clam

Developed at the Louis Armstrong
Middle School

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GREGORY GRAMBO

DISSECTING AND ANATOMY

THE CLAM

This is a hands on dissecting unit intended for use in the Middle School. It can, however, be modified for use in the high school. There are five experiments and a quiz in this science unit. Children should work at their own pace doing the experiments and then taking the quiz. I have found that students in my middle school classes can do the experiments without the use of a scalpel; they only needed scissors, tweezers and a probe, which is a round stick with a pin in the end of it. Scince the experiments will take more than one work period, the clam can be placed on a styrofoam meat tray, which works great as a dissecting tray, and placed into a ziplock type bag. This reduces the smell when the clam is put into a box for storage until the next work period. The names and classes of the students can be put on the outside of the bag.

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A- Hands-On Dissection Guide To The Clam

B- This is a hands on dissection unit intended for use in the middle school. It can, however, be modified for use in lower or upper grades. While this unit is intended to be used with a real clam, a computer program simulation can be substituted.

C- Students will work cooperatively to conduct scientific investigations that will help them solve a scientific problem using a variety of inquiry skills including observing, predicting and testing solutions. Students will communicate their experiences through their student worksheets and in class presentations.

D- Materials include- clam (or computer simulation), scissors, tweezer, probe, zipper style gallon bags, work tray, labels, marker, lab sheets.

E- Each experiment in this unit will require one class period (approx 45 min) to complete. The entire unit requires one week.

F- There are five Hands-on experiments and a quiz. Since the experiments will require more than one weeks time, the teacher may wish to place the clams onto styrofoam or cardboard meat or lunch trays and then place these items into gallon size zipper seal bags. The students names and classes can be written onto labels placed on the outside of the bags. Bags can then be stored for later use. Students should work in cooperative groups of three or four, with each child having a job such as experimenter, supply gatherer, recorder, presenter, reader, etc. I have found that students in my middle school classroom can do these experiments without the use of a scalpel or knife; they need only a pair of scissors, a tweezer and a probe which is a stick that has a pin attached.

G- Since the children will be using sharp instruments, it is important to go over the proper use of these instruments.

H- Teachers should send a note home to parents explaining the upcoming unit. It is important to explain that the children will be sharing equipment and clams. It is also important to explain the need for dissection and how it will help the children understand physiological processes that go on inside their own bodies.

I- Questions for students are on the worksheets.

J- Assessment- After collection and review, the student worksheets should be graded from one to ten, ten being the highest grade. During lab time, question the students to see if they understand the material being presented to them. See of the students are engaged in the activity and if they are working cooperatively. Finally, after students finish with the unit test, have the students write in their lab notebooks their ideas on the dissection process.

K- References- This work was completely designed by Mr. Grambo, hence there are no outside references.

Anatomy – The Clam

Name _____

Class _____ Box No _____

Experiment 1

Problem – What is a clam?

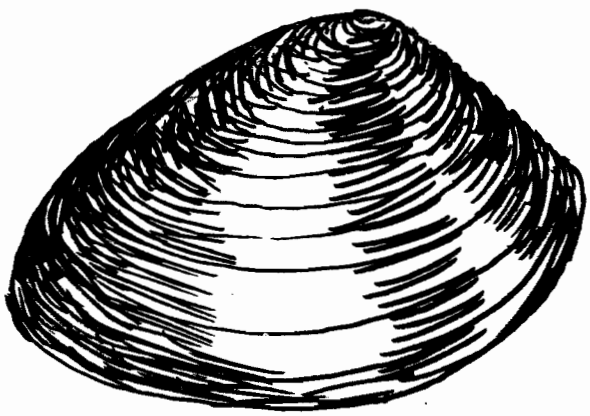
1) Begin With

2) Before we begin describe a clam.

3) Where on a beach would you look for clams?

The clam is a Mollusk. It is an animal with a very soft body.

4) How does a clam protect itself?



The frog has a bone down its back. People have back bones. Animals with back bones are called vertebrates. Clams do not have any backbones. The clam is an invertebrate - an animal without a backbone

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5) The clam has two shells called valves. The clam is also called bivalve. Bi means two.

Clams move from place to place by means of a muscular foot. The foot sticks out from between the two shells. The clam can't move fast or swim so it can't catch fish. It is a filter feeder. It sucks in microscopic plants and animals for food.

6) look at a clam shell and a snail shell. How are they different?

7) How do you think clams breathe?

8) Why will clams die if you clean out their water too well?

Homework -

1- How can a clam bur itself in the sand?

2- Find out what a shell is and what it's made of.

