

CULMINATING LESSON **Eat Or Be Eaten!**

Lesson at a Glance

Students play a game: “Eat or Be Eaten!” to understand different behaviors and functions some open ocean animals use to survive. They use different locomotor skills to move forward in the game. After the game, students reflect on the activity, and orally share facts and details to support questions regarding open ocean animal structures and functions. The lesson ends with students demonstrating their knowledge about the open ocean habitat and animals that live there by taking a unit test.

Lesson Duration

One 60-minute period

Essential Question(s)

How do the various structures and behaviors of Open Ocean animals enable them to survive?

Key Concepts

- Open Ocean animals have structures and behaviors that enable them to survive.

Instructional Objectives

- I can describe some of the animals that live in the open ocean habitat, and the special features they need to help them survive.
- I can describe the special features of open ocean animals and the function of those structures using supporting facts and details.
- I can move according to directions safely and in a mature manner.

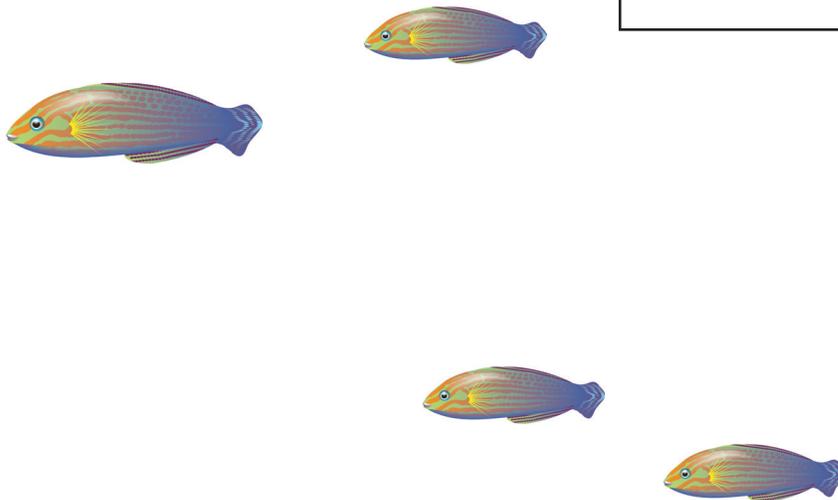
Related HCPS III Benchmark(s):

Science SC.3.4.1
Compare distinct structures of living things that help them to survive.

Science SC.3.5.1
Describe the relationship between structure and function in organisms.

Language Arts LA.3.7.1
Add concrete details and specific facts to support and develop ideas when speaking.

Physical Education PE.3-5.1.1
Use locomotor and non-locomotor skills in a mature (proper) form.



Assessment Tools

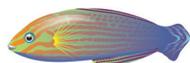
Benchmark Rubric:

Topic		Cells, Tissues, Organs, and Organ Systems	
Benchmark SC.3.4.1		Compare distinct structures of living things that help them to survive	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Group living things by the distinct structures that help them to survive and provide justification for the grouping	Compare distinct structures of living things that help them to survive	Describe a few ways in which distinct structures of living things help them to survive	Name distinct structures of living things that help them to survive
Topic		Unity and Diversity	
Benchmark SC.3.5.1		Describe the relationship between structure and function in organisms	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Classify the structures of organisms according to their function	Describe the relationship between structure and function in organisms	Identify the relationship between structure and function in an organism	Recall that structures in organisms are related to the functions they perform
Topic		Meaning	
Benchmark LA.3.7.1		Add concrete details and specific facts to support and develop ideas when speaking	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Add concrete details and specific facts to support and develop ideas when speaking, in a highly effective way	Add concrete details and specific facts to support and develop ideas when speaking	Add obvious or trivial details and facts that partially support and develop ideas when speaking	Add vague details and irrelevant facts that do not support and develop ideas when speaking
Topic		Fundamental Skills	
Benchmark PE.3-5.1.1		Use locomotor and non-locomotor skills in a mature (proper) form	
Rubric			
Advanced	Proficient	Partially Proficient	Novice
Consistently use locomotor and non-locomotor skills in a mature (proper) form	Usually use locomotor and non-locomotor skills in a mature (proper) form	Sometimes use locomotor and non-locomotor skills in a mature (proper) form	Rarely use locomotor and non-locomotor skills in a mature (proper) form

