	6 Crabs	5 Crabs	6 Crabs
2 Stingrays	2 Stingrays	13 Stingrays	4 Stingrays

Part B: Circle the habitat that has the right kind of food for your shark. Fill out the bar graph for that habitat. Make sure to title your graph and color in the key.



4.4 Human Impacts Answer Key

Students have a lot of choices in how to color in their grid and how to place the habitats.

My shark should not live in Habitat(s) (any habitat is a possible answer) because Students will have variable answers to the question depending on how their grid is colored in. They should identify any habitats that are in squares that are colored in and talk about how the pollution in this square makes it less safe for their shark to live there.

I can help keep the ocean safe for sharks by using reusable items instead of plastic, cleaning up after myself when I go fishing, picking up trash off the beach, etc. These are the answers included on the cards but students can use creativity here and may come up with more examples.

5.2 Choosing a Home Answer Key

This question does not have a set answer. Students can pick any of the 4 habitats as long as their justification fits. Possible explanations include:

-This habitat had the least pollution

-This habitat had a matching temperature and salinity

-This habitat had the right amount of food for my shark.

A good answer should talk about the temperature, salinity, food, and pollution of the habitat.