

Pre-Program Resource Garden Detectives

2nd-5th Grade

Pollinator Musical Chairs

Duration: 15 - 30 minutes

Note: Use "Pollinator Exploration Experiment" resource before for an extended lesson plan

Objective: To incorporate purposeful movement using embodied cognition to enhance students' comprehension and retention. Students will play a pollinator-themed game to demonstrate the significant role of pollinators and animal/plant interdependence. The activity will end with brainstorming ways to help pollinators.

NGSS Standards Met:

LS2.A: Interdependent Relationships in Ecosystems

- Plants depend on animals for pollination or to move their seeds around. (2-LS2-2)
- Systems in the natural and designed world have parts that work together. (K-ESS2-2),(K-ESS3-1)
- Plants and animals can change their environment. (K-ESS2-2)

LS4.D: Biodiversity and Humans

• Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)

Materials Needed:

Plants/products printout Game script Music player

Pollinator "Musical Chairs"

Each seat will have a label of a fruit, vegetable or product that we use (images below). There will be one label per student, unlike traditional musical chairs where there is one less chair than students present.

Music will play. Students will dance or walk around to the music. When the music stops, students find a chair.

• Remind students that there are enough chairs for every student, so there is no need to run or push to get a seat when the music stops.

At each pause, the instructor will reveal that a certain pollinator has gone extinct. This will eliminate certain foods/products. Students sitting at those spots will be eliminated from the game. They will remain at those seats until the end of the game. See game script on the next page of this lesson plan for pollinators and their associated products.

• Ex) The tiny midge goes extinct. They pollinate cacao pods. Students sitting at Hershey's Bar, chocolate ice cream and brownie are all eliminated.

The instructor will repeat the music/extinction process until only one remains. To speed up the game, multiple species can be selected every round. The game can be repeated as many times as desired.

After the final round, ask students guiding questions to reinforce learning and brainstorm ideas to help pollinators.

- Why are pollinators important? How do pollinators and plants need each other? What happens if pollinators go away? **How can we help pollinators?**
 - Plant native plants that pollinators need.
 - Don't harm bees or wasps when you see them.
 - Put out water for pollinators in the summer or when its warm.
 - Write to your representative and ask them to help pollinators.
 - o Don't use pesticides. Pesticides hurt all bugs: the bad ones and the good ones.

Glossary

Biodiversity: How many different plants and animal species live in an ecosystem. More is usually better.

Ecosystem: All of the living and non-living things in an environment.

Interdependence: When plants and animals need each other to survive.

Pollinator: An organism that moves pollen from one plant to another, helping to fertilize the plant and create seeds.

Game Script

Go in any order you like but save honeybee for last. Eliminate at least one pollinator each round. Feel free to include complementary information.

- Squash Bee (Zucchini, Pumpkin, Butternut squash): The squash bee has gone extinct. Squash bees got sick from bad chemicals in the soil and no longer exist. Zucchini, pumpkins and butternut squash don't get pollinated and can't grow. Zucchini, pumpkins and butternut squash are all out.
- 2. Stingless Bee (coffee): The stingless bee has gone extinct. Human neighborhoods took away the stingless bees' habitat where they nest. Because stingless bees don't exist, they cannot pollinate coffee trees. Coffee disappears and is out of the game.
- Melipona Bee (vanilla): The Melipona bee has gone extinct. Melipona bees are the only bees that pollinate a specific type of orchid, called a vanilla orchid. Vanilla beans grows on orchids. Because Melipona Bees are extinct, the vanilla orchid cannot grow anymore. No more vanilla. Vanilla is out of the game.
- 4. Carpenter Bee (Brazil Nuts): The carpenter bee has gone extinct because of deforestation. Carpenter bees are the only bees that pollinate the Brazil Nut. Brazil Nuts no longer exist and are out of the game.
- 5. Fig Wasp (Figs): Fig wasps have gone extinct because of climate change. This means they cannot pollinate fig trees and figs no longer exist. No more fig newtons. Figs have been eliminated.
- Tiny Midge (chocolate bar, chocolate chip cookie): The tiny midge, a type of fly, has gone extinct. The tiny midge pollinates cacao plants. Because tiny midges are gone, they cannot pollinate cacao plants. No more chocolate. Chocolate bars and chocolate chip cookies can no longer exist. Chocolate bars and chocolate chip cookies are out.
- 7. Ladybugs (Dill pickles, Chives): Ladybugs have gone extinct because of chemicals in the soil. Ladybugs pollinate many things, but they are really important for dill and chives! Dill pickles and chives are out of the game!
- 8. Fruit Bats (wild banana): Fruit bats have gone extinct. Fruit bats pollinate many things, but wild bananas depend on fruit bats. Wild bananas no longer exist and are out of the game.
- 9. Hummingbirds (avocados, pineapples): Hummingbirds have gone extinct. Because of this, there are no more avocados and pineapples. Avocados and pineapples are out.

- Black Swallowtail Butterfly (Carrots): The black swallowtail butterfly has gone extinct. This butterfly is responsible for pollinating carrots. Because the butterfly is gone, the carrots can no longer exist. Carrots are out.
- 11. Leafcutting Bee (Alfalfa, Milk, ice cream, whipped cream): Leafcutting bees have gone extinct. Leafcutting bees pollinate alfalfa. Alfalfa is the main food for dairy cows. Without alfalfa, we wouldn't have milk, so no more ice cream or whipped cream. Alfalfa, milk, ice cream and whipped cream are all out.
- 12. Honey Bee (oranges, lemons, apples, tangerines, almonds, cashews, watermelon, sunflower seeds, black licorice, grapes, kiwi): Oh no! Honeybees have gone extinct. Honey bees pollinate oranges, lemons, apples, tangerines, almonds, cashews, watermelons, sunflowers, grapes, kiwis and anise which makes black licorice. All of those plants can't exist like they do today without honey bees. So, you are all out.





