

Lesson Nine

From Seed to Seed

Seed Saving

Lesson Overview

This lesson teaches children & youth the importance and practice of saving seed from the garden. Participants will also start seeds for the Fall garden.

Lesson Objectives

Participants will be know how to save seed from tomatoes, lettuce, and peas, they will know what a seed library is, and they will be able to give at least one reason why saving our own seed is important.

Key Terms

Seed Library

A seed library is an institution that lends or shares seed.

Threshing

Act of separating grain from (a plant), typically with a flail or by the action of a revolving mechanism.

Winnowing

To blow a current of air through (grain) in order to remove the chaff.

Hybrids is a controlled method of pollination in which the pollen of two different species or varieties is crossed by human intervention. Hybridization can occur naturally through random crosses, but commercially available hybridized seed, often labeled as F1, is deliberately created to breed a desired trait. The first generation of a hybridized plant cross also tends to grow better and produce higher yields than the parent varieties due to a phenomenon called 'hybrid vigor'.

However, any seed produced by F1 plants is genetically unstable and cannot be saved for use in following years.

Not only will the plants not be true-to-type, but they will be considerably less vigorous.

Gardeners who use hybrid plant varieties must purchase new seed every year.

Heirlooms variety is a plant variety that has a history of being passed down within a family or community, similar to the generational sharing of heirloom jewelry or furniture. An heirloom variety must be open-pollinated, but not all open-pollinated plants are heirlooms. While some companies create heirloom labels based on dates (such as a variety that is more than 50 years old).

Cross-pollination

Different varieties of crops of the same species can cross pollinate, producing offspring with different characteristics than the original variety.

Open Pollination is when pollination occurs by insect, bird, wind, humans, or other natural mechanisms. Because there are no restrictions on the flow of pollen between individuals, open-pollinated plants are more genetically diverse. This can cause a greater amount of variation within plant populations, which allows plants to slowly adapt to local growing conditions and climate year-to-year. As long as pollen is not shared between different varieties within the same species, then the seed produced will remain true-to-type year after year.

Introduction to Lesson Two

Saving seed has been an act of resistance, and act of defiance in an age where industrial and conventional farmers are banned from saving their own seed. Not too long ago farmers all over were able to save their seeds for the following year, and plant them in the ground. Unfortunately, large seed companies have decided it is their right to not only breed, but own certain seeds, forcing most large-scale and corporate farmers to purchase seeds year after year.

This lesson seeks to instill in our children & youth the urgency and skills needed to save some of their own seed.

METHOD Seed saving is not an easy skill, but there are a few easy plants to save seed from that are great for beginners. These are – tomatoes, beans, peas, lettuce, and arugula.

Earlier in the season these crops should be planted, and a specific amount should be left for saving the seed. This lesson will go through the basic steps of saving seed for these plants.

Activity One - Seed Matching Game (All Ages)

Materials

Small jars or bags with different seeds in them, laminated pictures of vegetables, fruits, herbs, and flowers that match the seeds you brought.

Activity Outline

Bring jars of different seeds and seed packets or laminated signs. Invite participants to work in pairs, groups, or as a large group (if small enough) to identify all the seeds and put them with the correct pictures or seed packets.

Explain that we need to be able to identify our seeds quickly & easily as gardeners. We also have the opportunity to let our plants go to seed and harvest those seeds for next year. Remind them that if we keep our soil and plants healthy they will give us everything we need to grow our own food. Make a charts or pictures of different fruits and vegetables that show the seed cycle.

Seed >> Plant >> Fruit >> Back to Seed

For little ones — bring a bunch of (extra) seeds and let them play with & feel the different textures, shapes, sizes, etc. Bring examples of the produce/fruit so they can see what plants the seeds actually produce. Then eat the vegetables!

Activity Two - Starting Fall Seeds

Materials:

Seed Trays, Germination Mix (50 Compost 50 Potting Soil), Watering Cans, Seeds

Activity Outline

Around late July and early August it is time to start seedlings for planting in the Fall garden. Some crops to start now include — Broccoli, Cabbage, Cauliflower, Collards, Kale, Swiss Chard, and Head Lettuces Demonstrate how to properly start seeds in trays —

- **Seeding Equipment**

Determine how many plants you would like to start based on how much space you have to germinate indoors & how much space you have in your garden. This will help you determine what type of seed starting equipment to use.

Here are some options – seed trays with plugs, yogurt cups, seed-starting tray with cell pack inserts, single flat with furrows, soil blocks. Figure out which method you like best, but for starting out we recommend using cell pack inserts or seed trays with plugs.

- **Soil Mix, Choose Organic!**

Find a good, organic potting mix or germination mix at your local plant nursery. Germination mix is a little finer than the organic potting mix, both will probably work just fine for your home garden. You need soil that is loose & drains well. Look for soil mixes that have organic fertilizer and/or compost in the mix – this will give your seedlings some added nutrients & the boost they need to grow. If your mix does not have compost mixed in use your own (if you have good home compost) or purchase quality organic compost.

