



## **OYSTER UNIT**

### **LESSON PLAN 6<sup>rd</sup>-8<sup>th</sup> grade**

#### Topics

What is a mollusk?

Oyster anatomy

Oyster reefs

Threats to the eastern oyster

Bioremediation

#### Objectives

Students will be able to:

- Differentiate the three groups of mollusks and explain their general features
- Identify threats to oysters and their habitat
- Examine and identify organisms that live in an oyster reef
- Explain the importance of oysters and oyster reef habitats for humans
- Compare oyster filter feeding with student created filters

#### Instructional Materials

Topic Video

Vocabulary Flash Cards

#### Assessment Materials

Video Reflection Worksheet

Video Quiz

Mollusk Identification Worksheet (*PDF of answers available*)

Oyster Anatomy Worksheet (*PDF of answers available*)

Oyster Reef Diorama

Oyster Threats Worksheet (*PDF of answers available*)

Create Your Own Filter Worksheet

#### Related Materials

Book: How Oysters Saved the Bay – Jeff Dombek

Links to videos and reading material that provides additional information on topics.

#### *NOAA Resources*

The National Oceanic and Atmospheric Administration (NOAA) is a partner of SoundWaters. These are additional resources you may use in addition to the other materials included above.



### *Oyster unit materials for middle school*

<https://oceanservice.noaa.gov/education/oysters-in-the-chesapeake-bay/middleschool.html>

### *The great oyster mystery*

<https://www.yumpu.com/en/document/read/52472613/the-great-oyster-mystery-teacher-guide-estuaries-noaa>

### *Oyster reefs*

<https://aamboceanservice.blob.core.windows.net/oceanservice-prod/education/oysters-in-the-chesapeake-bay/middleschool/ms-lesson7.pdf>

[https://www.youtube.com/watch?v=mY1DQie\\_MTY](https://www.youtube.com/watch?v=mY1DQie_MTY)

<https://www.fisheries.noaa.gov/national/habitat-conservation/oyster-reef-habitat>

[https://oceanservice.noaa.gov/education/tutorial\\_estuaries/media/supp\\_est07c.html](https://oceanservice.noaa.gov/education/tutorial_estuaries/media/supp_est07c.html)

<https://coast.noaa.gov/data/estuaries/pdf/an-ode-to-the-oyster-oyster-reefs-powerpoint.pdf>

### *Oyster life cycle & anatomy*

<https://aamboceanservice.blob.core.windows.net/oceanservice-prod/education/oysters-in-the-chesapeake-bay/middleschool/ms-lesson5.pdf>

### *Oyster industry – harvesting & aquaculture*

<https://aamboceanservice.blob.core.windows.net/oceanservice-prod/education/oysters-in-the-chesapeake-bay/middleschool/ms-lesson6.pdf>

<https://oceanservice.noaa.gov/facts/aquaculture.html>

<https://www.google.com/search?q=noaa+oyster+filtration&oq=noaa+oyster+filtration&aqs=chrome..69i57j33.2206j0j4&sourceid=chrome&ie=UTF-8>

### **NGSS Standards**

Structures and Processes: MS-LS1-3

Ecosystems: MS-LS2-4; MS-LS2-5

# MOLLUSK SORTING

What are the characteristics/features of a...

## Gastropod

Soft bodied animal  
Lives inside 1 shell  
Muscular foot to move  
May use radula to eat

## BIVALVE

Soft bodied animal  
Lives inside 2 shells  
Muscular foot to move

## CEPHALOPOD

Soft bodied animal  
No hard shell on outside, instead it is thin and inside the body  
Can swim in the water column

Sort the animals into the correct mollusk group

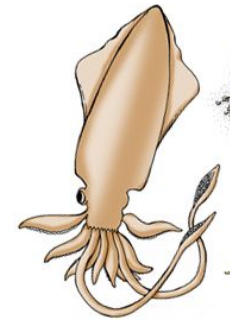
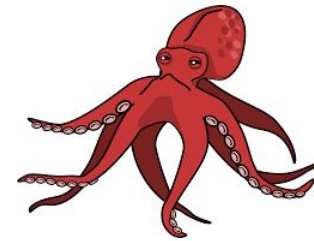
## Gastropod