Anatomy - The Clam

Name _____

Class _____ Box No _____

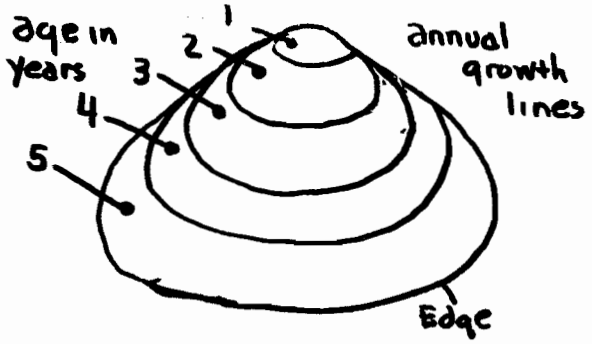
Experiment 2

Problem - Describe a clam

1) Begin With   Shells  Clam.

2) Look at the clam. How is the outside of a clam's body different from yours?

3) There are lines on the outside of a clams shell. A clam take things like lime out of the water and adds it to its shell. This is how the shell grows larger so that the clam can grow. Where the clam stops growing one year and begins to grow the next it leaves a line. We call this an annual growth line.



4) Why is the newest part of the clam near the outer edge?

5) How old is your clam?

How can you tell?

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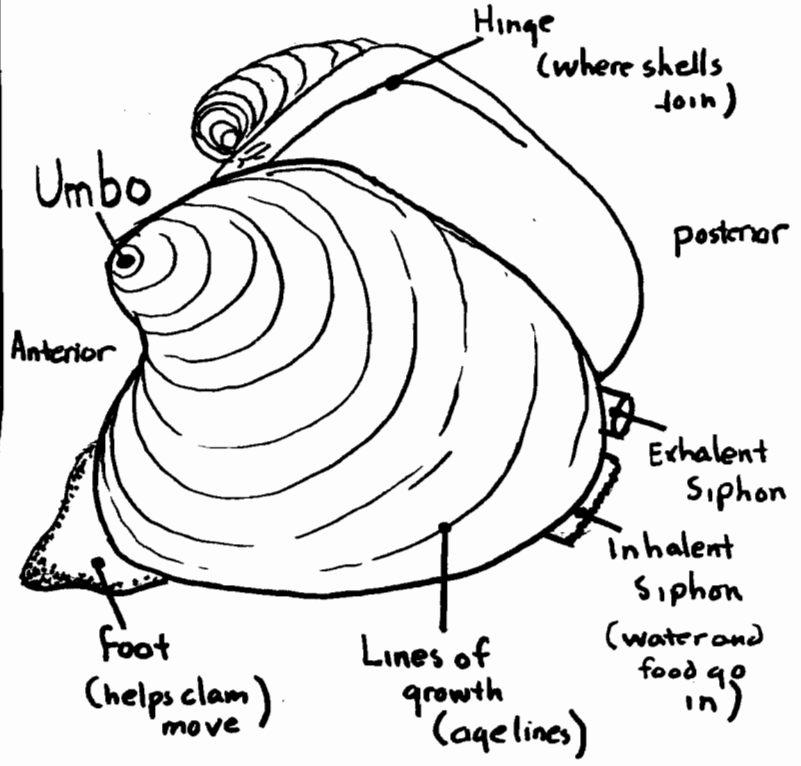
6 The clam sucks food in through a siphon. Waste is dumped back into the water through another siphon

8 How is one side of a clam shell different from the other?

How are the sides similar?

7 The Shell



Two strong muscles called <u>adductor muscles</u> keep the clam closed. They also help the clam open so it can eat and breathe. These muscles are very strong. They prevent other animals from opening the shells.

Homework-

1- Why does the outside of the shell have ridges and lines?

2- Why are things sticking out of the clam's shell?

Anatomy - The Clam

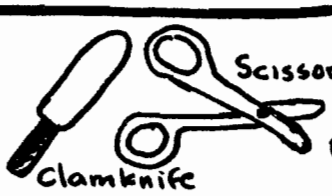
Experiment 3

Name _____

Class _____ Box No _____

Problem- How can we find out what's inside a clam?

1 Begin With



2 How does the clam make sure its shell isn't going to be opened?

3 How can we find out what's inside a clam?

4 Why is there a piece of wood between the clam's shells?

5 Why must you cut the adductor muscles?

6 Hold the Clam in your hand and pry the clam open with the clam knife.

Place the knife between the shells and turn the knife stretch adductor muscles.

