



Developed with Kristin Hotter

Volume 3 | Gr. 6-8

All about fish: Research, print, and present



Time:

Introduction: 25 minutes

Activity 1: 60 minutes

Activity 2: 40 minutes

Activity 3: 40 minutes

Total Time: 165 minutes

Objectives

Students will...

- Identify a fish based on specific physical characteristics
- Synthesize information from an article and provide a possible solution to the presented problem
- Create a model that solves a given problem

Content

Students will be assigned to draw a replica fish. They'll only know their fish is one from a list of six. They'll need to conduct their own research about the fish to determine which fish they have. Once they know the identity of their fish, they'll work in a small group to read an article about a problem that fish either faces or has created. The group will create a presentation for the class about the fish, its problem, and possible solutions to the problem. Students will create a print of their fish that shows the problem the fish faces or has created. Finally, students will reconvene with their group to build a solution to the problem. They'll use simple building materials to construct a device that will help with the environmental problem named in the Activity 1 article.



STEAM connections

Science — Students learn about their fish replica and complete a graphic organizer that shows their learning about different features of the fish.

Technology — Students utilize research skills to determine their species of fish and investigate the problems their fish face or create. They'll present their findings to the class through a presentation.

Engineering — Students work with their groups to create a model that can help to solve the problem they learned about in the article.

Art — Students create a print of their assigned fish.

Math — Students measure their model fish. They'll compare the length and width of their model fish with what they learn about the length and width of their actual fish. They'll calculate the percent the fish's size decreased from the actual fish to the replica fish.



Standards

MS-LS1-5 — Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.

MS-LS2-4 — Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

VA:Cr2.1.6a — Demonstrate openness in trying new ideas, materials, methods, and approaches in making works of art and design.

VA:Cr3.1.6a — Reflect on whether personal artwork conveys the intended meaning and revise accordingly.

VA:Re7.1.6a — Identify and interpret works of art or design that reveal how people live around the world and what they value.

VA:Re7.2.6a — Analyze ways that visual components and cultural associations suggested by images influence ideas, emotions, and actions.

VA:Cn10.1.6a — Generate a collection of ideas reflecting current interests and concerns that could be investigated in art making.

VA:Cn11.1.6a — Analyze how art reflects changing times, traditions, resources, and cultural uses.

Introduction

1. Give each student a fish replica. Explain their fish is either a piranha, flounder, trout, carp, salmon, or largemouth bass.
2. Ask students to spend a minute investigating their fish replica. Have them write down any features or characteristics they specifically notice about their unknown fish.
3. Once students have had a minute to investigate their fish, ask them to use their research skills to dig a little deeper. Have them find images of the six fish named earlier and determine their particular kind of fish based on what they find in their research.
4. As they research, they'll learn more specific information about their fish. Upon the completion of their research, they should be able to present 5-7 facts about their particular fish.

Piranha



Activity 1

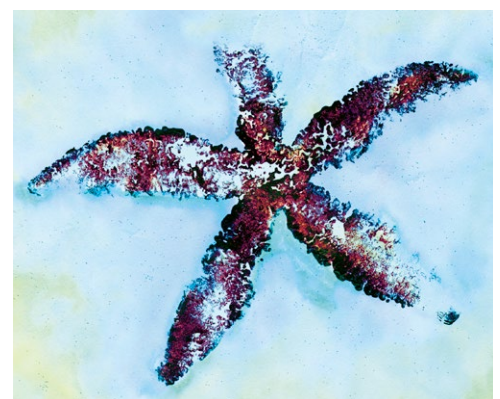
Each group of students will read an article about a problem their fish faces or a problem their fish causes. Together, groups will create either a PowerPoint® presentation or a poster presentation that highlights the problem and offers at least one possible solution to the problem.