## BIVALVE



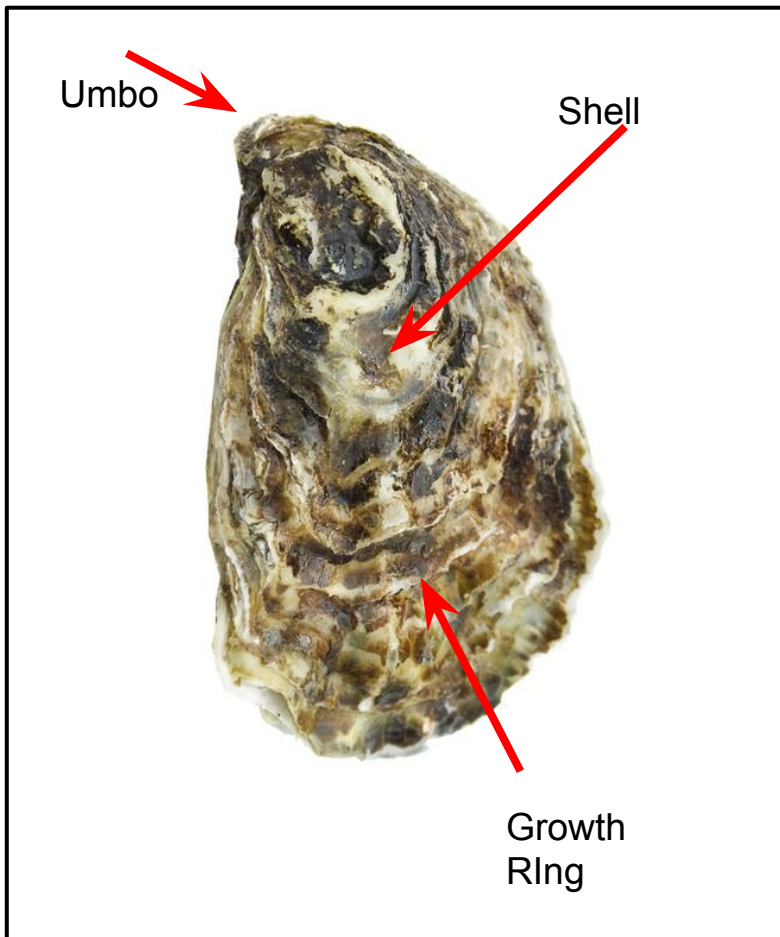
## CEPHALOPOD



In the video, we looked at the anatomy of the oyster. Label it below:

