



Basic Vegetable Gardening

Lesson 12: Crop Rotation and Vegetable Families

Lesson Summary: As boys and girls start planning and preparing for the next season of planting, boys and girls will learn about the importance of crop rotation, as well as vegetable families. They will draw a plan for next season's garden.

Intended Learning Outcomes:

Boys and girls will describe the reasons for crop rotation.

Boys and girls will know the differences between the different vegetable families.

Boys and girls will practice crop rotation by drawing pictures of gardens.

Length: 60 minutes

Materials:

A diagram of the garden

Paper for each group of 3 students

Large chalkboard or paper for leader

Vegetable flash cards

Crop rotation poster

Student Guide

Background: Learning about crop rotation and vegetable families supplements Step 2: Choosing your garden design. It is important to think about this topic when planning for the second planting of the garden.

Lesson Steps:

1. (5 minutes) – Introduction

Welcome boys and girls and review information learned at the last gathering about water, weeding, composting and mulching. If there is anything to report about the garden, have boys and girls report at this time. Discuss watering the garden and if there is any produce ready to be picked yet.

2. (20 minutes) – Learning about the importance of crop rotation.

Question to investigate: What is crop rotation and why is it necessary?

2.1 (5 minutes) Discuss the importance of crop rotation.

It is important to rotate the crops from season to season in your garden. Rotating crops means that crops should be planted in different parts of the garden each season. When you rotate crops, you are rotating where the crops are being planted.

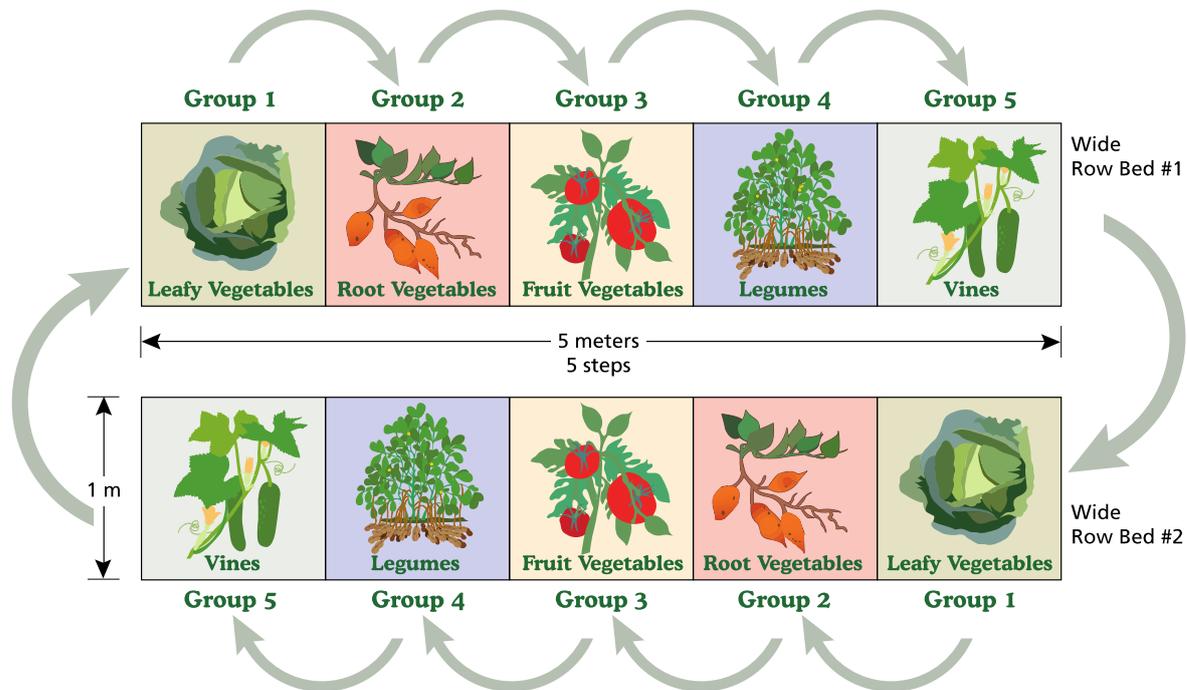


Rotating crops is very important because different plants use and/or return different nutrients to the soil. Also, plants that are related tend to have the same pest and disease problems. If you rotate the crops, pests will be less likely to eat them and diseases may not establish or spread as easily.