- **Step Four – Wet the Mix, Sow the seeds, Cover**

This is key – get your soil mix moist before sowing your seeds. You can do this by pouring the mix you need into a large bucket and getting it uniformly moist, or putting the soil mix in your tray/cells and then soaking it with water. Leave it for a while, then come back and sow your seeds.

Seeding Technique -

Read the seed packet, most seeds do not need to be planted very deep at all.

Make a small indent in the middle of the cell or pot with your index finger, place seed into the indentation, push the seed down a little more if needed (according to seed packet). Dust with more potting or germination mix.

One or two seeds per cell is good. If there are two or more seeds that germinate, you will need to pull one out once they begin to grow, to allow enough space (unless you are sowing into a flat without cells). Cover your planted seeds with a plastic dome if you have one or plastic wrap, and uncover once they have germinated.

Activity Two - Starting Fall Seeds (Continued)

- **Step Five -- Sunlight**

Place your trays in the warmest, sunniest spot you have indoors. A table against a south facing window (where there is no draft) is ideal. You can use special grow lights or regular florescent lights if you like, hung at least an inch above your trays. Seedlings need a lot of light to germinate – at least 14 to 18 hours/day. Keep that in mind if you are using lights. Rotate your trays or pots daily otherwise your seedlings will bend toward the light.

- **Step Six – Watering & Care**

Once germination has occurred water your seedlings gently whenever the soil feels dry to the touch. Make sure you water them thoroughly so the cells are watered all the way to the bottom. If your soil mix did not have an organic fertilizer, consider adding something once your plants have “true leaves.” Ask your local nursery – we recommend **Indian Creek Nursery & Paradigm Gardens** in Omaha for great organic mixes & fertilizers.

- **Step Seven – Thinning**

If there is more than one plant growing in a cell (as mentioned above) make sure to pull out the weaker seedling. Brush your hand gently over the plants as they grow to promote strong stems.

- **Step Eight – Potting up & Hardening Off**

If your plants are becoming “root bound” or outgrowing their containers it is time to pot them up. Move them to bigger cells or pots. Take your seedlings outside when they are ready (refer back to the seed packet again – how many weeks did it say?) but keep them in a covered location like a porch for at least a week, and bring them inside the house at night. Gradually move them outside, and plant!

Activity Three - Fall Planting (All Ages)

Materials

Seeds, seedlings, trowels, rakes and hoes, gloves, watering cans, plant markers or stakes

Activity Outline

It is time to plant another crop! Time for GREENS and ROOTS again. Clear out any extra space in the garden, pull out weeds and any plants that are done producing and put them in the compost area. Add compost (if needed) and mix it in using a fork. Rake the beds out smooth and determine your spacing for furrows. Invite participants to make furrows with their hands or with trowels, read the seed packets aloud so they know the proper spacing, plant seeds in the furrows. Cover seeds with soil depending on the depth stated on the seed packet. To help participants understand the seed packets you could make larger laminated signs with planting instructions — sometime the seed packets are hard for little ones to read and get the correct information off of. Gently water the seeds after planting!

Seeds to plant/direct sow in Late Summer —

Kale

Collards

Cucumbers

Arugula

Golden Beets

Red Beets

Radishes

Spinach

Carrots

Parsley

Activity Four - Seed Share (All Ages)

Materials

Seeds, small seed packets, seed labels or stickers, pens and markers, folding table and table cloth, laminated seed share signs

Activity Outline

Plan a seed share at the garden location and invite staff, community members and neighbors. Explain to participants that sharing seeds is a wonderful thing to do in the community and we always have extra. Participants can make signs for each variety of plant. Go over the different plant families with them. Make fliers to invite the neighborhood or to put inside the school or community center.

Set up the table and arrange the seeds based on plant family. Have the participants assist guests in putting a small amount of seeds into their seed packets. Make sure to properly label the packets so guests know what type of seed they have when they get home and are ready to plant. Include the variety name and planting instructions.

Activity Five - Basics of Seed Saving (Ages 8+)

Materials

Six Tips for Seed Saving Handout from Seed Matters

Activity Outline

Go over the basic steps and tips for seed saving using the “Six Tips for Saving Seed” handout

Activity Six - All About Seeds (All Ages)