Be careful not to Slip

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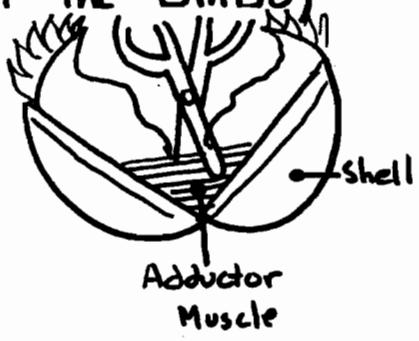
7 Cut adductor muscles (there are some on each side of the umbo)



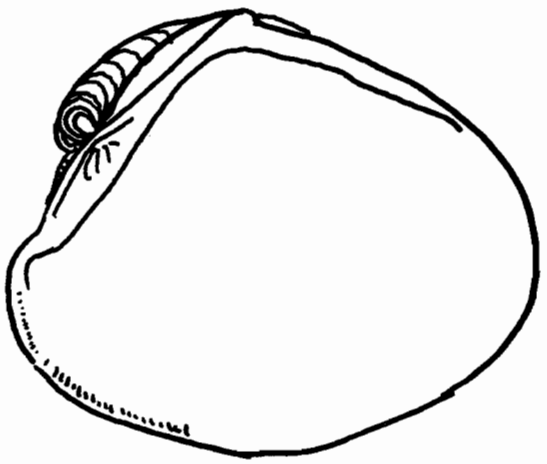
The shell will stay open

8 How many adductor muscles did you cut through?

Be careful not to damage anything when opening it up

Look around with your probe

9 Look inside the clam and draw what you see.



Homework-

1) Why are the adductor muscles important?

2) Why did we need the clam knife?

3) Once open, how did the insides of the shells differ?

Anatomy - The Clam

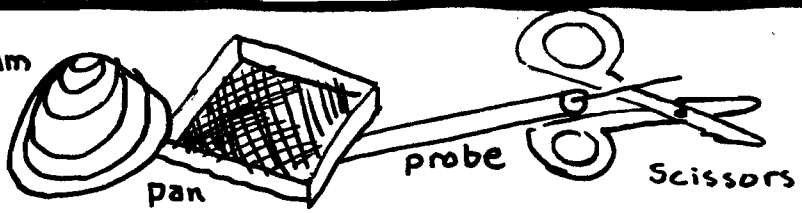
Name _____

Class _____ Box No _____

Experiment 4

Problem - What's inside a clam?

1 Begin With



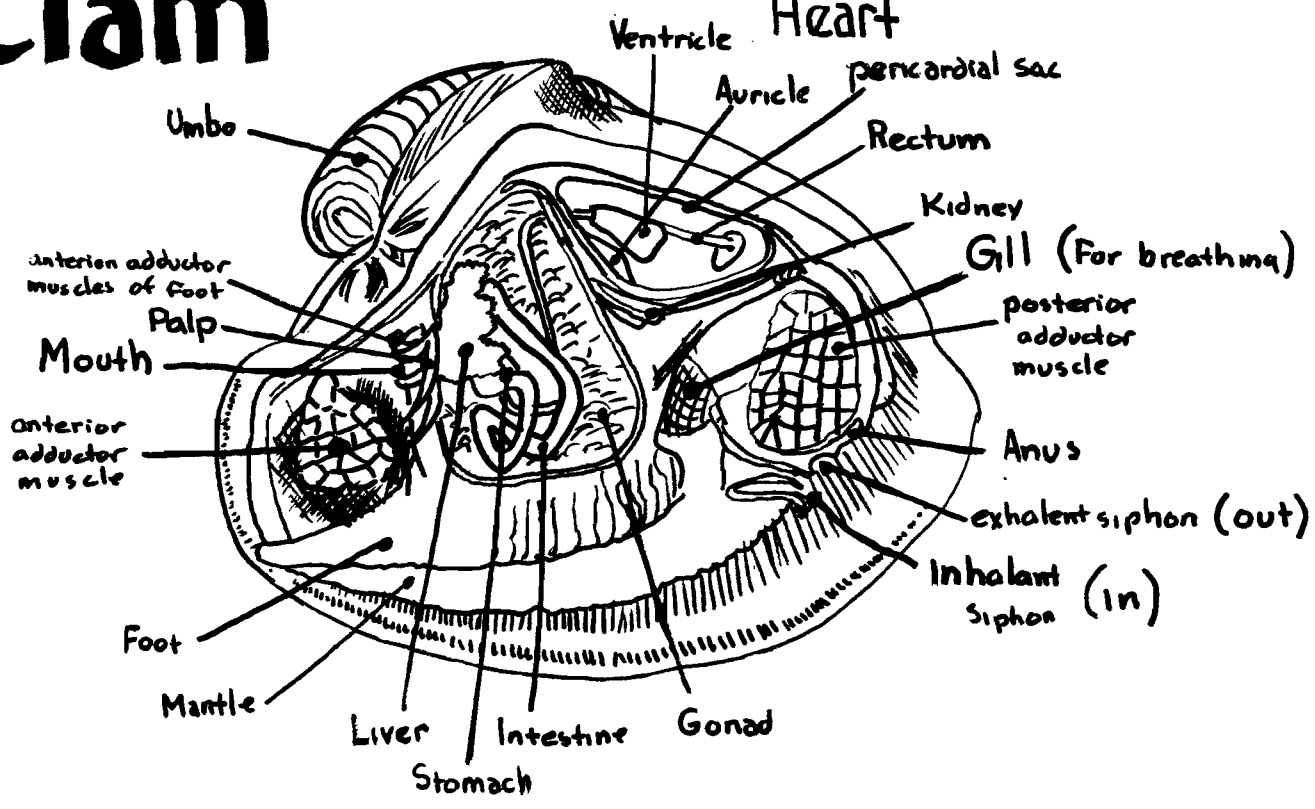
2 look around inside the clam.

