Date of Lesson: May 9, 2019

Group Member(s): Jasmine Leung

Title: Pollinator Power!

Subject/Main Topic: Pollination and Pollinators

Grade Level: 2 - 3

Overview:

Students will learn how pollination works, the 2 types of pollination, the benefits of pollination, about different types of common pollinators, and what we can do to help pollinators.

Learning Objectives:

Students will learn:

* What are the different types of pollinators (bees, birds, bats, other insects)
* The basics of how pollination works
* The difference between wind pollination and insect/animal pollination
* The benefits of pollination and why it is important
* What we can do to help pollinators

Key Words/Terms:

* + **Pollination** = Pollination is when pollen is transferred from the center of a flower to another flower of the same type.
		- **Insect/Animal Pollination** = pollination that occurs with the help of insects of animals. Pollen gets stuck to the insects/animals and is transferred to different flowers when the insect/animal moves from flower to flower.
		- **Wind Pollination** = pollination that occurs with the help of the wind. The plant releases its pollen into the wind and then the wind carries the pollen to other plants.
	+ **Pollinator** = an insect/animal that helps plants pollinate
	+ **Pollen** = the yellow, dust-looking stuff often found at the center of a flower and can make you sneeze. Plants want their pollen to reach a different plant of the same type. This helps plants transfer information to each other to make new plants.
	+ **Nectar** = a sweet liquid often found in flowers that attracts insects and animals to the flower so they will pollinate the flower.

Materials List:

* Chalk\*
* Pictures of flowers\*
* Cotton Balls/Paper Towels\*
* Real flowers\*
* Magnifying Glass Paper
* Straws
* Plastic cups/Plates
* Pompoms
* Pictures of different pollinators (15)\*
* Tape
* Twister Game (+ extra Colored Paper if want to use a group activity)
* For Wings:
	+ Large paper\*
	+ Cardboard\*
	+ Scissors
	+ String/Ribbon\*
	+ Markers
* For Origami:
	+ Origami Paper/Construction Paper/Colored Paper\*
	+ Markers
	+ Scissors

Outline:

**Snack (10 min):**

 Fruit

 Honey sticks

**Lesson Introduction (5 min):**

 Today we are learning about pollination! Does anyone know what pollination is?

Pollination comes from the word pollen. Does anyone know what pollen is?

Pollen is that yellow dusty-looking stuff on a flower.

Here are some flowers. Can you see the pollen grains?

(Other UW students quickly pass by Concord students holding flower and magnifying glass)

Pollination is when pollen is transferred from the center of a flower to another flower of the same type. If a flower receives pollen from a different flower of the same type, then it can use DNA in the pollen to make seeds. These will then turn into new plants.

How do you think pollen is transferred between flowers? Often it is by insects or animals like bees or birds (hummingbirds). Some plants also just release their pollen into the wind and hope that their pollen will land on other plants. This is the pollen that makes people sneeze.

Why do you think pollination is important? What snacks did we eat today? Fruit and honey! By helping plants grow, pollination helps food grow since all fruits and veggies are plants. Pollination is especially important for fruit because most of them use flowers. Pollination also helps make honey, because bees do pollination and bees make honey.

**Large Group: Pollination Demonstration (5-10 min):**

Pollination by insects/animals works like this: insects such as bees go to flowers to drink the sweet nectar. They stick their heads inside the flower to get the nectar and in the process they rub against the pollen in the flower and it sticks to them. When they go to the next flower, some of the pollen from the previous flower may rub off on the new flower, and pollen from the new flower may stick to the insect. In this way, pollen is transferred from flower to flower.

To demonstrate, we will do a quick activity. Everyone pick a chalk color and color the center of your flower with the chalk. This will represent the pollen of your flower.

(let students pick chalk color. UW students will pass out flower pictures)

 Now, take a cotton ball, and move from flower to flower, pat the center of each flower.

 (let students do so)

 What happened? The different colored chalk transferred to different flowers. Do you see

how all the flowers have different chalk colors, not just their original one? This is like how

in real life, bees and insects spread pollen of different flowers to other flowers.

**Large Group Activity 1: Pollination Competition Activity (15 min)**

Now that we know generally how pollination works, we are going to play a game where we pretend to be pollinators. We will be in 2(-3) teams. Each of you will get a straw and stand in a line with your group. When I say “Go”, the first person on your team will run to the flower “plate” with the pollen and nectar. You can choose to either to move one piece of pollen (which is a pom pom) to another cup/plate, or you can choose to bring back one piece of nectar (colored paper piece) to your “hive” (where your other group members are). Once you make your action, you fly back to your hive and tag the next person in line. To win, your team needs to have all pieces of nectar back at the hive and have sorted all the pieces of pollen so each flower has only different colored pollen, showing that pollen has been mixed up among all the flowers.

**Large Group Activity 2: Who’s my Pollinator? (10 min)**

Now that we know how pollination works, we are going to learn about different kinds of pollinators. I am going to tape a picture of a pollinator on your back but you will not know what it is. When I say, “Go!” you will partner up and you and your partner will take turns asking questions to figure out what each of your pollinators is. The rules are that your partner is not allowed to say the name of the pollinator, say any part of its name, or spell out the name. You cannot guess what the pollinator is but only think about it in your mind. When I say “Stop!”, then one by one we will come up and say what we think our pollinator is. Then we will turn around and the class will say what your pollinator is.

(note: tape it down well so kids cannot flip it over and peek)

 If goes by fast: Have a challenge round where they can only pantomime (not speak).

Can try and spell out with their fingers, nod, etc. but no noise.

**Rotation/Group Activity 1: Pollinator Twister (15 min +) – Jose, Matthew, Victor**

Has anyone played Twister before? In case you have never played before, how you play is that I call out a color and either left hand, right hand, left foot, or right foot. Depending on what I say, you have to touch the color I call out with the body part I call out.

But this time we will do it with a little twist. Instead of colors, we will use types of pollinators and pollination terms.

Red = Flower

Blue = Butterfly

Yellow = Pollen

Green = Tree (can mention how trees need pollination too!)

**Rotation/Group Activity 2: Wind vs Insect Pollination (10 min) – Jasmine, Lina, Sarah**

Although we have mostly talked about insect pollination. Plants can also pollinate using the wind to move pollen from plant to plant instead of relying on insects or animals.

Wind pollinated plants thus don’t need to attract insects or animals.

Out of these two pictures, which do you think is insect-pollinated, and which do you think is wind-pollinated? The brightly colored flower is the insect-pollinated plant. Insect-pollinated plants often have large, bright flowers and smell nice. This is to attract insects to come to them. Wind pollinated plants don’t need to impress anyone, so they are usually green or brown and don’t need fancy flowers. However, they often make more pollen than insect-pollinated flowers. Why do you think they do that? This is because since they pollinate using the wind, their pollen is less likely to reach another plant of the same type, so they make more pollen to increase the chances they will pollinate the right plant. Like having more backup.

Now we will play a game. I will show you pictures of different plants and you will guess whether it is insect pollinated or wind pollinated. You will start out in the middle and you can run to the left if you think it is an insect pollinated plant or to the right if you think it is a wind pollinated plant.

(I will use/provide a Powerpoint to show the pictures)

*Note: If there are less than 8 students, we may just do the Twister Activity only.*

**Conclusion (5 min):**

Now that we have learned all about pollination and pollinators, can anyone tell me their favorite pollinator? What are other pollinators we learned?

Did you know that recently, bees have been dying more often? Why do you think this is? Scientists think it may because we use too many poisonous chemicals on our plants to kills bugs we don’t want and weeds. These are called pesticides and herbicides. We talked about them in our 1st eco-club, does anyone remember that?

Scientists also think bees may be dying due to climate change or global warming? Does anyone know what that is? Right now, the earth is getting warmer and warmer because we are burning so much gas and oil to run our factories, cars, etc. This causes the atmosphere to trap more heat. It is getting too hot for the bees and many other creatures.

Finally, bees are dying because they are losing their habitat. What do you think is bee habitat (flowers). Why do you think bee habitat is disappearing? Before humans, there were more plants and flowers around. But as our cities and towns get bigger, there are less and less plants for the bees.

What can we do to help pollinators?

 Plant flowers (create habitat)

 Don’t use poisonous chemicals and herbicides/pesticides

**Craft Activity: Origami (15 mins +)**

There are other animals and insects that pollinate other than bees. What other creatures might also help pollinate? If you’re not sure, think about what other creatures visit flowers. Remember what we did during the Who’s My Pollinator activity. Here’s another hint, a lot of them start with B’s!

Answer: Bees, Birds, Bats, Butterflies/Moths, Other bugs

As a final activity, we will be making origami of these pollinators. If you want, you can

give it to your mom for Mother’s Day, which is this Sunday! Each UW student knows how to do one of these origamis. Go to the UW student that is matched with the origami you want to make. You can make multiple types if you wish and have time.

**Victor -** Flower (Tulip): <https://www.youtube.com/watch?v=LFHGsHdY8w4>

**Jasmine -** Bee: <https://www.youtube.com/watch?v=xDj_Is3_Yis>

**Lina -** Butterfly: <https://www.youtube.com/watch?v=cZdO2e8K29o>

**Matthew -** Bat: <https://www.youtube.com/watch?v=48fDg2Kcw9A>

**Jose -** Bird: <https://www.youtube.com/watch?v=9gni1t1k1uY>

**Sarah -** Flower (Lily): <https://www.youtube.com/watch?v=t0dU14sPDWc> OR other flower