

LESSON: Guilds & Communities, Plants & People

GRADE: 2

OBJECTIVES:

Science

Ecosystems: Interactions, Energy, & Dynamics

LS2.D Social Interactions and Group Behavior

- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (*Note: Moved from K–2*). (3-LS2-1)

Social Studies

Behavioral Sciences

SS.K-2.BS.2 Understand all people have individual traits.

- Understand that people are alike and different in many ways.
- Understand that individuals will respond to events differently.

MATERIALS & RESOURCES:

- Plant guild information (included in lesson)
- Internet access to:
 - [Native American Three Sisters Gardens, New Mexico University-
http://ddl.nmsu.edu/kids/webquests/wqthreesisters_k.html](http://ddl.nmsu.edu/kids/webquests/wqthreesisters_k.html)
 - [Seeds of Change Companion Planting Table-
http://www.seedsofchange.com/newsletter/issue_55/companion_plantin_g.aspx](http://www.seedsofchange.com/newsletter/issue_55/companion_plantin_g.aspx)
- Paper & pencil, art supplies if story is to be told with art work

PRESENTATION:

The people who first lived on this land and at Blood Run knew much about the plants and animals because they lived in close relationship. They new that plants and animals belong to **guilds** or communities based on their needs and contributions. Humans also form guilds and communities. It is valuable to all living things for survival.

DIRECTIONS:

1. Read and discuss information about plant *guilds*. Identify needs and contributions of various plants. How do they get help and help each other? While considering the plant guilds, begin to compare humans in families, class, communities. How do they rely on each other for needs and help each other? Examples:
 - Corn needs lots of nitrogen and offer support to vines, beans give nitrogen and need support for vines
 - Walnut trees produce a growth prohibitor/ Walnut shell can be used to stop weed growth
 - Apple tree roots grow in top 12” of soil/comfrey sends out a deep tap root bringing up water and minerals from subsoil for shallow rooted plants
 - The Seeds of Change Companion Planting Table or any companion planting data is helpful in pointing to many elements of a successful plant community. These elements can be attributed to people.

2. Make a list of needs and benefits provided by humans in human communities. Following are just a few ideas. There are hundreds more connections between people.
 - Care & Support- parenting, family, friends, community, teachers
 - Safety- crossing guards, police, fire fighters, nurses, doctors, parents, teachers
 - Food, Water, Air, Housing, Clothing- farmers, grocers, cooks, artisans, cloth makers, tailors, carpenters,
 - Learning- teachers, principles, school employees, each other, books, documentaries, artists, musicians

3. After review of information about plant guilds and human communities, students can write a story about living in community, using what they have learned about plant guilds. Who are their “sisters”? Who supports them, nourishes them, helps them with safety or learning? Whom do students “support”, keep safe, entertain, feed, teach, etc. Some students may be better able to express this through pictures by painting, collage, or drawing. Have a sharing time in which the kids share their stories.

TIME:

45-90 minutes

PROCESSING THROUGH THE SIX PILLARS

WHAT HAPPENED?

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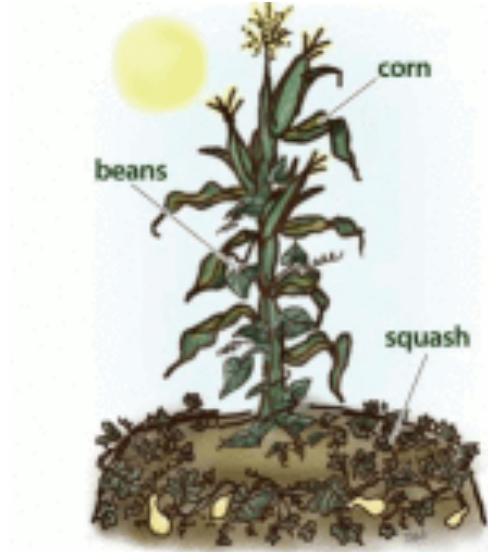
SO WHAT?

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WHAT NEXT?

Examples of Plant Guilds:

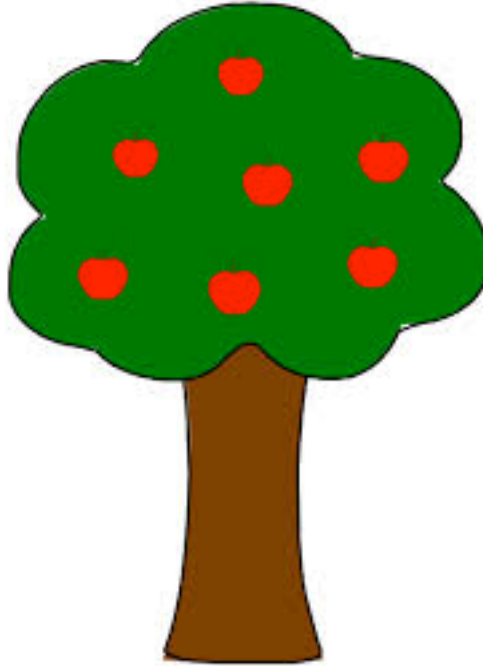
The "three sisters" of New Mexican agriculture, corn, beans, and squash, were hundreds of years ahead of their time. This system serves as the basis for inter-cropping systems currently being used around the world as tools to increase agricultural productivity in areas facing food shortages. Why is this a successful system?



