

Internal Trout Anatomy Collage

Description:

Students will learn about the internal parts of the trout. These include the heart, liver, gills, kidney, swim bladder, gonads, and stomach. Students will understand the function of these organs and where they are in the trout. This lesson is intended for elementary school students, but can be adapted for middle and high school as well.

Objectives:

- Identify the inner parts of a trout
- Learn the functions of the trout's organs
- Analyze why these organs are vital for the trout

Vocabulary:

Buoyancy, capillaries, gills, gonads, heart, kidney, liver, stomach, swim bladder

Materials:

- Arts and crafts materials
 - Crayons
 - Colored pencils
 - Tissue paper
 - Balloons (not filled)
 - Scissors
- Internal trout illustration
- Organ stencils/cutouts

Background:

All living things have internal structures that conduct essential functions for survival, including organs. For the trout, this includes the heart, gills, liver, kidney, swim bladder, stomach, and gonads.

Some of these organs play the same role in other living organisms. The heart pumps blood around the trout's body. It's stomach digests food and retains much needed nutrients. The trout's kidneys help maintain a balance of salt and water within the body, as well as gets rid of waste products that could harm the trout. The liver has a similar role; it detoxifies heavy metals and other potentially harmful elements. Gonads produce and contain the reproductive cells of the trout. In addition to these organs, there are others that are unique to fish and the trout. This includes the gills and the swim bladder.

Gills allow for fish to breathe underwater. Fish cannot breathe in oxygen the same way humans and other land animals do. The oxygen in the water is not readily accessible to trout and other fish, so gills have small blood vessels called capillaries that, when water passes through them, are able to pick up oxygen in the water. The swim bladder helps the trout swim in the water. As the trout takes in air, it displaces water, meaning it allows for less water to enter, and increases its buoyancy. This allows for the trout to be lighter and is then able to float upwards.

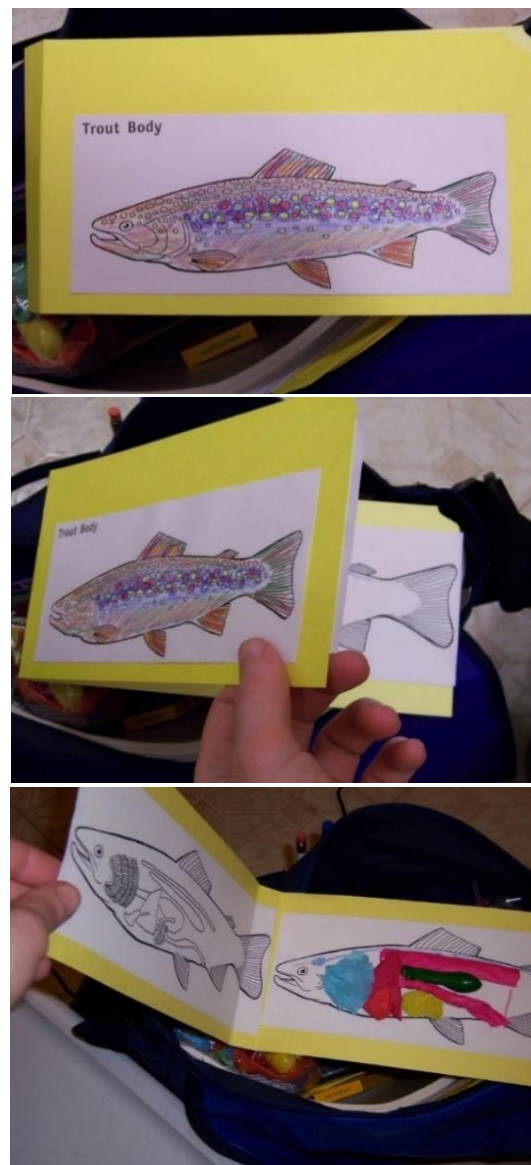
Method:

- Print trout outlines for each student to use as the base of the collage. Print stencil pages for students to cut out themselves.
- Show students the completed diagram of the internal trout. Discuss what they think each part is and what they do (see background information above).
- Give each student a copy of the internal trout illustration and stencils.
- Have students cut out the stencils carefully.