1. Have groups read through the assigned article together. Tell them to look for additional information about their fish that can be used in their presentation.
2. Groups should highlight the problem faced or created by their fish and be sure to emphasize this in their presentation.
3. Groups should brainstorm ways that their problem can be solved. Tell them that some ideas may be presented in their article, but that the group will need to come up with other ideas.
4. Have groups fill out the provided graphic organizer to help plan the important information they want to convey through their presentation.
5. Groups should decide how they will present their information. Have them create a presentation that gives key information about the characteristics of their fish, the problem, and possible solutions.

Activity 2

Students will complete a print of their fish.

1. Select a few iridescent acrylic paints or inks and place a small bit of each onto an old plastic lid (old margarine or whipped top lids work well for this). Make sure to add some white to your colors. Besides having a shiny quality, the white seems to lighten up all the other colors and make them more dynamic on black paper. Set the plastic lids with paints around the room like stations and let students move from one station to another, depending on the colors they wish to use.
2. Have students place their fish replica on a clean surface — flat side down.
3. Students should coat the brayer lightly with paint or ink and roll evenly onto the fish. This may also be done with a brush, which makes it easier to vary the colors of paint directly on the fish. If using a brush, be sure to brush from the head to the tail. A brush may also be used to accent the gills, fins, or eyes. Students should be sure to apply only a thin layer of paint/ink on the fish, otherwise the detail of the scales won't show up. When done, students should move their fish to a clean area to avoid any paint/ink that may have gotten on their work surface.
4. For printing on paper — Students should take a sheet of paper and lay it on top of the fish. They should be sure to hold the paper still with one hand so it doesn't move and cause a double image or smudging. Holding the paper in place with one hand, students should use the other hand to transfer the image to paper by rubbing the entire fish surface. Remind students to rub all the areas — head, tail, and fins.
5. For printing on fabric — Students need to lay the fish paint-side down on the shirt and use a gentle rolling motion to transfer the print of the fish onto the shirt. Students should be sure to rub down on the tail, fins, and head. They will also need to lift up the dorsal fin and pull down on the anal fin to make sure their images print. NOTE: It's a good idea to do a couple of practice prints using this method before printing on the actual piece of fabric or T-shirt.
6. Students can now add embellishments. They can use black and accent the details of their fish, like the tail, fins, and eyes. They can also create their fish's habitat by adding details of their environment to the background.
7. Have students add to their image by illustrating the problem their fish faces or creates that they learned about in Activity 1.



Activity 3

Students will work in their small groups for this activity as well. In Activity 1, they brainstormed a way or ways to solve the problem(s) discussed in their articles. In this activity, they'll bring their solutions to life. They'll use basic building equipment to create a model that illustrates a way their fish's problem(s) can be solved.

Problems Either Caused By or Plaguering Featured Fish

Piranha — Plastic bags

Flounder — Nuclear power plant and overfishing

Trout — Non-native species invading the waters of Yellowstone

Carp — Non-native species invading rivers and streams

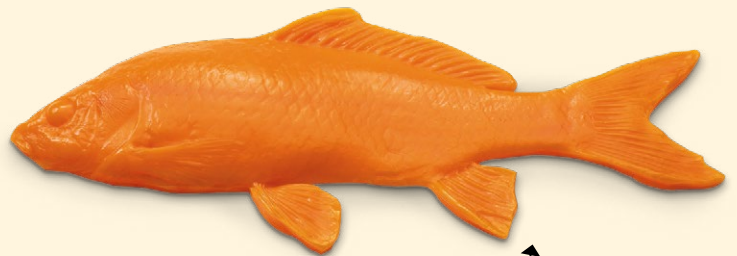
Salmon — Breaking through fish farming nets

