



Week of January 7th and 14th, 2019

Happy New Year! I hope you all had a wonderful winter break. It looks like the weather will be cool and wet this week. You may choose between an indoor lesson (Maple Syrup) or an outdoor lesson (work in the garden). If you choose to have the children work in the garden, please remind them to bring their coats to garden class. The outdoor lesson can be found at the end of this document.

Maple Syrup Lesson

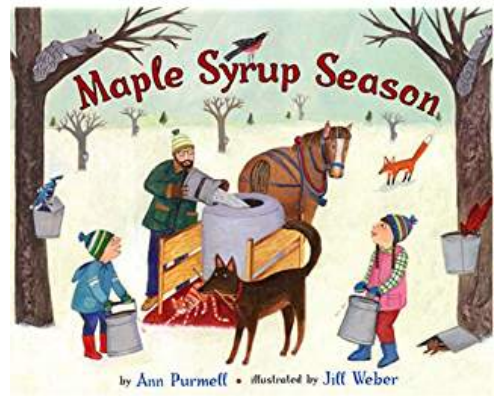
Overview

In this lesson students will learn about photosynthesis, read a book about how maple syrup is made, make pancakes and taste maple syrup.

Teaching materials (lesson plan, garden journal and colored pencils or crayons, book, syrup, poster about photosynthesis, poster about maple syrup making, griddle, water, disposable bowl, pancake mix, non-stick spray, bowl, spoon, napkins, cutting board (or paper plate) and extension cord) will be in G40 on the cooking cart. Please arrive 15 minutes before your designated class time to gather supplies and set up in the classroom. After class, please discard all food waste in outdoor garbage can. Please wipe griddle clean and return all items to the cart and leave cart in G40.

Maple Syrup Lesson:

- Gather the children from their classroom and bring them to G40. After children are situated, ask students to turn to a neighbor and state one reason why leaves are important to plants?
- Ask several students to share why they think leaves are important to a plant.
- Leaves are important because they help capture the sun's energy and convert it to food for the plant to grow and make seeds!
- Walk students through the poster about photosynthesis (chlorophyll in leaves + CO₂ + sun + water = sugar + O₂. The "sugar" can be used right away for plant growth or stored for future use.)
- Read Maple Syrup Season by Ann Purmell. (Sugary sap begins to flow from maple trees in spring.)
- Has anyone had real maple syrup before? Remember it takes 40 gallons of maple tree sap to make 1 gallons of maple syrup! On a smaller scale, it takes 40 ml of sap (show bottle) to make 1 ml (show bottle) of syrup.
- Make pancakes with the students using the pancake mix and the hot griddle. Follow the directions on the package.



- While the children wait for the pancakes to be made. **Please have them draw a diagram of photosynthesis in their garden journals.**
- Once the pancakes have cooked, place a piece of a pancake and about a teaspoon of maple syrup in each Dixie cup
- Once all children have been served, they may taste the pancake and maple syrup.
- Ask: Does real maple syrup taste the same or different from sugar?, How many like it?, Any other observations about the taste?
- Circle up. Ask a couple of students to share their diagram. Review photosynthesis and maple syrup making. Ask if the children have any comments or questions.

Photosynthesis diagrams – There are larger laminated copies in the shed with lesson materials.

#1 – These teaching materials will be available for you to use...