Assessment/Evidence Pieces

Lesson

- Student participation in the Eat or Be Eaten! Game
- Class discussion after Eat or Be Eaten! Game
- Unit Test



Materials Needed

Teacher	Class	Group	Student
<ul style="list-style-type: none"> • Dice • 50 feet of string • Hole punch • Optional: Laminator 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • None

Instructional Resources

Teacher Reading: *Creatures of the Open Ocean*

Teacher Reading: *Eat or Be Eaten! Game Rules and Movement Guide*

Teacher Reading: *Eat or Be Eaten! Animal Name Cards*

Assessment Tool: *Unit Test-Living in the Open Ocean Habitat*

Student Vocabulary Words

benthic zone: the ocean floor

bioluminescence: method by which a living organism produces light using chemicals inside its body.

camouflage: the blending of an animal with its surroundings.

carnivores: animals that eat other animals.

“darkness” zone: bottom most layer of the pelagic zone, where light does not reach.

habitat: a place in which organisms live.

herbivores: animals that eat plants.

mimic: an animal that copies the appearance and/or behavior of another animal.

oceanic zone: the deep water of the open sea beyond the continental shelf.

open ocean: deep ocean waters that are not close to land masses.

pelagic zone: the open ocean.

phytoplankton: microscopic plants that drift and float in the sea and are the basis of life in the ocean.

predators: animals that hunt and kill other animals.

prey: an animal that is hunted, killed, and eaten by another animal.

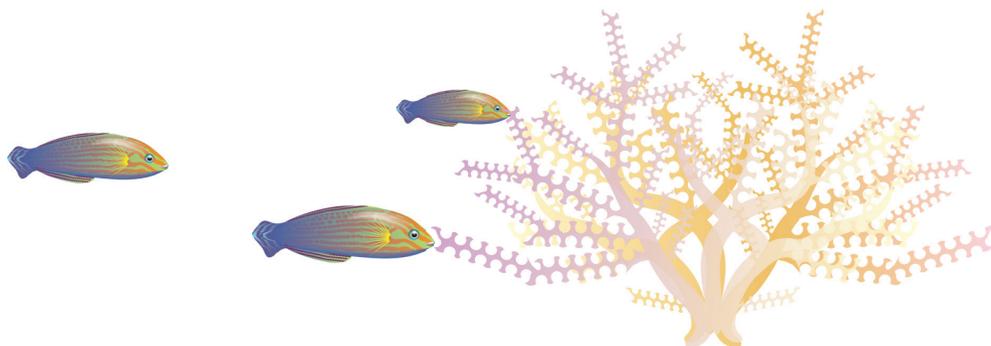
schools: an organized group of fish that move and turn together as one.

“sunlight” zone: the upper zone of the ocean with enough sunlight for plants to survive.

“twilight” zone: the poorly lit zone of the ocean below the photic zone.

venomous: an animal which possesses poison that can be delivered into the body of another animal by a bite or sting.

zooplankton: small, usually microscopic, organisms that drift in the ocean.



Lesson Plans

Lesson Preparation

- Review the Science Background provided in the Unit Overview and the Teacher Readings *Creatures of the Open Ocean*, *Eat or Be Eaten! Game Rules and Movement Guide*, *Eat or Be Eaten! Animal Name Cards*.
- Prepare ocean animal cards *Eat or Be Eaten! Animal Name Cards* for students to wear around their necks. You may want to laminate the cards for future use.
- Locate a set of dice and have the *Eat or Be Eaten! Game Rules and Movement Guide* ready for use.
- Mark off field or gym space with a cone to represent the starting line, and a cone to mark the finish line. Use as much space as available, but ascertain that students can hear your statements. Twenty yards is a good distance.
- Review and make copies of the *Unit Test*, one per student.

