







# Why and How to Save Seeds

## Overview:


Students will learn why and how to save seeds from plants. They will see how seeds are the source of life; the sole purpose of a plant is to reproduce. Seed production is the most effective way of ensuring genetic diversity and a healthy ecosystem. Seed saving by humans enables flowering plants to avoid extinction. Seeds are also a source of food for humans and animals.

## Objectives:


At the end of the lesson students will be able to:

-  **Describe** what is inside a seed and what part of a plant forms the seed.
-  **Explain** why it is important to save seeds (to ensure genetic and bio diversity, long-term success of a species, and to ensure the seeds have not been genetically modified by a person or corporation).
-  **Explain** how early agricultural civilizations saved seeds to plant crops (they did not purchase them).
-  **Demonstrate** how to remove seeds from a plant and where and how to store the seeds.



## Preparation:

-  Obtain plants with seeds on them (e.g., lettuce seeds, dried cilantro plant with seeds, dried bean pods, etc.) from the garden to use as teaching aids. Have at least one seed for each student.


## Materials:

-  See the Preparation section regarding seeds taken from plants and seeds still on dried plants.

## On the Board:

-  Vocabulary
-  Student Reflection Questions











## Suggested Snack:

-  Sunflower or pumpkin seeds

## Other Resources:

-  *Seed Swap: The Gardener's Guide to Saving and Swapping Seeds*, by Josie Jeffery, Roost Books, Boston 2013.
-  International Seed Saving Institute: [support3@seedsave.org](mailto:support3@seedsave.org)
-  Slow Food Ark of Taste:
-  <https://slowfoodusa.org/ark-of-taste-in-the-usa>
-  A Handful of Seeds: Seed Saving and Seed Study for Educators at the Occidental Arts & Ecology Center, Sonoma County, California: <https://oaec.org>

## Vocabulary:

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|  embryo   |  species  |
|  ovary  |  genetic diversity (the total number of characteristics in the genetic makeup of a species) |
|  reproduce  |  biodiversity (the variety of life in the world or in a particular habitat or ecosystem)    |
|  disperse   |  genetically modified   |
|  ecosystem (a biologic community of plants and animals and their physical environments which are dependent on each other) |  |
|  extinction   |  |

## Learning Activities:

1. Warm-Up (5 min.)
  - A. Tell students that today they are going to learn why it is good to save seeds and how to do it.
  - B. Ask students if anyone has seen, held, or eaten a seed (e.g., pumpkin or sunflower seeds).
  - C. Ask if they think those seeds could have been planted to produce a pumpkin or sunflower plant. Have students talk to their neighbor and share their thoughts. Tell students that it is unlikely that if planted an edible plant would grow because these seeds for eating are often heated up to sterilize them and, therefore, the embryo (the live part) inside the seed would be cooked/dead.
2. Presentation/Discussion (10 min.)
  - A. Pass out seeds so that each student has one. Ask them to open the seed up with their fingers/nails.
  - B. Have the students describe what the inside of a seed looks like and draw a picture inside their garden journals; this is the embryo (unborn plant) inside the seed.
  - C. Ask students: “Do you think if you plant the embryo the seed will grow?” (This is not likely because the embryo needs the protective coat of the seed around it to nourish the embryo, prevent it from drying out, and to protect it from “injuries” from rocks, tools, etc. that might occur after it is planted.)
  - D. Show students one or more dried plants with seeds on them so that they have a more complete image of where the seeds are located.
  - E. Ask: “What are the ways these seeds could be dispersed in the garden?” (Wind [especially “winged” and “feathered” seeds], birds eating the flower/seeds and then defecating them somewhere, and by humans who have collected, stored, and planted seeds for thousands of years.)

- F. Have students discuss how genetic and bio diversity are similar and different. Have students come up with a situation in which a plant would become extinct.
  - G. Ask them how they think the seeds gathered this year should be stored so that they can be planted next year? (In a cool, dry, shaded place, in glass jars labeled with the name of the plant and date.)
3. Garden Activity (15 min.)
    - A. Divide students into groups of four-five and give them some “saved seeds” from the garden to plant in the amended beds or in seed trays with potting soil. Have them put labels wherever they plant the seeds with the name and date of planting.
  4. Snack: Serve pumpkin or sunflower seeds. (5 min.)
  5. Have students answer the Reflection Questions in their garden journals. (5 min.)

### Student Reflection Questions:

1. If seeds are not saved from one year to the other what will happen to those plants? Will they grow in the same area, and/or in other areas of the garden? Why, or why not?
2. What are at least two ways seeds are “planted” in the garden?
3. “Seed Libraries” are popping up around the world. What do you think these are? (They are places where people can swap seeds, by bringing in ones from their garden and taking some from the library.)

### Assessment Questions:

1. Will seeds from plants grown one year be healthy enough to plant the next year?
  - Yes.
2. If the embryo in the seed is dead, can it be revived by watering it?
  - No.
3. Why is seed saving important?
  - **Seed production is the most effective way of ensuring genetic diversity, biodiversity, and a healthy ecosystem. Seed saving by humans enables flowering plants to avoid extinction.**

### Standards:

Next Generation Science Standards  
NGSS-DCI-Disciplinary Core Idea

- MS-LS4-4 Biological Evolution: Unity and Diversity  
Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

**Common Core State Standards**

- CCSS.ELA-LITERACY.SL.8.1  
Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly.