



Lesson: Sowing Seeds for Thriving Plants

Duration: *One 40-minute session*

Section 1: Framework

Essential Questions

- What does it mean to thrive?
- Why do plants grow well in certain places but not others?
- How do farmers and gardeners know what plants need to grow?
- How do plants differ from one another in terms of their needs?
- What does climate change mean in terms of plant health?
- How are humans and plants alike, when it comes to survival?

Lesson Objectives

- Students will know key vocabulary associated with planting and plant care: seasonal produce, thrive, sow, indoor sow, indirect sow, outdoor sow, direct sow, transplant, harden off
- Students will know that gardeners and farmers use tools, like the USDA Plant Hardiness Zone Map, to understand the needs of different plants and to assist in planning for and caring for plants.
- Students will be able to use their skills of observation and prior knowledge to draw conclusions from data presented in map and chart form.
- Students will understand that each plant has certain conditions it requires not only to survive but to thrive. Students will understand that when a plant does not have the conditions it requires, it is not likely to thrive.
- Students will be able to apply their understanding of plants and their needs to predict how changing conditions brought about by climate change may affect the ability of plants to thrive.
- Students will be able to identify what it is they need, on an individual level, to thrive.

Context

Have you ever been at a grocery store or market and observed the way that certain fruits and vegetables appear and disappear over the course of the seasons? Or perhaps you've noticed that some items are sourced locally during certain months and imported from warmer climates during others. Though we may not often stop

to think of it, each species of plant has its own very specific requirements for life. In this lesson, students and teachers will consider what it means to thrive and learn how and when to sow seeds so that each seed reaches its plant potential.

Standards

PRIMARY

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.

RELATED

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.



Massachusetts Health Standard 3.5: Through the study of safe and adequate food supply, students will identify the connection between food served in the home with regional food production.



Massachusetts Reading Standard RI.3.10: Independently and proficiently read and comprehend informational texts, including history/social studies, science, mathematical, and technical texts, exhibiting complexity appropriate for at least grade 3.

Section 2: Activities

PART A

Materials

-  Google Slides: Sowing Seeds for Thriving Plants
-  Handout: Just Right to Grow

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

1. Introduction (3 minutes)

Begin by letting students know that today the class will be learning about how to care for seeds, particularly when it comes to how and when to plant seeds, and will be talking about what it means for a plant to thrive. In the context of the lesson, students will be learning to think and act, as gardeners and farmers do, to help each species of plant reach its potential.

2. Sowing Seeds for Thriving Plants Slides (15 minutes)

Slides. Read through the provided slides, “Sowing Seeds for Thriving Plants”, with students. Review any unfamiliar words or phrases as you go. 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.

The last slide includes an image that will be useful for the next activity, which emphasizes chart-reading and comprehension skills. It's recommended that this slide remains viewable for the next activity.

3. "Just Right" Chart-Reading Activity (10 minutes)

This activity will require students to use their skills of observation and knowledge from the lesson to determine what "just right" planting conditions must exist for four different locally-grown fruits and vegetables to thrive.

Start by projecting the last slide from the previous activity (graphic also enclosed on page 4 of lesson plan for reference). Begin by asking students to review the graphic and to make observations to the group. What information is available, visually? What do they notice?

Once students have demonstrated that they are able to interpret the data available through the graphic (chart), let them know that the next task is to determine the "just right" conditions that each plant type needs to thrive.

For each question, ask and discuss:

- Which two types of plants prefer to be sown outdoors in April or early May?
- Which two of these plants can be grown in the fall, when temperatures start to drop?
- What are the "just right" conditions for peppers?
- Let's compare the planting recommendations of carrots, peas, and salad greens. How are they similar? How are they different?

4. "Just Right to Grow" Worksheet (12 minutes)

Provide students with a copy of the handout "Just Right to Grow". This handout is designed to help students forge personal connections with the major themes and concepts presented in the lesson. Students are asked to identify and illustrate plants that are able to grow locally, consider the things they need to thrive and represent these in words or picture form, and to predict how drought might affect plants' ability to grow. Depending on time, this handout may be assigned as independent work or form the basis of further sharing and discussion.

Section 3: Lesson Extensions

- Using [Burpee's Growing Calendar](#) to generate planting recommendations for students' favorite fruits, vegetables, and herbs. Take it a step further by having

students re-create the chart for their favorite fruit, vegetable, or herb on graph or lined paper and interpret the data in written form.

- Conduct an experiment! Once a plant's preferred growth conditions have been determined, plant a few seeds of the same type with different variables. You might consider adjusting the planting dates, the hardening-off periods, or even the type of planting (indirect/indoor sow versus direct/outdoor sow). Once a week over the course of a month, have students illustrate and share their results. (This experiment is best conducted with a fast-growing plant such as peas or greens).