I. *Eat or Be Eaten! Game*

- Refer students back to their “*I Wonder*” questions on the chart paper *Wonderings About the Open Ocean* from Lesson 1. Do a short review of the information students have learned about open ocean habitats and the animals that live in them.
- Review the *Eat or Be Eaten! Game Rules* with the class before going outside. Post the rules for visual learners as you go over them. Pass out the animal cards, and have students wear them around their necks. Walk to the location where they will play the game.
- Before beginning the game, review the gestures that must be used for the different animals, and allow students to practice them briefly.
- Play the game by rolling the dice and reading the appropriate number (2–12) on the Movement Guide.
- After you have several game *winners*, invite students to sit in a community circle, and facilitate a discussion on the following reflection questions:
 - Which open ocean animal would you rather be? Why?
 - Can you group some of these animals together based on their structures? How?
 - Why did the (*name of the winning animal*) get across the finish line first? What were some of the features it has in order to live in the open ocean?
 - What may be some other threats to the open ocean food web?
 - Which ocean layer zone would you rather live in? Why?
 - What might you look for if you took a submarine down to the ocean floor?

II. Unit Assessment

- Review briefly with the students what the various zones of the open ocean are, who lives there, and how the animals protect themselves.
- Have students take the Unit Test.

Extended Activities

Have students work in groups of 4–5 to develop an adaptation of this game, using other ocean animals they have learned about. Have them teach the game to the class.

CULMINATING LESSON **Teacher Reading**

Creatures of the Open Ocean

The open ocean is vast, and large areas are devoid of life. Therefore, animals higher up the food chain need to travel long distances to find food in order to survive.

Some fish predators are large, powerful, and fast, allowing them to cross the oceans in search of food. Sail fish are the fastest fish in the ocean, reaching speeds of up to 75mph (120 km/h). Blue fin tuna are almost as fast, and can accelerate faster than a Porsche sports car.

Many whale species migrate thousands of kilometers each year, between their warm breeding grounds and their rich Arctic and Antarctic feeding grounds. Marine turtles make long voyages across the oceans, between their nesting beaches and feeding grounds.

Some shelter can also be found at the ocean surface. Driftwood, pieces of kelp, and other natural debris floating on the water provide valuable shelter where small fish can hide from predators. Man-made debris can similarly be used.

There are some land features in the open ocean: underwater mountains known as seamounts. Formed by volcanoes or sinking islands, seamounts rise steeply from the ocean floor. Deep-water currents are forced up their sides, bringing nutrient-rich water to the surface around shallow seamounts. This allows plankton to thrive, thus supporting complex food chains, and making these areas islands of life in the open ocean. Some fish species periodically gather at seamounts to feed and spawn, while marine turtles and whales stop at shallow seamounts for food and shelter during their long migrations.

Animals living in the disphotic zone have various adaptations for living in the dimly lit waters. Some species have enormous eyes to find food. To avoid being eaten, many disphotic zone animals are transparent, including squid and crustaceans. Some fish have silvery reflective scales to help make them *invisible*.

Life in the deep-sea is scarce, so predators need large teeth and mouths to cope with whatever crosses their path. The fanged-tooth fish, for example, has the largest teeth of all marine animals in relation to its body size, while gulpers can swallow preys at least as large as themselves.



