ACTIVITY 9-3: **SODA POP GERMINATORS**

OBJECTIVE(s): After completing the activity, students will be able to:

- ▷ observe capillary action.
- ▷ use hydroponics to sprout bean seeds.

MATERIALS:	
30 2-liter plastic pop bottles	4 rolls of paper towel
120 bean seeds	

BACKGROUND INFORMATION:

Hydroponics is the cultivation of plants in water containing dissolved inorganic nutrients. Some of the advantages of hydroponics over geoponics (soil-based) food production are: no need for crop rotation, no garden poachers such as rabbits, reduced cost (hydroponics uses less fertilizer), and year-round growing season independent of weather and soil conditions.

PROCEDURE:

1. In this activity, students will experience the germination of bean seeds with the use of hydroponics (growing plants without soil).
2. Students should work in groups of two, but each student should prepare their own soda pop germinator.
3. Students will need to cut the top of the soda bottle, about 13 centimeters from the mouth.
4. Invert the top section to form a funnel, and insert it into the bottom portion of the bottle.
5. Fill the bottle with water until the water level touches the funnel mouth.
6. Using a piece of paper towel as a wick, insert it through the funnel so it reaches from the water to the top of the funnel.
7. Hold the wick in place by filling the funnel with wet paper towels. Insert the seeds between the towels and the sides of the funnel.
8. The capillary action should kept the seeds watered for weeks.
9. Extension activity: After the seeds have germinated, students can transplant their plants into a glass or plastic container. Prepare a nutrient solution by combining 1 gallon of water, 3 grams of sodium nitrate, 1 gram of potassium sulfate, 1 gram of superphosphate, and 1 gram of magnesium sulfate. Do not overdo the chemicals. If the concentration of chemicals is too high, the plants will dehydrate. Fill the plant pots until the nutrient solution covers half of each plant's root system. Maintain this level. Every few weeks, pour out the old solution, flush the container with pure water, then pour in fresh solution. The care for the plants at this point is the same as for plants growing in soil.

DAY 7

*Estimation game. Challenge students to estimate the distance to an object in meters. (Winners will be announced at the beginning of lunch.)

ACTIVITY 7-1: CAPILLARY ACTION

OBJECTIVE(s): After completing the activity, students will be able to:

- ▷ observe the movement of a colored liquid through a plant's vascular system.
- ▷ describe how plants remove pollutants from water.

MATERIALS:	
3 plastic pitchers	2 boxes of food coloring
2 bunches of celery	12-16oz plastic cups
2 rolls of paper towels	Exacto knife
Optional: white carnations	

*Prepare solutions of water and (red, blue, & green) food coloring. These solutions need to be **very dark**. Empty the entire bottle of food coloring into 800 ml of water in a plastic pitcher. Do this for each color then pour into 16 oz plastic cups (4 cups of 200 ml).

BACKGROUND INFORMATION:

Capillary action is a force that pulls water (containing nutrients) up the stems of plants. Tiny spaces in plant fibers (xylem) behave like tiny tubes that pull water up against the force of gravity because of the attraction of the water particles to the surfaces of the fibers. This effect can be shown with a flower (such as a white carnation) or a vegetable (such as celery). Transpiration of plants speeds up the process of capillary action.

In wetlands, plants act as natural filters. They filter excess nutrients and pollutants out of the system.

PROCEDURE:

1. In this activity, students will use celery to observe the process of capillary action.
2. Students will work individually to prepare a stalk of celery.
3. The celery needs to have fresh cuts before placing them into the colored liquid. This should be done with the Exacto knife **just** prior to placing into the colored liquid.
4. Have students put their celery stalk into the **red** solution. The red food coloring works best in this case, especially for seeing the xylem in the next part of this activity.
5. While working on Student Activity 7-3, Microscope Adventure, students should make a cross-section of their celery stalk to observe the tube-like structure (xylem) present. They should appear as red dots.

DISCUSSION QUESTIONS:

1. Why did the carnation/celery turn color?
2. How did the color particles reach the top of the carnation/celery?
3. Where does the water go after uptake into the plant? (transpiration/stomata)
4. How do wetland plants help to purify water?
5. If the color particles in the solution are pollutants, what happened to them?

ACTIVITY 7-2: **PREPARING A WET MOUNT SLIDE**

OBJECTIVE(s): After completing the activity, students will be able to:

- ▷ prepare a wet mount slide.
- ▷ demonstrate proper microscope use.

MATERIALS:

10 microscopes	40 slides and coverslips
10-9oz plastic cups	20 medicine droppers
30 student scissors	newspaper
thread	

BACKGROUND INFORMATION:

See Day 4, Activity 4-3.

PROCEDURE:

1. Students will learn how to prepare a wet mount slide and use the compound microscope.
2. Students will work in groups of 3. Each student should prepare their own wet mount slides.
3. Students should use a small piece of newsprint to prepare their first wet mount slide. (Instructors should demonstrate the correct techniques in preparing a wet mount slide. This should be done in small groups with all instructors assisting.)
4. While in these small groups, instructors should demonstrate how to focus a microscope. **Be sure to only use low or medium power.**
5. After successfully completing the small letter "e", student may prepare wet mount slides of a piece of thread, their hair, etc.

DISCUSSION QUESTIONS:

1. What happened to the small letter "e" when you viewed it under the microscope?
2. Why is water used in the preparation of a wet mount slide?
3. What happens when a drop of water is placed on wax paper over newspaper?

ACTIVITY 7-3: **MICROSCOPE ADVENTURE**

OBJECTIVE(s): After completing the activity, students will be able to:

- ▷ prepare a wet mount slide using live specimens.
- ▷ identify two common protozoans.
- ▷ recognize that microscopic organisms exist in the world around us.

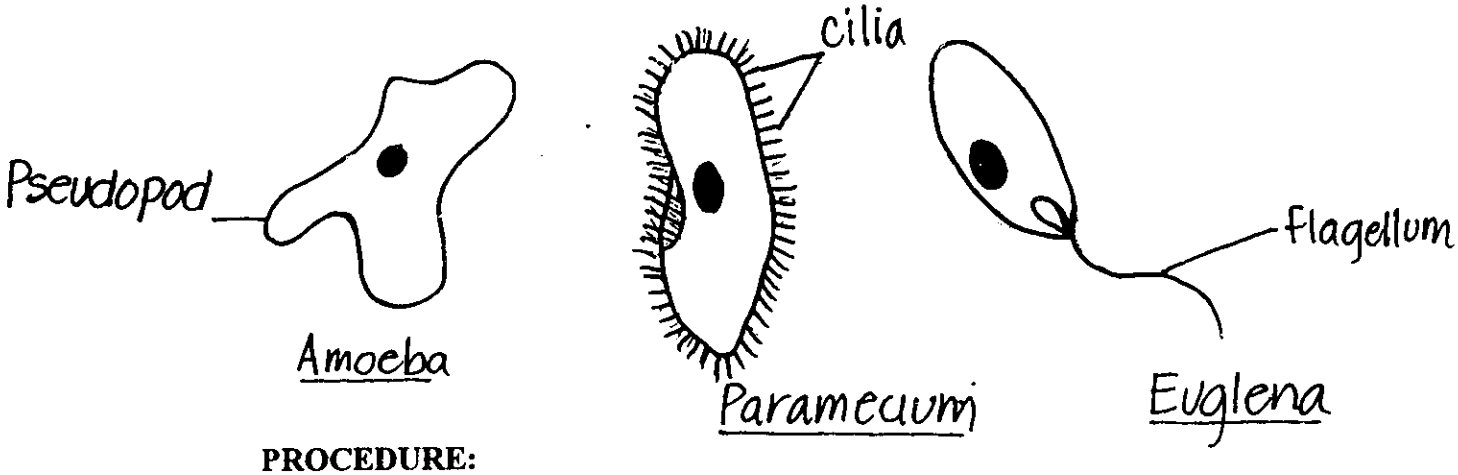
MATERIALS:	
10 microscopes	40 slides and coverslips
5 bottles of Protoslo	20 medicine droppers
10 Hay infusions	Live protozoans samples
Pond/aquarium scum (optional)	Celery cross-section from Activity 7-1

BACKGROUND INFORMATION:

Protozoans are microscopic, unicellular (one-celled), animal like organisms. Most protozoans are microscopic, but certain amoebae reach 4 to 5 millimeters in diameter, and the shells of their cousins the foraminiferans may be 10 centimeters across. Such shells accumulate on the ocean bottom, forming the sedimentary rock limestone. Although small in size, the role protozoans play in the food chains of soils, oceans and freshwater is very important to world biomes.

