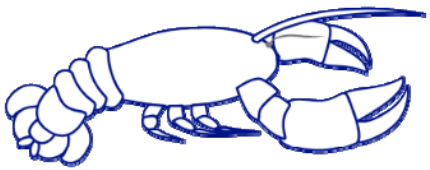
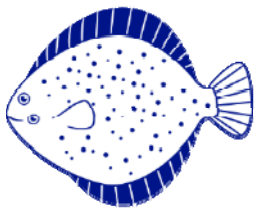
SoundWaters Distance Learning

Animal Adaptations

Organisms have specific traits that provide advantages for survival in their environment. Observe specific examples from Long Island Sound and discover how habitat affects traits such as feeding, movement, and defense.

Topics

- Introduction to animal adaptations
- Camouflage
- Aquatic Locomotion
- Animal senses
- Food web

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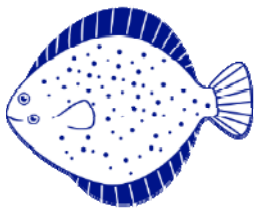
Lesson 1: Introduction to Animal Adaptations

In this video you will learn all about adaptations. This video is the kickoff to learning about animal adaptations.

https://bit.ly/aaintro68



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INTRODUCTION TO ADAPTATIONS VIDEO REFLECTION

After watching the video, tell me what you thought about……

I really enjoyed……	I did not understand…..	I want to learn more about….
Write your answer here	Write your answer here	Write your answer here

STUDENT'S NAME: Write here

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Introduction to Animal Adaptations

Vocabulary Words

Adaptation: a change or the process of change by which an organism or species becomes better suited to its environment.

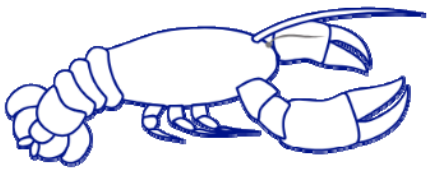
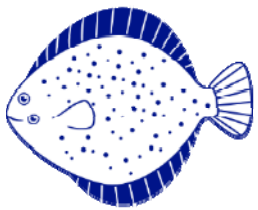
Structural Adaptation: physical features of an organism such as human thumbs, and horseshoe crab tails.

Behavioral Adaptation: these are the things that animals do in order to survive such as a bear hibernating, or birds migrating before winter.

Physiological Adaptation: are internal systematic responses to external stimuli in order to help an organism maintain homeostasis.

Natural Selection: the process whereby organisms better adapted to their environment tend to survive and produce more offspring. The theory of its action was first fully expounded by Charles Darwin and is now believed to be the main process that brings about evolution.

Practice the vocabulary words on quizlet: https://quizlet.com/_89wm3q?x=1jqt&i=2s8evl

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Animal Adaptation Card

To insert a picture, click “Insert” and then choose the image.

Picture of the Animal

Name of Animal:

Write here

Name a behavioral adaptation:

Write here

Name a physical adaptation:

Write here

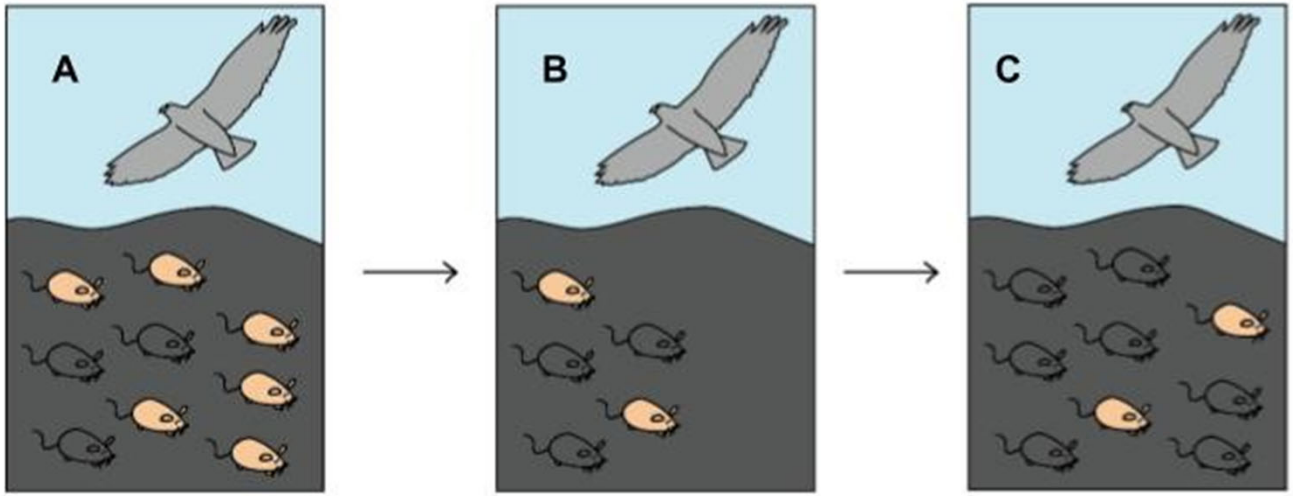
Your Name:

Write here

NATURAL SELECTION

What is natural selection? Give an example (not a giraffe) and explain.

Write here



The three pictures above demonstrate natural selection. Explain what is happening in pictures A, B, and C and how they relate to natural selection.

Write here

Name: Write here _____

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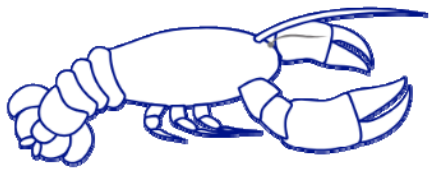
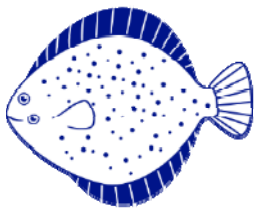
Test Your Knowledge - Animal Adaptations Quiz

The peppered moth population shifted to favor moths that were darker due to soot being on the trees this is an example of…

A. How the environment affects natural selection
B. Physiological adaption
C. Extinction
D. Moths changing colors

Take the quiz online:
https://forms.gle/CtMVKdK9v1x6Skim6





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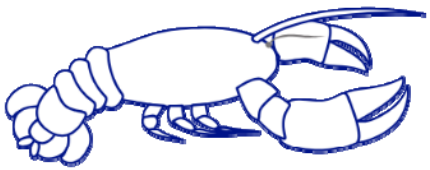
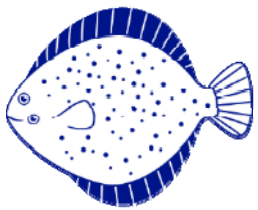
Test Your Knowledge - Animal Adaptations Quiz

