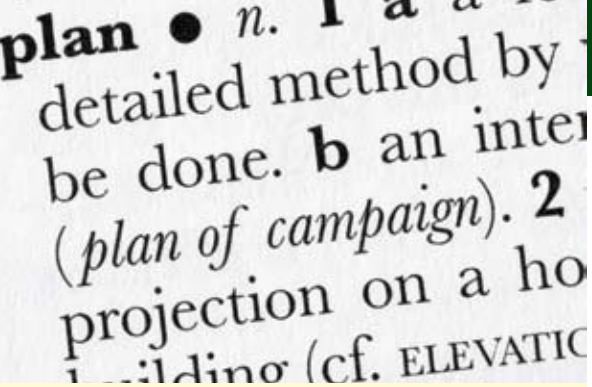

Activity: Plan It, Map It

Grades K-7

Overview

Using the information provided, students work with their teacher and resources available to plan their garden and employ math skills to do so.

Background

Living things compete with one another to survive and reproduce. Plants have differing characteristics unique to their species and variety. Even within species there are differences between two varieties or among a host of varieties. Consider the number of squashes there are, or the variety of tomato plants. Much of the information provided in this guide sets standard parameters that plants need. But this can vary. This activity will give students the opportunity to experience first-hand that math has a purpose with real-life applications, research various plant information and make decisions about the garden they will plan and plant.

Groundwork: Their Own Garden

Objective: To identify a plant they would like to plant in the school garden, specify a variety, and detail its growth requirements.

1. Have students select vegetable plants they could plant in their own garden. Make a list of those plants.
2. Using hard copy seed catalogs or online seed suppliers, ask students to identify the number of varieties of one of these vegetables. List the names of the varieties available on the student handout Plant Dimensions.
3. Ask students to identify, each variety's growing requirements, and note them in the chart provided. Then select one or two varieties of the rest of the vegetables and document the requirements for these varieties.
4. Select the varieties to plant in their own garden and the number of plants they would like to have for each variety.
5. Then have students calculate the number of square feet their garden will require to grow the number of vegetables they have selected, and create a map of their garden drawn to scale. Make sure they allow space for humans to weed, water and harvest the garden. For younger students, plants' needs can be depicted graphically by making a paper pattern of the space needed by that plant and using these patterns to map out the garden in real-life size.

NOTE: For plants with more than 10 varieties, the students should select a specific type of that vegetable. i.e. tomatoes: select full-sized, slicing tomatoes or heirloom, slicing tomatoes; squash: select winter squash or summer squash; peppers: select sweet bell peppers or hot peppers.

Time:

Groundwork: 40 minutes

Exploration: 30 minute setup; time for student to consider various options and develop plans

Making connections: Ongoing

Materials:

- **Seed catalogs or Internet access to seed catalogs**
- **Rulers, yardsticks, measuring tapes**
- **Paper, graph paper or notebook (or purchase garden planning software to use computers)**
- **Copies of the Plant Dimensions Chart (page 62)**
- **Writing instruments**
- **Optional: Calculators**

Standards At-A-Glance

Next Generation Sunshine Standards Met:

MA.K.G.2.4, MA.K.G.2.5, MA.K.G.3.1, SC.1.L.17.1, MA.1.A.6.2, MA.1.G.5.1, MA.1.G.5.2, SC.2.L.17.1, MA.2.A.2.4, MA.2.G.3.1, MA.2.G.3.2, SC.3.L.14.1, SC.3.L.17.2, MA.3.A.4.1, MA.3.G.5.1, MA.4.G.3.1, MA.4.G.3.2, MA.4.G.3.3, MA.5.G.5.3, MA.6.A.1.3, MA.6.A.5.1, MA.6.G.4.2, MA.7.G.4.1

Exploration: The School Garden

Objective:

1. Students will plan a garden with parameters given.
2. Indicate the limitations of the school garden space and the number of students who need to utilize that space. Share what space will be available to this class. (Teachers may need to limit the type and number of plants.)
3. Have students determine what and how many of each plant students will incorporate into the garden. Decisions to be made:
   a. Will each student have their own plant or plants (number)?
   b. Will each student have the same type of plant? If so, what will it be?
   c. If not, how many total types of vegetables will be grown?
   d. Will more than one variety of each vegetable be grown?
4. As a group, plan the school garden making sure that adequate space is provided for all students to have access.
5. Make sure they take plant height into account in relation to the sun – prevent tall plants from shading short plants, as much as possible.

Extensions for Middle and High School

1. Have students create algebraic equations for planning the garden.
2. Have students create gardens that incorporate circles, triangles, rectangles, octagons, and create a garden diagram drawn to scale that provides adequate plant space and human working space.
3. Have students create three-dimensional gardens that use fencing, wire cages, climbing poles, etc. to make use of space vertically as well as horizontally.
4. Have students research and develop a plan for a commercial hydroponics operation that would be profitable.

Additional Materials:

1. The *Keeping Florida Green* curriculum developed by Florida Agriculture in the Classroom, has lessons about the classification of Florida's plants that can be used in concert with the garden. It can be obtained by attending a workshop.
2. Use the lesson "What Will the Land Support?" from *Project Food, Land & People's Resources for Learning*. It can be obtained by attending a workshop.

Teachers may need to limit the type and number of plants.

"Activity: Plan It, Map It"

Plant Dimensions Chart

Name _____

Vegetable Selected:			
Variety	**Row Width**	**Space Between Plants**	**Height**

Plan It, Map It

Sample Pre-Post Assessment

1. Name three plants you would like to grow.

2. Select one of those plants and list it below. Does this plant have any special needs?

3. How much distance should there be between this plant and the next plant in the same row?

4. If this plant were planted in several rows, how far apart should each of these rows be from the next row?

5. How tall does this plant grow?