How many bones do you see inside?

3 How is the clams body and insides different from people or other animals you have studied?

4

Clam



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5) To the right of the Umbo is the heart. It is a pump that has ventricles and auricles used to send blood around the clam's body. Blood carries food and oxygen to the parts of the clam

6) In the center of the clam you will find the liver, intestines, and stomach. Food is digested here so the body can use it.

Find the palp in the drawing. There are cilia, which look like little fingers, which move and push food into the mouth.

7) Why does a clam have a stomach?

8) Why is the intestine coiled up?

9) Water is sucked in through the siphons. Water passes over gills which take the oxygen out of the water. This is how the clam breathes.

10) Below the heart are he kidneys. They help remove waste. Wastes are brought to the rectum, which goes to the exhalent siphon. Wastes and water are now dumped.

11) Draw a picture of the kidneys.

Homework-

1- Why are the gills near the siphons?

2- Clams and fish both live in water. What are two things that make them different?

Anatomy - The Clam

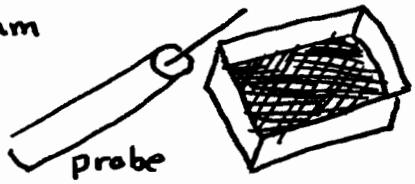
Name _____

Class _____ Box No _____

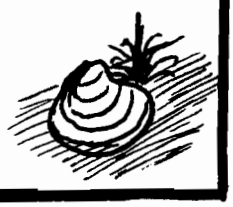
Experiment 5

Problem- What else can we learn about the clam?

1 Begin With



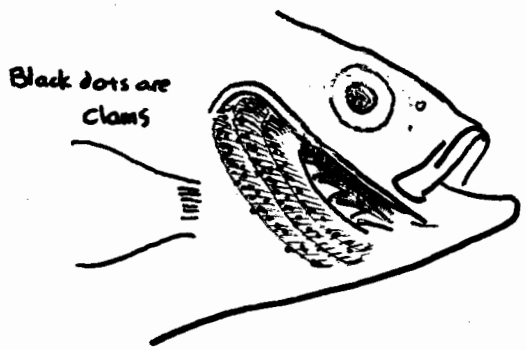
2 List three reasons why it would be difficult for a clam to live on land?



3 Why does a clam have a hard shell?

4 The system that carries blood around the clam consists of a pump and a series of pipes. The blood moves through the pipes. This system is called the circulatory system. Foods are broken down by the digestive system. Wastes are removed from the clam by the excretory system. Gills are part of the respiratory system. The clam feels things by using its simple nervous system.

5 When clams have babies they are using their reproductive system. They mate in August. eggs develop a little inside the mother. She then lets them go. They find their way to the gills of a fish. They dig into the gills and stay there until they can be on their own



6 What are the six systems of the clam?

7 What is the hearts function in the circulatory system?

8 Why is the mouth part of the digestive system?

9 How do clams' insides keep from falling out of the shell?

Home work-

1- How does a clam eat? What system does it use?

2- How does a clam breathe? What system does it use?

Name _____
Class _____ Box No _____
Anatomy - The Clam

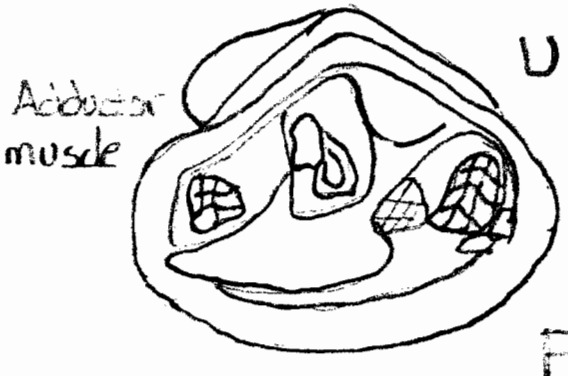
Quiz on the Clam

1- How does a clam protect itself?

2- Why is a clam an invertebrate?

3- How does an adductor muscle help a clam?

4- Where are these Parts



5- How do clams eat?

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