River Quest 2019

Fishy Physics

A GREAT LAKES AQUARIUM PROGRAM

MN Standard 6.2.2.2.2
Physical Science
WI Standard MS-ESS-2-4:
Earth's Systems

Synopsis

Water is heavy! Because of that, living in the water is much different from living in the air. Fish bodies are designed to fit their needs for traveling through their dense environment—the placement of their fins and shape of their bodies determines how they are able to move. Furthermore, fish must navigate the delicate balance between sinking and floating in order to adjust their depth in the water. If an animal is more dense than water, it will sink (negative buoyancy). If it is less dense, it will float (positive buoyancy). If it is equally as dense as water, it neither floats nor sinks, and is 'neutrally buoyant.' Fish have a special organ to help them maintain neutral buoyancy in the water—a swim bladder. The swim bladder is a sack in the fish's body which fills up or deflates with air to help a fish maintain neutral buoyancy so that it can travel up and down in the water.

Online resources

Great Lakes Aquarium Teacher Resource Center—https://glaquarium.org/learning/for-teachers/teacher-resource-center/

⇒ Contact us about free teaching kits available for lend

⇒ Download a copy of *Lake Effects* and other lessons

⇒ Find teaching resources from around the Great Lakes Basin

Minnesota DNR MinnAqua program—www.dnr.state.mn.us/minnaqua

⇒ Find information about fish, fishing and aquatic habitat

⇒ Download lessons from the award winning curriculum *Fishing: Get in the Habitat!:*

Fish families

http://files.dnr.state.mn.us/education_safety/education/minnaqua/leadersguide/chapter_2/2_3_fish_families.pdf

Using a key for fish ID

http://files.dnr.state.mn.us/education_safety/education/minnaqua/leadersguide/chapter_2/2_4_using_a_key_for_fish_id.pdf

Diving into Diversity

http://files.dnr.state.mn.us/education_safety/education/minnaqua/leadersguide/chapter_2/2_5_diving_into_diversity.pdf

Vocabulary

Swim Bladder
Laterally compressed
Dorsal fin
Density

Buoyancy:
Buoyant Force
Positive Buoyancy
Negative Buoyancy
Neutral Buoyancy

Questions? Contact Emily Wartman at 218-740-2000 or ewartman@glaquarium.org