



Cabrillo Marine Aquarium Lesson Plan

Grade Level: Kindergarten, First and Third Grades

Title: What do Fish Have?

Objective: Students will be able to: (1) identify major structures on fish; (2) observe and color a specimen on a coloring page; and (3) discuss the function of structures on a fish

California Science Standards: K: 2c 1st: 2a 3rd: 3a

Time to Complete: 45 minutes

Materials Provided by CMA: *Worksheet: Parts of a Bony Fish*

Materials Provided by Teacher: Crayons, pencil, scissors, glue sticks

Vocabulary: Anal fin, caudal fin, scales, dorsal fin, eye, gill cover, gills, mouth, nostril, operculum, pectoral fin, pelvic fin, tail

Teacher Preparation:

1. Provide *Worksheet: Parts of a Bony Fish*
2. Use the "Cut and Paste Words" page, for younger students.

Lesson Outline:

1. Show the image of the fish that has already been labeled. Identify the different parts of the fish and the functions of those parts. Parts that should be recognized are head, eye, gills, fin, mouth, and scales.
2. Teacher should show a photo of a fish and discuss the fish. Then, have students identify the different parts of the fish.
3. After discussing the picture, hand out blank *Worksheet: Parts of a Bony Fish*. Have students color and label the different body parts. (Have younger students use the "Cut and Paste Words" sheets; have older students write the words in.)

Glossary: Bony Fishes

Anal fin – an unpaired fin that is located between the caudal fin and the anal opening, and helps with stabilizing the fish when it swims

Calcium carbonate – a chemical compound with the formula CaCO_3 , found in bones of fishes and also shells of marine organisms (such as snails), pearls, rocks, and bird eggs

Caudal fin – tail-fin fish use for propulsion

Ctenoid scales – a type of fish scale that have tiny teeth on one edge



Dorsal fin – a fin that is located on the backs of many marine vertebrates used to stabilize the animal and prevent them from spinning during locomotion

Eye – the organ that is used to detect and collect light to form an image

Gill cover – a hard, bony flap that covers and protects the gills; an operculum

Gills – an organ that filters oxygen out of the water to aid in breathing/ respiration

Ichthyologist – a scientist who studies fish

Ichthyology – the study of fish

Lateral line – a sensory organ in fish used to detect vibration and movement in the water

Mouth – an organ that is used to capture and consume food

Nostril – the sensory organ used to smell

Operculum – a hard protective covering or gill cover

Otoliths – bony structures in the inner ear of all vertebrates (fish, amphibians, reptiles, mammals and birds)

Pectoral fin – a pair of fins located on each side of fish, and is used to generate lift, a force that assists some fish in maintaining depth in the water column

Pelvic fin – a pair of fins located under the pectoral fins and assists in turning, stopping, and moving up or down in the water

Scales – amour-like plates that cover the bodies of bony and cartilaginous fish

Standard length (SL) – the tip of the snout to the posterior (tail) end of the last vertebra or to the posterior end of the midlateral portion of the hypural plate (this measurement excludes the length of the caudal fin)

Swim bladder – a gas-filled organ inside the bodies of bony fishes; usually used for buoyancy and to maintain depth in the water column

Tail – a flexible appendage attached to the torso

Vertebrate – an animal possessing a backbone and an internal skeleton

Lesson Extensions:

- For older students (1st and 3rd grades), have them use the more advanced words to label the animals (i.e. ctenoid scales, operculum, etc.).
- Using the vocabulary they have just learned, have students complete on Word Search – Bony Fishes and Cross Word Puzzle – Bony Fishes (found on CMA’s virtual learning page – Bony Fishes)

Further Student Exploration:

- Take a field trip to the Cabrillo Marine Aquarium. Contact (310) 548-7562 for more information and booking dates. Information can also be accessed at:
<http://www.cabrillomarineaquarium.org/education/programs-school-group.asp>