A horseshoe crab tail is an example of a…

A. Behavioral adaptation
B. Physiological adaption
C. Structural adaptation
D. Stinger

Take the quiz online:
https://forms.gle/CtMVKdK9v1x6Skim6

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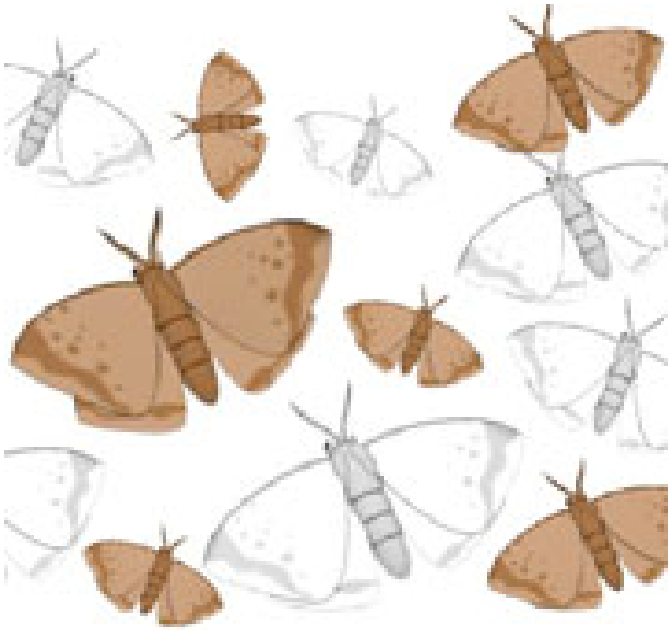
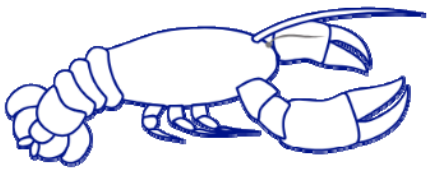
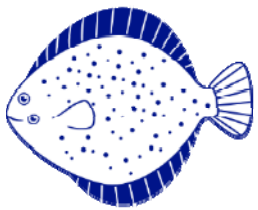
Test Your Knowledge - Animal Adaptations Quiz



Variation in a population is important because…

A. Not everything can be the same
B. Species can adapt and survive environmental change
C. There will be more fossils
D. It causes extinction

Take the quiz online:
https://forms.gle/CtMVKdK9v1x6Skim6

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Test Your Knowledge – Animal Adaptations Quiz

True or False: Adaptation occurs over a small period of time.

A. True
B. False

Take the quiz online:
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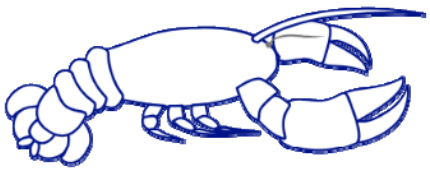
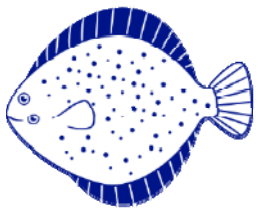

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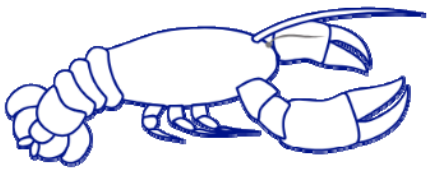
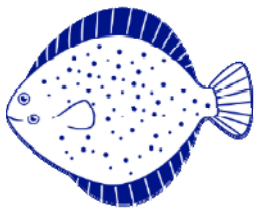
Test Your Knowledge - Animal Adaptations Quiz

Whales storing additional oxygen in their muscle tissue is an example of a…

A. Structural adaptation
B. Behavioral adaptation
C. Systematic adaptation
D. Physiological adaption

Take the quiz online:
https://forms.gle/CtMVKdK9v1x6Skim6

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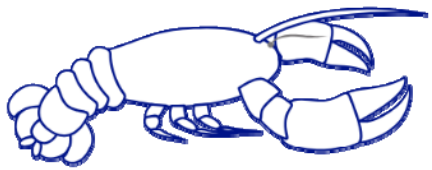
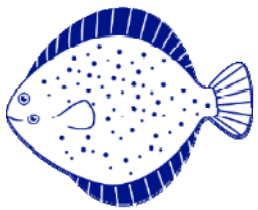
Test Your Knowledge - Animal Adaptations Quiz

If an environment changes too rapidly and there is not a lot of diversity in a population they may become…

A. Mutated
B. Evolved
C. Extinct
D. Adapted

Take the quiz online:
https://forms.gle/CtMVKdK9v1x6Skim6

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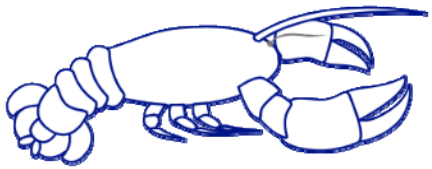
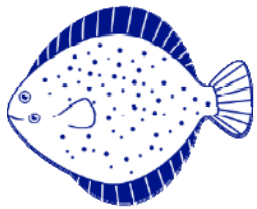
Learn More - Animal Adaptations

Videos to Watch:

Bill Nye: The № 1 Greatest Discovery in Science so far - Darwin's Natural Selection
https://youtu.be/uRM8AFR6lOY

Nat Geo Wild: Mantis Shrimp Packs a Punch | Predator in Paradise
https://youtu.be/E0Li1k5hGBE

