

Scale Study



Objectives

The students will be able to identify and describe three different types of scales.

Background

There are three types of scales found on bony fishes: cycloid, ctenoid, and ganoid. Cycloid scales have a smooth, circular surface. Ctenoid scales have tiny teeth, like a miniature comb, along the outer edge which make the fish feel rough to the touch. Hard, shiny ganoid scales are diamond-shaped and cover the skin of primitive bony fishes like gar.

Materials

For student pair:

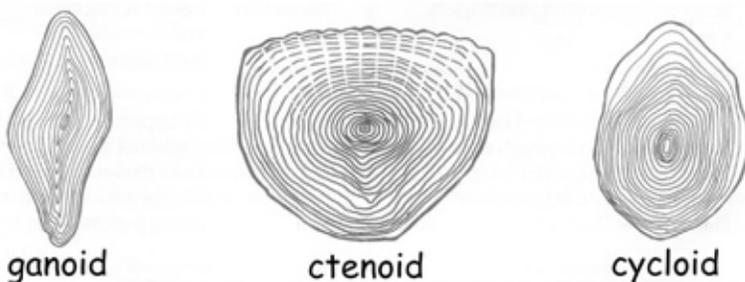
- wide-mouth pint jar
- dissection microscopes
- bony fish scales (available through a biological or science supply catalog, or visit a fish market and ask for scales from these fishes: perch or bass (ctenoid scales), salmon (cycloid scales), sturgeon or gar pike (ganoid scales))

For class:

- overhead projector
- transparency of enlarged copy of these scales at the bottom of this page
- paper
- pencils

Action

1. Have students pair up. Provide each pair with a microscope, some fish scales, paper, and pencil.
2. Direct students to study each scale individually under the microscope.
3. Have students do a careful, detailed drawing of each scale.
4. Place transparency of enlarged scales on overhead projector. Invite students to use it as a guide to help identify their different types of scales. Have them label each scale sketch.
5. Ask students to write a description of each scale under its drawing.



Deeper Depths

A fish scale shows growth rings like those on a tree trunk. You can determine how old a fish is by counting the rings on one of its scales. Wide spacing between rings indicates a rapid growth rate. Ask students to estimate the age of each fish by counting the rings on its scale. How many periods of rapid growth has the fish experienced?