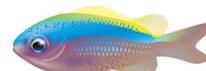
CULMINATING LESSON **Teacher Reading**

Eat or Be Eaten! Game Rules and Movement Guide

A Game of Ocean Survival

Game Rules

1. Provide each student with an ocean animal name card.
2. Tell students that you will roll the dice to give commands on which animal gets to move, and how it will move forward.
3. All movements will be related to their species structure and function in the open ocean. Instruct students on the gestures that must be used for each animal during the game, and allow them to practice:
 - a. Tiger Shark: Hand on top of head to represent dorsal fin.
 - b. Yellow Fin Tuna: Hands to side close to form a torpedo-shaped body.
 - c. Humpback Whale: Arms out to side to represent giant pectoral fins.
 - d. Mackerel: Four people link arms to act as a school of fish.
 - e. Green Sea Turtle: Hands on hips with elbows back to represent shell.
 - f. Squid: Cup hands in circles around each eye to represent large eyes for life in the disphotic zone.
4. The object of the game is to see which open ocean animal will be the first to cross the finish line.

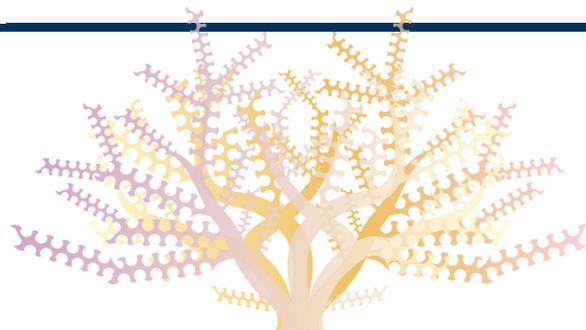
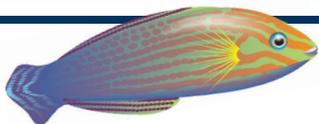


EAT OR BE EATEN!

A Game of Ocean Survival

Movement Guide

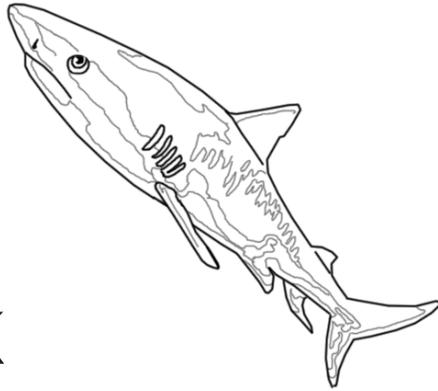
- 1) The Ocean temperature is getting too warm for you, all of the food you prey on is gone, and all of your nesting grounds have disappeared. The food web is destroyed. (ALL animals start over.)
- 2) You are a fast moving Tiger Shark, and just caught a yellow fin tuna for lunch. Swim forward five giant steps. (One yellow fin tuna returns to the starting line.)
- 3) You are a hungry Tiger Shark and just bit into a huge fish, UH-OH it was a fisherman's bait on a long liner fishing boat. (Go back to the starting line.)
- 4) You are a Humpback Whale migrating from Alaska, you just finished eating tons of krill, and have lots of energy for your trip to Hawai'i. (Use your enormous fluke fin and swim forward four giant steps.)
- 5) You are a Humpback Whale off the coast of Maui. A careless boat operator is going too fast and does not see you. The propeller of the boat causes a fatal injury to you. (One humpback whale returns to the starting line.)
- 6) You are a school of Mackerel just escaping the jaws of a tiger shark. (Quickly move five steps forward in a school.)
- 7) You are a school of mackerel swimming together. A yellow fin tuna manages to pluck two of you from the outside for dinner. (The two end mackerels return to the starting line.)
- 8) You are a Yellow Fin Tuna swimming in the open ocean when you spot a squid- QUICK-as a silver flash you ate him! (One squid moves back to the starting line; the Yellow Fin Tuna moves three steps forward.)
- 9) You are a Green Sea Turtle swimming to another island to feed. You get caught in an illegal fisherman's net and drown, or get eaten by a tiger shark. (Go back to the starting line; one Sea Turtle returns to the starting line.)
- 10) You are a Squid living in the disphotic zone and just managed to escape being eaten by a monk seal by squirting ink to confuse your predator. (Jet five steps forward.)
- 11) You are a Squid in the disphotic zone, and a hungry dolphin ate you while hunting at night. (Go back to the starting line.)