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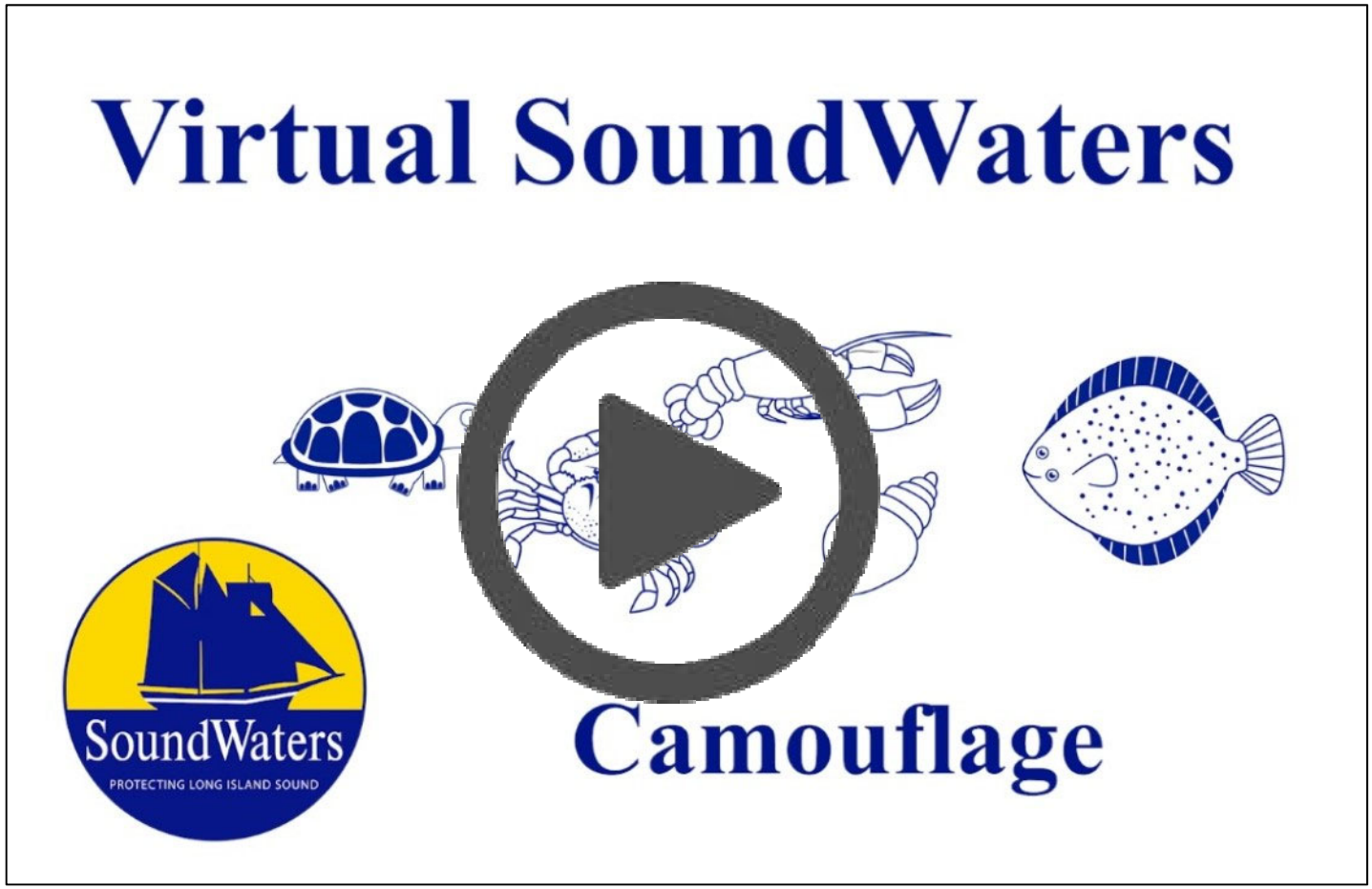
Lesson 2: Camouflage

In this video you will learn all about camouflage and why it is an important defensive adaptation.



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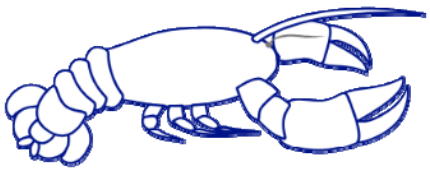
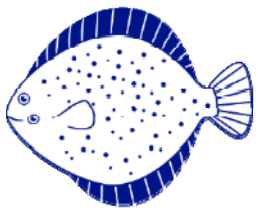

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CAMOUFLAGE VIDEO REFLECTION

After watching the video, tell me what you thought about…...

I really enjoyed……	I did not understand…..	I want to learn more about….
Write your answer here	Write your answer here	Write your answer here

STUDENT'S NAME: Write here

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Camouflage - Vocabulary Words

Camouflage: a defense or tactic that organisms use to disguise their appearance. Animals typically use camouflage to blend in with their surroundings and mask their location, identity, and movement. Also known as cryptic coloration.

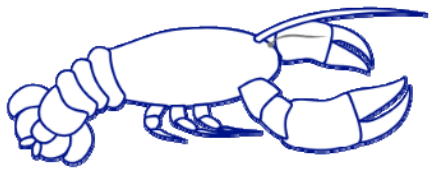
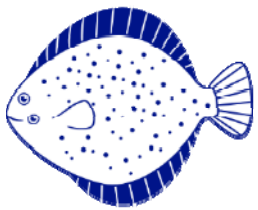
Concealing coloration: the use of natural coloration on an animal's body to help it blend in with its environment.

Chromatophore: a cell on an animal's body that contains pigment, or color.

Active camouflage: camouflage that adapts and changes to the surroundings around an animal.

Passive camouflage: camouflage that involves being a color that is repeated in the environment.

Practice the vocabulary words on quizlet: https://quizlet.com/_89wovp?x=1jqt&i=2s8evl

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Camouflage - Vocabulary Words

Countershading: protective coloration of some animals in which parts normally in shadow, such as the bottom of an animal's body, are light and those exposed to the sky, such as the top of an animal's body, are dark.

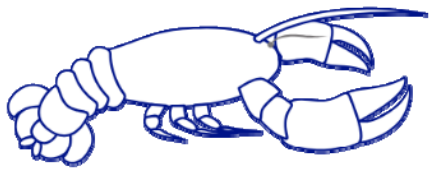
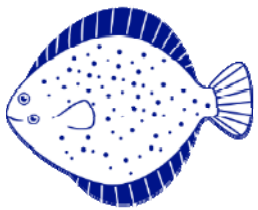
Disguise coloration: the type of camouflage used when an animal has similar shapes and textures to objects in their habitat.

Mimesis: an animal looks like something else and thereby becomes totally ignored or unnoticed.

Disruptive coloration: the type of camouflage animals use that disrupts, or breaks apart, the outline of an animal's body and makes it look like something else.

Melanophores: chromatophores, or pigment cells, that permit color change. The concentration of pigment granules within these cells determine the type of color that is produced.

Practice the vocabulary words on quizlet: https://quizlet.com/_89wovp?x=1jqt&i=2s8evl

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Camouflage - Vocabulary Words

Iridophores: chromatophores, or pigment cells, that reflect light giving animals a shiny coloration.

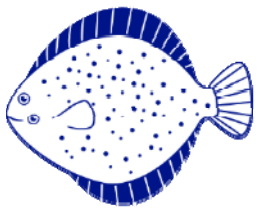
Mimicry: when one species "mimics" another species in terms of sound, appearance, smell, behavior, or location to protect itself.

Batesian Mimicry: type of mimicry in which a harmless animal has developed the same type of pattern as a more dangerous animal in order to scare away potential predators.

Mullerian Mimicry: type of mimicry in which two or more species that are both undesirable develop a similar appearance. These species typically have similar predators and both benefit from the similarities.

Self Mimicry: type of mimicry in which an animal misleads its predator with fake body parts, thereby tricking the predator into not knowing where to attack.

Practice the vocabulary words on quizlet: https://quizlet.com/_89wovp?x=1jqt&i=2s8evl



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TYPES OF CAMOUFLAGE

An animal's behaviors affect what type of camouflage is best for them. Select a pair of animals below and explain what type of camouflage is used by the predator/prey based on their behaviors.

Zebra and lion; seagull and spider crab; shark and seal;

Write here

In the video, we discussed 3 types of camouflage. If you could have any of these types of camouflage, which would it be? Make sure to explain how your type of camouflage would affect your choice and habitat and what food you eat.

