



LESSON: Beach Ball Bee Pollination Game

GRADE: 3rd

TIME: 60 min.

SUMMARY:

Students will observe flowering plant life cycles. Then, they will play a game to simulate the relationship between the pollinator and flowers. They will discover the challenges and benefits in this system and compare it to other life cycles they have studied.

OBJECTIVES: Iowa Core

Subject

Science

- **3-LS1-1.** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Literacy

- **W.3.10** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline—specific tasks, purposes, and audiences.

MATERIALS & RESOURCES:

- Photos of pollinators and flowers <http://ento.psu.edu/pollinators/image-galleries/photos>
- Two inflated beach balls
- Post-it notes – 4 colors
- Flowers with visible pollen, for example: lily or amaryllis, or photos
- The simulation in the lesson was adapted from <http://www.seplessons.org/node/799>. Visit their site for additional ideas.
- Paper and pencils for journaling



PRESENTATION / INTRODUCTION:

Begin in the school garden or an outdoor nature space observing flowering plants. What stage of the life cycle are they currently in? Germination? Growth? Flowering, ready to reproduce? Developing fruit to disperse seed? Death? Discuss the patterns in the life cycle of a flowering plant.

Plants cannot stand up and walk around to greet other flowers, yet they need pollen from another flower in order to create a seed and/or fruit. How do they get that pollen? Pollinators, often insects, unknowingly move tiny pollen grains from flower to flower as they gather nectar. (Share photos.) When a flower has pollen from another flower of its species, it can reproduce by forming a seed. Brainstorm some common pollinators to your area (bees, butterflies, ladybugs, hummingbirds, etc.). Today we will learn more about the pollination process by playing a game.

DIRECTIONS:

1. Prepare the supplies: For round 1, prepare one beach ball and one set of post-it notes. Number the post-it notes so there is one for each student. For example, yellow post-it notes are numbered 1-24.
 - a. For round 2, number 4 different colors of post-it notes; each child receives just one post-it. For example, number 1-6 on yellow, 1-6 on green, 1-6 on blue, and 1-6 on red sticky notes.
 - b. For round 3, add another beach ball.
2. Explain the simulation: Each of you is now a flower called a lily. Each of you has pollen, which is represented with a yellow post-it. The post-it has a number on it to show that it represents you. The beach ball represents a bee. When the bee (beach ball) is thrown to you, you need to share your pollen by sticking your post-it note to it. You then throw it to someone else. They will take a post-it note while also sharing one of theirs. In this way, each flower has a chance to share their pollen while also getting another lily's pollen.
3. Goal: Let's see how many flowers can get pollinated in 30 seconds. Flowers need to be fast and efficient with your sticky notes because the bee wants to get back to the hive.
4. Play Round 1.
5. Reflect on Round 1: How many flowers were pollinated? How could we be more efficient so more flowers get pollinated? Try this round again if you like.
6. Variation for Round 2: In nature, there isn't just one type of flower, but many. This time we will have 4 colors of post-it notes, each representing a different flower. Each student will have one color, and may only pick that color note up from the ball. This may result in many students catching the ball, putting a post-it on, but not able to take a post-it off. Discuss how this influenced pollination numbers. Did adding flowers make it easier or more difficult to pollinate? What could increase the number of flowers pollinated?
7. Variation for Round 3: Add another beach ball, representing another pollinator, perhaps a hummingbird. Did adding pollinators make it easier or more difficult to pollinate? What could increase the number of flowers pollinated?
8. Discuss patterns in pollination and how pollinators work with flowering plants. Does the bee need pollen? Does the flower need the bee? Why?



REFLECTION/JOURNAL PROMPT:

Reflecting on the patterns in life cycles, how is a flowering plant's life cycle similar or different to other life cycles the class has studied? How could they use their observations to make predictions? Have students journal their observations. They could use storyboards to brainstorm ideas or as illustrations in their writing.