Protozoans can be classified according to their means of locomotion (movement). A common protozoan that uses pseudopodia (false feet) is the amoebae. A flagellate, such as the euglena, moves by using its long whip-like structure called a flagellum. The paramecium, a common ciliate, uses tiny hair-like projections called cilia that beat in unison to cause movement.

Some protozoans are known to cause diseases. A free floating protozoan *(Plasmodium)* causes malaria, a type of intestinal amoebae *(Entamoeba)* causes amebic dysentery, and a flagellate *(Trypanosoma)* similar to the euglena causes African sleeping sickness.



PROCEDURE:

1. In this activity, students will view a variety of microscopic protozoans with the use of a compound microscope.
2. Students will work in groups of 3. Each student should prepare a wet mount slide of a different protozoan.
3. Instructors will demonstrate how to apply Protoslo in the preparation of a wet mount slide. Protoslo will slow the protozoans down so students can see their structure more easily.
4. Instructors will need to help students identify protozoans and other organisms found in samples.
5. Students should follow the directions on Student Activity Sheet 7-3 to complete this investigation.
6. Remind students to finish Student Activity 7-2, steps 5 and 6, the celery cross-section.

DISCUSSION QUESTIONS:

1. What are one-celled organisms called?
2. Are these microscopic "creatures" living? How do you know?
3. Why are protozoans an important part of nature?
4. How do protozoans move?
5. Discuss some common diseases associated with protozoans.

ACTIVITY 9-5: **MICROSCOPE ADVENTURE-CONTINUED**

OBJECTIVE(s): After completing the activity, students will be able to:

- ▷ recognized that microscopic organisms live in wetlands.
- ▷ discuss the role microorganisms play in an ecosystem.

MATERIALS:	
10 microscopes	20 medicine droppers
40 microscope slides/coverslips	water/mud samples
5 bottle of Protoslo	10 hay infusions
Protozoans cultures	freshwater microorganism-identification keys

BACKGROUND INFORMATION:

Refer to Activity 7-3, Microscope Adventure.

PROCEDURE:

1. In this activity, students will use their collected water and mud samples to search for a variety of microscopic organisms.
2. Students should work in groups of 3.
3. Instructors should review wet mount slide preparation and also the use of Protoslo.

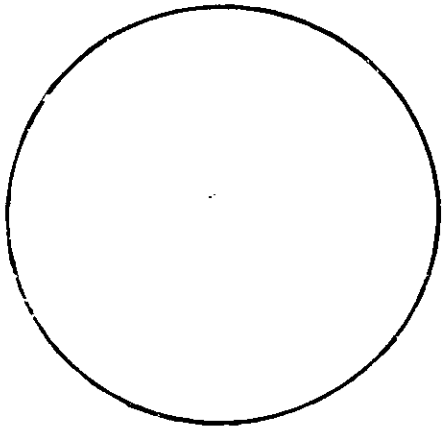
DISCUSSION QUESTIONS:

1. What microscopic organisms could you identify?
2. Did you find any organisms in the mud or water samples that you could see with your naked eye? What did they look like? What were they doing there?
3. Why do you think microscopic organisms are important in a wetland ecosystem?

STUDENT ACTIVITY SHEET 7-1

CAPILLARY ACTION

1. Obtain a stalk of celery.
2. Place the stalk of celery into a plastic cup of red colored solution.
3. Draw the cross-section of your celery stalk. Be sure to label the tiny red dots (tubes) that you see.



Student Activity Sheet 7-2

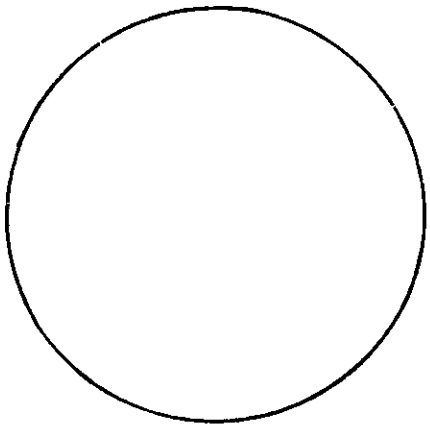
PREPARING A WET MOUNT SLIDE

1. In groups of 3, obtain:
   - 1 cup of water
   - 2 medicine droppers
   - 3 slides
   - 3 coverslips
   - 1 piece of newspaper
   - 1 microscope
   - 1 piece of thread

2. After instructor demonstration on wet mount slides, each student in the group needs to prepare a wet mount slide using the small letter "e".

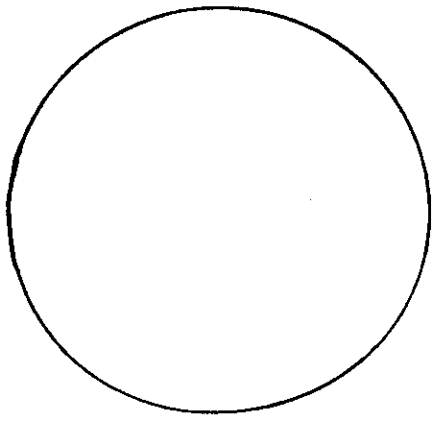
3. Focus on the small letter "e" using low or **medium** power.

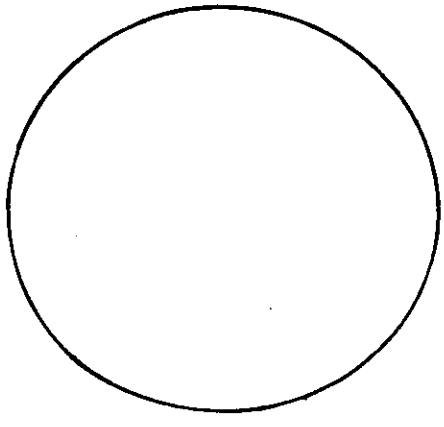
4. Draw what you see in the microscope.



5. After successfully viewing the small letter "e", prepare wet mount slides of a piece of thread, or your hair.

6. Draw what you see in the microscope.





Student Activity Sheet 7-3

MICROSCOPE ADVENTURE

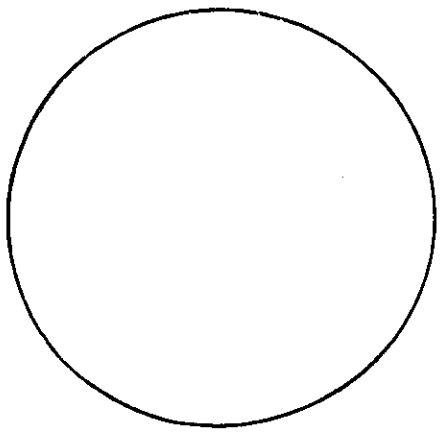
1. Working in groups of three, obtain the following materials:

