Fossils:
Gyotaku Fish Fossil Painting

Get Smarts THROUGH the

Science & Art

Grade 8

Science Standard(s) Grade 8

2.8.B.2.a.b. Recognize and explain that fossils found in layers of sedimentary rock provide evidence of changing life forms.

a. Recognize how different types of fossils are formed, such as petrified remains, imprints, molds and casts.

Recognize and explain that the fossil record of plants and animals describes changes in life forms over time.

Maryland Visual Art Standard Grade 8

3.8.2.b. Apply elements of art and principles of design to communicate specific ideas in visual composition.

CONNECTED OBJECTIVES

Students learn about the art of Japanese Fish Painting; using real fish they will create their own fish print which will represent a type of fossil called a trace fossil.

MATERIALS & RESOURCES

- large white paper
- spray bottle of water
- brown paper for covering table
- newspaper
- paint brushes
- large containers of water for rinsing brushes
- acrylic paint
- paper plates for paint

KEY CONTENT VOCABULARY

- trace fossil
- imprint
- cast
- mold

KEY ARTS VOCABULARY

- Gyotaku
- Printmaking
- brayer
-

- plastic surgical gloves for students to pick up fish
- 12 8’ to 10” perch in cooler
- assorted shells

ASSESSMENT

- Students will complete the reflection before leaving class: *Explain why your fish print is not like a cast and mold fossil.*

Check to see that students have correct definition of cast, mold and imprint (trace) fossil in their journal.

LESSON STEPS

Engagement

- Begin by establishing the learning goal for the day.
- Distribute 1 white board to each table group
- In their table groups (4 per group) have the students discuss where fossils are found and the 4 different ways they can be found. Have 1 student write the answer on the whiteboard. (This should all be review; sedimentary rock; cast, molds, petrified and imprints.)
- Call on one group to share out. First group to answer most completely will get to go first for materials.
- Pull out a fish for show and tell.

Exploration

- While holding the fish, explain to students that they will be making an imprint of a living organism.
- Tell students they will be creating their own Japanese Fish Print called Gyotaku.
- Remind students how an imprint of a living organism becomes a fossil. Direct them to keep in mind while creating the fish print how it is similar to the imprint fossil remains of an organism.

Explanation

•Show the video on Gyotaku fish painting. The full instructions are in the video. After watching the video, give students instructions to have a materials person from each table collect the things they will need: 2 fish and some shells per group, white paper, paper plate with different color paint, brushes, spray bottle.

•Students waiting for materials should be thinking about the colors they want to put on their fish and a possible background.

•Tell students to place fish on newsprint. Remind them to dampen the white paper with spray bottle before placing it on the fish.

•Have one student print and another watch and switch (paint, print, rinse). Students can make several prints from one paint application on paper.

•Fish will need to be rinsed off after every student.

•Leave brown paper on tables for next class.

•Allow 10 minutes to clean up and complete reflection.

Evaluation

Have students complete reflection before leaving class.

EXTENSIONS & OPTIONS

Students should have an explanation of the different ways fossils are found in sedimentary rock from day before in their Unit Journals. If they do not, they can watch *BrainPop*

SOURCES & RESOURCES

http://heatherfortner.com/gyotaku-video-2/

or *Study Jams* to create notes for each fossil type before starting fish print

G E T S M A R T T H R O U G H T H E A R T S

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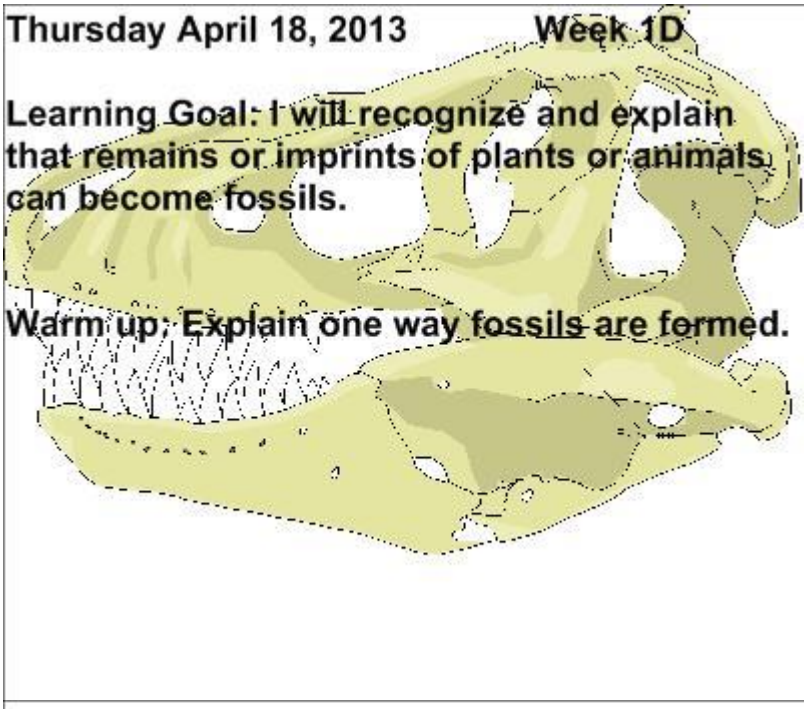
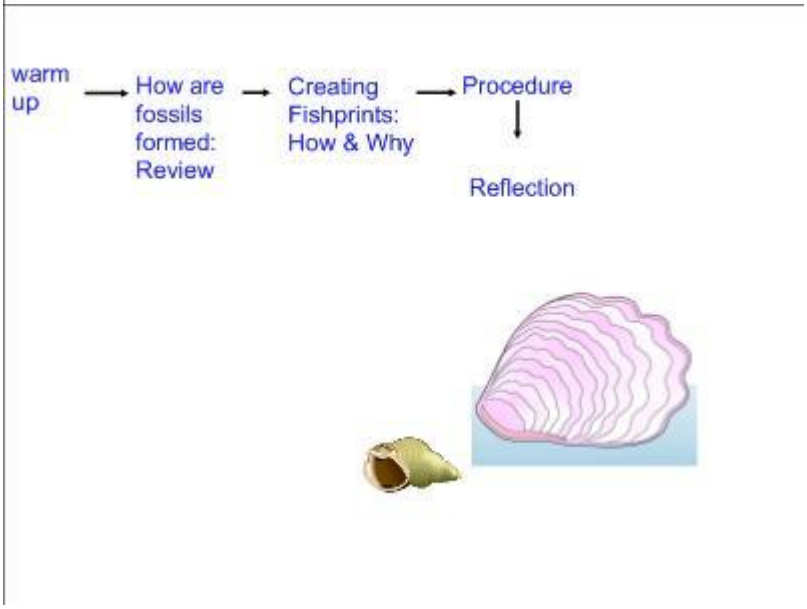
S u p p o r t i n g D o c u m e n t s