Materials

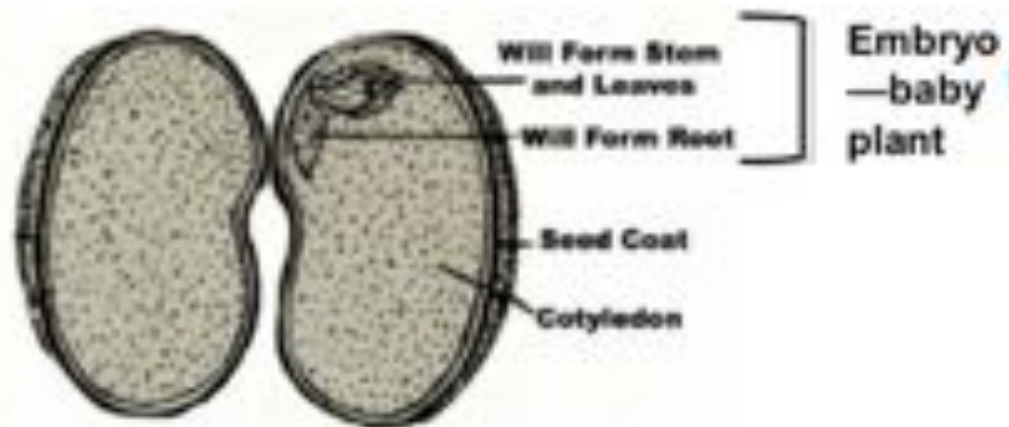
Different seeds in bowls to explore, laminated pictures (see below)

Activity Outline

Talk about seeds, how they form, how they grow, what foods come from seeds using the different laminated pictures. Then let participants explore different types of seeds! What do they smell like, look like?

Parts of a Seed

- Seed Coat- protects seed
- Embryo (baby plant) —beginning leaves, stem and root
- Cotyledon—stored food



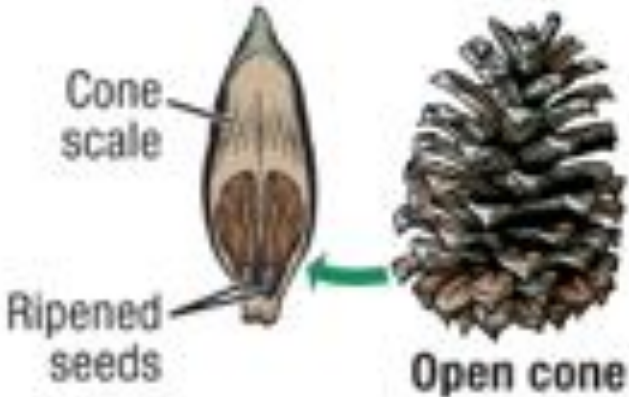
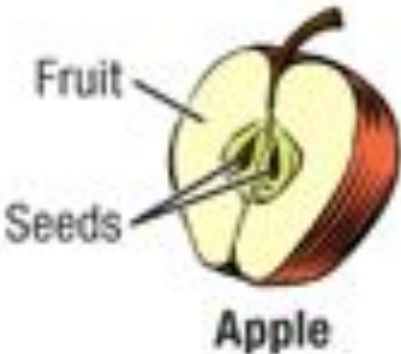
Bean Cut in Half



**ANGIOSPERM
SEEDS
AND FRUIT**

vs.

**GYMNOSPERM
SEEDS**



Activity Seven - Dry Seed Collecting & Saving (All Ages)

Materials

Ziplock bags, paper bags, pruning shears, seed saving screens, small seed packets

Activity Outline

Walk around the garden and see if there are any plant going to seed. At this time there should be lettuce, peas, beans, basil, and calendula for seed saving. Explain to participants that these are dry seeds and we don't need to do anything or process them after collecting like we do with tomatoes (for example).

Use the paper bag technique. Harvest dry pea pods and put them into paper bags. Gently crunch the bag with the seed pods in it. When you open it up you will see this separated the seed from the husk.

Use seed screens. For small seeds like lettuce the seed saving screens are very helpful. They also work better than the bag technique for perennial flowers like bee balm and purple coneflower (because these seeds are so small).

Go over proper storage. Let participants know that seeds must be stored in a **cool, dark, dry place** or they can also be stored in a refrigerator (but it must be dry).

Activity Eight - Wet Seed Saving - Tomatoes (All Ages)

Materials

Colander, paper towels, heirloom tomatoes, water, ziplock bags, mason jars, sharpies

Activity Outline

Nightshade Family - Tomatoes

Plant: Isolate different varieties by 10 ft.

Harvest: Collect ripe tomatoes. Squeeze pulp and seeds into a jar. Let ferment 2-3 days until a mold forms. Add water. Pour off mold, floating seeds and any pulp. Viable seeds will sink. Repeat until water is clear. Put on a labeled paper to dry.

Nightshade Family - Peppers Plant: Isolate different varieties by 400 ft. Peppers will cross! Harvest: Remove seeds from fully ripened peppers. Use gloves, if hot. Dry.

Activity Nine - Seed Snacks (All Ages)

Make a variety of seed snacks. Examples -

Sunflower Seed Butter

Roasted Pumpkin Seeds

Sprouts on baguette with cream cheese & fresh tomato slice

Popcorn on the camp stove

Raw sunflower seeds

Sugar Snap Peas dipped in homemade ranch