   1 microscope
   3 microscope slides
   3 coverslips

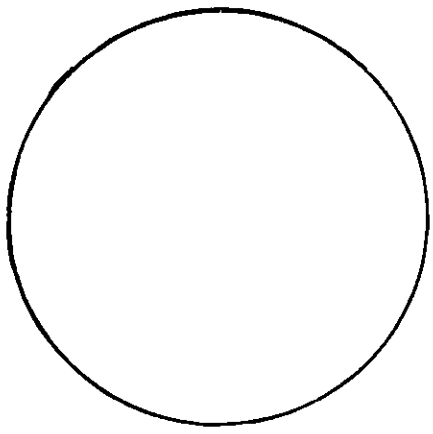
2. One person in your group should prepare a paramecium slide, another person should prepare an amoeba slide and the third person should prepare a euglena slide. **(Before placing the coverslip on the slide, have an instructor add Protoslo to your wet mount slide.)**

3. Using medium power on your microscope, find each of the protozoans listed below and draw what you see.

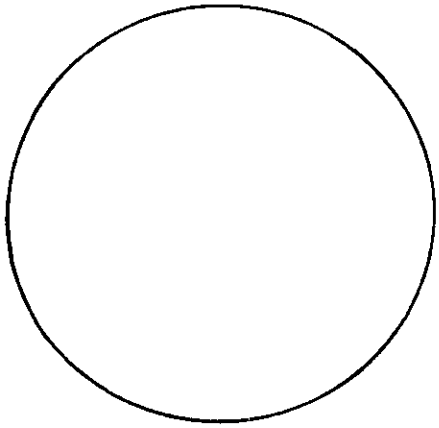
AMOEBA

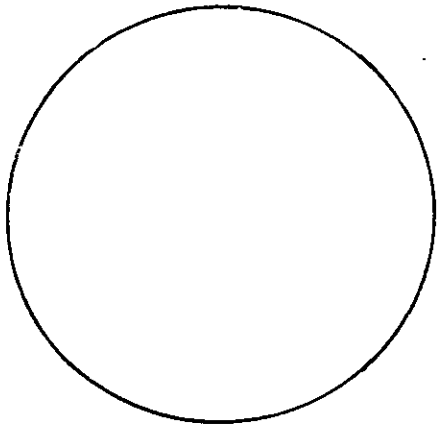


PARAMECIUM

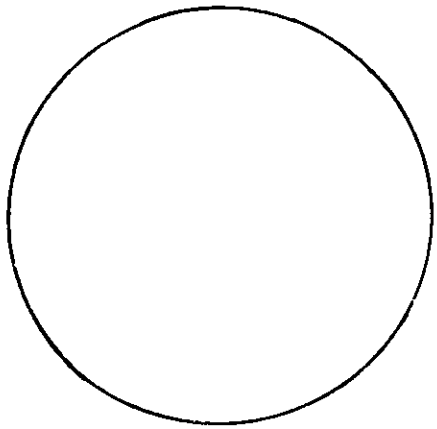


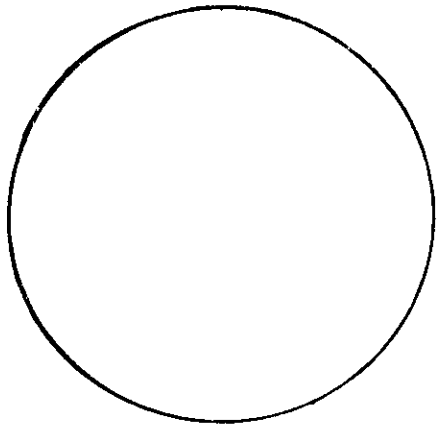
EUGLENA





OTHER(S)





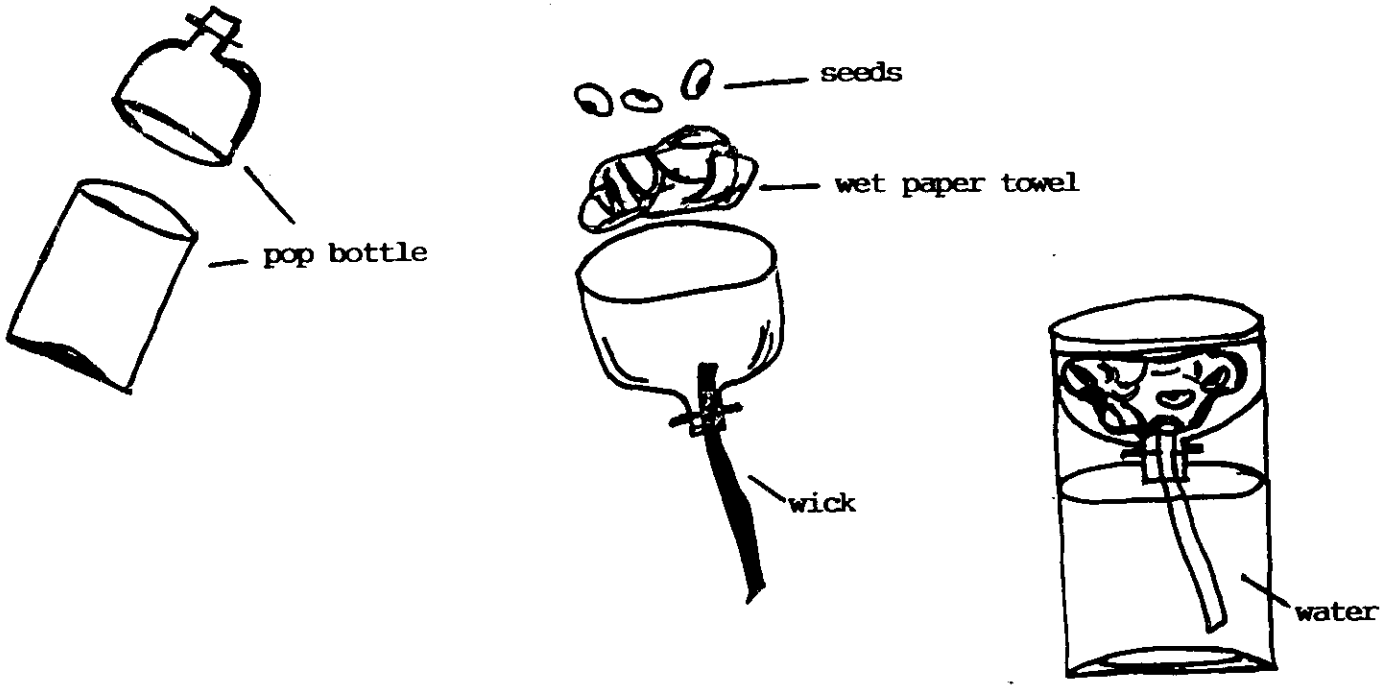
Student Activity Sheet 9-3

SODA POP GERMINATORS

1. Obtain 1 2-liter pop bottle, 4 pieces of paper towel and 4 bean seeds.

2. Cut away the top half of the pop bottle, measuring approximately 13 centimeters from the top.

3. The top half of your bottle will act as a funnel. Insert the funnel into the bottom half of the bottle. Fill the bottle with water until the level touches the funnel mouth.



4. Tear a strip of paper towel to act as a wick, and insert it through the funnel so it reaches the water level.

5. Hold the wick in place by filling the funnel with wet paper towel.

6. Insert the bean seeds between the wet paper towels and the sides of the funnel. The germinator's clear sides will let you observe the sprouting of your seeds.

Student Activity Sheet 9-5

MICROSCOPE ADVENTURE-CONTINUED

1. Draw any organisms you see in your water/mud samples in the space provided below.

DAY 8 **TEACHER NOTES**

Estimation Game: Estimate the length and width of a bigmouth minnow in centimeters. (The winners will be announced during the break.)

Story Time: Journey of the *Oncorhynchus*-Chapter Eight. Each student will need their Journey of the *Oncorhynchus* story book. Before starting the story, set up either the Journey of the *Oncorhynchus* mural by adding **section eight** or the poster. Call attention to the mural/poster by having the students search for the hidden salmon in section eight. The first student to find the hidden salmon will be awarded a prize.