In addition, when you rotate crops you lessen the depletion of nutrients from the soil and actually help to rejuvenate it.

2.2 (5 minutes) Draw the picture below on the board and have boys and girls copy it into their notebook. Or, if boys and girls have a Students Guide, have them look at the pages on crop rotation. You can also show the crop rotation poster.

This drawing shows how to rotate plants. Note the five types of plant families. *(Some gardeners call "Fruit Vegetables" "Tomato Vegetables" even though there are more than tomatoes in this family. Use a label common in your culture.)*



For crop rotation, it is important to know that the leafy vegetables and fruit vegetables families are the most likely to attract pests or become diseased. The plants in these families also deplete more nutrients from the soil than plants in other plant families. Therefore, do not plant leafy vegetables or fruit vegetables in the same place two times in a row.

For example: First plant and harvest a crop of tomatoes and peppers. Next, plant ground nuts in that same soil. After the ground nuts are harvested the soil will be replenished. Next, plant vegetables from another family such as vines or leafy vegetables.



2.3 (10 minutes) Write the five categories of vegetables on the board. Ask boys and girls if they can list some plant examples that would fit into each family. Use examples from your garden.

- Leafy vegetables
- Root vegetables
- Fruit/tomato vegetables
- Legumes
- Vines

Leafy Vegetables

Cabbage, cauliflower, broccoli, amaranth, lettuce and Swiss chard. Crops in this family are heavy feeders. Provide these plants with plenty of animal dung and compost fertilizer for optimum growth.

Root Vegetables

Carrot, beet, sweet potato, and onion. Do not apply fresh dung near the planting time for these crops, as this may lead to forking of roots. Similarly, if too much nitrogen fertilizer is applied, the crops may produce many leaves but fewer roots and tubers. As mentioned above, plant these vegetables in different places from season to season to prevent disease.

Fruit Vegetables

Tomato, potato, green and red pepper, and eggplant. These crops are grouped together because the first four vegetables listed must not be grown one right after the other. They are all in the same family.

Legumes

Bush bean, pole bean, ground nut and pea. Legumes are not very heavy feeders so they require less fertilizer. Like peas and ground nuts, legumes replenish the soil by fixing nitrogen in the soil. As such, they are particularly valuable for crop rotation, because nitrogen is generally the most common limiting factor nutrient for plant growth.

Vines

Cucumber, pumpkin, squash, melon, watermelon. These vine crops are all part of the Cucurbits family and are subject to relatively few soil-borne diseases.

2.4 (10 minutes) Hand out the vegetable flash cards. Have students sort the cards into the correct plant family. Have boys and girls check their answers by looking at the Student Manual or the chalk board.



3. (30 minutes) Draw a picture of next season's garden

3.1 (20 minutes) Have small groups of boys and girls draw suggested picture of the garden for the next season. Break the large group into small groups of about 3 boys and girls. Make sure each small group has a piece of paper or a notebook and a pencil. The focus is on crop rotation. Ask boys and girls to take the information they just learned about crop rotation and plant families and plan where each plant will be planted next season.

Boys and girls should refer to their notes to know where each plant is planted this season, or the leader can draw the diagram on the board.

3.2 (10 minutes) Groups share their proposals with the whole group.

Have each group present their diagrams to the large group. At this time, it is not necessary to choose a design for next season. It is very important, however, to talk about the concept of crop rotation and discuss their proposals and if they meet the criteria. A few checklist questions may include:

- Does the group avoid planting leafy vegetables and fruit/tomato vegetables in the same space they were planted last season?
- Have the legumes been rotated to new areas?
- What are some challenges to rotating crops? Why don't some people practice crop rotation?

4. (10 minutes) - Summary and Debrief

4.1 Use the crop rotation poster to summarize the lesson.

4.2 Ask the following questions:

- What did we do today?
- Why is it important to plan for our next planting season right now?
Answer: Now is the time when you may notice specific differences in areas of your garden, such as low-lying areas that retain water, etc.
- Why is crop rotation so important?
Answer: For nutrients in the soil and for pest control.
- Do you think other farmers or gardeners have to think about crop rotation?
Answer: Yes, almost all farmers rotate crops to discourage pathogens and recycle nutrients.

5. (1 minute) - Close

Discuss the topic of the next lesson.