EAT OR BE EATEN! Animal Name Cards

Make multiple copies of each card as suggested below each card. Laminate (optional) and punch two holes in either end of each card. Cut yarn and attach to holes to hang the cards around students' necks.

**TIGER
SHARK**



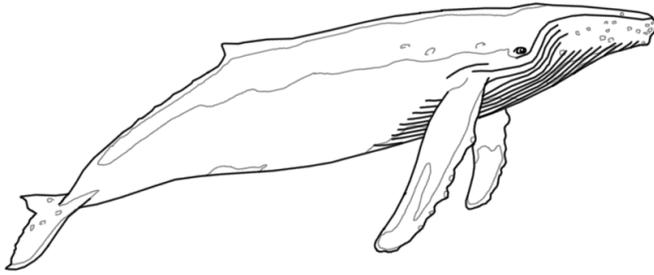
(2-3 TIGER SHARKS)

**YELLOW
FIN TUNA**



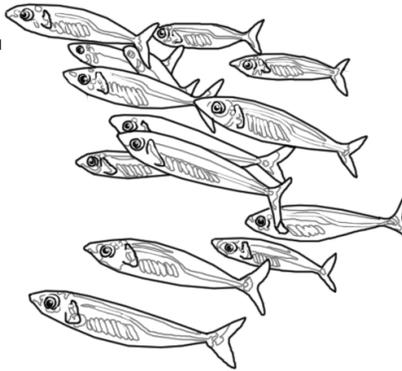
(4-5 TUNA)

HUMPBACK WHALE

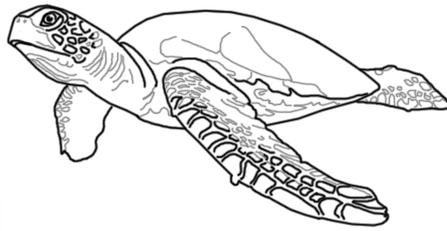


(2 HUMPBACK WHALES)

SCHOOL OF MACKEREL



(8 MACKEREL = 2 SCHOOLS)



GREEN SEA TURTLE

(3 TURTLES)

SQUID



(4 SQUID)

CULMINATING LESSON

Name: _____ Date: _____

Unit Test

Living in the Open Ocean Habitat

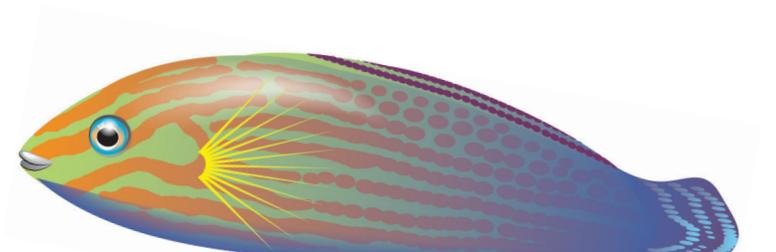
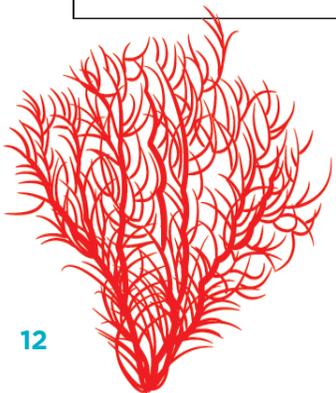


1. Name and describe the three different zones of the open ocean.
2. Choose an animal that lives in the open ocean. Describe the shape and features of this animal. You may want to draw a picture of the animal.
3. Name two open ocean animals; list their special features, and how those features help those two animals to survive.
4. Name the open ocean zone where the most animals or organisms live. Why is this zone home to so many animals or organisms?