ACTIVITY 8-1: **FISH PRINTS**

SCIENCE CONCEPTS/PROCESSES: System, Symmetry, Observe

OBJECTIVE(s): After completing the activity, students will be able to:

- identify the major external structures of a fish.
- explain how a fish is adapted to living in water.

MATERIALS:

20 fish (Bigmouth Minnows)
1 bottle of tempera black paint
1 pound of modeling clay
1 box of small straight pins
construction paper-assorted colors
1 bottle of dish washing detergent
6 plastic tubs
40 microscope glass slides/cover slips
100 sheets of newsprint
newspaper
12 microscopes
8 rolls of paper towels
35 glue sticks
18 medium 2cm paint brushes
2 bottles of lemon juice

BACKGROUND INFORMATION:

FISH PRINTS

The art of fish printing called gyotaku (pronounced giyo-ta'-ku) has been used in Japan for more than a century. This technique was used to record catches of sport fish. Fish prints can be made with almost any fish, however, carp, bass, bluegill, rockfish or flounder will produce the best results.

FISH

The first major group of vertebrates to evolve were fish. Fish are confined to living in water. They possess gills for respiration, fins and tails for swimming, and scales to protect their bodies. Fish also have a unique sensory system enabling them to detect changes in pressure and water currents.

Many external structures of fish make them well adapted to their life in water. The streamlined body; the fins used for locomotion, steering, stability and defense; the lateral line which serves as a pressure sensitive organ; the nares at the anterior end, and the structure and positioning of the teeth, adapt fish to their aquatic environment.

External Structures-Function(s):

1. **Nares** (or nostrils) - Water carried through the nares leads to the nasal cavity and the olfactory organs. Chemicals in the water stimulate certain nerve cells to send an electrical message to the brain. A fish's keenest sense is smell.

2. **Eyes** -Located on either side of the head. Most fish eyes can see both to the left and right at the same time. This is definitely an advantage for an animal that has no neck to turn the head from side to side. Most fish have poor vision, and can see objects no farther than 0.5 meters away.

3. **Operculum** - covers and protects the gills. It regulates the water flow through the gills.

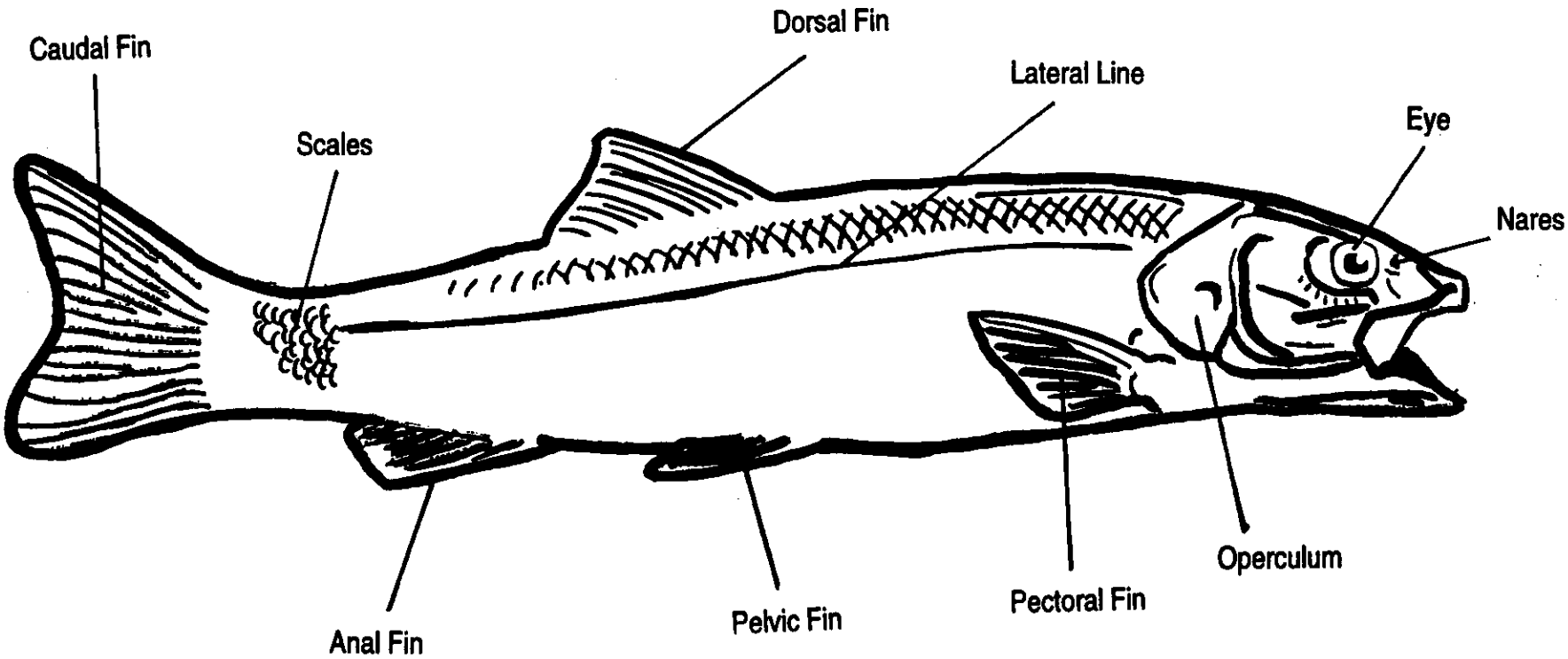
4. **Lateral Line** - is sensitive to pressure waves in the water, senses the movement of other animals in the vicinity and the reflections of the waves produced by the fish's own movements.

5. **Scales**- used for protection. Fish are born with a certain number of scales. The scales enlarge throughout the life of the fish, however, new ones are never grown.

6. **Pectoral and Pelvic fins** - serves as oars and aid in steering and balance.

7. **Dorsal and anal fin** - serves as keels to keep the fish upright.

8. **Caudal fin** - serves as main propelling and steering fin.