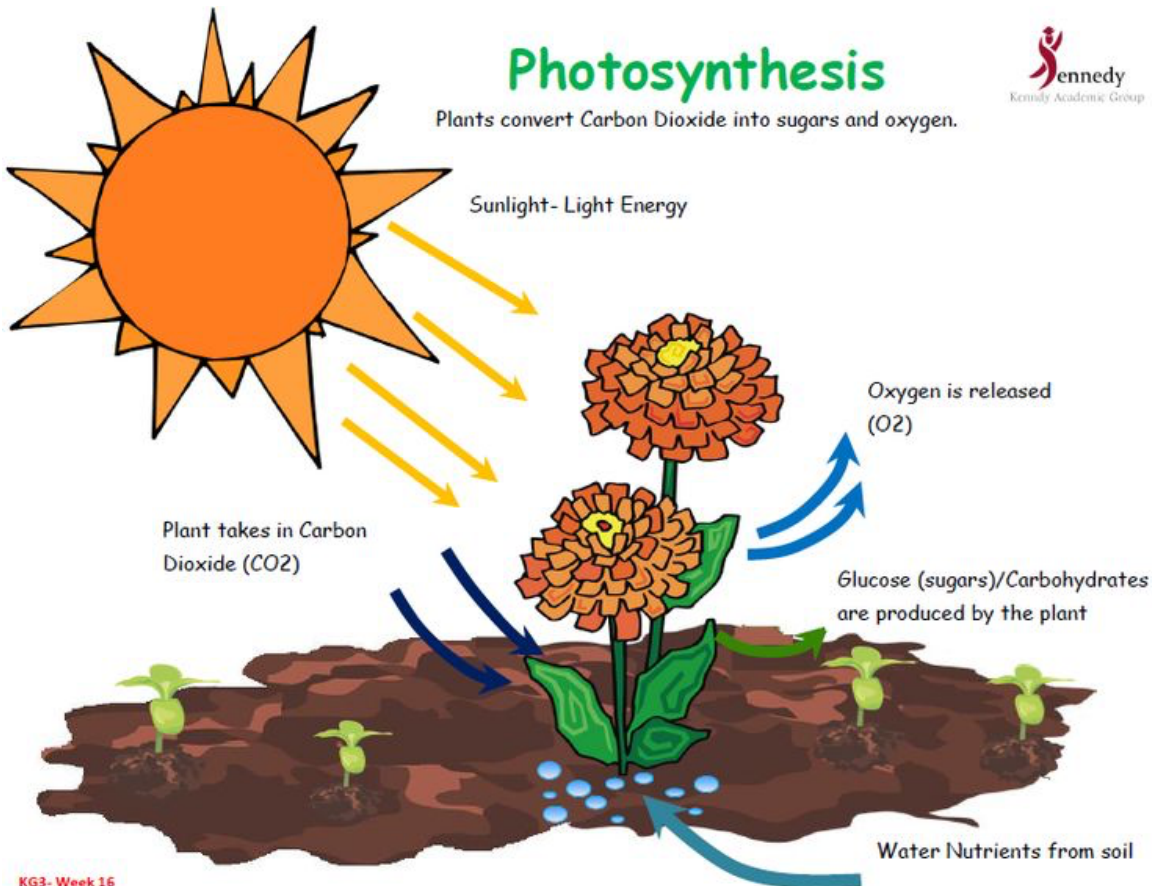
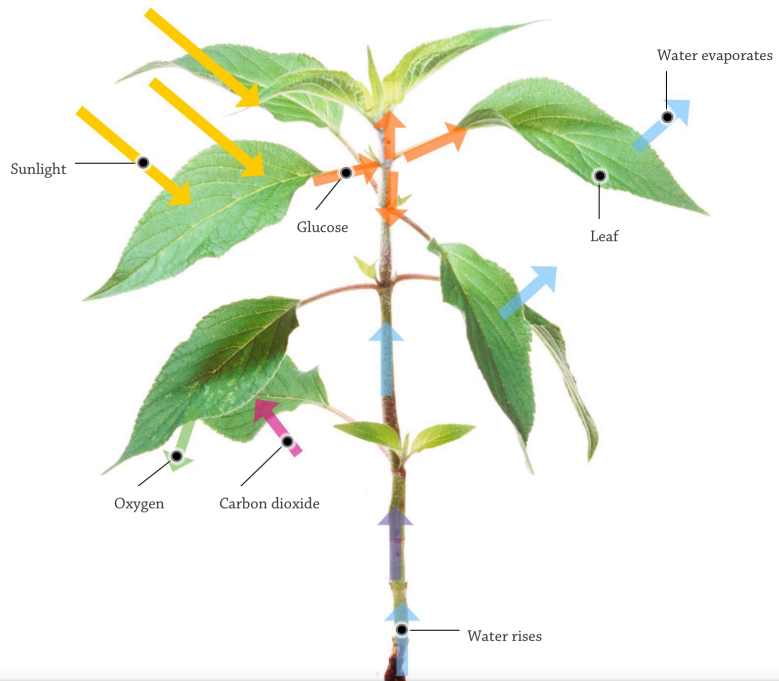



How plants make food

Plants, like all living things, need food to survive. Plants make their food using a process called photosynthesis, which means “putting together through light.” During photosynthesis, a plant traps energy from sunlight with its leaves. It also takes up water from its roots and carbon dioxide gas from the air. The plant uses the Sun’s energy to convert water and carbon dioxide into a sugary substance called glucose. The plant uses the glucose as a food to help it stay alive and grow.