Write here

Name: Write here _____

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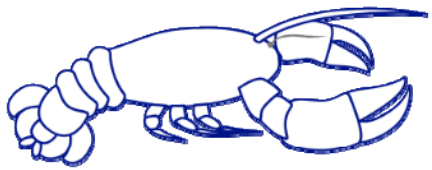
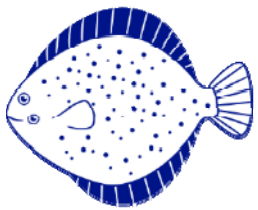
Test Your Knowledge - Camouflage Quiz

There would be no point in an animal replicating the color of its surroundings if its main predator were which of these?

A. Not hungry
B. Larger than it is
C. Too old to hunt
D. Colorblind

Take the quiz online:
https://forms.gle/VPWzouPVMfNdj9vy9

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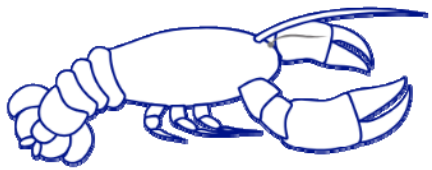
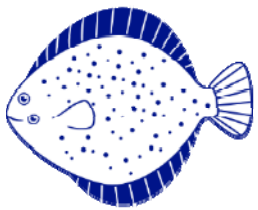
Test Your Knowledge - Camouflage Quiz

What do kingfish and squid have in common?

A. Chromatophores
B. Taste in music
C. Fin markings
D. Statocysts

Take the quiz online:
https://forms.gle/VPWzouPVMfNdj9vy9

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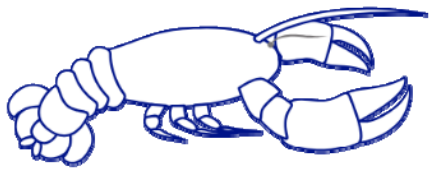
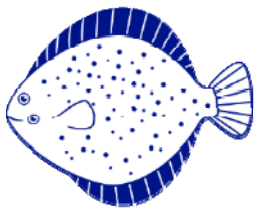
Test Your Knowledge - Camouflage Quiz

What does countershading mean?

A. When the top of an animal is dark in color and bottom is light in color.
B. When an animal's head is a different color than it's tail.
C. When the top of an animal is light in color and the bottom is dark in color.

Take the quiz online:
https://forms.gle/VPWzouPVMfNdj9vy9

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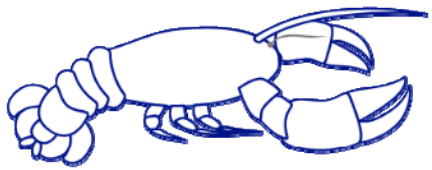
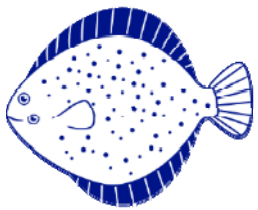
Test Your Knowledge - Camouflage Quiz

True or False: Horseshoe crabs employ active camouflage as a form of protection.

A. True
B. False

Take the quiz online:
https://forms.gle/VPWzouPVMfNdj9vy9

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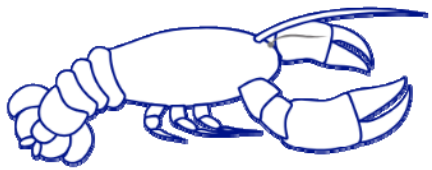
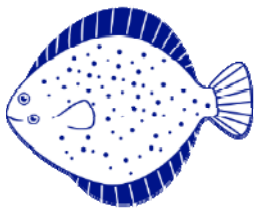
Test Your Knowledge - Camouflage Quiz

How do oyster toadfish camouflage from other animals?

A. They have a lure that hangs near their mouth to attract smaller animals.
B. They rest on the bottom like a rock.
C. They use chromatophores to change color.

Take the quiz online:
https://forms.gle/VPWzouPVMfNdj9vy9

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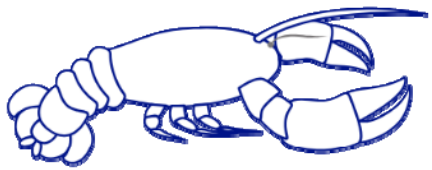
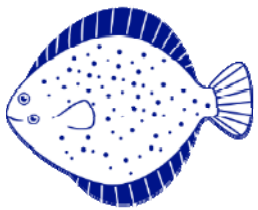
Test Your Knowledge - Camouflage Quiz

Camouflage can be beneficial to:

A. Predators
B. Prey
C. Neither
D. Both

Take the quiz online:
https://forms.gle/VPWzouPVMfNdj9vy9

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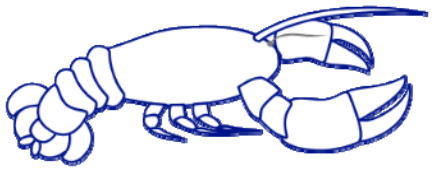
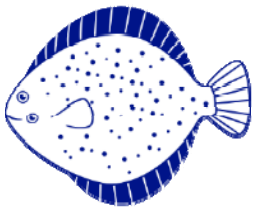
Learn More - Camouflage

Videos to Watch:

