Nasco education LESSON PLAN

K TO Career solutions

steamworks

VOL. 1

ALL ABOUT FISH: LEARN, PRINT, AND BUILD

Developed with Kristin Hotter

Grades K-2

Time Required

Introduction: 30 minutes
Activity 1: 40 minutes
Activity 2: 40 minutes
Activity 3: 30 minutes
Total Time: 140 minutes

Objectives

Students will be able to...

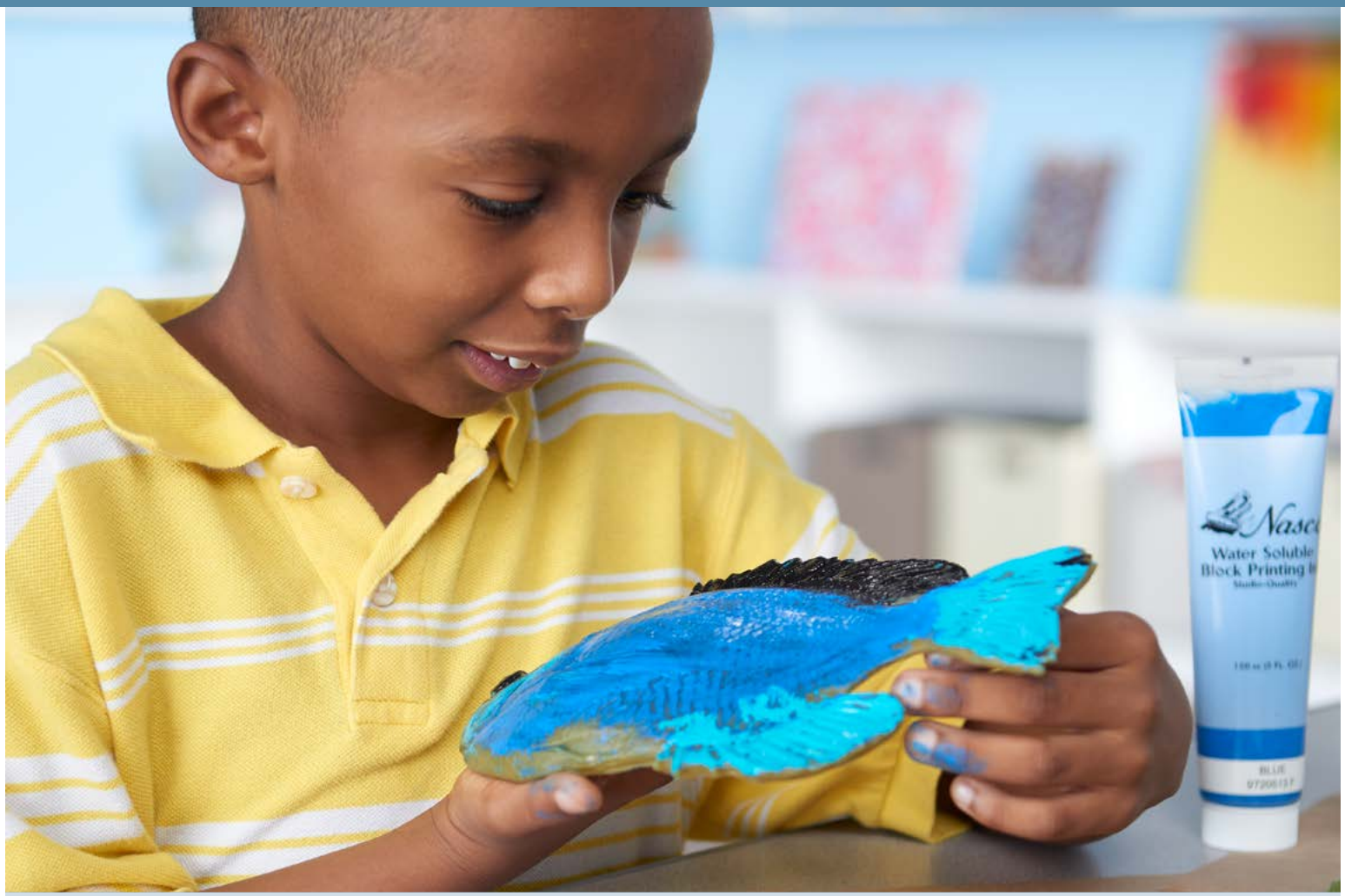
- Explain the functions of the body parts of different fish.
- Identify the body parts of a fish.
- Construct a model of a fish.