5. Fill in how the structure or special feature of the animal helps it to survive.

Structure	Function
Shark – has sharp teeth	
Sea Turtle – has a hard shell	
Lantern Fish – has its own lights	
Tuna – has a smooth bullet-shaped body	
Dolphin – has a strong tail and fins	
Humpback Whale – has bristles for teeth	
Man-o-War – has a poisonous sting	



CULMINATING LESSON **Teacher Answer Key**

Unit Test

Living in the Open Ocean Habitat

1. Name and describe the three different zones of the open ocean.

Answer: Sunlight Zone (Photic)- top layer of the ocean. Light allows for plants to go through photosynthesis.

Twilight Zone (Disphotic)- middle layer of water. Very little light so no plants grow here.

Darkness Zone (Aphotic)-ocean floor. No light. 90% of the ocean is in this zone.

2. Choose an animal that lives in the open ocean. Describe the shape and features of this animal. You may want to draw a picture of the animal.

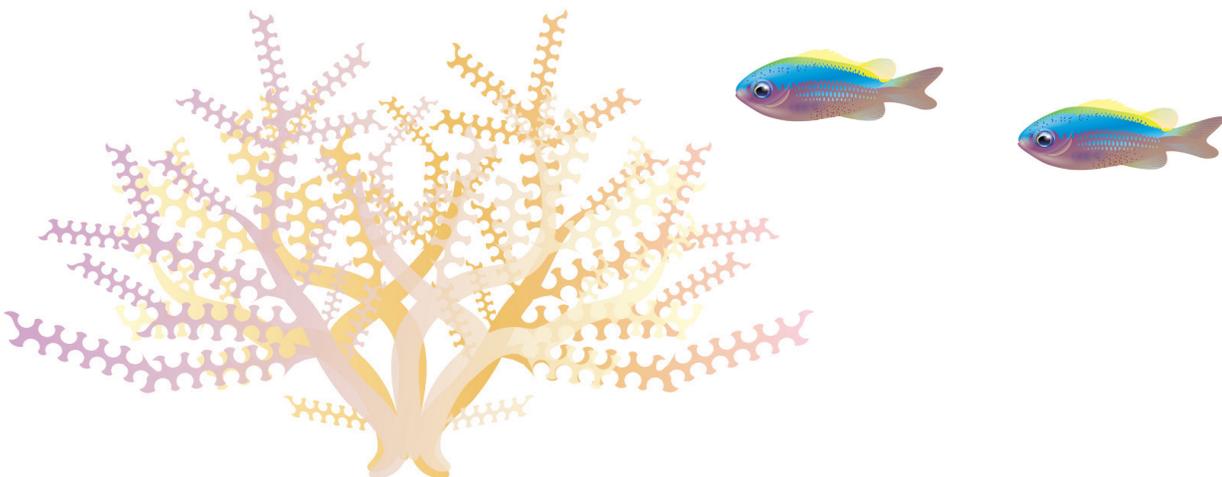
Answers may vary here. Refer to the open ocean animal flashcards to verify the animal, its shape and/or features.

3. Name two open ocean animals; list their special features, and how those features help those two animals to survive.

Answers may vary. Refer to open ocean animal flashcards to verify the animal, the adaptation and how it helps the animal to survive.

4. Name the open ocean zone where the most animals or organisms live. Why is this zone home to so many animals or organisms?

Answer: Sunlight Zone is home to the most organisms or animals. This zone contains the most life because it gets the most light out of the three zones.



5. Fill in how the structure or special feature of the animal helps it to survive.

Structure	Function
Shark – has sharp teeth	To eat prey
Sea Turtle – has a hard shell	For protection
Lantern Fish – has its own lights	To attract prey
Tuna – has a smooth bullet-shaped body	To swim quickly
Dolphin – has a strong tail and fins	For fast swimming and quick turning
Humpback Whale – has bristles for teeth	To capture and eat krill
Man-o-War – has a poisonous sting	For protection