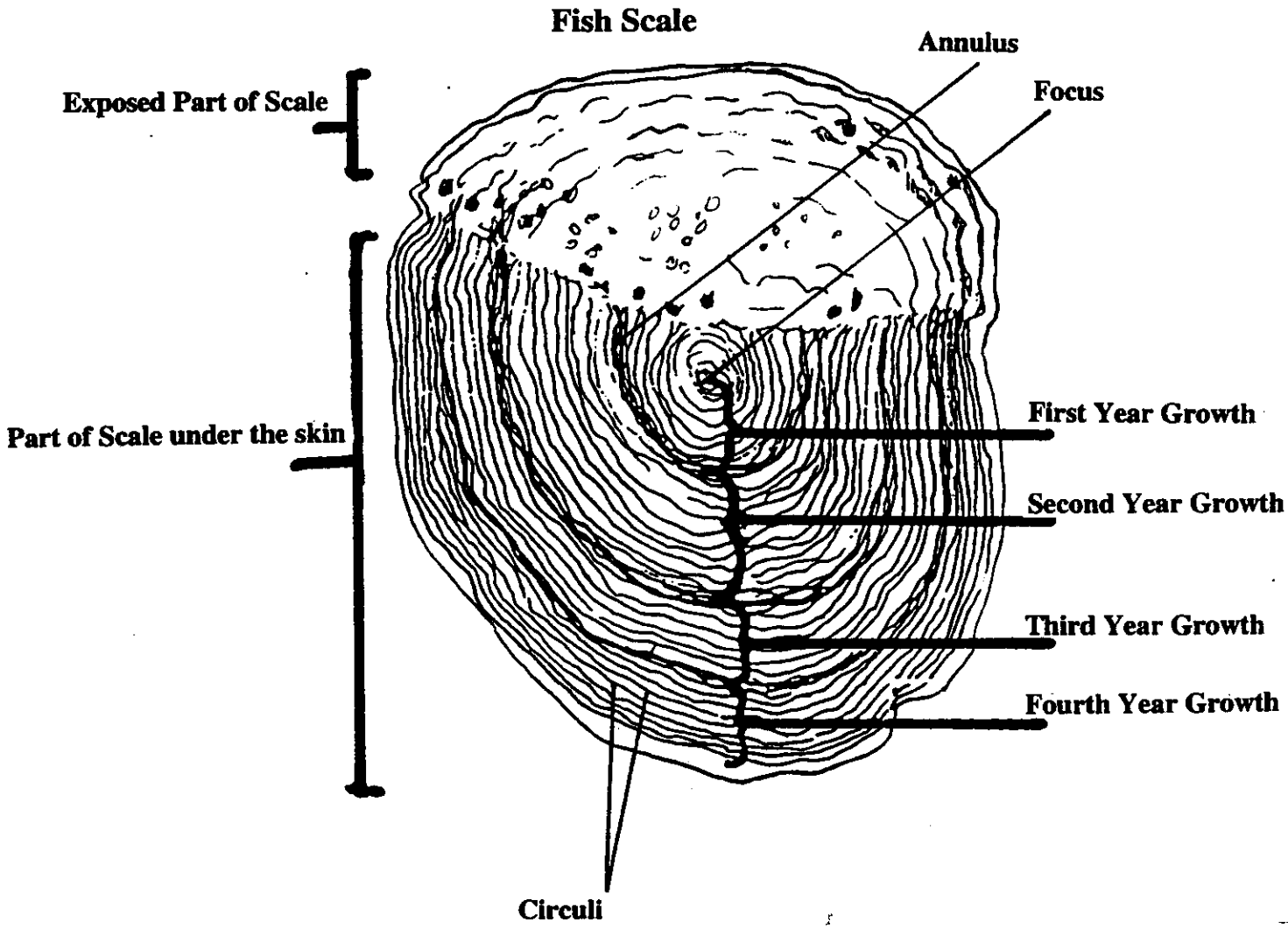


Bigmouth Minnow - External Structures

Fish Scales

Fish scales are just like the cross section of a tree trunk. The oval scales of a fish show annual growth rings. Annual rings can be used to learn the age of a tree or fish.

Most fish are born without scales, however, as the fish grows, scales form. The scales increase in size while the number of scales remains the same. Growth begins at the focus near the center of the scale. As the fish grows, fine ridges called circuli are laid down in a circular pattern around the focus. During the summer or other times when growing conditions are good, the fish grows quickly and the rings or circuli are far apart. In the winter when living conditions are not as good, the fish grows slowly so the rings or circuli are close together. One year's growth is revealed as a series of widely spaced spring and summer circuli followed by a series of closely spaced fall and winter circuli. The outer edge of a series of closely spaced circuli, called the annulus, represents the end of growth for that year. The age of the fish is determined by counting the number of annuli.



A Fishy Smell?

A practical acid-base reaction can be used to eliminate fishy odors. Fish oils contain dissolved bases called amines. Amines give fish that fishy odor. Lemon juice, a citrus fruit juice, is an acid. When an acid and a base react, either or both of them may be used up (neutralized). When combining lemon juice (acid) with the fish amines (base), the acid will neutralize the base and eliminate the odor.

PROCEDURE:

1. In this activity, students will use newsprint and black tempera paint to create their own fish print. The bigmouth minnow will be used to make the prints.
2. Before starting this activity, cover all the tables with newspapers. Be sure to have adequate amounts of paper towels for clean-up.
3. The outside of the fish will need to be cleaned with soap and water. Dry the fish well. The cleaner and dryer the fish, the better the print will turn out.
4. Students will place their fish on the covered tables. Using small amounts of modeling clay, spread the fins out over the clay and pin them in this position. **Allow the fish to dry further.**
5. Students need to brush on a **thin,** even layer of black tempera paint. Paint all of the fins. Instruct student to paint around the insertion of the pelvic fin, leaving a small space between the body and the fin. Do not paint the eye.
6. Carefully place a piece of newsprint over the painted fish. Use fingers to gently press the newsprint over the surface of the fish. Be careful not to move the newsprint as you are pressing the paper. If this occurs, a double impression may be the result.
7. Quickly remove the newsprint from the fish, lifting one end and peeling it off. Students may want to try this process two or three times to get the best print.
8. Students can use the paint brush to paint the eye on the finished print. Allow the print to dry completely.
9. As the fish prints are drying, instructors should use a bigmouth minnow to go over the external structures of the fish: eye, operculum, nares, scales, lateral line, fins (pectoral, dorsal, caudal, anal, pelvic). See diagram in background section. This would be an appropriate time to discuss bilateral symmetry. Bilateral symmetry is the arrangement of an organism's body parts so that one-half of the body is an apparent mirror image of the other half. Humans have bilateral symmetry. What type of symmetry does the bigmouth minnow have?
10. To find out the age of their bigmouth minnow, students should prepare a slide of a fish scale. The scale can be obtained from the bigmouth minnow. Using a scalpel, rub the fish firmly to remove the scales. A team of three students should prepare a slide of a scale by placing the scale between two glass slides. (Hints: Very old fish will have scales difficult to interpret as the scales will be thick and opaque. Freshwater fish scales tend to work better than marine specimens.) Instructors need to assist students in aging their fish.

11. When the fish prints are dry, students will use their fish print to review the external structures of a fish. Instructors should assist students in labeling the following external structures on their fish print: eye, operculum, nares, scales, lateral line, fins (pectoral, dorsal, caudal, anal, pelvic). See diagram in background section. When the labeling is complete, students may want to mount their fish print on colored construction paper.

CONCLUSION:

Instructors should bring closure to this activity by asking the following questions:

1. Identify the five types of fins and give their functions.
2. How are trees and fish alike?
3. What external structures move water pass the gills?

ACTIVITY 8-2: **FISH DISSECTION**

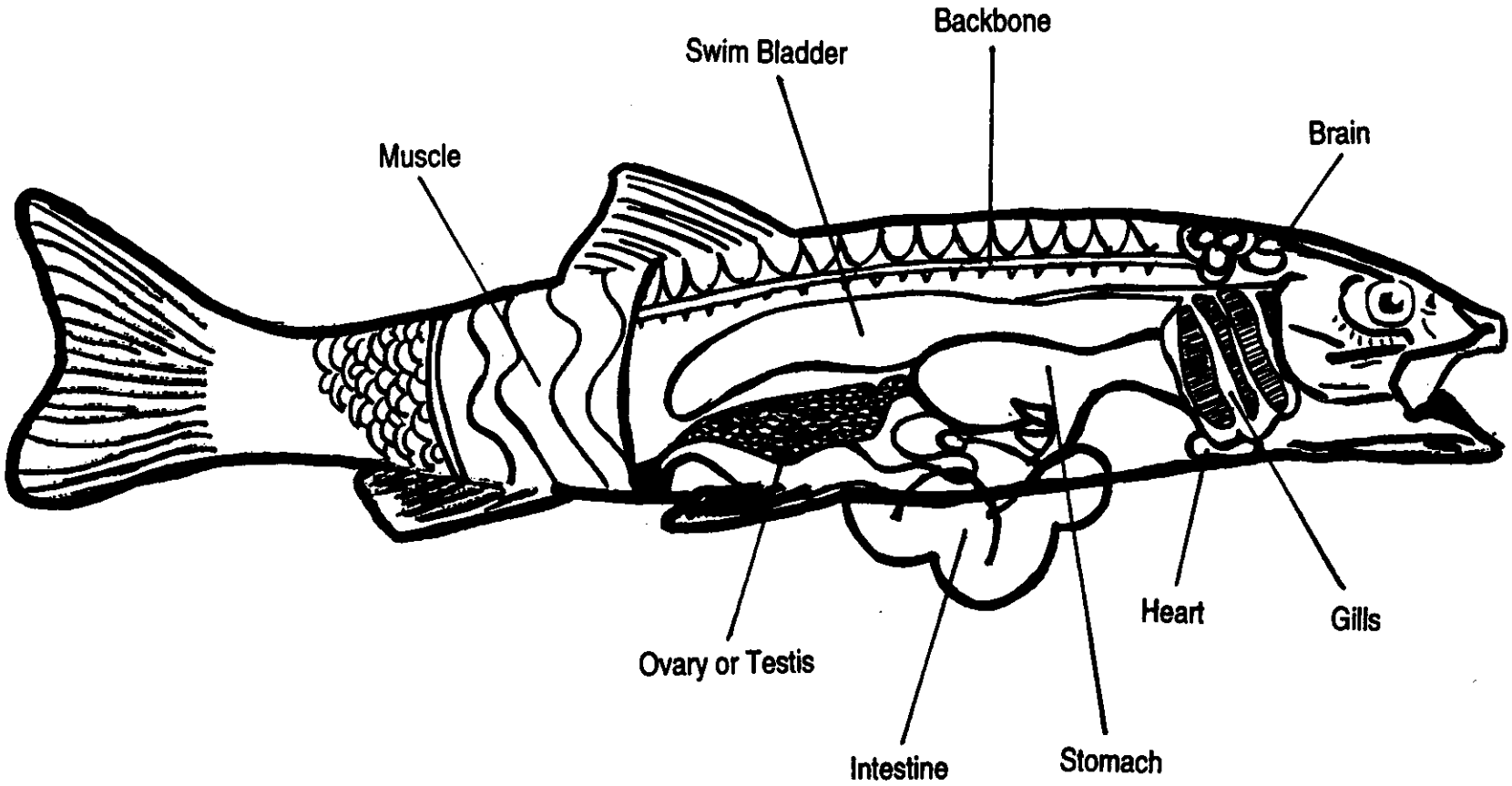
SCIENCE CONCEPTS/PROCESSES: System, Observe