Graphic for Activity 3: "Just Right" Chart-Reading Activity

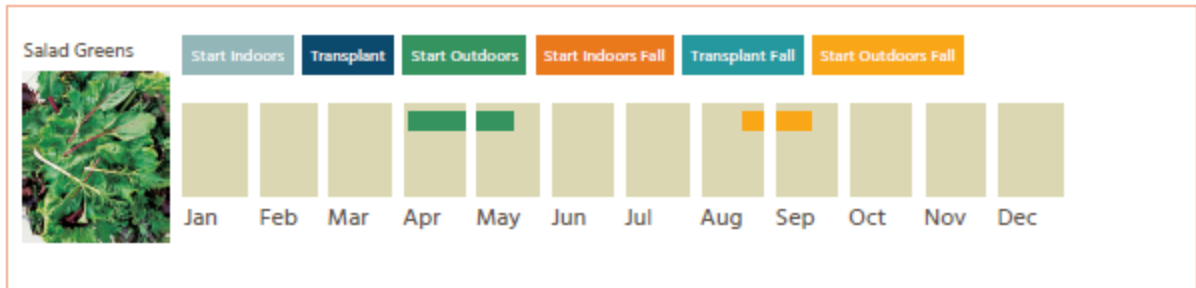
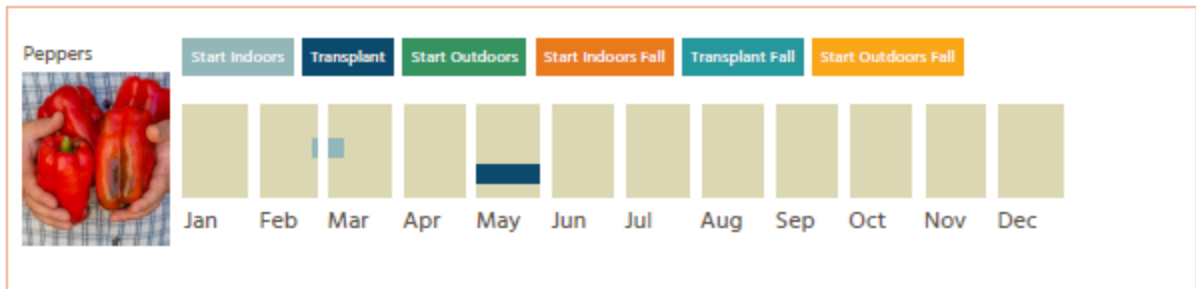
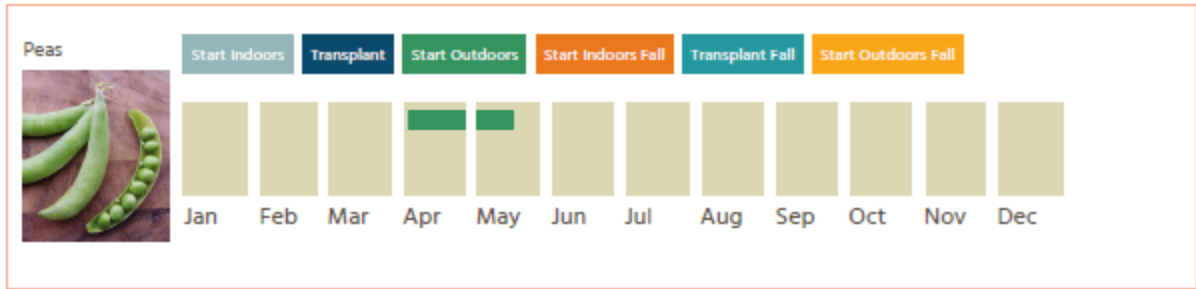
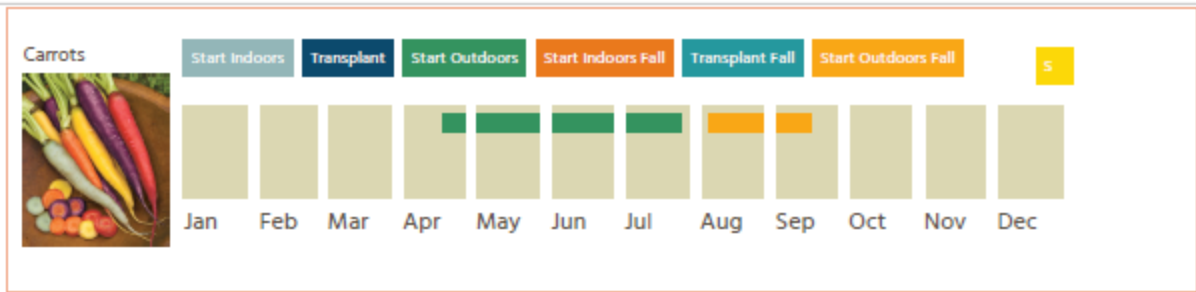


Image obtained from <https://www.burpee.com/growingcalendar>