Materials List

- *What It's Like to Be a Fish* by Wendy Pfeffer (https://www.youtube.com/watch?v=yXg18Ru54SU)
- Activity Sheet (included)
- Fish Readings (included)
- Nasco 4-Scale 12" Student Ruler — TB26737
- Sargent Art® Metallic Acrylic Paints, set of 6 — 9722513
- Sargent Art® Acrylic Glitter Glaze, 32 oz. — 9735830
- 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
- Marshmallows
- Wood Sticks — 9708333 or 9742278

Content

Students will learn about different kinds of fish, their body structures, and habitats. They'll learn what it is about a fish's body structure that makes them such great swimmers and how they can survive underwater. Students will investigate and read about one particular fish, and complete an activity sheet that will make them experts on that fish. Students will create a print of their fish and label its body parts. Finally, students will put their engineering skills to the test when they create their own three-dimensional fish model using nothing but marshmallows and wood sticks.



Introduction

1. As students listen to the story of or watch the video for "*What It's Like to Be a Fish*", ask them to pay special attention to ways fish are similar to and different from people. As you read/show the story, develop a Venn Diagram that highlights the ways fish and humans are similar and different. Here are a few examples for the chart:
   - Both are able to swim.
   - Fish use fins to swim through the water, while humans use their arms and legs.
   - Fish use gills to breathe, while humans use lungs.
   - Both need oxygen.
   - Fish get oxygen from the water, while humans get oxygen from the air.
   - Fish are cold-blooded, while humans are warm-blooded.
   - Humans have eyelids, while fish don't.
2. After reading the entire story or watching the entire video, go back and look at some of the specific fish named throughout the story (goldfish, angelfish, comer, veil tail, albacore tuna, mackerel, etc.).
3. Point out that the book talked mostly about goldfish. Go back to the page where readers learned about what goldfish eat. Then ask students to name some of the things a goldfish eats (*fish flakes that include flies, fish, shrimp, crabs, oats, corn, carrots, and vitamins*). Ask what the other fish eat (*smaller fish, plants, worms, crabs*).
4. Talk about how many people keep goldfish as pets, but lots of other fish live in the wild and aren't usually kept as pets. Ask where these other fish live (*in streams, rivers, ponds, lakes, oceans*).
5. Tell students that they will learn a little bit more about some of these fish today and that they'll become an expert about one particular kind of fish. They will then tell the rest of the class about their fish. Show them an image and the fish replica for each of the six fish: piranha, flounder, trout, carp, salmon, and largemouth bass. As you show each fish and corresponding replica, name the fish, ask students what they notice about each fish, and ask them to compare and contrast the different kinds of fish. Sample comparison examples:
   - The flounder is longer than the piranha.
   - The carp and the trout both have two small fins on the bottom of their bodies.

Activity 1

1. Divide students into six groups, then assign each group one of the six fish. Each group will read the short reading about their fish together, then work together to complete the activity sheet. Each student should complete their own activity sheet, but the whole group should have the same responses.
2. Display the page of *What It's Like to Be a Fish* that discusses what goldfish eat. Allow students to reference that page as they complete their activity sheets.
3. Ask groups to share what they learned about their fish with the rest of the class.

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 topping 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. Once the prints have dried, ask students to label some of the parts of the fish, such as the gills, fin, dorsal fin, eye, mouth, tail, and scales.

Activity 3

1. Provide students with marshmallows and wood sticks, then show them how to create connections using just those items.
2. Ask them to create a model of their fish using only the marshmallows and wood sticks. Encourage them to use their fish replica and the picture of their fish to help them as they build. Remind them to think about the fish's length, width, and fin locations as they design their model.

