Third Grade Spring Lesson

Three Sisters Garden

Objective:

Students will learn (1) folklore and practical use of traditional Native American Three Sisters plantings of corn, bean and squash, (2) different plant species have different growing habits and needs, and (3) Native Americans used complementary plantings of multiple plant species and symbiotic relationships between plant species to help their food grow more successfully than if they had grown the plants separately.

California State Content Standards:

1) Science Standards

3. Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:

a. Students know plants and animals have structures that serve different functions in growth, survival, and reproduction.

b. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.

c. Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.

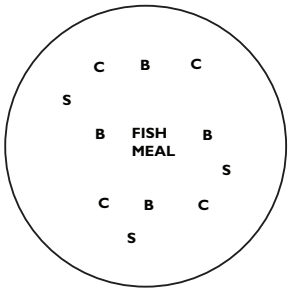
2) Social Science

3.2: Students describe the American Indian nations in their local region long ago and in the recent past.

1. Describe national identities, religious beliefs, customs, and various folklore traditions.
2. Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g., how they obtained food, clothing, tools).

Lesson Outline:

A. Lesson
   a. History of Three Sisters
   b. Draw Three Sisters Planting diagram
   c. Discuss complementary growing habits of Three Sisters
B. Garden Rules
C. Planting Plans
D. Plant



Three Sisters Planting diagram

Seeds/Supplies:

Corn—preferably colored Indian corn
Pole Beans—Romano or Kentucky Wonder
Squash—zucchini or summer squash
Fish meal fertilizer

Lesson:

Corn, beans and squash were the primary agricultural foods planted by many Native American peoples. Traditional Native American planting of these three food crops together helps all crops grow better than they would if planted apart. For great stories and enrichment activities, use **In the Three Sisters Garden** *by Joanne Dennee*.

Here is how the sisters help each other grow:

1) Corn helps her sister Bean by providing support for beans to climb. Beans are a climbing vine; corn is a tall skinny plant.

2) Bean helps her sisters Corn and Squash by providing natural fertilizer, which means plant food, in the soil. Nitrogen is necessary for all plant growth—most fertilizers sold in the store are mainly nitrogen. Beans are special plants that can put nitrogen in the soil. They are "leguminous" plants—this means they absorb nitrogen from the air and release it back into the ground through their roots. Corn and squash grow better because they can absorb the nitrogen that beans release into the soil.

3) Squash helps her sisters Corn and Bean by using her large round leaves to shade the ground. This keeps the soil around the roots cool and protected so less water evaporates from the soil. This was especially important in the Southwest, which is a dry, desert environment.

4) Finally, Native Americans would use fish heads and bones leftover from their meals to fertilize the soil. They would put them in the bottom of the mound and plant the three sisters on top. As fish parts decomposed, the vitamins and minerals they left behind would fertilize the crops.

Planting Directions:

Ten Students for Each Three Sisters Mound Planting

1) Make a circle two feet in diameter, approximately three feet from the next closest circle. If this is being planted in a container, the container serves as the circle and the mound (described in #3 below).

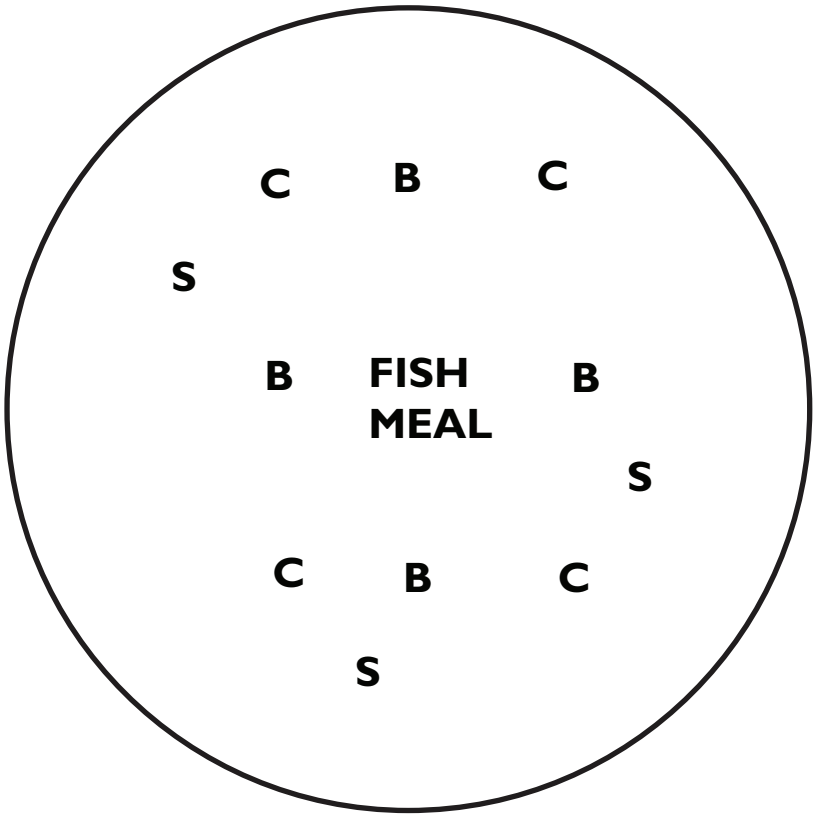
2) Sprinkle fish meal in circle—1 student.

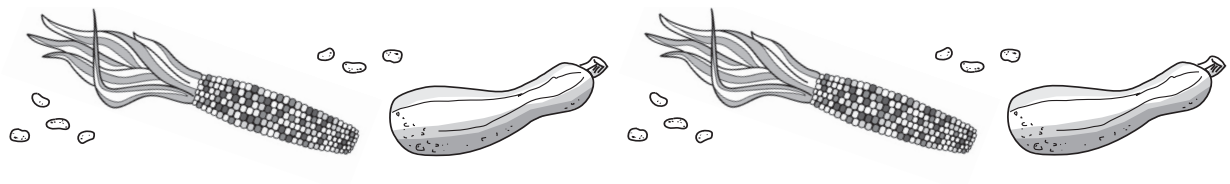
3) Build a 2 inch tall mound, looking like a "mesa" or flat-topped mountain typically found in Southwest, in circle—2 students. If planting in containers, have 2 students turn potting soil to aerate it and mix in the fish meal, and then spread it flat.

4) All seeds get planted 1 inch deep. Students should insert their finger up to first knuckle to dig hole. Space seeds approximately two inches apart. Students should not cover their seeds until all have been planted so everyone can see where the others' seeds are.

a. Plant four corn (C) seeds in a square—2 students
b. Plant four bean (B) seeds, one on each leg of square—2 students
c. Plant three squash (S) seeds all around outside of square—3 students
d. Squash planters cover all seeds by pinching holes closed.

5) Cover with seed starter cloth and water.





Teacher Information

Third Grade Spring Lesson

Three Sisters Garden

Today your class will be planting a Three Sisters Garden, which is a traditional Native American planting method for growing corn, beans and squash. The students will learn that the Native Americans used a complementary planting design growing these crops together that encouraged the plants to grow more successfully than they would have grown if planted separately.

1) Corn provides support for the bean vine to grow up.
2) Beans absorb nitrogen from the air and release it into the soil as fertilizer for corn and squash.
3) Squash leaves shades the soil and plant roots to keep them cool and retain needed moisture in the soil.
4) Native Americans added leftover fish parts to soils as additional natural fertilizer.

This lesson teaches both third grade Science (Life Science) and Social Science (Native American) Content Standards.

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Please visit the garden regularly to watch your garden grow! Hold an Open House in June to talk to your students about their garden.