

Bluegill Anatomy

Grade Level: Upper elementary

Subject Area: Life Science

Duration: One class period (45 minutes)

Next Generation Science Standards:

- 4-LS1-1 – Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
 - Practices of science
 - Engaging in argument from evidence
 - Cross cutting concepts
 - Structure and function

Common Core State Standards – ELA/Literacy

- SL.4-5.1 - Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade appropriate topics, building on others' ideas and expressing their own clearly.

Vocabulary: See Student Vocabulary Sheet

Teacher Background:

Although fish are often very different in terms of coloring and body shape, they all share some basic features. Probably the most obvious feature, and one that characterizes all fish, is the presence of fins. The number, shape and function of the fins may differ from one species of fish to another. For example, the pectoral fins of a flying fish are modified for gliding while the pectoral fins of a sea robin are modified for walking. However, the pectoral fins are always located in the same approximate position in all fish, and in most cases, are used for braking and maneuvering. Most fish have other body parts in common – eyes, lateral lines, and the operculum.

Materials:

- Student unlabeled diagram of a bluegill – one for every two students
- Student vocabulary sheet - one for every two students
- Smart board or computer with LCD projector. Scan the unlabelled picture of the bluegill to use during the discussion.
- If possible, the aquarium with bluegills

Activity: This is a basic activity to help the students learn the external parts of a bluegill.

- Engage
 - Ask the students whether they know what makes an animal a fish. What characteristics do all fish have? *A backbone, live in water and breathe with gills, have fins*

- Why do fish have fins? Ask them if they have ever watched a fish swim. If the aquarium is set up with bluegills, have the students spend some time observing the fish. How do they propel themselves through the water? *Most fish use their caudal (tail) fin.*
- Do they have any idea what the other fins are called and what their purpose is? What are the other parts of a fish called and what is their function? Tell them that they are going to find out.
- Explore
 - Have the students work in pairs. Give each pair a vocabulary sheet and an unlabelled diagram of a bluegill.
 - Tell them to work together to label the parts of the bluegill. Remind them to remember the purpose for each part.
- Explain
 - Tell the students to hand back the vocabulary list or put it in their desks so they cannot make use of it during the discussion.
 - Choose a student to identify one part of the bluegill. Then choose another student to discuss the function of the part. Continue until all the parts are labeled.
 - If the students have trouble understanding the concept of the fins serving to stabilize the fish, use the analogy of an airplane.
 - The jet engines are like the caudal fin; they make the plane go.
 - The wings are like the dorsal and anal fins; they keep the plane from rolling or spinning around.
 - The flaps on the wings are like the pectoral and pelvic fins; they are used to steer and stop the plane.
 - If the students have trouble understanding the concept of the lateral line, use the analogy of a cat's whiskers.
- Extend
 - Buy a whole fish from the grocery store (or if you know someone who is an angler, ask them if they would bring you a fish) and have the students identify the external parts. Does the fish have the same parts as the bluegill?
 - For older students, you could consider doing a fish dissection, either as a teacher demonstration, or having the students work in groups to do their own dissection. There are a number of websites which have descriptions of fish dissections. Choose one that meets your students' abilities, or use the lesson "Insides and Outsides".
 - Have students research other fish to compare the function of their fins with those of the bluegill. Some fish to look at might include flying fish, sea robins, seahorses, moray eels, triggerfish, and pipefish.