

Name that Fish

Grade Level: Middle School

Subject Areas: Life science

Duration: 45 minutes

Maryland State Curriculum:

- Grade 7 Science
 - 3.A.1 – Compile evidence to verify the claim of biologists that the features of organisms connect or differentiate them-these include external and internal structures

Objectives:

- Students will be able to use a dichotomous key to identify common Chesapeake Bay fish.
- Students will be able to use their knowledge of external fish anatomy to construct their own dichotomous key.

Teacher Background:

A dichotomous key is a tool that is usually used to identify living things. The key is called dichotomous (“divided into two parts”) because at each step the user must make a choice between two alternatives, based on some characteristic of the organism to be identified. Some keys are fairly simple, using easily observed external characteristics, and covering only a limited number of easily identifiable species. Other keys are quite complex and often require extensive knowledge of both internal and external anatomy. Sometimes only an expert can identify an organism down to the species level.

Given the same group of organisms to be identified, the key can be constructed in a number of ways, based on different characteristics, but resulting in the correct identification.

Materials:

- Student worksheet
- Dichotomous key for common Chesapeake Bay fish
- Pictures of common Chesapeake Bay fish

Activity:

- Before beginning this activity, it is a good idea if the students have studied or reviewed the external anatomy of fish, especially the names and locations of the various fins.
- Introduction:
 - Ask the students if they have ever heard of or used a dichotomous (“divided into two parts”) key. Explain that a dichotomous key is a tool used to identify things. The key always offers them a choice between two

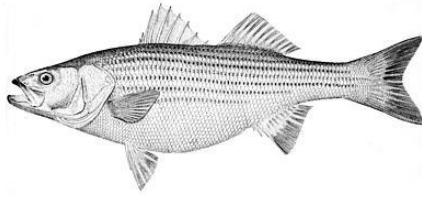
statements at each step, based on an observable characteristic. Their choice will determine the next step.

- As an example, ask them how they would divide the class into two groups, based on an observable characteristic. If it is a coed school, the obvious answer would be males and females. Then taking one of the groups, how would they further divide them into two groups (For example, students who wear glasses and those that don't) and so on.
- Once they understand how a dichotomous key works, tell them that they are going to use their knowledge of fish anatomy and a dichotomous key to identify several species of common Chesapeake Bay fish.
 - Hand out fish pictures and dichotomous key and have students work independently to identify the fish.
 - Once everyone has finished, go over the steps that they used to identify each fish (This is because some students may recognize several species and not use the key to identify them!).
- Now it is their turn. They are going to create their own key using the same group of twelve fish.
 - Remind them that each step must consist of two choices based on some external characteristic.
 - Have them work in pairs or small groups to create a new key.
 - Once they have finished, have them exchange keys with another group to make sure that the key works.
 - Have each group share their key with the entire class. It might be interesting to see if every group came up with a different key or if there were some duplicates.

Extension:

- Have students create a dichotomous key for species of fish found in different habitats. Students will have to do some research at the library or on the Internet to find pictures and descriptions. Some suggestions might be:
 - Pond or lake – smallmouth and largemouth bass, pumpkinseed, bluegill, red-ear sunfish, black and white crappie, catfish, carp, etc.
 - Atlantic Coast – croaker, black and red drum, sea bass, bluefish, spot, Spanish and king mackerel, etc.
- If possible, take a field trip to one of the habitats that the students have researched and have them use the key to identify the fish they catch. The key provided in this lesson will work at many of the beaches found on the Chesapeake.

Name that Fish – Student Page



You and your classmates have been learning about the native plants and animals of the Chesapeake Bay. You have just taken a field trip to a Bay beach, where you have spent the morning seining for fish. You have collected and photographed a number of different kinds of fish but you have no idea what they are. When you ask your teacher, she replies that she is not sure either – that you will have to use a “dichotomous key” to find out.

She explains that a dichotomous key is a way of identifying living things by looking at different characteristics. “Dichotomous” simply means “divided into two parts”. At each step you will have two choices; you will have to decide which choice best describes the fish you are trying to identify. Your decision will determine your next step.