Simply stated, each of the three sisters serves an important role. To understand the system, one should first consider the three plants separately. Growing corn in rows is a good idea but wastes valuable planting space. Beans require some sort of support system and must be staked up to grow. Finally, both squash and corn require additional nitrogen in the soil to produce adequately in New Mexico's typically sandy soils, which are also prone to losing valuable moisture due to evaporation. As corn reaches for the sun, beans may grow up the strong stalks and the necessity of

building a support system or frame is reduced. One must plant corn some distance apart, leaving the ground bare; however, planting squash between the rows of corn reduces soil moisture loss as the squash foliage acts as natural mulch, reducing soil temperatures and helping to "hold" moisture in the soil where it may be used by the plants and not lost to the atmosphere. Finally, beans have the unique capability of being able to "fix" atmospheric nitrogen, pulling it from the air and improving soil nitrogen status; essentially, "fertilizing" the other two sisters. (New Mexico State University, <http://ddl.nmsu.edu/kids/webquests/3sisresources.html>, Contributed by Dr. Dann Brown, Professor of Botany, Eastern New Mexico University)

The Apple Guild



Apple Tree, Comfrey and edible or ornamental Onions.

- Plants occupy different spaces above and below ground,
- Onions produce food & deter pests
- Comfrey or Boneknit is medicinal and grows from a powerful tap root which carries nutrients from the air down to the roots of the Apple as well as providing ample mulch to nourish the Apple
- Apple tree provides you with spring blossoms and wholesome fruit.
- This is not a guild that would have been present prior to settlers. However there were likely other fruit tree guilds which the first people knew about.

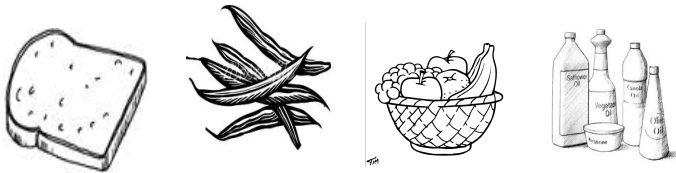
Food Guilds

Characteristics of an Effective Food Guild

- *Linking it to Human Community*

Humans have learned about guilds from watching nature in forest or on prairie. In a garden or food guild, the following characteristics are important. The Three Sisters guild has these characteristics. The words in italics ask questions to help you compare the plant guild characteristic to human characteristics.

1. **Produces Food** - Humans depend on plants for staples (grains), legumes (beans & peas), fruits, vegetables, and fats



- *Who do you rely on to produce (gather and prepare) your food?*

2. **Food for the soil**- Legumes and organic matter (plant matter that is breaking down) that provide nutrients to the soil.

- *What 'builds' or strengthens you? Learning, playing, music, friends?*

3. **Climbers** - Important for making the most of vertical space.

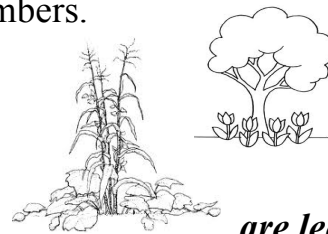
Grapes, Beans, Peas, Kiwi



Are you able to stretch & climb? This is play and learning. Does it stretch your mind to learn new ideas? Who helps you stretch and climb? Do you see people around you stretching and climbing by playing and learning?

3. **Supporters** - Plants that provide support to climbers.

Corn, some trees & shrubs



- *Are you supportive to friends when they are learning new ideas? Who supports you? Teachers, family, and friends?*

5. Miners or diggers- Deep roots or tubers that open the soil and bring up nutrients from deep

Carrots, turnips, daikon radish, comfrey

- *Who are the people in class who contribute? Who digs down deep and brings up information to share with the class?*



6. Groundcovers- Protects soil, provides shade, holds moisture, and suppresses weeds. This provides good environment for growing plants.

Strawberries grow across the top of the soil, as do squash & cucumbers

- *Who does the work in your class of keeping out unwanted distractions (weeds), protecting the quiet, providing a good environment in which you are able to learn?*



7. Protectors- Protection for others in the system (Repellents, attractors, live fencing, etc.)

Marigold flowers repel harmful insects. Frogs eat insects.

Bee balm attracts pollinators.

- *Who are the protectors in you life? Or the people with whom you enjoy playing or talking? Who attracts others with kindness?*

