

Making A Garden Map

OVERVIEW: What's the first step to planting a vegetable garden? Make a plan! Seeds and seedlings can't be plopped just anywhere in the garden. Different plants require different amounts of space to grow. Teach your students how to read seed packets to determine how much space their plants need. Then have them draw a map of their garden on graph paper. This activity gives your students a chance to use their literacy and math skills in a real-life setting.

GRADES: 3-5

OBJECTIVES: The student will be able to:

- Research the space requirements of plants by using the information on seed packets
- Calculate the perimeter and area of the proposed garden beds
- Use graph paper to map out a garden plot according to the space requirements of different plants
- Explain the difference between cool-season and summer vegetable
- *Optional: Determine in which direction to place taller plants so they will not shade smaller plants*

MATERIALS:

Copies of seed packet instructions for 5 cool-season vegetables (*below*)

Garden Planning Chart (below) one for each student

Graph paper for each student

NOTE to teachers: The following garden mapping activity can be modified according to grade level or ability. You might decide that a class of third graders should map out one garden bed of just three different vegetables. You might decide that a class of fifth graders should map out a garden of several garden beds with five different vegetables.

PROCEDURE:

Read the book *We Are the Gardeners* by Joanna Gaines.



Begin a discussion: The family in *We Are the Gardeners* gathered around the kitchen table to plan their garden. Ask: Besides a sunny spot, what else might you have to consider when planning a garden? List suggestions where all can see. Ask: are all plants the same size? How are they different? Do you think it matters how they are spaced in the garden?

Explain that different plants grow to different sizes and thus need a different amount of space in the garden. If plants are too crowded, they will compete for water and nutrients. Ask students where they think they might find information about the space each type of plant needs in the garden.

Pass out copies of the back of seed envelopes. Explain that each type of seed comes with instructions about how they should be planted and how big and how fast they will grow.

Next ask students: can you plant any seed at any time of the year? When can you grow tomatoes and corn? When can you grow spinach and lettuce?

Explain that certain vegetables are called cool-season vegetables because they grow in the cooler weather of spring and fall. These vegetables are planted in April and harvested in early June. They can be planted again in September and harvested in early November. Summer vegetables like the high temperatures of the summer. These vegetable are planted in May and harvested in late August or early September.

Ask students for examples of cool-season vegetables. Ask for examples of summer vegetables.

Tell students they are going to map out a garden of cool-season vegetables using garden beds that are 8 feet long by 4 feet wide. *Note: You can give students the option of making their garden beds a different size, but the garden beds should be no wider than 4 feet. This allows gardeners to reach into the bed to tend their plants without stepping on the soil. Walking in a garden bed compacts the soil, making it less healthy for plants to grow.*

Ask students to calculate the perimeter and area of their garden beds, and include the information on their garden maps. Review these skills if necessary.

Tell students they are also going log the plants' *germinate rate*, which is the number of days it takes the plant to sprout above ground. They will also log the *days to maturity*, which is how long they need to grow until they can be harvested.

Optional for older students: The teacher demonstrates for students how to plant taller plants so they won't shade shorter ones. Ask students: what are the four directions? In what direction does the sun rise? In what direction does the sun set? When deciding where to plant taller and shorter plants, explain to students that the sun is strongest in the afternoon, when the sun is in the west. Ask: where would your shadow fall if you are facing the west? Draw a sample garden plot and write the symbols for the four directions. Ask students, if the sun is in the west, where will a plant's shadow fall. Ask: in this garden plot, where could you plant taller plants so they would shade shorter ones?

Pass out the copies of the backs of seed packets with the planting information. Explain to students that if the seed packet does not give a different number for seed spacing and row spacing, then the space between seeds and the space between rows should be the same.

Explain that very small seeds, such as lettuce, spinach, or carrot seeds, are difficult to plant one by one in the garden. They are sprinkled in the row and some are later pulled out – this is called *thinning*. Tell students for the purposes of their garden map, they should use the seed spacing number that is *after thinning*. Seed packets often say “thin to (a number of) inches apart.”

