



Lesson: The Diversity and Resilience of Seeds

Duration: *One 40-minute session**

Section 1: Framework

Essential Questions

- Why is diversity important to the health of planet Earth?
- In what ways are seeds and plants diverse and resilient?
- How does the diversity and resilience of seeds help sustain life?
- What role can humans play in promoting plant diversity and resilience?

Lesson Objectives

- Students will know what diversity and resilience mean.
- Students will be able to explain how diversity and resilience relate to the well-being of Earth and its systems.
- Students will be able to explain how plants develop resilience over time.
- Students will understand that seed saving is one way to ensure diversity and resilience among plants.
- Students will apply their understanding of the significance of diversity and resilience to themselves, identifying personal attributes they contribute to the diversity and well-being of their community environment and a way in which they demonstrate resilience.
- Students will connect their understanding of seed saving to their appreciation for plant life by identifying a plant that they would be interested in saving seed from.

Context

Life on Earth is sustained through balanced interaction among living and non-living things within every ecosystem. These systems depend on diversity and resilience. It is the incredible diversity and resilience of living things on our planet, including plant life, that enable life for all creatures, great and small. Seeds are physically quite small; yet, they play a huge role in the health of humans and our planet. Through this lesson, explore one way in which humans can play a part in protecting seeds, a

*Note, should a class take part in the optional reading activity, noted below, total lesson time is estimated to be 60 minutes

powerful life force, and contribute to the continued diversity and resilience of Earth's food and environmental systems.

Standards

PRIMARY

Massachusetts Science Standard 3.LS4.5: Provide evidence to support a claim that the survival of a population is dependent upon reproduction.

RELATED

Massachusetts Science Standard 3.LS3.1: Provide evidence, including through the analysis of data, that plants and animals have traits inherited from parents and that variation of these traits exist in a group of similar organisms.



Massachusetts Science Standard 3.LS4.3: Construct an argument with evidence that in a particular environment some organisms can survive well, some survive less well, and some cannot survive.



Massachusetts Science Standard 3.LS4.4: Analyze and interpret given data about changes in a habitat and describe how the changes may affect the ability of organisms that live in that habitat to survive and reproduce.

Section 2: Activities

PART A

Materials

-  Google Slides: The Diversity and Resilience of Seeds
-  Handout: Seeds and Me

-  Writing utensil
-  Optional: crayons, markers, colored pencils

1. Introduction (3 minutes)

Begin by letting students know that today the class will be learning about seeds. Specifically, students will be thinking about terms like *diversity* and *resilience* and how these apply to plants and seeds while also learning about the practice of seed-saving.

2. [Optional] Read From Seed to Plant (20 minutes)

If students are not yet familiar with the basics of a seed, including the function and life cycle of a seed, reading this book is a recommended first step. Read aloud versions of *From Seed to Plant* are available on [Epic!](#) and [YouTube](#). While reading along with students, check to ensure students understand key terms and ideas.

3. **The Diversity and Resilience of Seeds Slides & Discussion** (27 minutes)

Slides. Read through the provided slides, “The Diversity and Resilience of Seeds”, with students. Review any unfamiliar words or phrases with students along the way. Several questions are asked throughout the presentation to help students engage with the terms and cultivate understanding through personal connection. Engage in a brief discussion in response to these questions, as appropriate and beneficial.

Discussion. At the conclusion of the slides, take a few moments to help students consolidate key ideas by discussing the following:

- Why is it good for environments to have diversity in terms of plants as well as other living and non-living things?
- What types of challenges do growing plants face (think about weather, climate, predators, etc.)?
- Imagine that a plant is grown in extremely windy conditions. What adaptation, or change, might make that plant more resilient?
- How might that plant adapt over time to be more resilient?
- Why is it important that seeds and plants be or become resilient?

4. **Worksheet**

Provide students with a copy of the handout “Seeds and Me”. This handout is designed to help students forge personal connections with the major themes and concepts presented in the lesson. Among the four enclosed tasks, students are asked to re-imagine themselves as a seed, to consider the traits or characteristics enclosed in their seed that add diversity to the environment, and to think of one way that they are resilient like a seed. Depending on time, this handout may be assigned as independent work or form the basis of further sharing and discussion.

Section 3: Lesson Extensions

- Looking for ways to build on these ideas? The following books offer a range of perspectives on the topic of seeds: [Seedfolks](#) by Paul Fleischman (grades 3-6), [A Seed Is Sleepy](#) by Dianna Hutts Aston (grades K-3), and [From Seed to Plant](#) by Gail Gibbons (referenced as ‘Optional’ pre-learning above; grades K-3).
- FoodCorps offers a [lesson on Seed Saving](#) for grade 2 students that can be easily adapted for later grades, as well, and includes an overview of different seed-saving methods and methods for integrating seed-saving into classroom stations.
- If seed-saving is new to you, consider learning more by reading [this](#) Civil Eats article from April 2020, which includes a video narrative about seed saving from farmer Kristyn Leach.
- Have you ever heard of a ‘seed bank’ or ‘seed library’? Check out [this](#) resource from Seed Savers Exchange to learn more about the process

of saving seeds or visit [this](#) site managed by Tower Hill Botanic Garden to find out if there is a Seed Library located near you (for Massachusetts residents)!