LiveWell Kids
Garden and Nutrition Program

Lesson 4: Plants From Pollination to Food

4th GRADE

OBJECTIVES

By the end of this lesson, students will:

- Observe the anatomy of a flower and understand how each part supports reproduction.
- Understand how seeds develop and how plants spread to new places.
- Recognize that many foods we eat are different parts of plants.
- Learn how different pollination strategies support plant survival.
- Observe pollination and seed dispersal concepts in the school garden.

SUPPLIES

Supplies to bring from home – **PROVIDED BY VOLUNTEER**:

- One or more flowers with clearly visible reproductive parts.
  - Examples: lily, tulip
- One or more fruits or seed pods with visible seeds.
  - Examples: tomato, milkweed pod

Store flowers in water or refrigerate prior to lesson to prevent wilting.

- Supplies to bring from the shed to the garden:
  - Laminates
    - *The Life Cycle of a Plant*
    - *Anatomy of a Flower*
    - *Flower to Fruit Process*
    - *How Seeds Travel*
  - Books:
    - *What is Pollination?*
    - *Seeds Grow, Seeds Go*
    - 2 Cafeteria trays
    - Knife
    - Cutting Board
    - Magnifying lenses
    - Tweezers
    - Optional: Whiteboard and dry-erase marker

- Supplies to bring from classroom to garden - *arrange with the teacher ahead of time*:
  - Paper - one piece per student
  - Writing tools such as crayons, colored pencils, markers

PREPARATION

- Refer to the LiveWell Kids Volunteer Manual for preparation guidance.
- Because this lesson includes observing pollinators, confirm with the teacher whether any students have insect allergies.

SET-UP INSTRUCTIONS

1. SET UP THE INTRODUCTION AREA:
   - Set out the laminate, *The Life Cycle of a Plant*.

2. SET UP THE GARDEN ACTIVITY:
   - Use the knife and cutting board to cut a flower exactly in half and set it on one of the trays.
   - If you have additional flowers, leave them whole and place them around the cut flower.
   - Cut the fruit/pod in half and set on the other tray.
   - Place the box of magnifying lenses, the tweezers, and the laminates: *Flower to Fruit Process* and *Anatomy of a Flower*, next to the trays.

3. SET UP THE NUTRITION ACTIVITY:
   - Set out the following:
     - Laminate: *How Seeds Travel*
     - Book: *Seeds Grow, Seeds Go*

4. SET UP THE POLLINATION ACTIVITY:
   - Set out the book: *What is Pollination?*

Optional: Use the whiteboard and dry-erase markers to aid you in teaching the topic in any of the activities.

INTRODUCTION & MINDFUL BREATHING *(7 MINUTES)*

- Introduce yourself and any co-volunteers.
- Guide students through a brief mindful breathing exercise.
- Explain: “Today we are going to explore how flowers become seeds, how seeds travel, and how pollination connects plants, food, and ecosystems.”

Discussion: Life Cycle of a Plant

Supplies - Laminate: *The Life Cycle of a Plant*

- Review the plant life cycle using the laminate.
- Explain that all plants begin as seeds and grow, flower, reproduce, and make new seeds.

- **New content:**
  - Explain that plants can be grouped into two broad categories.
  - Explain that annual plants complete their life cycle in one growing season and then die.
  - Explain that perennial plants live for multiple years and produce seeds many times.
- Ask students to share examples they may have noticed in the garden.

****Divide Class into Two Groups****

- Split the students into two groups.
- One group goes to the *Nutrition* activity with the other volunteer.
- The other group goes to the *Garden* activity with you.
- Both activities will run simultaneously. Switch groups after 15 minutes.

GARDEN DISCUSSION & ACTIVITY *(15 MINUTES)*

Discussion: Anatomy of a Flower

Supplies – Laminate: *Anatomy of a Flower*

REVIEW CONTENT:

- Ask students which part of the flower becomes the fruit.
- Reinforce that the ovary grows into the fruit that protects seeds.

NEW CONTENT:

- Point out the ***ovules*** inside the ovary.
- Explain that ovules become seeds after pollination.
- Explain that the ovary grows and changes shape as seeds develop.

Activity: Looking Inside a Fresh Cut Flower

Supplies – Fresh flower, laminate: *Anatomy of a Flower*

- Use tweezers to gently expose the ovary and surrounding structures.
- Help students locate where the ovules are found.
- Pass the tray so students can look closely.

Important: Students should look only. The flower is fragile.