- Direct students to paste the stencils onto the trout outline over the correct number representing the organ. If this is too advanced for your age group, you can use the trout with pre-labeled organs.
 - For the swim bladder, use a small balloon (no stencil included)
- **Optional:** Provide students with arts and crafts materials (tissue paper, cottons ball, balloons, etc.) and have students glue it on to the illustration to make a trout collage.
 - Tissue paper or cotton balls for the heart, kidney, stomach, liver, and gonads.
 - A small balloon can be used for the swim bladder and inflated to demonstrate functionality.
 - Students can color in the other parts of the trout and its background environment, time permitting.

- Create mini trout anatomy books! Use students' drawings from the Adaptations of Trout Around the World Lesson and their collages from this lesson.
- Compare and contrast the anatomies of trout, humans, and plants. Discuss the similarities and differences.

Trout Collage Example:



Discussion:

- What is the function of each organ? (review)
- What do all living things need to be able to do? *Breathe, eat, find shelter, etc.*
- How are fish able to breathe underwater? Where does the oxygen come from?
- How is trout anatomy different from human anatomy? Are there any unique organs that the trout have that humans do not? (*swim bladder, gills*)
- How do these organs work together?

Extension:

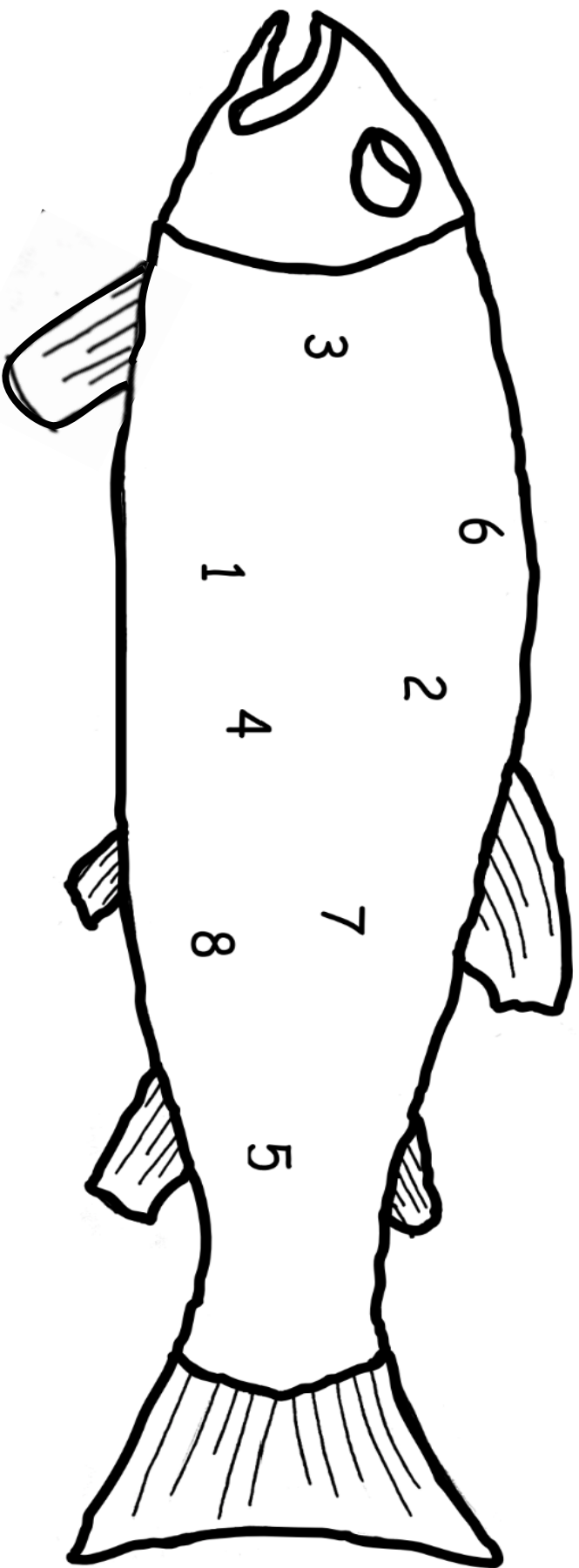
- Using DEP's lesson on the Adaptations of Trout Around the World, talk about the evolutionary adaptations related to fish anatomy and review external trout anatomy.
- Have students research trout anatomy and create more complex illustrations.