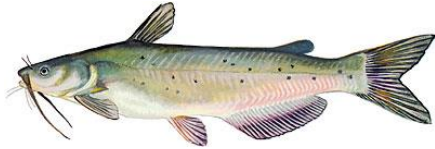
Back in the classroom, you are given drawings of twelve species of fish found in the Chesapeake, plus a dichotomous key. Once you have identified the fish, you can compare them to the photos you took. Hopefully then, you will know what species of fish you caught.

How to use the dichotomous key:

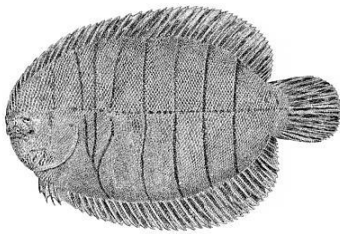
- Before beginning, you will need to review external fish anatomy, especially the names of the fins.
- Start with the first fish. Using the key, read the first pair of statements. You will have to decide whether you think the fish has a round or forked caudal fin. Once you have decided, follow the dotted line to the right to find a new number.
- Go back to the left side until you find the correct number. Again, you will have to make a decision and then follow the dotted line to the right until you find a new number or name of a fish.
 - If you see another number, go to the pair of steps with that number and continue making choices until you have identified the fish.
 - If you find the name of a fish, you have identified the fish.
- Repeat the process until you have identified all twelve fish.



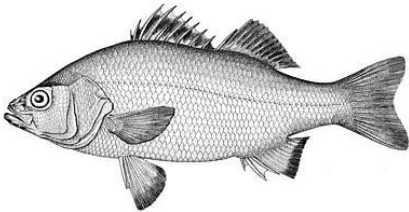
Fish Name: _____



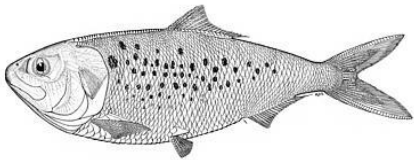
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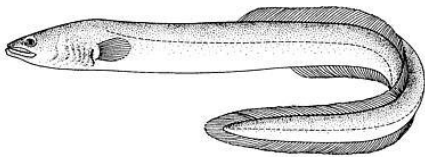
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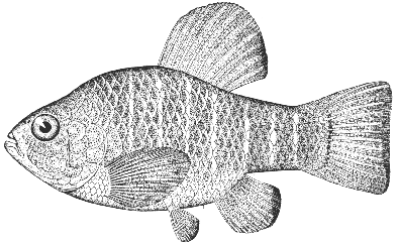
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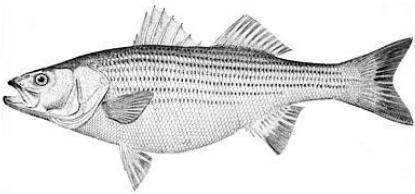
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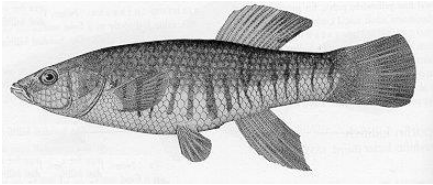
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Fish Name: _____



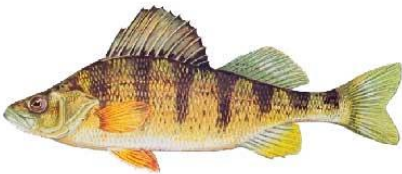
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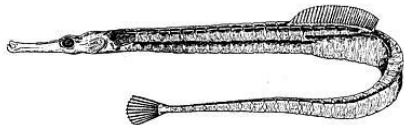
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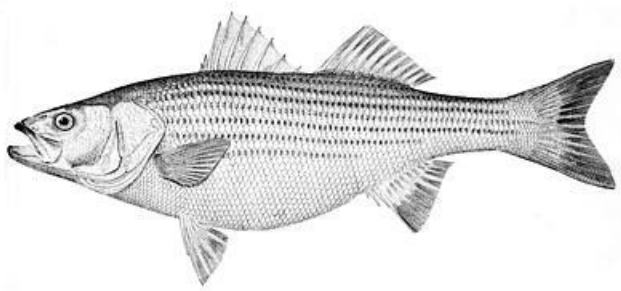