Gyotaku, The Japanese Art of Fish Printing

Gyotaku (pronounced ghee-oh-tah-koo),

("Gyo" = fish, and "taku" = impression – the Japanese Art of Fish Printing)

The Japanese Art of Fish Printing originated in Japan over 100 years ago as a way of recording trophy catches prior to the modern day camera. Today Gyotaku has become a popular art form enjoyed by many, and the prints are said to bring good luck to fishermen.

There are two different Gyotaku techniques. In both the ACTUAL FISH is used to print an impression onto paper or fabric.

In the traditional technique, called the DIRECT Gyotaku method, the artist applies paint to the surface of the fish. The fish is then covered with the fabric or paper and carefully pressed to produce an image.

In the INDIRECT method, fabric or paper is pasted onto the fish using rice paste or water and the artist applies paint to the fabric rather than the fish.

click on either photo for a video of the process

Summer flounder - Direct Method

Summer Flounder - Indirect Method

Procedure:

DO NOT SPRAY ANYTHING ELSE

cover table & hands if you want to

Choose a materials mgr.

Get:
*2 lg paint brushes
*2 small paint brushes
*1-2 large white pieces of paper
*Plate
*paint colors (2-3)
*container of water

Spray 4-6 sprays **lightly** to create a washed color for the back drop of your painting. USE A LIGHT COLOR (pale blue, yellow, etc)

Put on the gloves

Paint your fish the desired colors and gently drop the paper onto the fish. rolling your hands bottom up (repeat).

Paint your shells and roll them back and forth gently onto the backdrop

Create an under water scene using your organisms

Clean up:

*Put your papers on station # 3
*RINSE off (without splattering) and Place the paint brushes in the BUCKET in the SINK
*Put plates in the trash.

C-level 1-2
H-raise a hand, ask group
A-fish print
M-at your table except MTL MGR
P-

Types of Preservation

Fossils are preserved in different ways. As shown in Figure 4, there are many ways fossils can form.

Preserved Remains

Sometimes the actual remains of organisms are preserved as fossils. For this to happen, an organism must be completely enclosed in some material over a long period of time. This would prevent it from being exposed to air or bacteria. Generally, preserved remains are 10,000 or fewer years in age. However, insects preserved in amber—shown in the photo at the beginning of this lesson—can be millions of years old.

Carbon Films

Sometimes when an organism is buried, exposure to heat and pressure forces gases and liquids out of the organism's tissues. This leaves only the carbon behind. A **carbon film** is the *fossilized carbon residue of an organism or part of an organism.*

Mineral Replacement

Replicas, or copies, of organisms can form from minerals in groundwater. They fill in the pore spaces or replace the tissues of dead organisms. Petrified wood is an example.

Molds

Sometimes all that remains of an organism is its fossilized imprint or impression. A **mold** is the impression in a rock left by an ancient organism. A mold can form when sediment hardens around a buried organism. As the organism decays over time, an impression of its shape remains in the sediment. The sediment eventually turns to rock.

Casts

Sometimes, after a mold forms, it is filled with more sediment. A **cast** is a *fossil copy of an organism made when a mold of the organism is filled with sediment or mineral deposits.* The process is similar to making a goblin dessert using a molded pan.

Trace Fossils

Some animals leave fossilized traces of their movement or activity. A **trace fossil** is *the preserved evidence of the activity of an organism.* Trace fossils include tracks, footprints, and nests. These fossils help scientists learn about characteristics and behaviors of animals. The dinosaur tracks in Figure 4 reveal clues about the dinosaur's size, its speed, and whether it was traveling alone or in a group.

Reading Check What are some examples of trace fossils?

Mold This mold of an ancient mollusk formed after it was buried by sediment and then decayed. The sediment hardened, leaving an impression of its shape in the rock.

Reflection:

1) What type of fossil have your created today?

Mold
Cast
Trace Fossils
Carbon Films
Mineral Replacement

2) Explain what makes you say that.