

How do we plant and care for pumpkins in a greenhouse that will be transplanted when weather permits?

PROJECT PUMPKIN (gr 3-5)

Greenhouse Planting **(ILS 21A)**

Overview

This curriculum explores the relationship between people and the food they eat. By growing pumpkins in a garden plot, the curriculum takes teachers and students through six features of sustainable agriculture that separate it from conventional farming. If the entire curriculum is completed, students will gain an understanding of sustainability and people's place in the food chain.

Sustainable Agriculture, for the purpose of this curriculum, shall be defined as "a system of food production, supported by consumers, where farming operations, practices and technologies work in harmony with the natural systems that sustain life on earth."

Suggested Grade Level

This curriculum is designed for 3rd through 5th grade levels. The topics covered can be built upon in complexity throughout that age range.

Approximate Time

This activity takes approximately 40 minutes, and should be completed in mid-late April. Session 2 requires about 20 minutes.

Objectives

1. The students will plant seeds indoors (they will be transplanted to the garden in a later lesson).
2. The students will care for their seedlings indoors until danger of frost is over.
3. The students will determine the ideal time to transplant their seedlings.

Activity Abstract

In this lesson, students will plant the pumpkin seeds that will be transplanted to their garden and used in other activities, including the nutrient management experiment. They will start to grow the seeds in the classroom or greenhouse until the danger of frost ends, and they will figure out the best time to plant the seedlings outdoors.

Background Information

The best information on how, when and where to plant seeds is on the seed packet! Be sure to get them in plenty of time to read and prepare.

Here are some tips for care, from the Care Counselor, <http://www.windowbox.com/cgi-bin/experts/DisplayArticle.asp?TopicID=5&ArticleID=89>.



“We're probably all aware of the dangers of under watering plants. You come back from vacation to find your plants clearly distressed. The leaves are wilted and perhaps starting to turn brown around the edges. A little water will bring them back to life if they're old enough, but younger plants may not bounce back. Bad plant parent!

“Underwatering can be a problem, but in most cases when your plant is distressed it will be due to overwatering! Yes, roots need water, but they need oxygen as well to function properly. Consider this: when was the last time you saw a tree growing in the middle of a river? Plants that are consistently overwatered are in danger of developing root or stem rot, which can affect the overall health of the plant over time.

“Compounding the problem is this: A plant suffering from overwatering may appear to actually need water. The leaves will wilt and turn yellow, sometimes dropping off. Someone seeing this might believe that the plant needs water and add to the problem. But once again, feeling the soil is the best way to avoid this. When in doubt: Soil + dry = water. Soil + wet = don't water.”

Materials

- Organic pumpkin seeds, all of the same variety.
- Greenhouse space or grow lights set up in the classroom
- Trays for plants
- Small plastic pots for all the seeds.
- Watering can
- Soil
- Newspapers to protect floor and tables from soil
- Trowels
- Extra adults
- Computers with internet access
- Soil thermometer

Teacher note:

Don't want to plant just pumpkins??? Consider companion planting. Pumpkins do well when planted with radishes and corn. (Planting pumpkins with beans is good but will interfere with the Nutrient Management experiment!) See Appendix A!

Set-up

Have space in greenhouse ready or grow-light system set up and ready to go in classroom.

Procedure (Session 1)

1. **Tap prior knowledge.** Review the Nutrient Management Experiment (in progress) and explain that it's time to plant seeds for the experiment.
2. **Hands-on experience.** Explain instructions for planting the seeds. Use terms that the students can truly visualize, such as “as deep as your fingernail” instead of “¼ inch deep.” Explain a system for getting soil, etc., that will minimize messiness and spillage.
3. Have students plant 3 seeds per pot. (Split into groups based on seed type; adults should check that they're doing it properly.)
4. Label pots so you know what they are.
5. Water pots.
6. Move them under the grow light or their proper place in greenhouse. Be sure the grow light is no more than 6 inches above the soil surface or the plant to insure proper lighting.



7. **Conclusion/Wrap-up.** The class needs to make sure seeds get watered and cared for in future. Create a system for getting this done. If possible, make plant care a rotating class job; adults should monitor to prevent over- or under-watering (see background).
8. Pumpkin seeds will germinate in 6-10 days in soil at between 70° and 95°. Signs to look for: on about the 7th day, two fat, fuzzy, oval baby leaves break through the soil. Within a few more days, a third leaf, with wrinkles and jagged edges, appears in the center of the young plant. Thin the plants to one per pot by snipping with scissors once pumpkin seedlings are established.

Procedure (Session 2)

1. Have students research, using seed packets and the internet, the best time to plant outdoors in your particular area. This should be after the danger of frost has passed and when the soil temperature has reached about 70°F.
2. Have students monitor soil temperature to make sure their chosen date is correct.
3. Schedule to plant outdoors based on student research!

References

The care counselor. <http://www.windowbox.com/cgi-bin/experts/DisplayArticle.asp?TopicID=5&ArticleID=89>



Appendix A. Companion Planting Guide.

Crop	Plant with	Don't plant with
Corn	Potatoes, peas, beans, squash (pumpkin), cucumbers	Tomatoes
Pumpkin	Corn, radishes	Potatoes
Soybeans	Grows with anything, helps everything	
Marigold	Hardworking pest deterrent; plant throughout garden to discourage insects, nematodes, and other pests.	