OBJECTIVE(s): After completing the activity, students will be able to:

- identify the major internal organs of a fish.
- explain the function of the swim bladder.

MATERIALS:

18 large dissecting pans
18 scalpels
8 rolls of paper towels
6 plastic tubs
several newspaper
12 dissecting probes
18 dissecting scissors
18 Bigmouth Minnows
2 bottles of lemon juice



Bigmouth Minnow - Internal Structures

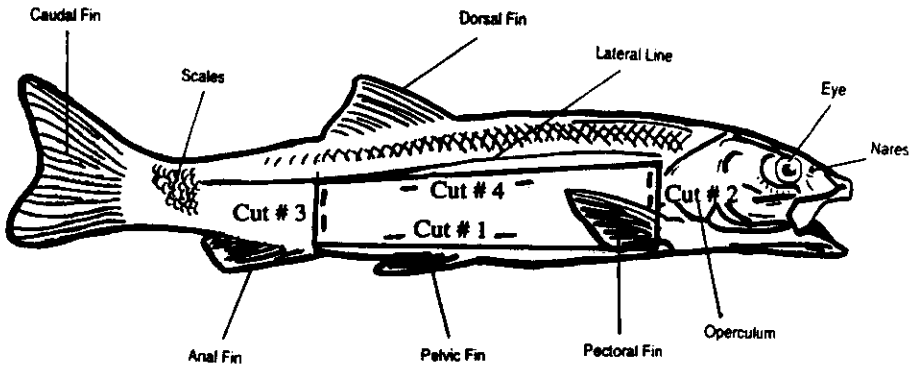
BACKGROUND INFORMATION:

Internal Structures-Function(s):

1. **Brain** - control center for the vertebrate body.
2. **Gills** - as the mouth and throat force water over the gills, dissolved oxygen from the water diffuses through the thin walls of the blood vessels in the gills.
3. **Heart** - two-chambered heart which pumps blood through a series of vessels to all parts of the body.
4. **Stomach** - where mechanical and chemical digestion take place.
5. **Backbone** - provides structure.
6. **Intestine** - connects the stomach with the anal opening and absorbs nutrients.
7. **Swim Bladder** - gas-filled organ that acts as a float.
8. **Muscle** - organ made of the tissue that can contract.
9. **Ovary or Testis** - reproductive organ. The ovary produces the eggs and the testis produces milt (contains sperm).
10. **Liver** - a large gland which acts in the formation of blood and metabilism of various body chemicals.
11. **Gallbladder** - a small pearshaped muscular organ in which bile secreted by the liver is stored.

PROCEDURE:

1. In this activity, students will observe the major internal structures of the fish. Instructors will demonstrate how to dissect a bony fish.
2. Insert the dissecting scissors at the base of the operculum (gill cover) at the very bottom of the fish. Cut along the base line to the anal opening (cut #1). **See diagram.**
3. Return to the original starting point at the operculum. Cut upward to the midline of the body (cut #2). Use your scissors to cut from the anal opening to the midline of the body (cut #3). This should create a flap of muscular tissue which can be removed by using a scalpel to cut the attached edge along the top edge of the body cavity (cut #4).

