

Seed Packet Math

A lesson from the New Jersey Agricultural Society Learning Through Gardening program

OVERVIEW: Planting seeds begins with understanding the instructions on the seed packet. In this lesson, students will map a cool-season vegetable garden plot using the instructions on the back of at least three seed packets. Cool-season plants don't grow in the summer heat. They are planted in the spring and fall, between late March and mid-April and again between late August and mid-September. This lesson can be used as an exercise in the classroom or to map out an actual cool-season garden. Younger students may work in small groups and older students may work individually or in groups.



GRADES: 3-5

OBJECTIVES: The student will be able to:

- Read instructions on the back of seed packets and follow the instructions to plan a vegetable garden plot.
- Use the instructions on the back of seed packets to create a map of a garden plot on graph paper.
- Estimate the distance between seeds in one-foot-square spaces in the garden.
- Calculate and plot the distance between rows of seeds in a garden plot.
- Calculate germination and harvest dates using seed packet instructions.
- Describe the ideal planting conditions for different cool-season vegetables.

MATERIALS:

Seed packets for cool-season vegetables such as: lettuce, spinach, Swiss chard, broccoli, onions, radishes, beets, turnips, kale, and peas. (Students can pass around and share seed packets.)

Graph paper with one-inch squares

Planning Your Garden Worksheet, three per student or per small group

PROCEDURE:

Divide students into groups of three if you want them to work in small groups. Tell students that they are going to draw a garden plot on graph paper using the instructions found on the packets of three different cool-season vegetable seeds. Explain the difference between cool-season and summer vegetables. Cool-season vegetables cannot grow in the hot summer sun.

Decide how big the garden plot should be. Students can go outside and measure actual garden plots, or you can assign an area they should map, such as an 8 x 4-foot garden.

Distribute seed packets. Explain that students will be creating a map of a garden using at least three cool-season vegetables. All the information needed to plant the garden is printed on the back of the seed packets. Review the vocabulary from the seed packets:

Sow: plant

Thin: Removing some smaller plants after the seeds have sprouted if the plants are too close together. Explain to students that *thinning* happens after plants start growing and they do not need to use the thinning instructions today.

Germination rate: the time it takes the seeds to sprout above ground



Tell students that when the instructions give a range for planting, such as 1 ½ to 2 inches apart, the students will have to choose one number within that range. Review the symbols for inch (") and foot (').

Show students the *Planning Your Garden Worksheet*. Ask them to complete the worksheet for *each* vegetable *before* they start drawing their garden plot.

Ask students to draw the size of their garden plot in the middle of the graph paper. Tell them that each square inside the garden plot will equal a square foot, and that they must remember to calculate the space between *plants in one row* as well as the space between the *rows of plants*.

Tell students to draw a small circle in the squares to indicate where the seeds will be planted. Students will have to *estimate* the space between vegetables. (For instance, if a vegetable's seeds are to be planted eight inches apart, one seed can be planted in the first square, and two seeds in the second square.) For very tiny seeds, like lettuce and spinach, the instructions will just say "sow thinly" and students will not have to calculate the space between plants, only the space between rows of plants.

Be sure to remind students to label the type of vegetable they are planting in a section of squares. Use at least three different vegetables in the garden plot.

Remind students they must complete the *Planning Your Garden Worksheet* for *each* vegetable they choose *before* they begin mapping their garden.

Students use the information written on the worksheet to map their garden on graph paper.

EVALUATION:

Student successfully completes a drawing of the garden plot on graph paper using the instructions on the seed packets.

EXTENSIONS:

Individual students or small groups can swap garden plans and review them to make sure all the planting instructions were followed.

Students in small groups can map their actual cool-season vegetable garden plots, based on the varieties of vegetables they plan to plant. The whole class can then compare the maps and choose the garden plan they think will work best.

Students can divide their actual garden plot into one-foot-squares with string. (The string can be taped to the sides of the raised bed with duct tape or painter's tape.) Students can plant their seeds in the one-foot squares according to their garden plan.

New Jersey Learning Standards

Math: 3.MD, 3.NF 4.NF, 4.MD.A,B 5.NF, 5.MD.A

Science: 3:LS1.B 4:LS1.A 5:LS2.A

Language Arts: 3:RI.3.1,2,4 4:RI.4.1,2,4 5:RI.5.1,2,4



Name _____

Planning Your Garden Worksheet

Vegetable name _____

When should you plant _____

Days to germination _____

If you plant your seeds on September 15, between what two dates would you expect to see your vegetables sprout?

Space between seeds _____

Space between rows _____

How deep should you plant? _____

How tall will your plant grow? _____

Days to harvest _____

If you plant on September 15, on what date could you harvest? _____

What are the thinning instructions? _____

Write any additional instructions or information from the seed packet on the back of this paper.