Discussion: Flower to Fruit

Supplies – Use above supplies plus cut half of fruit/pod, laminate: *Flower to Fruit*

- Compare the fruit or pod to the flower.
- Identify where the ovary was located.
- Explain how the ovary becomes the fruit and protects developing seeds.

NUTRITION DISCUSSION & ACTIVITY *(15 MINUTES)*

Happening at the same time as the Garden activity.

IMPORTANT:

Not all plant parts are safe to eat. Students should only eat plants given to them by a trusted adult.

Seed Dispersal Charades

Supplies - Laminate: *How Seeds Travel*, book: *Seeds Grow, Seeds Go*

DISCUSSION:

- **What is Seed Dispersal?**
  - Begin by asking students if plants can walk or move on their own.
  - Explain that even though plants stay rooted in one place, their seeds need to travel away from the parent plant.
  - Explain that if seeds fall too close to the parent plant, they must compete for sunlight, water, space, and nutrients.
  - Explain that seed dispersal is the way plants spread their seeds to new places, so they have a better chance to grow.
  - Explain that different plants use different dispersal strategies depending on their environment.
- **Why Seed Dispersal Matters**
  - Explain that spreading seeds helps plants:
    - Reduce competition with the parent plant.
    - Find new places with enough light, water, and space.
    - Increase the chances that at least some seeds will survive.
- Explain that seed dispersal is one reason plants are found in so many different places on Earth.
- By learning how seeds spread and grow into plants, we understand how food grows and provides nutrition for our bodies.

ACTIVITY:

- Activity Instructions:
  - Explain that students will act out different ways seeds travel.
  - Quietly tell one student which dispersal method to perform.
  - Have the rest of the class observe and guess the method.

Encourage exaggerated movement and creative thinking.

- **Seed Dispersal Methods**
  - Use the laminate to guide the discussion.
    - Gravity:
      Explain that some seeds simply fall to the ground when they are heavy or when fruit drops from the plant.
    - Wind:
      Explain that some seeds are light or shaped like wings or parachutes so the wind can carry them far away.
    - Animals:
      Explain that some seeds stick to fur, feathers, or clothing, while others are eaten and later deposited in a new place.
    - Water:
      Explain that some seeds float and travel along rivers, streams, or ocean currents.
    - Bursting:
      Explain that some plants use energy stored in their pods to burst open and scatter seeds.
  - Explain that seed shape, size, and texture are all clues to how a seed travels.
- **Connection to the Garden**
  - Ask students to look around the garden and imagine how the plants they see might spread their seeds.
  - Ask:
    "What kind of seed would travel best in this garden."
  - Allow one or two student responses.
  - Say:
    "Seeds cannot travel on their own, so plants rely on pollination and dispersal to survive. Next, we will look more closely at pollination and the helpers that make it possible."

****<u>Gather Class Together</u>****

<u>POLLINATION</u> *(10 MINUTES)*

<u>Discussion: Pollination & Pollinators</u>

Supplies - Book: *What is Pollination?*

Refer to the book, pages 10 & 11 to facilitate the discussion about how flowers attract pollinators.

- Explain that pollination allows plants to make seeds.
- Explain that pollen must move from the anther to the stigma of the same species.
- Explain that flowers attract pollinators using color, scent, shape, and nectar.
- Explain that plants use different pollination strategies depending on their environment.

- Pollinators
  - Explain that insects are the most common pollinators.

- Introduce the five main insect pollinator groups:
  - Bees
  - Wasps
  - Butterflies and moths
  - Flies
  - Beetles
- Explain that each group interacts with flowers differently and helps pollinate different plants.

Observing Pollination

- Safety Instructions:
  - Observe with eyes only.
  - Move slowly and calmly.
  - Do not touch insects.
- Observation
  - Walk quietly through the garden.
  - Ask students to notice where insects land and how they move between flowers.

If pollinators are not present, discuss which plants might rely on wind pollination instead.

CLOSING *(5 MINUTES)*

- Bring students together to close the lesson and thank the students, teacher, and other volunteers.
- Review Questions:
  - What part of a flower becomes a seed.
  - Why is seed dispersal important.
  - Name one way seeds travel.
- Key Takeaway (repeat together): "Pollination and seed dispersal help plants grow in new places."
- If you have time, have students draw/write a "Reflection Page" after the lesson, either in the garden or with the teacher when they return to class. If you see any that you'd like to share with BCHD, take photos of their work and email them to mishell.balzer@bchd.org.
- Thank the students for joining you today and dismiss them.

***Remember to report your lesson as delivered with either the online form or this QR code.**

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