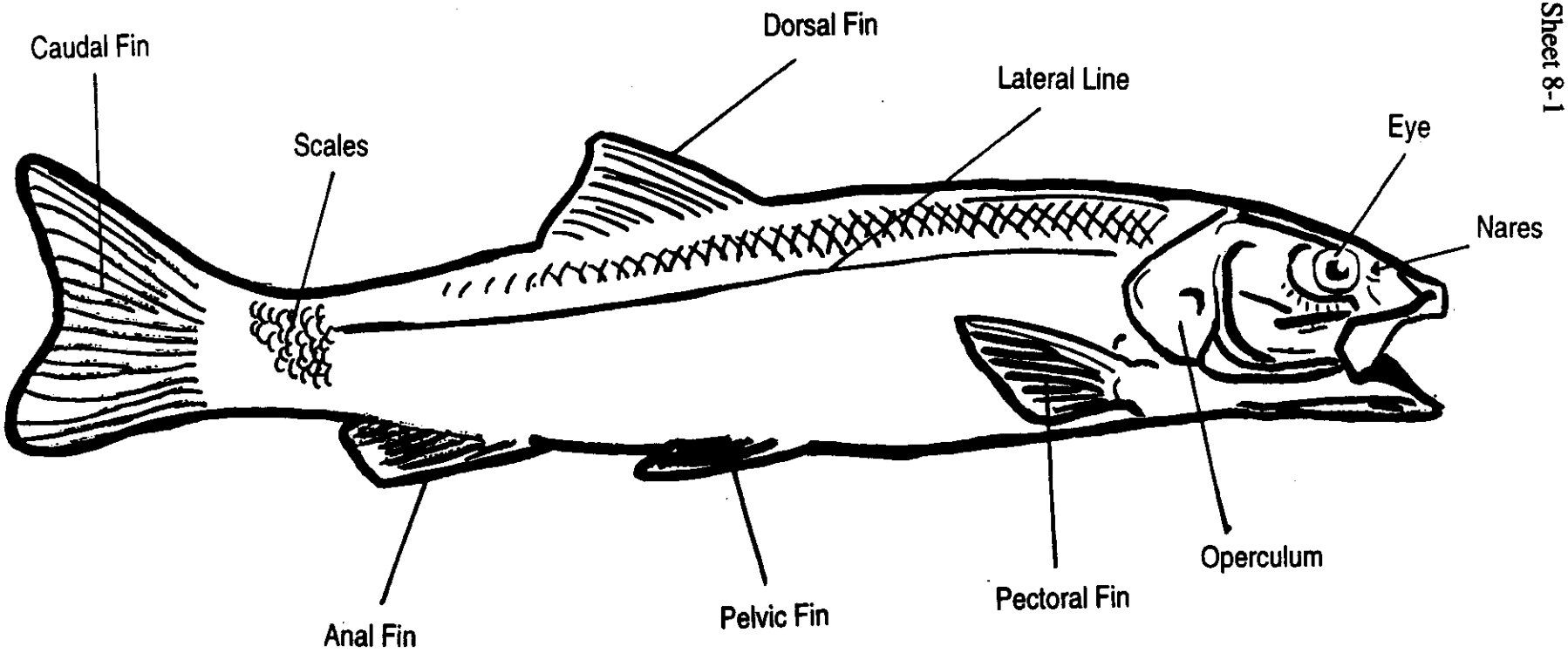


4. Instructors should locate the following internal organs: heart, gills, backbone, stomach, intestine, swim bladder, muscle, ovary or testis. Ovaries may be yellowish in color and contain many eggs. The testis are somewhat smaller than the ovary and creamy white. The air bladder lies along the top of the body cavity. It may have been broken in removing the body wall, and you will only be able to observe the space it occupied. The stomach of the Bigmouth Minnow may contain small fish (smolt) that they have eaten.
5. Students should label the internal structures on their Bigmouth Minnow diagram on Student Activity Sheet 8-2.
6. If time permits, the instructor can locate the brain.
7. Students/instructors should wash their hands in soapy water and rinse with lemon juice to eliminate the fishy odor after clean-up.

CONCLUSION:

Instructors should bring closure to this activity by asking the following questions:

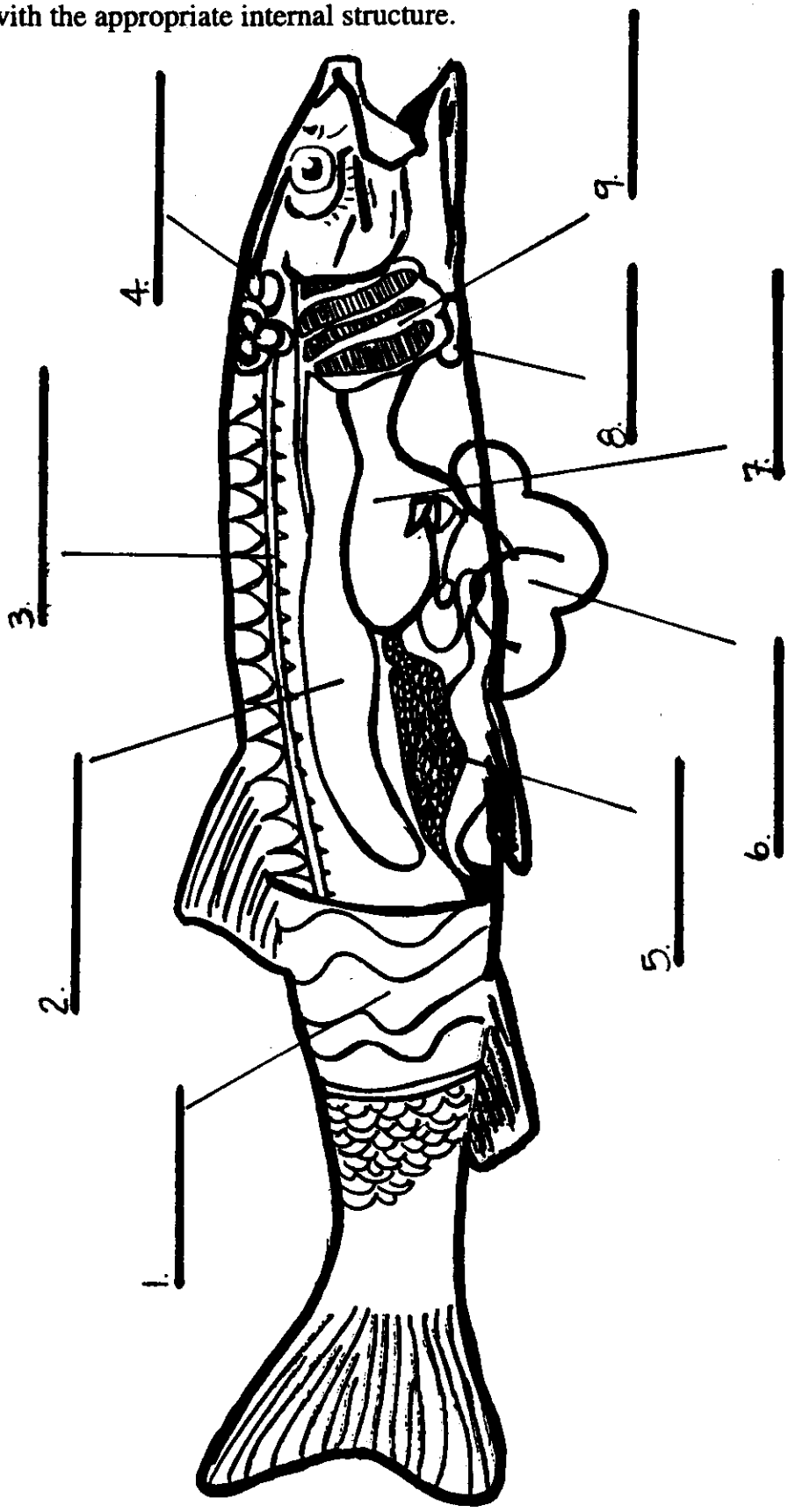
1. Why is it important for a fish to have a swim bladder?
2. List five internal structures and their functions?



Bigmouth Minnow - External Structures

Student Activity Sheet 8-2

Fill in the blanks with the appropriate internal structure.



Bigmouth Minnow - Internal Structures

Day 4 Teacher's Guide

9:00 a.m. **Serve breakfast to campers in their groups**

9:10 a.m. **Biggest Fish Guestimation Game**

Procedure: Hold up the biggest catch from Day 3 and ask students to guestimate the weight of the fish in grams (let students know that there are approximately 28 grams in an ounce). After students have written down their guestimate and given it to their counselors, weigh the fish in ounces and convert the ounces to grams (multiply by 28). Provide the fish award to the student in each group who has the closest estimate.

Activity 17 **Fish Dissection**

Skills: Observation, Measurement, Generalization, Identification, Application, Psychomotor, Synthesis

Objective(s): Students will be able to use common dissecting tools to explore the anatomy of a fish and identify major internal and external organs.

Materials: Dissecting Kits, Fish, Paper Towels, Cardboard, Dissecting Pins, Student Activity Sheets, Microscopes (optional for looking at fish structures)

Procedure: Begin activity by showing students a basic anatomical diagram of a typical fish and point out the parts they will be trying to find. Identify each implement in their dissection kits and explain how to use it safely. Have students find the fish specimen they caught on the previous day. Go over the following steps on their activity sheets and demonstrate the dissection techniques:

Step 1. Rinse the fish in cold water to remove loose scales and deposits on the fleshy surface. Pat dry with paper towels.
Step 2. Place specimen on a paper towel-covered piece of cardboard.
Step 3. Find the external structures shown in the diagram on your worksheet.
Step 4. Use the scissors to make an incision as shown in the worksheet diagram.
Step 5. Cut away the skin with your dissecting scissors to expose the internal organs and tissues.
Step 6. Use your diagram to identify the internal organs. As you identify an organ, carefully remove it by cutting the tissue around it without damaging the other organs. Place all of the organs you remove on your dissecting cardboard so that they can be compared.

Step 7. When finished with the dissection, wash all of the instruments you used in soapy water. Dry thoroughly with paper towels and put them back into their cases.

Step 8. Record your observations on your worksheet.

Conclusion: Provide closure to this activity by asking questions similar to these:

1. What do we have in common with fish?
2. Describe some major differences between humans and fish
3. If a fish is living in an unhealthy habitat, what kind of things might you notice when you dissect it?
4. How could you tell what a fish eats?
5. What kind of things can we learn from dissecting fish and other animals?
6. Do you think medical doctors perform dissections to learn how to operate?