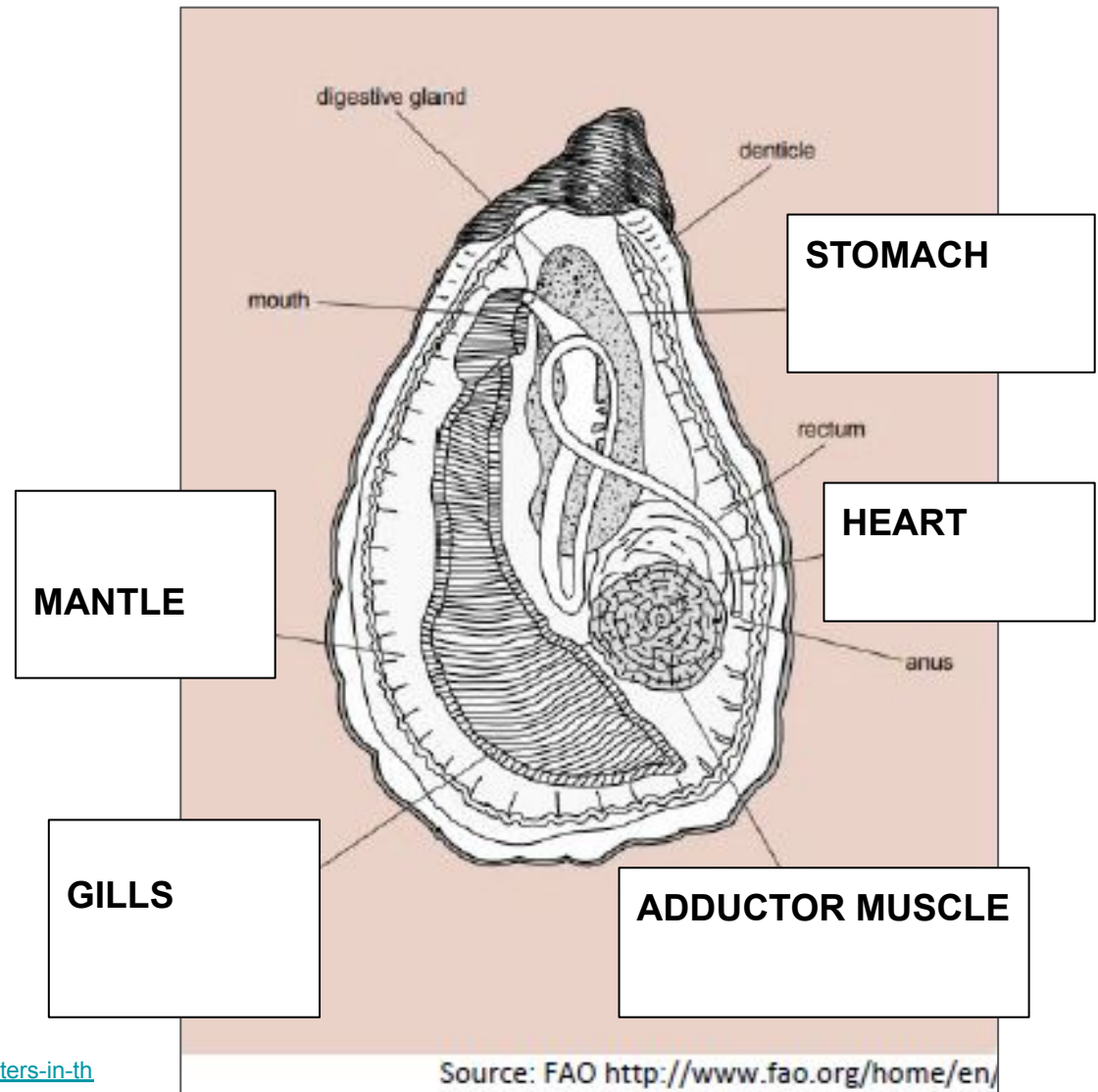
## EXTERNAL ANATOMY:

Sketch the outside of the oyster in the video and label the following: *Umbo*, *growth ring*, *Shell*



## INTERNAL ANATOMY:

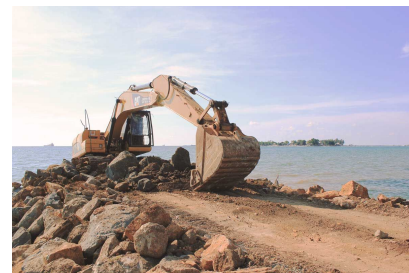
Label the anatomy of the oyster below:  
Mantle, Gills, Heart, Adductor Muscle, Stomach





In order to survive, oysters need a suitable habitat that provides:

- Space to grow
- Food (phytoplankton) to give them energy
- Water that is free of pollutants and has a constant pH
- Shelter to protect themselves



**For each of the hypothetical situations:**

- **What oyster habitat requirement does it threaten? Why?**
- **What will happen to the oysters if it is not controlled?**



A local land developer has decided to build a new apartment complex right on the water next to an area where there are lots of juvenile fish and animals living. It will take at least 6 months to build and they will have to dig up the land right along the coastline to put in a parking lot.

- Space to grow - as the coastline is developed, it will remove area for the oysters to land and grow on
- Water - digging up the land immediately by the coast could cause chemicals from machines to get into the water and affect the oysters
- If the amount of coastal development is not controlled, it can reduce the amount of reefs that are able to grow in an area, which will in turn affect the other animals that live around there.

The number of cars and factories doubles in a coastal area when they bring in new businesses to support a growing economy.

- Water quality - Cars and factories produce CO<sub>2</sub>, which will dissolve in the water and change the pH.
- If the amount of CO<sub>2</sub> being produced continues to increase, it will slowly prevent the oysters from making a stable shell to protect themselves because the CO<sub>2</sub> changes the pH of the water