Squid Skin Changes Color
https://youtu.be/PfqJBhTNDyw

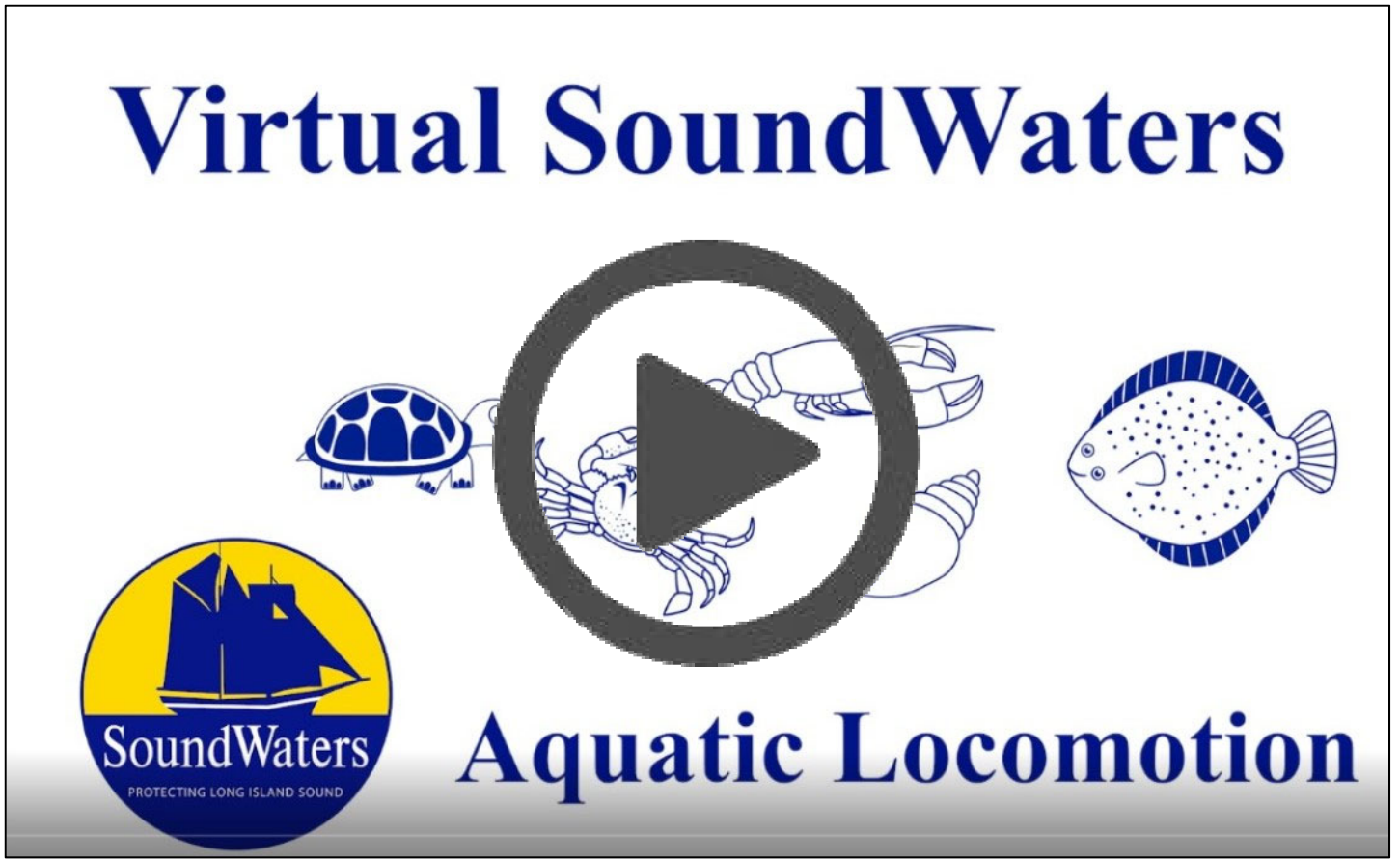
Mimic Octopus: Master of Disguise
https://youtu.be/Wos8kouz810

Camouflaged Fish Sneak Attack | National Geographic
https://youtu.be/Wb-j6-rzmc0

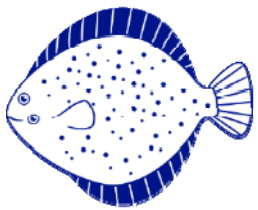



Lesson 3: Aquatic Locomotion

Watch this video and learn more about aquatic locomotion.



https://youtu.be/923v0Jm88UI



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AQUATIC LOCOMOTION VIDEO REFLECTION

After watching the video, tell me what you thought about…...

I really enjoyed……	I did not understand…..	I want to learn more about….
Write your answer here	Write your answer here	Write your answer here

STUDENT'S NAME: Write here

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Aquatic Locomotion - Vocabulary Words

Univalve: having one valve or shell (ex. snail)

Bivalve: having two valves or shells (ex. mussel)

Crustacean: animals that usually have a hard covering, or exoskeleton, and two pairs of antennas, or feelers

Exoskeleton: hard covering that supports and protects the bodies of some animals

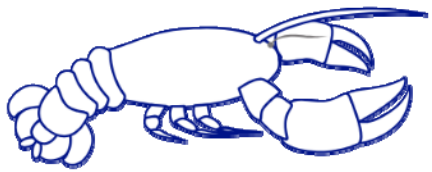
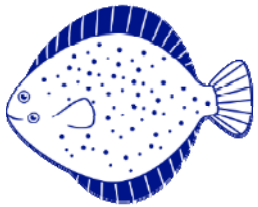
Muscular Foot: flat structure found in mollusks (univalves, bivalves) that helps them to move around

Phylum: In biology, a phylum is a level of classification or taxonomic rank below kingdom and above class.

Decapod: any crustacean of the order Decapoda, having five pairs of walking legs, including the crabs, lobsters, crayfish, prawns, and shrimps.

Mollusca: any of a large phylum (Mollusca) of invertebrate animals (such as snails, clams, or squids) with a soft unsegmented body usually enclosed in a calcareous shell.

Practice the vocabulary words on quizlet: https://quizlet.com/_8abp8o?x=1jqt&i=2s8evl

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ANIMAL LOCOMOTION

The way animals move is based on their specific body parts.

For example, humans have long jointed legs that allow us to walk and run in different directions.

Column A	Column B
Octopus	Invertebrate, can move its arms freely to change its shape
Lobster	Legs for walking surrounded by hard shell, tail to swim backwards
Flounder	Tail like a paddle, swims in up and down movement (not side to side)
Diamondback Terrapin	4 legs, nails, webbed feet

From the table, select an animal from column A and a DIFFERENT method of locomotion from column B. Explain how the animal would have to change the way it moves and where it lives (if that applies).

Write here

Name: Write here _____

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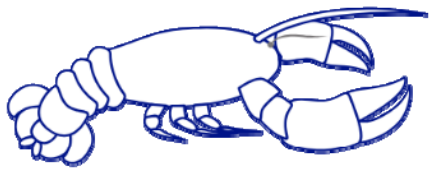
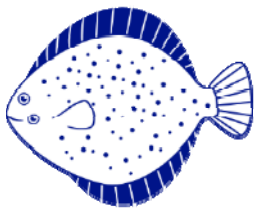
Test Your Knowledge - Aquatic Locomotion Quiz

What trait is common to all mollusks?

A. Webbed feet
B. Muscular feet
C. Vertebrae
D. Legs

Take the quiz online:
https://forms.gle/oWhyQ5ZBZ3KNzhP46

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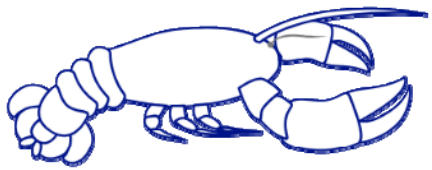
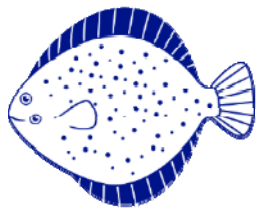
Test Your Knowledge - Aquatic Locomotion Quiz

What does it mean to be a decapod?

A. The animal can walk backwards
B. The animal lives on land
C. The animal is “ten footed”
D. The animal swims

Take the quiz online:
https://forms.gle/oWhyQ5ZBZ3KNzhP46

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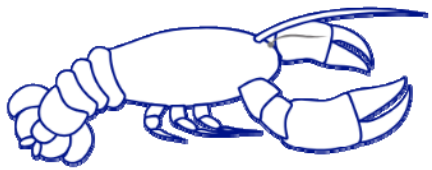
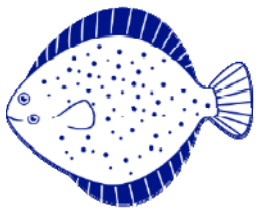
Test Your Knowledge - Aquatic Locomotion Quiz

Which animal has a mucus raft?