Fish Name: _____



Fish Name: _____

Dichotomous Key for Common Chesapeake Bay Fish



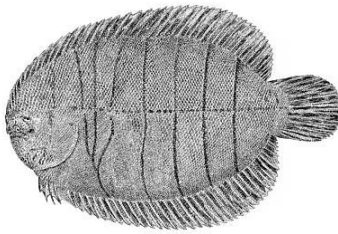
- 1a. Round or square caudal fin.....2
- 1b. Forked caudal fin.....6
 - 2a. Flat body; eyes on same side of head.....hogchoker
 - 2b. Body not flat.....3
 - 3a. Body long and thin.....4
 - 3b. Body not long and thin.....5
 - 4a. Dorsal and caudal fins separate.....pipefish
 - 4b. Dorsal and caudal fins joined.....eel
 - 5a. Slender body with dark bars.....striped killifish
 - 5b. Deep body with light bars.....sheepshead minnow
- 6a. Slightly forked caudal fin.....7
- 6b. Deeply forked caudal fin.....9
 - 7a. Vertical bars.....yellow perch
 - 7b. Horizontal stripes.....8
 - 8a. Dark stripes.....striped bass
 - 8b. No stripes.....white perch
 - 9a. One dorsal fin.....10
 - 9b. Two dorsal fins.....11
 - 10a. Dark spots.....menhaden
 - 10b. No dark spots.....bay anchovy
 - 11a. No barbels.....silverside
 - 11b. Barbels.....channel catfish



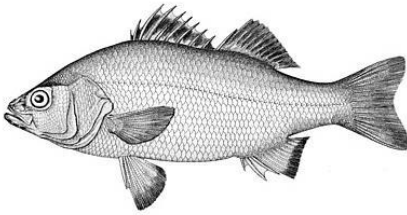
Fish Name: bay anchovy



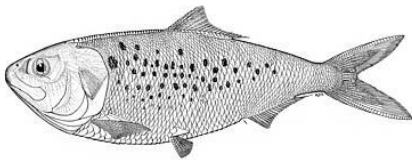
Fish Name: channel catfish



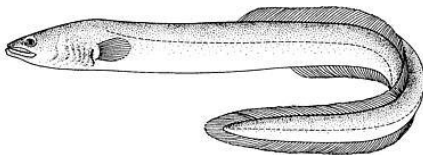
Fish Name: hogchoker



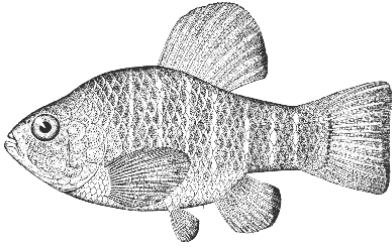
Fish Name: white perch



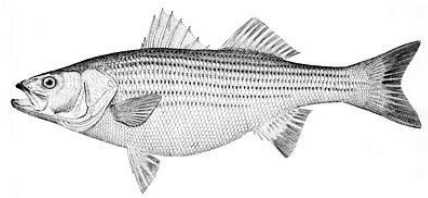
Fish Name: menhaden



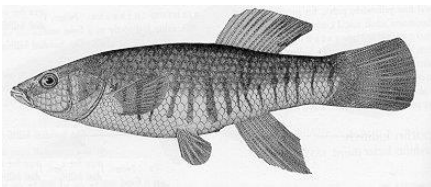
Fish Name: eel



Fish Name: sheepshead minnow



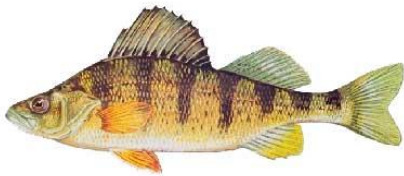
Fish Name: striped bass



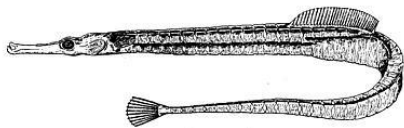
Fish Name: striped killifish



Fish Name: silverside



Fish Name: yellow perch



Fish Name: pipefish

