



Creating a Planting Plan

Connected Next Generation Science Standard

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Featured Science and Engineering Practice

Analyzing & Interpreting Data

Featured Cross-Cutting Concept

Patterns

St. Louis' **first frost** date is October 15 and April 15 is the **last frost** date. These dates are only an average and guideline. Some **cold-hardy** vegetables, like carrots and kale, will survive a light frost (28 F).

Overview

Create school garden ownership and enthusiasm by having students design their own square foot garden plot. Students will use personal preference, planting calendars, seed packets, and math to design their garden. Set this lesson up as a fun group activity, not a competition, since some plants may out-compete others. Check out the end of this lesson to adapt it for a younger grade.

Students will

- Choose garden plants based on what they like and when plants can be planted and harvested in their garden.
- Calculate how many plants can grow in a square foot.
- Plant and create a maintenance plan for the garden.

Teacher Preparation

- Decide the number and size of the garden beds your class can plant in.
- Optional: Order free seed catalogues through seed companies like Johnny's or Burpee.
- If doing square foot gardening, hammer in nails every one foot on the garden beds.

Guiding Question - How do gardeners decide when and what to plant?

Explore

- Ask the class the guiding question. Popcorn answers around the room. Tell them today we are going to figure out how gardeners and farmers decide what to grow and then create a square foot garden planting plan!
- Ask your class to turn to a neighbor and discuss how the garden and weather changes throughout the year. *What have they observed about the garden in the winter or spring?*
- Pass out seed packets and/or the Seed Packet 101 worksheet.
- Point out the different planting details, including when to plant and days to harvest. Different seed companies vary their language, so you may need to explain the words "sow" or "germination."



Creating a Planting Plan

Materials

- Teacher- White Board, marker
- Various seed packets
- Seed Packet 101 worksheet
- Planting Plan Worksheet or garden journals
- Rulers
- Gateway Greening Planting Calendar
www.gatewaygreening.org
- Gateway Greening Spacing Guide or square food gardening spacing
www.mysquarefootgarden.net/plant-spacing/
- Optional: seed catalogues, nails, hammer, twine/string

Setting

- Mostly indoors until planting
- Works best early spring or at the very beginning of the school year.

Some plants can be either **directly sown** in the soil or started inside and **transplanted** (replanted) outside.

Some plants, like root vegetables, do better when seeds are sown outside. Transplanting requires grow lights, a greenhouse, or purchasing seedlings.

If you do not have the time or math skills to calculate spacing, use an online square foot spacing guide that will already calculate the number of plants per square foot.

- If students have seed packets, ask students to identify the number of days to harvest and then line up from shortest to longest days to harvest. Have a few students share what plant type they have. *Why do you think some plants take longer to grow than others? What do the faster growing plants have in common? (smaller, harvest and eat the leaves or root)*
- Next, pass out the Gateway Greening Planting Calendar. Explain how to read the chart, including the difference between direct sowing and transplanting. Point out the first and last frost dates are on the calendar.
- In small groups, have students identify when they can sow and/or transplant the plants on their seed packet and how the dates may differ from the seed packet.
- *Why do you think some plants are planted earlier in the year and others can only grow in the summer?*

Digging Deeper

- Revisit the guiding question. We now know that gardeners need to take into account the time (both how long it takes to grow and time of year) when planning a garden. Gardeners also choose what to grow based on what they like to eat or want to try.
- Each student or small group will be in charge of planning one square foot of the garden. The number of groups will depend on the size of your garden.
- Pass out garden journals or the Planting Plan worksheet
- Groups choose from available seed packets or the Gateway Greening Planting Calendar one plant they would like to grow. Remind students to notice when they can harvest and plant their plant. *Do they want to be able to eat it this school year?*
- Students write down the plant name and planting plan.
- Use the seed packet or the Gateway Greening Spacing Guide, to figure out the spacing within rows or between plants (spacing between rows is not needed). If the plant spacing is greater than 12", choose a new plant.



Creating a Planting Plan

For **younger students**, introduce the idea of a planting plan by creating a **plant calendar collage**. Divide a poster-board(s) into growing season months. Students tear out plants they want to grow from seed catalogues and use the Gateway Greening planting calendar to decide when it can be planted. They can then paste the picture in the correct month. Use student suggestions to create a classroom planting plan!

Gateway Greening Resources

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Discover season-specific gardening how-to's and examples of current lessons:



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- Students then calculate how many plants can fit in one square foot by dividing 12" by the plant spacing distance and multiplying the quotient by itself.
- For example, if the plant spacing was 3" the number of plants would be 16 ($12"/3" = 4$ and $4 \times 4 = 16$)
- If needed, refer to the square foot gardening spacing at www.mysquarefootgarden.net/plant-spacing/

Making Connections

- Students then write how they should plant and care for their chosen crop. *When should they plant, thin, and harvest it? How many plants will fit in one square foot of the garden?*
- Based on the seed packet or further research, write down watering and harvesting instructions.
- Depending on resources, either create a garden map labeled with all classroom crops or plant labels.
- *What do they think is the most difficult part about choosing which plants to grow?*
- Make a square foot grid by running string or twine across the bed every foot. Use either tacks, staples, or a hammer and nails to hold string in place. Recommended to install nails without students.
- Number off the grid and record each student's square foot number to help keep track of which square belongs to each student.
- When it is the correct time to direct sow or transplant seedlings, use rulers and the square foot grid to guide planting. Use seed packets to determine seed depth.
- Encourage students to monitor their plant and notice how it is growing different from their other plants. *What suggestions do they have for someone who want to grow this plant in the future?*