

Grades 3-5

Maine Learning Results

Visual and Performing Arts B3 PreK-2, 3-5

Next Generation Science Standards

K.LS1.1, K.ESS3.1, 5.PS3.1

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Seaweed Habitat and Photosynthesis

Developed by the Island Institute, Rockland, Maine
Revised and formatted by Maine Agriculture in the Classroom

Activity Description:

An Understanding of photosynthesis is acquired through discussion and watching YouTube videos. Students will engage in creating a mural of a seaweed habitat and show how a species' anatomy

Learning Objectives:

Students will

- Describe the habitat of seaweed
- Identify the basic needs of seaweed
- Describe the process of photosynthesis
- Explain the importance of photosynthesis to seaweed

Materials:

- Posters
- YouTube videos about photosynthesis
- Relay race materials
- Mural paper
- Coloring utensils

Teacher Preparation:

Be familiar with the habitat and natural history of kelp, along with the process of photosynthesis

Procedure:

Part I: Habitats and Needs

Talk about what living things need to grow. Discuss photosynthesis and how algae uses this process to make food. If students are familiar with photosynthesis in plants, you may find it helpful to talk about similarities and differences between plants and algae. Talk about seaweed's habitat. Ask how the species' anatomy helps it live in this habitat.



Part II: Watch Photosynthesis YouTube Videos

There are many YouTube videos about photosynthesis to choose from. You can pick your favorite to share with participants, or you can teach them about photosynthesis in another way of your choosing. After the photosynthesis lesson, students can make their own skits or videos about photosynthesis to demonstrate their understanding of the process.

Part III: Photosynthesis Relay Race

Follow instructions for review game.

Part IV: Kelp Mural

Put a piece of mural paper up on the wall and allow students to draw a kelp line and the surrounding habitat. You may also have students take turns adding to a smart board drawing. Prompt them to incorporate concepts you talked about earlier in the lesson as a review.

Photosynthesis Relay Race

<http://www.ellenjmchenry.com/downloads/PhotosynthesisRelayRace.pdf>



Photosynthesis Relay Race

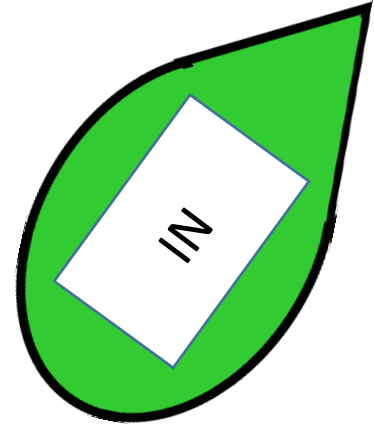
The goal of this game is to reinforce the photosynthesis formula:



while at the same time allowing restless student to engage in active play.

You will need:

- Two pieces of green construction paper
- Four small (standard 3.5"x6.5") envelopes
- Glue stick or white glue
- Marker
- Copy of the card pattern page with pieces cut out
- A flashlight for each team



The reverse side of the leaf will say "OUT."

Directions for assembly:

Cut two large green leaves. Cut the flaps off the envelopes, then glue an envelope on each side of each leaf, with the open side of the envelope facing out. Label the envelopes on opposite sides of the leaves "IN" and "OUT."

Photocopy the card pattern page onto card stock, if possible, to make the cards more durable. However, plain paper can be used as well. Cut out all the cards.

Optional: Decorate or color the cards to make them more readable at a quick glance. For instance, put a raindrop on the water cards.

How to set up the game:

You will need to prepare the leaves ahead of time by putting cards for WATER, OXYGEN and GLUCOSE in the OUT pocket of the leaves. Put WATER and CARBON DIOXIDE cards in neat piles at the start line. Put the leaves at a distance from the start line. (If your students need to stretch their legs, put the leaves really far away!) Put the flashlights next to the leaves.

How to play the game:

On the word GO, the first member of the team takes either a CARBON DIOXIDE or a WATER card, runs to the leaf, and puts it into the IN pocket of their leaf. They run back, tag the next player. The second player takes the other card (whatever the first player didn't take, either water or carbon dioxide) and runs to the leaf. He puts this into the IN pocket, then runs back. The third player runs to the leaf, turns on the flashlight, shines it on the leaf briefly, turn it off (leaves the flashlight there) and then runs back. Now the leaf has had all the necessary ingredients for photosynthesis! The fourth player runs to the leaf and takes out just one of the cards in the OUT pocket and runs (taking the token with him) back to team. The fifth player runs to the leaf, takes another card out of the OUT pocket and runs with it back to the team. The sixth player runs to the leaf and takes out the last card in the OUT pocket. When the last player gets back to his team with the last product of photosynthesis, the team is done. First team to accomplish all this wins the game.

Variations: This game is a lot of fun to play again and again if you change the method of locomotion to and from the leaf. Have them hop, skip, walk backwards, crawl, carry a ball between their knees, etc. This way they get the repetition of the photosynthesis formula without making them bored with the game. Even middle school and high school ages like the game when played with creative variations like this! It brings a lot of laughs, as well as learning.

WATER	WATER
WATER	WATER
CARBON DIOXIDE	CARBON DIOXIDE
OXYGEN	OXYGEN
GLUCOSE (Sugar)	GLUCOSE (Sugar)