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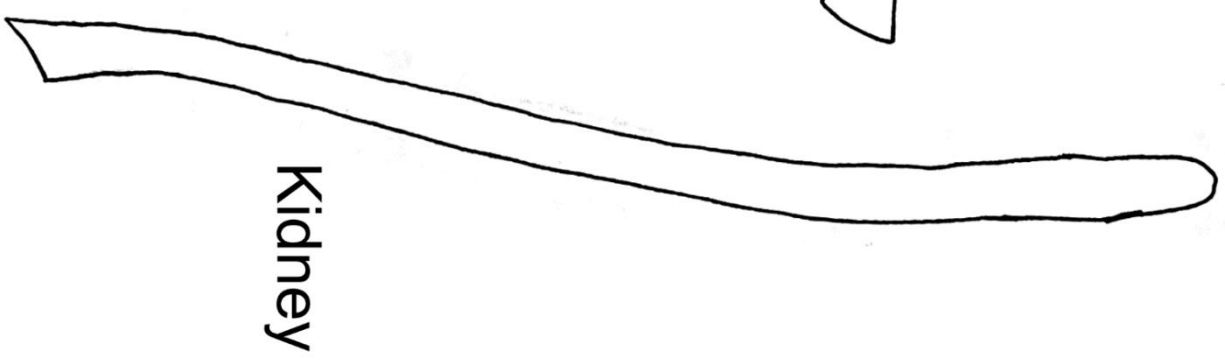
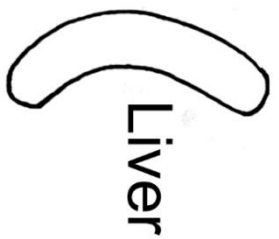
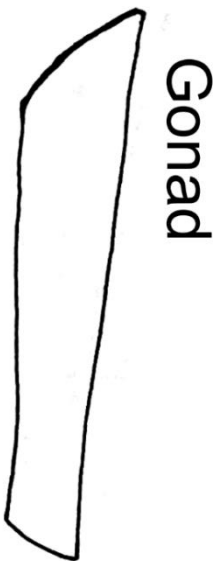
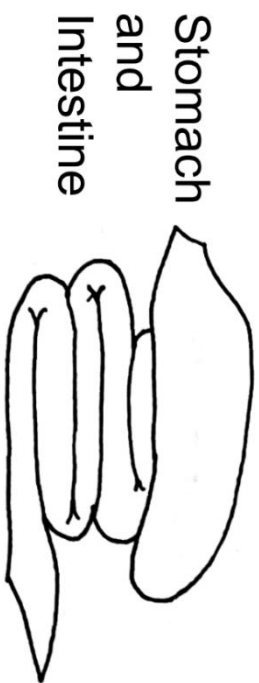
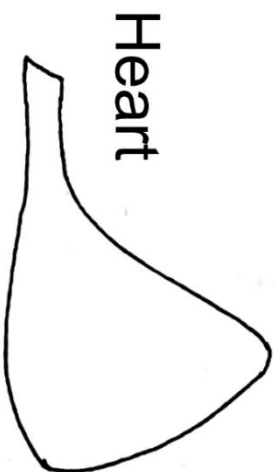
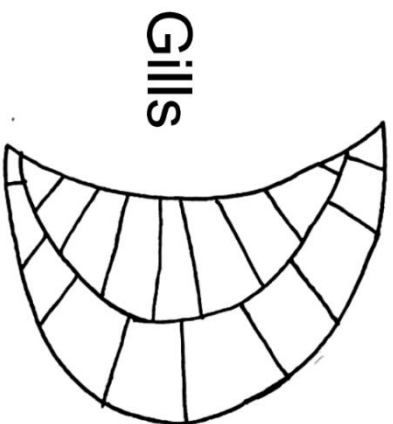
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Name: _____



1. Heart
2. Swim Bladder
3. Gills
4. Liver
5. Gonad
6. Kidney
7. Stomach



Name: _____