Take the plants quiz






PHOTOSYNTHESIS Printables

PHOTOSYNTHESIS


Tune: The Addams Family theme song

Plants need food, but can't take it;
Instead they have to bake it.
It's in their leaves they make it
in PHOTOSYNTHESIS!



In the leaves you cannot see,
the CHLOROPLASTS so tiny
making food for energy.
And here's their recipe:

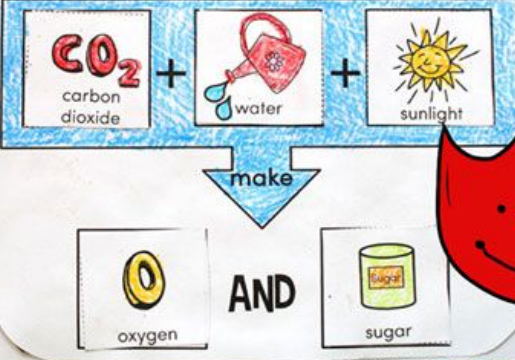
SUNLIGHT,
CARBON DIOXIDE,
WATER



When it's finally done,
there's SUGAR and OXYGEN.
From WATER, AIR, and SUN,
that's PHOTOSYNTHESIS!


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PHOTOSYNTHESIS



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ALTERNATE LESSON: Outdoor Activity

Materials: Tea pot, Electric Kettle, Cups, 1-2 oranges, napkins, 2 brown cafeteria trays, garden gloves, handwashing soap, trowels

Overview: Students will spend some time observing the seasonal changes in the garden, they will weed, and gather in a circle at the end to reflect upon the lesson and taste lemongrass and blood orange tea.

BEFORE CLASS:

- Heat water in electric kettle.
- Cut an orange into 12 slices (oranges are from the tree in front of the MPR). Place each slice on a napkin, one per child.

Garden Observation (~15 min)

- Greet students to the garden and gather in a circle. “today we will spend some time observing the garden, we will look at some of the vegetables that grow in the garden during wintertime, work in the garden and at the end of class we will taste some lemongrass and blood orange tea.”
- Please ask the students WASH their hands at the sink in back of the shed.
- LOOK: Take a walk into the school garden. Ask the students if they notice any changes. After they respond, you can supplement the discussion with the following information:
 - **Warm weather crops** such as tomatoes, sunflowers and squash died during the cool months of November and December. Many dead plants from the garden last month. Some winter squash and chayote were left behind. What do you think will happen if we leave the winter squash and chayote on the ground?
 - You will notice the garden is full of **cool weather crops**. Lets see some of them.
- SPLIT the group into two subgroups of students. 5 minutes per activity and switch.
 - Activity 1: FIND the broccoli plants (Bed #18): Can you see the broccoli heads forming yet? What part of the broccoli plant do you normally consume? (Flower). Look for the Kale and onions (Bed#15). What part of the kale do you consume? What part of the onion do you consume? Find the carrot plants in bed #2) (but do not pick the carrots). What part of the carrot plant do you consume? Switch to activity 2.
 - Activity 2: FIND and smell the lemongrass plants: lemongrass plants are in bed #9. Harvest one stalk of lemongrass from the base of the plant. Set aside. Place in the teapot. Can you find one or two other plants that smell like lemons? Lettuce is a **cool weather crop**. Find the lettuce plants. Wash and taste some lettuce. There are several types of lettuce growing in Bed #16. ASK: Do the

different varieties taste different from one another? When finished, switch to Activity 1.

- GARDEN WORK (~10 min) (omit if you are short on time)
 - While some children are working with their gloves on, ask 2-3 children to help make lemongrass tea. Chop the lemongrass into 1-inch pieces. Pour hot water over the lemongrass in the teapot. Let it brew.
 - GLOVES: Everyone find a pair of gloves. Clip the clothespin to your clothing.
 - WEED: What is a weed? Any plant that is growing where you don't want it to grow. Look at the pathways. Do you see any weeds or "volunteers" (plants growing from seed produced by last years plants). If so, please remove them by scraping them with a trowel or by loosening the soil and pulling them out of the ground. Try to get as much of the root as possible). Place weeds in the compost bin or right side of the worm bin.
 - 20 minutes before the end of class, ask students to remove gloves and pin them together, and place them in the bin. Ask students to wash their hands.
- CLOSING CIRCLE (15 min)
 - Gather in a circle. Pass out cups of lemongrass tea with a slice of blood orange in it.
 - Ask children to think about their experience in the garden and state one thing they observed and one thing they might be thankful for.
 - Map of the garden