Largemouth Bass — Backbones weakened by pollution



Materials list

- Piranha Article (print from <https://www.theguardian.com/environment/2018/nov/16/sad-surprise-amazon-fish-contaminated-by-plastic-particles>)
- Flounder Article (print from <https://www.nytimes.com/1999/05/16/nyregion/flounder-are-down-but-who-s-at-fault.html>)
- Trout Article (print from <https://www.scientificamerican.com/article/the-battle-to-save-yellowstone-from-invasive-fish-slide-show/>)
- Carp Article (print from <https://www.fws.gov/southeast/articles/a-war-in-the-water/>)
- Salmon Article (print from <https://www.nrdc.org/stories/something-fishy-trouble-atlantic-salmon-pacific-northwest>)
- Largemouth Bass Article (print from <https://www.nytimes.com/1981/06/27/sports/outdoors-pollution-and-striped-bass.html>)
- Graphic Organizer (included)
- Materials Kit for All About Fish, Vol. 3 (SB53390)
- Nasco 4-Scale 12" Student Ruler (TB26737)
- Sargent Art® Metallic Acrylic Paints, set of 6 (9722513)
- Sargent Art® Acrylic Glitter Glaze, 16 oz. (9719915)
- Liquitex® Iridescent Tinting Medium, 8 oz. (9706939)
- Liquitex® Ink! Metallics, set of 6 (9728390)
- Royal Brush® Big Kid's Choice™ Super Value Brush Set (9742098)
- Foam Paintbrushes, 40-piece assortment (9715991)
- Foam Rollers, set of 12 (9724344)
- Nasco White All Media Drawing Paper, 9" x 12", 500 sheets, 80 lb. (9728257)
- Nasco Piranha Replica (9719197)
- Nasco Flounder Replica (9714343)
- Nasco Trout Replica (9714344)
- Nasco Carp Replica (9713262)
- Nasco Salmon Replica (9719198)
- Nasco Largemouth Bass Replica (9716673)
- Simple Building Materials Kit (TB27626)



Carp



Largemouth Bass



Name: _____ Date: _____

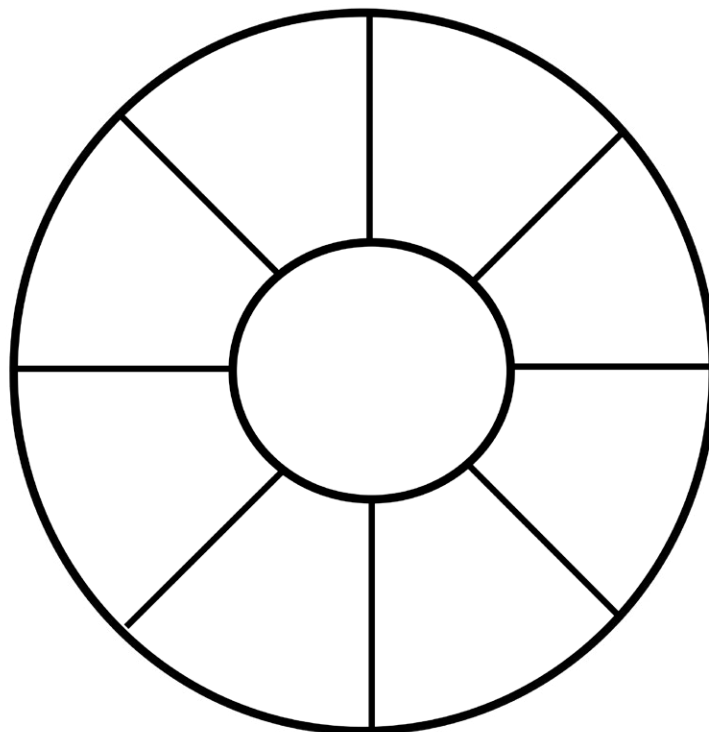
Things I Notice About My Fish Replica

1. _____
2. _____
3. _____
4. _____

Give three specific reasons to support your thought.

I think my fish is a _____ because _____

Write the name of your fish in the center of the concept wheel. Then write eight facts you learned about the fish from your reading.



Measurement Time!

What is the length of your replica fish? _____

What is the typical length of your actual fish? _____

What percent is the length of your replica fish of the actual fish? _____

What is the width of your replica fish? _____

What is the typical width of your actual fish? _____

What percent is the width of your replica fish of the actual fish? _____