Extension

Have students use any material in the classroom to create their 3-D fish.

Standards

LS1.A: Structure and Function — All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.

Structure and Function — The shape and stability of structures of natural and designed objects are related to their function(s).

LS1.D: Information Processing — Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.

VA:Cr2.1.Ka — Through experimentation, build skills in various media and approaches to art making.

VA:Cr2.3.Ka — Create art that represents natural and constructed environments.

VA:Re7.1.Ka — Identify uses of art within one's personal environment.

VA:Re8.1.Ka — Interpret art by identifying subject matter and describing relevant details.

VA:Re9.1.Ka — Explain reasons for selecting a preferred artwork.

VA:Cn10.1.Ka — Create art that tells a story about a life experience.

VA:Cn11.1.Ka — Identify a purpose of an artwork.

Lesson Plans are developed with teachers with no claim of original authorship.

STEAM Connections

Science — Students learn the names and functions of each of their fish's body parts. They'll also learn what they eat and their habitat.

Technology — Students can work on one of the websites listed below, where they'll combine math skills, technology, and fish.

- https://www.abcya.com/games/counting_fish
- http://www.softschools.com/math/games/addition_games/
- https://www.learninggamesforkids.com/animal-games-fish.html

Engineering — Students create a three-dimensional model of their fish using marshmallows and toothpicks.

Art — Students create a print of their assigned fish.

Math — Students are asked to compare and contrast the fish replicas. As they compare and contrast, they'll focus on length, width, height, size, shape, etc. Students will also measure the length and width of their fish replica when they complete the activity sheet during Activity 1.

Fish Readings

Cut cards out along dotted lines.

Piranha

Piranhas are medium-sized fish. They live in warm lakes and rivers. They have sharp, pointy teeth. Piranhas are omnivores. That means they eat both plants and animals. Piranhas like to eat snails, fish, plants, and seeds. Piranhas can grow to weigh more than 7 pounds and measure between 5 inches to 17 inches in length.

Carp

Carp like to live in warm rivers and streams. They have a toothy spine on their backs. Carp are omnivores. That means they eat both plants and animals. Carp like to eat smaller fish, eggs, worms, leaves, and seeds. They can grow to be almost 2 feet long!

Flounder

Flounder is a flatfish that lives in the Atlantic and Pacific Oceans. They like to live on the ocean floor. Flounder have bulging eyes that help them hunt at nighttime. Flounder fish are carnivores. That means they eat other animals. Flounder fish like to eat shrimp, crab, and other fish. They can grow to be 25 inches long.

Salmon

Salmon come in different colors. They can be red, blue, or silver. Most salmon like to live part of their lives in fresh water and part of their lives in salt water. They spend some time in rivers and some time in the ocean. Adult salmon are carnivores. That means they eat other animals. Salmon like to eat smaller fish, shrimp, and squid. Adult salmon can be as small as 20 inches or as long as 5 feet!

Trout

Most trout like to live on the bottom of cold streams and rivers. Some trout spend part of their lives in the ocean. Trout are carnivores. That means they eat other animals. Trout like to eat smaller fish, eggs, insects, and crustaceans. They can grow to be 16 inches long.

Largemouth Bass

Largemouth bass like to live in lakes and rivers. They protect themselves by hiding under logs. Largemouth bass are carnivores. That means they eat other animals. Largemouth bass like to eat smaller fish and small amphibians. Fishing for largemouth bass is a popular sport in the United States. Adult largemouth bass grow to be about 18 inches long.

Name: _____

Activity Sheet

Your Fish: _____

Draw what your fish looks like in the box below.

Your fish lives in _____

How big can your fish get? _____

What is the length of your fish replica? _____

What is the width of your fish replica? _____

What does your fish eat? _____

How is your fish's food different from a goldfish's food? _____

_____

How does your fish's body help it to be a good swimmer? _____

_____