A. Lobster
B. Flounder
C. Clam
D. Mud Snail

Take the quiz online:
https://forms.gle/oWhyQ5ZBZ3KNzhP46

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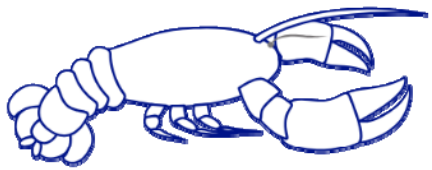
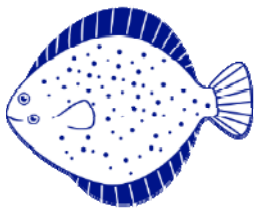
Test Your Knowledge - Aquatic Locomotion Quiz

Which animal has webbed feet?

A. Flounder
B. Diamondback Terrapin
C. Alligator
D. Spider Crab

Take the quiz online:
https://forms.gle/oWhyQ5ZBZ3KNzhP46

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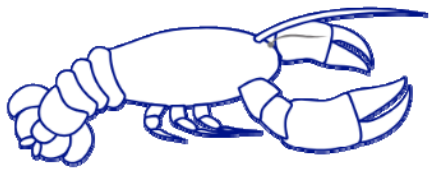
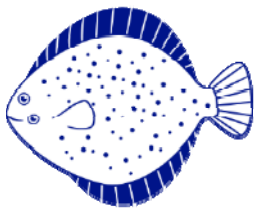
Test Your Knowledge - Aquatic Locomotion Quiz

Which animal is a vertebrate?

A. Oyster Toadfish
B. Mud Snail
C. Lobster
D. Spider Crab

Take the quiz online:
https://forms.gle/oWhyQ5ZBZ3KNzhP46

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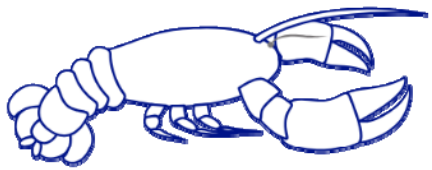
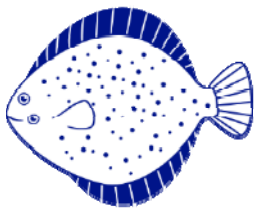
Test Your Knowledge - Aquatic Locomotion Quiz

True or False: The flounder swims up and down as opposed to side to side.

A. True
B. False

Take the quiz online:
https://forms.gle/oWhyQ5ZBZ3KNzhP46

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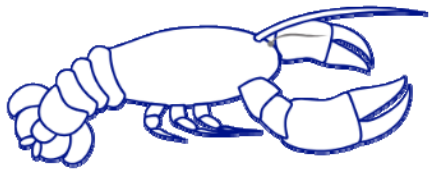
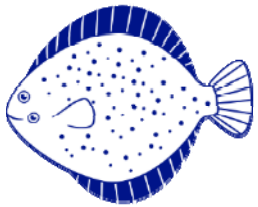
Learn More - Aquatic Locomotion

Fish out of water
https://youtu.be/mKxRe0hAQmg

The Evolution of Flying Fish
https://youtu.be/c8Ady7ySayI

Clams vs. the World
https://video.nationalgeographic.com/video/00000144-0a29-d3cb-a96c-7b2d693c0000

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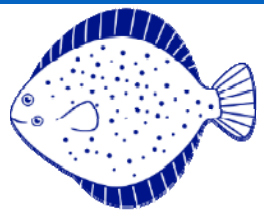
Lesson 4: Animal Senses

In this video you will be learning all about the different senses animals use in Long Island Sound.

https://youtu.be/eCC1rScAjT4



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ANIMAL SENSES VIDEO REFLECTION

After watching the video, tell me what you thought about…...

I really enjoyed……	I did not understand…..	I want to learn more about….
Write your answer here	Write your answer here	Write your answer here

STUDENT'S NAME: Write here

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Animal Senses - Vocabulary Words

Mechanoreceptor: A sense organ or cell that responds to mechanical stimuli such as touch or sound.

Auditory Receptor: A receptor an organism has that allows it to respond to sound.

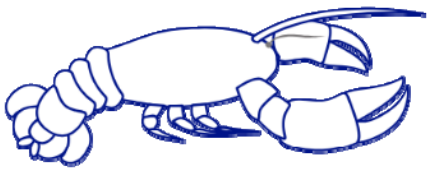
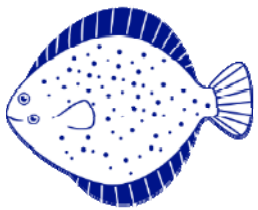
Chemoreceptor: A specialized sensory receptor cell which converts a chemical substance and generates a biological response.

Photoreceptor: The cells in an organism that allow for the detection of light

Flabellum: A fan-shaped part of an organism's body. Present on the horseshoe crab and to test the composition of the water before it enters the gills.

Rheotaxis: oriented movement of an organism in response to a current of water.

Practice the vocabulary words on quizlet: https://quizlet.com/_8ajxnh?x=1jqt&i=2s8evl

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ANIMAL SENSES

In Long Island Sound, some animals live on the bottom and others actively move around in the water column

Which types of receptors would be most helpful for living in each area? Make sure to explain your answer!
Auditory receptors, Mechanoreceptors, Chemoreceptors, Photoreceptors

Bottom Dwelling Animals	Actively moving around in water column
Write here	Write here

Which of your senses would be most important to you if you lived in the water? Explain your answer.
Write here

If an animal did not have any eyes, how could its other senses change or adapt to help it survive?
Write here

Name: Write here _____

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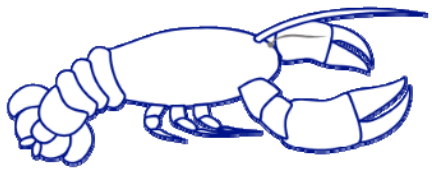
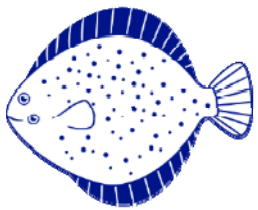
Test Your Knowledge - Animal Senses Quiz

What does a horseshoe crab use its flabellum for?

A. To test the composition of the food it found before it enters the mouth
B. To sense the light coming in from the surface of the water
C. To test the composition of the water before it enters the gills
D. To sense the movement of incoming predators

Take the quiz online:
https://forms.gle/padXpU6LJaDgMQTh7

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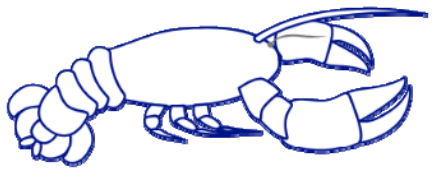
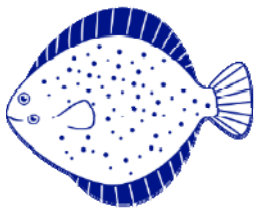
Test Your Knowledge - Animal Senses Quiz

Which of the following allows a seastar to detect the smell of its prey?

