



BIG GREEN LESSONS

Seed Saving: 9th – 12th Grade

Lesson Outcomes

In this lesson students will harvest seeds.

- Seeds can be harvested or collected from our Learning Garden.
- Plants reproduce and create seeds.
- Pollinators support plant reproduction.

Standards Alignment

Common Core – English Language Arts

- SL.9-10.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively
- SL.9-10.6: Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate
- SL.11-12.1: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 11-12 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- SL.11-12.6: Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate.

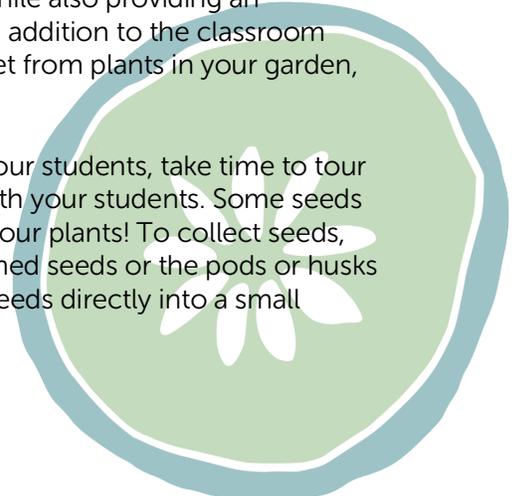
Materials and Preparation

- Seed Saving Materials
 - Container or brown paper bag, 1 per student or student group
 - Envelopes for long term storage, see Seed Packet Template
 - Sharpie to mark storage envelopes or bags
- Seed Saving Signs (Write in plant name.)
- Cue Plant Reproduction Video: <https://youtu.be/HLYPm2idSTE>
- Print Plant Reproduction Video Worksheet, 1 per student
- Review lesson and familiarize yourself with your Learning Garden
- *Optional: supplies for additional Learning Garden activities*

Teacher Background

Many plants in the Learning Garden will produce seeds that are easy to harvest. Seed saving is a fantastic activity for students to participate in because it touches on so many different classroom connections. Seed saving will stimulate your students' five senses while also providing an opportunity for you to teach cycles, seasonality, and stewardship. In addition to the classroom connections, seed saving expands on the potential utility you can get from plants in your garden, and it is also economical!

Seed collecting is a simple process. Before you collect seeds with your students, take time to tour your Learning Garden to identify which seeds you plan to collect with your students. Some seeds will be in pods or husks while other seeds will be growing right on your plants! To collect seeds, have students use their hands to either remove the dried and hardened seeds or the pods or husks (which contain dried and hardened seeds). Students can place the seeds directly into a small



container or a brown paper bag. Collect seeds in the early fall while it is still dry and store your seeds in either an envelope or brown paper bag.

The plants below commonly provide you with seed harvesting opportunities:

- Fennel
- Dill
- Cilantro (Coriander)
- Other Herbs
- Sunflowers
- Beans
- Lettuces
- Tomatoes
- Peppers
- Cucumbers or other squashes
- Radishes
- Broccoli

Tips for seed saving success:

- Communicate your intentions to harvest seeds with your Garden Team so no one inadvertently removes the plants you will be collecting from.
- Leaf and root vegetables require more growing time to produce seeds than is typically planned for in the vegetable growing season. Let your radishes, lettuces, and greens “go to seed” by not harvesting their leaves for at least one month prior to your seed collection date. More time may be needed depending on crop.
- Use the seed saving signs in your Learning Garden.

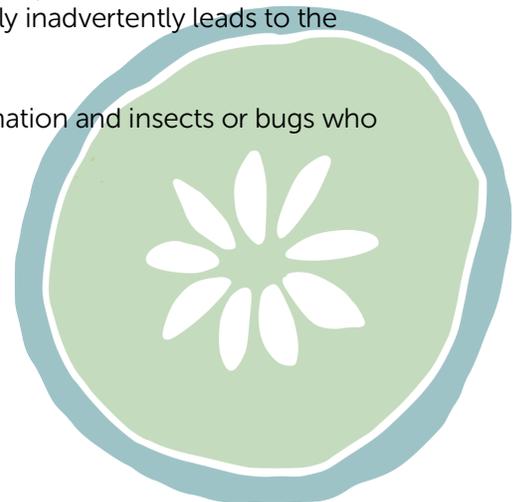
Flowering plants, or angiosperms, reproduce with specialized male and female flower structures. Some plants have both male and female reproductive structures and some plants will feature either male or female reproductive structures.

The male reproductive structures, or stamen, includes the filament and the anther. The anther produces pollen (sperm) and the filament supports the anther by holding it away from the flower so it can easily be accessed by visiting pollinators.

The female reproductive structures, or pistil, includes the stigma, style, and ovary. The stigma is sticky, and pollen attaches itself here. It is supported by the style, which attaches itself to the ovary where fertilization occurs and eventually ripens into the fruit. The ovary is hard to see when looking at the flower, but it is located in the center of the flower, at the base of the style.

Flowering plants have additional structures that support reproduction: sepals protect young flowers before they open up; petals attract visiting pollinators to the flower so pollen can be distributed; and nectar provides food for visiting pollinators to feast on, which usually inadvertently leads to the distribution of pollen!

The movement of pollen from one flower to another is called pollination and insects or bugs who support this process are called pollinators!



Introduction

Spend time discussing the following introductory questions:

- Do plants in our Learning Garden make seeds?
- Why do plants make seeds?
- How do plants make seeds?

Activity

1. Welcome your students to the Learning Garden and line students up along one side of the Learning Garden. Stand on the opposite side of the Learning Garden so you can address the entire group.
2. Ask students if they know what they will be doing in the Learning Garden for the day's lesson. Let them know they will be collecting seeds from the Learning Garden that can be planted next year!
3. Invite your students to explore the Learning Garden and to hunt for seeds that can be harvested. Give students 3 to 5 minutes to explore the garden. Once finished, bring students back together and review their findings.
4. Take students on a quick tour of the Learning Garden identifying the seeds that they will be collecting today. Place a seed saving sign at each plant to help the students identify the plants they will be harvesting from. Demonstrate how to properly harvest or collect a seed from each plant.
5. Break up students into groups or let students work individually. Pass out a container or brown paper bag to each student or student group and allow students ample time to harvest.
6. Once you return inside with your seeds have your students return to their seats and distribute the Plant Reproduction video worksheet. Introduce plant reproduction to your students.
7. View the video with your students. Pause or reply as needed.
8. Review the plant reproduction process with your students.

Conclusion

Have students share key parts of the day's activity and review the Lesson Outcomes. Students should clean-up the Learning Garden as needed.

Additional Learning Garden Activities

Extend your Learning Garden experience and have your students participate in any of the following Learning Garden activities as appropriate. Activities can include creating seed saving envelopes, planting, watering, weeding, and harvesting.



Name: _____

Plant Production Worksheet

1. What are angiosperms?
2. Fruit develops from the _____ of a plant.
3. Flowers = _____
4. Complete both diagrams below.

