

Dead Yellow Perch Parts

Adapted from: An original Creek Connections activity created from the Ward Biological Fish Anatomy model.

Grade Level: Intermediate or advanced

Duration: 30 minutes

Setting: classroom

Summary: Students examine a diagram of a Yellow Perch and attempt to match the perch's body part with its function while filling in the blanks on the worksheet.

Objectives: Students study the internal and external anatomy of a Yellow Perch and learn the functions of the fish's specific organs

Vocabulary: anatomy, air bladder, anal fin, anus, caudal fin, cerebellum, cerebrum, dorsal aorta, first dorsal fin, gills, heart, intestine, kidney, liver, medulla oblongata, ovary, pelvic fin, pyloric caecum, second dorsal fin, spinal cord, spleen, stomach, urinary bladder

Related Module Resources:

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Materials (Included in Module):

- Worksheet, answer key, diagram, overhead of diagram
- Ward Biological Model of a Yellow Perch

Additional Materials (NOT Included in Module):

- Overhead projector,
- Photocopies of original worksheet are needed
- Photocopies of Word Bank (optional)

ACADEMIC STANDARDS:

4th Grade

- 3.3.4.B. Know that living things are made up of parts that have specific functions.

7th Grade

- 3.3.7.A. Describe the similarities and differences that characterize diverse living things.

10th Grade

- 3.3.10.A Explain the structural and functional similarities and differences found among living things.

12th Grade

- 3.3.12.A Explain the relationship between structure and function at all levels of organization.

BACKGROUND:

Fish are very important to waterway ecosystems and they play many valuable roles in the French Creek Watershed. They help maintain the balance needed for organisms to survive and the waterway to remain healthy. In the study of science, fish provide an excellent example for an understanding of **anatomy**. Anatomy is all the parts found in the structure of a plant or animal. One fish that is useful in studying anatomy is the Yellow Perch, which lives in the French Creek watershed. Yellow Perch (*Perca flavescens*) are one of 130 species that belong in the perch family (Percidae). "These freshwater fish can be found in streams, lakes, ponds and rivers with clear water and aquatic vegetation. They can be identified by their oblong bodies and golden yellow or brassy colored scales. There are also 6–7 dark vertical bands that run from the dorsal area to near the belly. Yellow Perch typically have olive colored dorsal and caudal fins, along with greenish orange pelvic and anal fins. The heaviest perch on record weighed 4¼ lb (1.9 kg), but the average weight is about 2 lb," (Carolina Biological, 1998).

The anatomy of a fish is best studied with the use of a side-view internal diagram or an incased specimen that has been cut in a way that reveals the fish's internal anatomy. Each part in the internal and external anatomy of a Yellow Perch serves a purpose in the fish's daily function. For example, the **ventral aorta**, located near the heart, controls blood flow and the **anal fin**, located on the exterior of the fish, helps the perch to swim by working as a steering mechanism.

OVERVIEW:

Students will examine a model of the Yellow Perch's anatomy and answer a worksheet to learn the main functions of each part. Students should, with some practice, be able to remember the basic order of the anatomy of the perch.

PROCEDURE:

Teacher Preparation:

1. Photocopy the original worksheet and also the fish diagram if desired.
2. Photocopy the word bank if the students are first being introduced to fish anatomy.
3. Procure overhead projector

Student Experiment or Activity:

1. Students are to examine the perch model provided in the module to get a good look at the structure of the fish.
2. Students should work through the fish parts worksheet to determine the different functions of each part of the fish. Each question asks for the name of the part and the number of the part on the model and fish diagram. Students should fill in both blanks. If the students are new to the activity then it may be helpful for them to have a copy of the Word Bank to work with.
3. Once all of the questions are answered on the worksheet, students should go over the answers together or with the teacher.

DISCUSSION:

What anatomical structures does this perch have that may not be present on other fish? *Some fish do not have a second dorsal fin, the perch's second dorsal fin helps it balance in the water and steer.*

Does the fish have parts for breathing on the inside of its body like we do? *No, the perch and other fish have gills for breathing.*

What body part keeps the perch from sinking in the water? *The air bladder controls the specific gravity of the perch.*

EVALUATION:

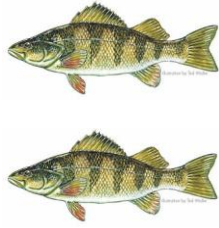
- Collect fill-in-the-blank worksheets, or go over answers as a class.
- Use words like Identify, Explain, Describe
- You can also quiz students on the Discussion questions above. If you have some additional ones that could be used in an exam or quiz please let Creek Connections know.

EXTENSIONS AND MODIFICATIONS:

- Compare the anatomy of a fish to the anatomy of another aquatic organism, for example a frog, turtle or water snake. What similarities and differences do you notice? What adaptations are specific to each organism? How do these adaptations help each creature survive in its habitat?
- Dissect a fish with the class. Determine if students can identify the anatomical structures when examining a real fish.

NOTES (PLEASE WRITE ANY SUGGESTIONS YOU HAVE FOR TEACHERS USING THIS ACTIVITY IN THE FUTURE):

Name _____ Date _____



Dead Yellow Perch Parts

Try to guess the parts of a dead Yellow Perch! Listed below are descriptions of various internal and external parts that you would find on and in a perch (as well as most other fish). Fill in the blank with the "dead Yellow Perch part" and then try to match it with a number on the *Perch Anatomy* display or worksheet. (The numbers on the *Perch Anatomy* display correlate with the numbers on the *Perch Anatomy* worksheet.)

1. One of the major functions of the _____ is to manufacture and secrete bile, which is stored in the gall bladder and released in the small intestine. Bile salts emulsify fats, a process that prepares the latter for digestion by the intestinal enzymes. #____
2. The _____ helps the perch balance in the water and steer while swimming. It is located underneath and toward the posterior end of the yellow perch. #____
3. The _____ controls life support functions such as breathing, and the fish's instincts. #____
4. The perch's eggs are produced and stored in the _____. #____
5. The _____ secretes intestinal enzymes and also acts to increase the surface area of the intestine. #____
6. The _____ is the major source of blood for most parts of the body. #____
7. Foreign organisms that infect the bloodstream are filtered out by the _____. #____
8. The _____ filters anything smaller than proteins. It reabsorbs the useful substances and discards the useless and excess substances in the form of urine. #____
9. By moving the _____ back and forth the perch can move forward. #____
10. The _____ assists in digesting food as well as absorbing nutrients from it. #____
11. The _____ controls the perch's intelligence and learning capabilities. #____
12. The _____ digests the perch's food particles. #____
13. The _____ are necessary for underwater breathing. They filter oxygen from the water and discharge carbon dioxide. #____

14. The _____ is very important because it controls muscular coordination and movement. #____
15. The fecal matter is discarded through the _____. #____
16. The _____ is used for adjusting the specific gravity of the perch. It keeps the yellow perch from sinking. #____
17. The _____ holds the urine until it is released. #____
18. The _____ helps the yellow perch to balance in the water and to steer when swimming. It is the one located toward the posterior end. #____
19. This very important organ pumps the blood through the body's circulatory system. It is the _____. #____
20. The _____ is the fish part that connects the nervous system to the brain. It is the main highway for messages to and from the brain. #____
21. The _____ helps the yellow perch to balance in the water and to steer when swimming. It is the one located more anterior. #____
22. The _____ acts as a stabilizer and provides some directional control for the perch. #____

Dead Yellow Perch Parts

Word Bank

Air bladder
Anal fin
Anus
Caudal fin
Cerebellum
Cerebrum
Dorsal aorta
First dorsal fin
Gills
Heart
Intestine
Kidney
Liver
Medulla oblongata
Ovary
Pelvic fin
Pyloric caecum
Second dorsal fin
Spinal cord
Spleen
Stomach
Urinary bladder

Dead Yellow Perch Parts Answer Key

1. Liver #8
2. Anal fin #21
3. Medulla oblongata #4
4. Ovary #14
5. Pyloric caecum #10
6. Dorsal aorta #19
7. Spleen #11
8. Kidney #16
9. Caudal fin #22
10. Intestine #12
11. Cerebrum #2
12. Stomach #9
13. Gills #6
14. Cerebellum #3
15. Anus #13
16. Air bladder #15
17. Urinary bladder #18
18. Second dorsal fin #24
19. Heart #7
20. Spinal cord #5
21. First dorsal fin #23
22. Pelvic fin #20