A. Mechanoreceptors
B. Chemoreceptors
C. Photoreceptors
D. Auditory receptors

Take the quiz online:
https://forms.gle/padXpU6LJaDgMQTh7

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Test Your Knowledge - Animal Senses Quiz

True or False: An auditory receptor allows an animal to have the sense of touch.

A. True
B. False

Take the quiz online:
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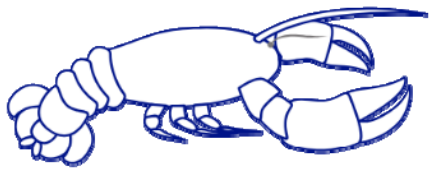
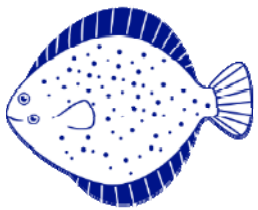

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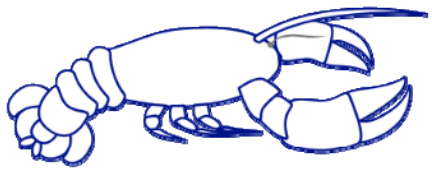
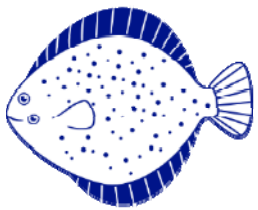
Test Your Knowledge - Animal Senses Quiz

A photoreceptor on an animal allows it to have the sense of _____.

A. Touch
B. Sight
C. Hearing
D. Taste and Smell

Take the quiz online:
https://forms.gle/padXpU6LJaDgMQTh7

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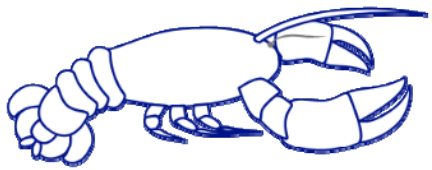
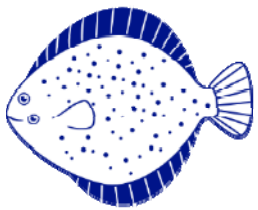
Test Your Knowledge - Animal Senses Quiz

The horseshoe crab has specially adapted bristles that allow the crab to respond to mechanical stimuli such as touch. These are an example of which of the following:

A. Mechanoreceptors
B. Chemoreceptors
C. Photoreceptors
D. Auditory receptors

Take the quiz online:
https://forms.gle/padXpU6LJaDgMQTh7

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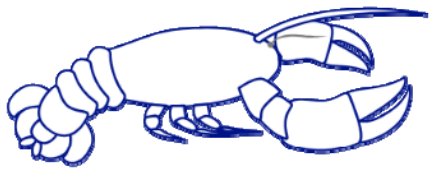
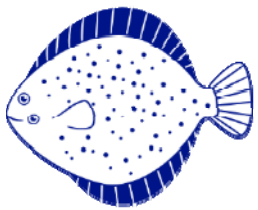
Test Your Knowledge - Animal Senses Quiz

Sea Stars use mechanoreceptors to help them sense gravity and are involved in rheotaxis. What is rheotaxis?

A. The fleeing of the sea star away from its prey.
B. The positioning of the sea star to face into the current of the water.
C. The movement of the sea star towards its prey.
D. The positioning of the sea star to face towards the surface of the water.

Take the quiz online:
https://forms.gle/padXpU6LJaDgMQTh7

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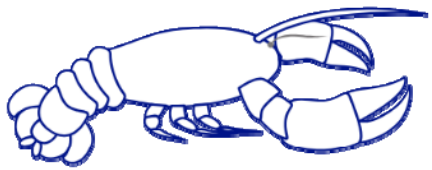
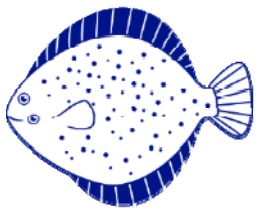
Learn More - Animal Senses

Electrosensory System | SHARK ACADEMY
https://youtu.be/q85_688UI5w

Mystery of Elephant Infrasounds Revealed | Animal Super Senses | BBC
https://youtu.be/uQfDazQ9Rkg

Caribou Spot Wolves Using UV Vision | Animal Super Senses | BBC
https://youtu.be/nke5c7Nml_8

Seastar Vision
https://drive.google.com/file/d/1VoM2NdX4iJGdWZnZhVxBZ21rSzdO99Zs/view

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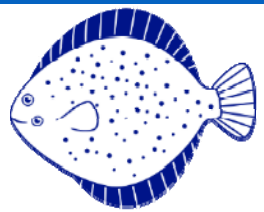
Lesson 5: The Food Web

Watch this video and learn more about the food web.

https://youtu.be/IZH3nvqCf88



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FOOD WEB VIDEO REFLECTION

After watching the video, tell me what you thought about…...

I really enjoyed……	I did not understand…..	I want to learn more about….
Write your answer here	Write your answer here	Write your answer here

STUDENT'S NAME: Write here

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Food Web - Vocabulary Words

Producer: An organism that uses energy from the sun to make its own food. They are found at the bottom of a food chain.

Food Chain: A way of understanding how energy flows in an environment. It shows what organisms eat and how energy moves between different levels.

Food Web: Made up of all the food chains in a single ecosystem.

Consumer: An animal that must eat another organism because it cannot make its own food.

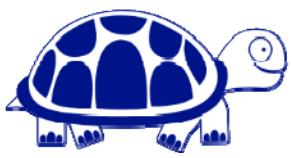
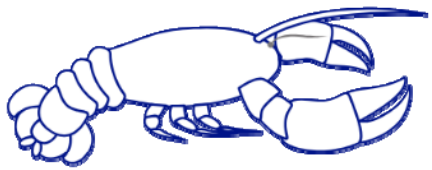
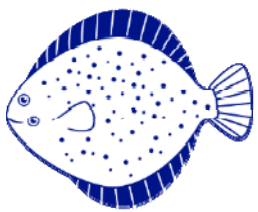
Primary Consumer: A herbivores that eat plants and other producers.

Secondary Consumer: An animal that eats herbivores, at the third trophic level.

Tertiary Consumer: An animal that eats secondary consumers.

Apex predator: The top predator in an ecosystem, eats other consumers.

Practice the vocabulary words on quizlet: https://quizlet.com/_8a799a?x=1jqt&i=2s8evl

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Food Web - Vocabulary Words

Scavenger: An animal that feeds on dead material or other dead animals.

Decomposer: Complete the food chain by turning organic waste, like dead animals, into inorganic waste, such as nutrient rich sediment.

External Digestion: The process of breaking down food into energy outside of an animal's body.