Activity 17 **Fish Dissection** **Student Activity Sheet**_____
(your name)

Background:

Many of you have caught fish before and may have cleaned them to eat. In this exercise you will dissect a fish and find the main internal (inside) and external (outside) parts. Many parts of a fish are similar to parts (structures) of your own body, so learning about fish can help us understand how our own bodies work.

The main external fish structures that you should be able to find are shown in the diagram 17-1. The internal parts (anatomy) of a typical bony fish are also shown in diagram 17-2. The internal anatomy is generally more difficult to identify, but if you take your time you should be able to find all of the parts shown in the diagram.

You will be using dissecting tools to examine the internal fish anatomy and care must be taken to use these tools safely. Your teacher will demonstrate safe use of the dissecting tools.

Vocabulary Anatomy, Internal Structures, External Structures, Dorsal, Ventral, Caudal, Lateral Line, Operculum, Tissue

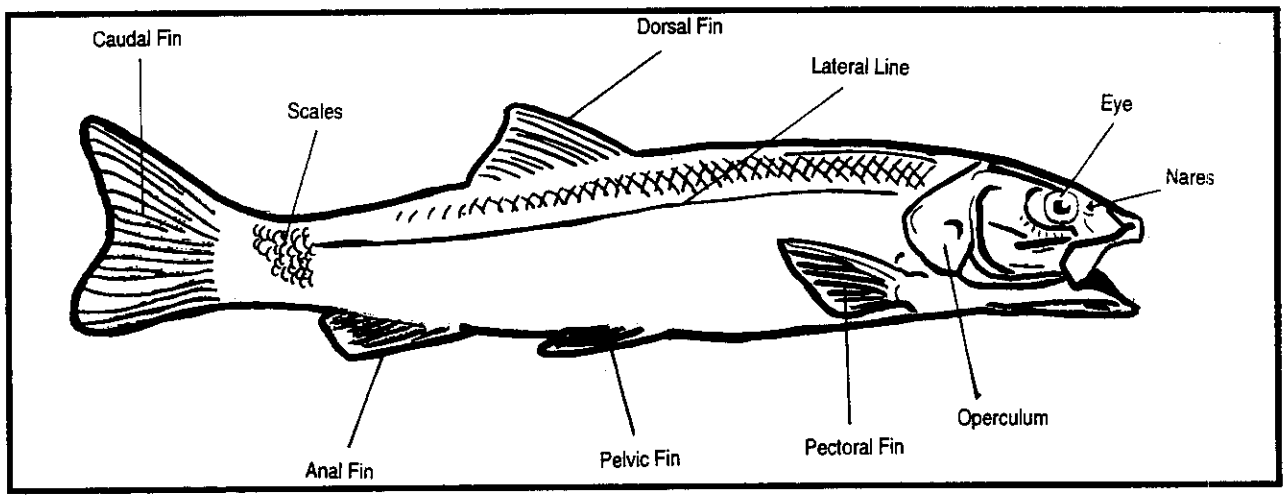


Diagram 17-1

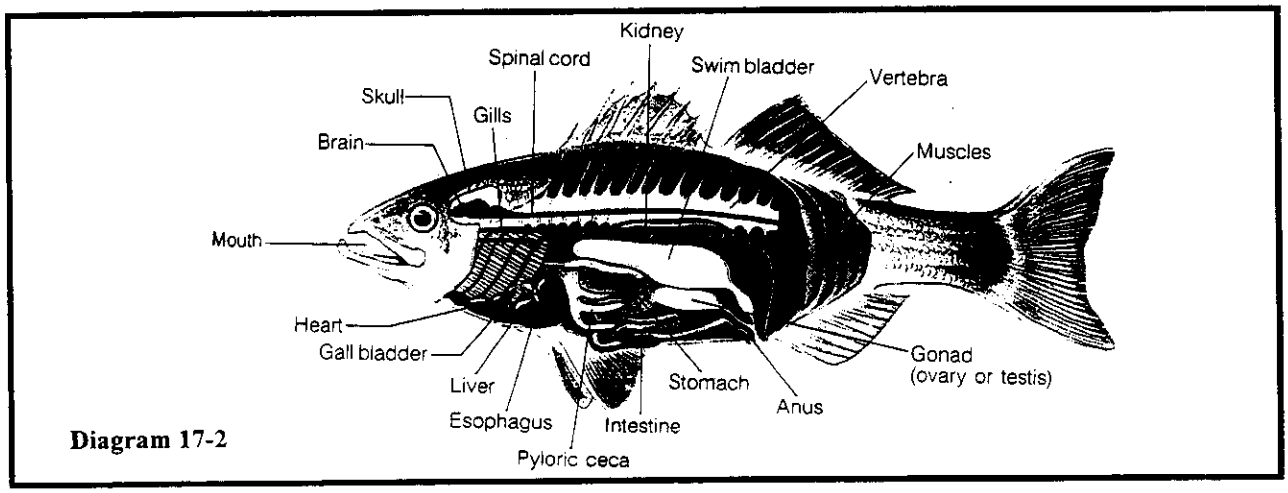
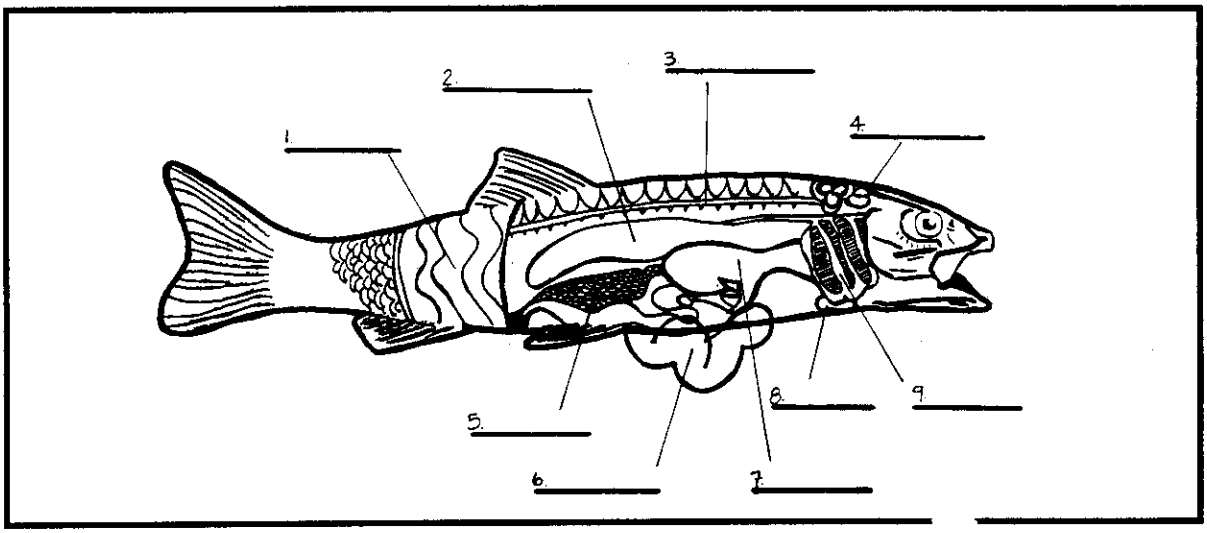


Diagram 17-2

Procedure:

Step 1. Take the forceps (tweezers), scalpel, scissors, and probes from your dissecting kit. Put on a pair of protective gloves.
Step 2. Using scissors, cut the fish's skin from the anus to the gills.
Step 3. Cut away the skin to expose the internal organs and tissues.



Fish Drawing with Labeled Structures

Step 4. Find the names of fish structures shown above and fill in the correct labels. You should be able to find these parts as you dissect your fish (see Diagram 17-1).

Step 5. When finished with the dissection, wash all of the instruments you used in soapy water. Dry completely and put them back into their cases. Dispose of your protective gloves.

Great JOB!