Divide the class into small groups and distribute copies of the seed packet information. Tell students that although they may discuss and plan their garden as a group, each student must complete their own *Garden Planning Chart* worksheet and *Garden Map* on graph paper. *If students are considering the height of plants, remind them to note the four directions on their garden map.*

After all the groups have finished their plans, bring the whole class together and ask each group to explain their plan. Discuss with the class the pros and cons of each map and which plan seems the most optimal for a garden.

EVALUATION:

Completed *Garden Planning Chart* and garden map on graph paper
Group presentation of garden plan

EXTENSIONS

Seed packets note the *days to harvest* for a vegetable. Ask students to calculate the number of weeks and the number of months until harvest for their vegetables.

Ask students to find other examples of cool-season and summer vegetables.

New Jersey Learning Standards

Science: 3:LS1.A 4:LS1.A 5:LS1.C

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

VEGETABLE
Lettuce
Nevada

Thick, crunchy leaves with a mild flavor. One of the best cut and come again lettuces.

SOW in average soil in full sun in early spring for first crop, in late summer for fall crop. Sow thinly in rows 12" apart and cover with 1/4" of fine soil. Firm lightly and keep evenly moist. Seedlings emerge in 7-10 days. Sow every two weeks to extend harvests.



FULL SUN
(6+ HOURS)

28-48 DAYS
TO HARVEST

DEPTH
1/4"

THIN
8"



Container Friendly
4 PLANTS PER
12" CONTAINER
(OR PLANT IN GROUND)

VEGETABLE
Kale
Premier

Deep green, slightly scalloped leaves are great for baby greens or used at full maturity. Exceptional nutritional value.

SOW in full sun in early spring; midsummer for fall crop. In Deep South, Gulf and Pacific Coast areas, sow from fall to early spring. Plant seeds evenly and thinly and cover with 1/4" of fine soil. Firm lightly. Plants emerge in 10-21 days. Thin 18" apart.



FULL SUN
(6+ HOURS)

55-65 DAYS
TO HARVEST

DEPTH
1/4"

THIN
18"



Container Friendly
1 PLANT PER
12" CONTAINER
(OR PLANT IN GROUND)

VEGETABLE

Bunching Onion

Parade

This high-quality bunching onion produces nice, straight scallions with extra-long white roots. Firm, mild tasting ends will not form bulbs.

SOW in average soil in full sun after danger of frost in spring. In frost-free areas, sow in fall. Sow thinly in rows 12" apart and cover with 1/4" of fine soil. Firm lightly and keep evenly moist. Seedlings emerge in 7-14 days. Thin to stand 3" apart when seedlings are 1-2" high.



FULL SUN
(6+ HOURS)

60 DAYS
TO HARVEST

DEPTH
1/4"

THIN
3"



**Container
Friendly**

10 PLANTS PER
12" CONTAINER
(OR PLANT IN GROUND)

VEGETABLE

Carrot

Short 'n Sweet

Bred especially for heavy or shallow soils. Sweet-flavored 4" roots are bright orange.

SOW in deep, well-worked, stone-free soil after danger of heavy frost. Sow seeds thinly in rows 12" apart. Cover with fine soil, firm lightly and keep evenly moist. Do not transplant, as crooked roots may result.



FULL SUN
(6+ HOURS)

68 DAYS
TO HARVEST

DEPTH
1/2"

THIN
3"



**Container
Friendly**

12 PLANTS PER
12" CONTAINER
(OR PLANT IN GROUND)

VEGETABLE

Pea

Easy Peasy

Plants produce 10-11 tasty peas per pod and two pods per node. Striking blue-green foliage, with super curly tendrils, are self-supporting.

SOW in average soil in full sun in early spring for first crop, in late summer for fall crop. Sow seeds 2" apart in double rows spaced 6" apart with 24" between each set of rows. Cover with 1" of fine soil. Seedlings emerge in 7-14 days. Thin to stand 4-6" apart when seedlings are 1-2" high.



FULL SUN
(6+ HOURS)

60-65 DAYS
TO HARVEST

DEPTH
1"

THIN
6"

Name _____ **Garden Planning Chart**

Use the information on seed packets to fill in this information about the vegetables you plan to grow in your garden.

Vegetable	Space Between Plants	Space Between Rows	Height of Grown plant	Germination Rate	Days until Maturity (harvest)