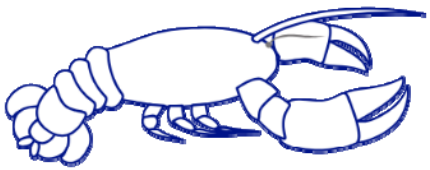
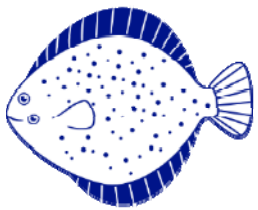
Phytoplankton: Microscopic organisms that are plant-like and float near the surface of the water where they can use sunlight to make food.

Bivalve: An animal that lives in 2 shells such as an oyster, clam or mussel

Siphon: A straw-like structure that bivalves us to bring water into their body. Incurrent siphon brings water in, excurrent siphon expels water out.

Madreporite: The place on top of a sea star that allows the entry of seawater into its water vascular system.

Practice the vocabulary words on quizlet: https://quizlet.com/_8a799a?x=1jqt&i=2s8evl

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FOOD WEB

Use arrows to complete the food web

What would happen to this food web if we removed the snake?

Write answer here

Fill out the trophic levels table:

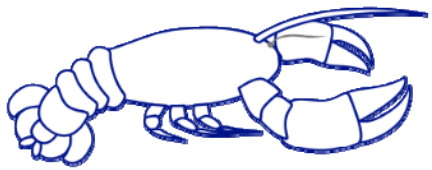
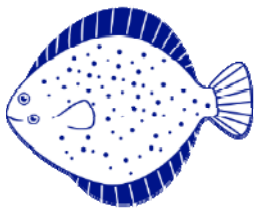
Producer/ Autotroph	Primary Consumer	Secondary Consumer	Tertiary Consumer	Apex Predator	Decomposer
Write answer here	Write answer here	Write answer here	Write answer here	Write answer here	Write answer here

Test Your Knowledge - Food Web Quiz

What is a food web?

A. The web spun by a primary consumer.
B. A combination of all the food chains in an ecosystem.
C. The web of food an animal should eat.
D. The specific body parts an animal has for getting its food.

Take the quiz online:
https://forms.gle/dt9GtEzLm55rmZRw8

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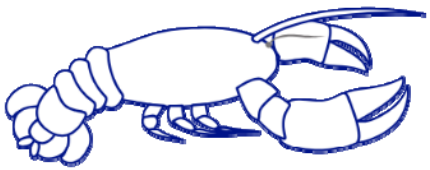
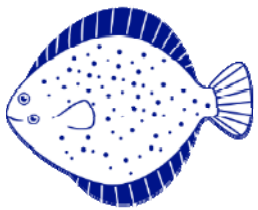
Test Your Knowledge - Food Web Quiz

What is a trophic level?

A. The path that energy takes as it moves through an ecosystem.
B. The level in the water column where an animal lives.
C. The position that an organism occupies in the food web.
D. The amount of chlorophyll an animal contains in its body.

Take the quiz online:
https://forms.gle/dt9GtEzLm55rmZRw8

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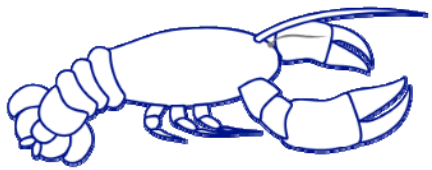
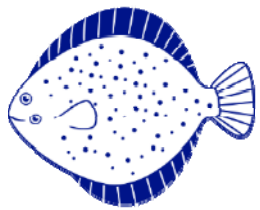
Test Your Knowledge - Food Web Quiz

Which of the following is not a trophic level in a food web?

A. Primary consumer
B. Producer
C. Tube feet
D. Decomposer

Take the quiz online:
https://forms.gle/dt9GtEzLm55rmZRw8

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Test Your Knowledge - Food Web Quiz

What does the adaptation of external digestion allow the sea star to do?

A. Eat food larger than it could fit inside its body.
B. Create its own food.
C. Dissolve an oyster's shell.
D. Jump up the food web to a new trophic level.

Take the quiz online:
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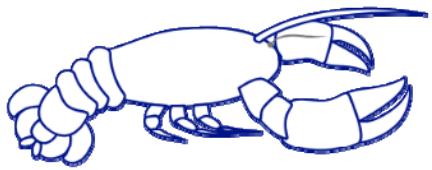
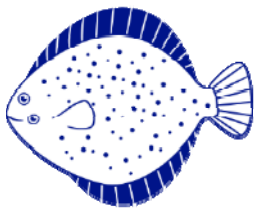

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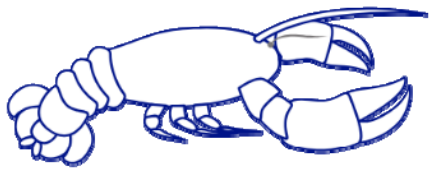
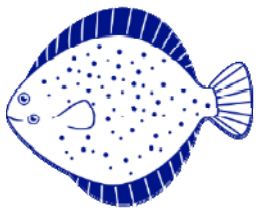
Test Your Knowledge - Food Web Quiz

What would happen if all the bivalves in the ecosystem were gone?

A. The sea stars would thrive because their predator is gone.
B. The horseshoe crabs would die because their food source is gone.
C. The sea stars would die because their food source is gone.
D. The horseshoe crabs would thrive because their predator is gone.

Take the quiz online:
https://forms.gle/dt9GtEzLm55rmZRw8

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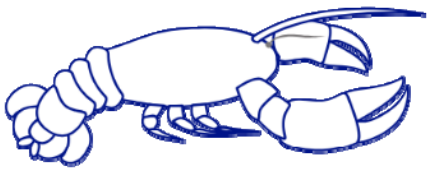
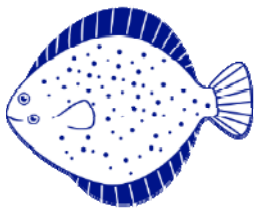
Test Your Knowledge - Food Web Quiz

True or False: The bivalve is a filter feeder that uses little hairs on their gills to remove their food from the water.

A. True
B. False

Take the quiz online:
https://forms.gle/dt9GtEzLm55rmZRw8

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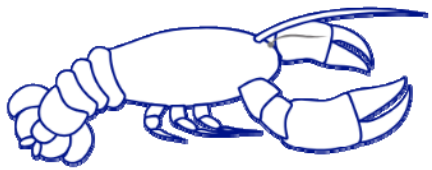
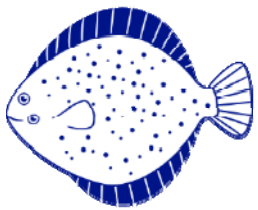
Learn More - Food Web

Sea Star Time-lapse: Eating Mussel
https://www.shapeoflife.org/video/echinoderms-sea-star-time-lapse-eating-mussel

Coastal food webs
https://www.khanacademy.org/partner-content/cas-biodiversity/biodiversity-levels/exploring-ecosystems/v/exploring-ecosystems-coastal-food-webs-california-academy-of-sciences

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