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Three Sister Crops: Understanding American Indian Agricultural Practices of Corn, Beans and Squash

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i-LEARN TEACHING RESOURCES

Vol. 1

Three Sister Crops: Understanding American Indian Agricultural Practices of Corn, Beans and Squash

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Abstract: American Indians have practiced an inter-planting system to produce corn, beans, and squash, for generations. These crops are known as the “Three Sisters”. In this lesson developed for secondary agriscience curriculum, students will understand the past, current and future production practices of the three important crops. Students will also apply their knowledge to understand the crop selection process and relate to the changing environment.

Lesson Description: From this lesson, student will look into the past, present and future regarding production practices of corn, beans and squash. Students will also apply their knowledge to understand crop selection process, and relate to the changing environment.

Grade Level: Grade 11-12
Estimated Time for Completing Activity: 1-50 minute period
Learning Outcomes: <ul style="list-style-type: none">• Students will be able to understand similarities and differences of Native American agriculture practices and current corn, bean, and squash production practices.
South Dakota Standards of Learning: <p>South Dakota Agriculture, Food, and Natural Resources Cluster Standards</p> <ul style="list-style-type: none">• PS 1.2 Classify and identify plants.• PS 2.1 Determine nutritional requirements for optimal plant growth.• PS 3.1 Analyze a production plan for optimal plant production.• PS 3.2 Compare the basic methods for reproducing and propagating plants.• HORT 1.1 Classify and identify horticultural plants.• HORT 2.1 Explain basic principles of plant physiology and growth.• HORT 3.1 Identify principles of pest management.• HORT 4.1 Examine soil and planting media management.• HORT 4.3 Identify plant nutrition practices for horticulture plants as they relate to plant growth and health.
South Dakota Oceti Sakowin Essential Understanding and Standards

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- Essential Understanding 1: Indicator 1: Analyze the land base and natural resources of the nine reservations in South Dakota.
- Essential Understanding 1: Indicator 2: Analyze the interrelationships of Oceti Sakowin people, places, and the environment as they relate to all reservations in South Dakota.
- Essential Understanding 7: Indicator 2: Analyze the actions taken by individuals and communities in an effort to bring about positive social change.

Prerequisite: None

Materials:

- “The Anasazi Chaco Canyon 500 Nations” Youtube Video
- The Three Sister article
- The Three Sister Worksheet
- Corn seeds
- Squash seeds
- Beans seeds
- Potting Soil
- Greenhouse or Potting containers
- Internet
- Laptops
- Venn Diagrams

Vocabulary:

- Three Sister System
- De-o-ha-ko
- Interplanting
- Monoecious

Lesson Links:

- <http://www.hwdsb.on.ca/mountainview/files/2012/07/Three-Sisters.pdf>
- <http://gardening.cals.cornell.edu/lessons/curricula/the-three-sisters-exploring-an-iroquois-garden/how-to-plant-the-three-sisters/>

Background:

Corn, beans, and squash are three inseparable sisters who only grow and thrive together. This tradition of inter-planting corn, beans, and squash in the same mounds, widespread among Native American farming societies, is a sophisticated, sustainable system that provided long-term soil fertility and a healthy diet to generation. Corn, beans, and squash were among the first important crops domesticated by ancient Mesoamerican societies (Formiga, n.d. para. 1-2).

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Corn provides a natural pole for bean vines to climb. Beans fix nitrogen on their roots, improving the overall fertility of the plot by providing nitrogen to the following years' corn. Bean vines also help stabilize the corn plants, making them less vulnerable to blowing over in the wind. Shallow-rooted squash vines become a living mulch, shading emerging weeds and preventing soil moisture from evaporating, thereby improving the overall crops' chances of survival in dry years. Spiny squash plants also help discourage predators from approaching the corn and beans. The large amount of crop residue from this planting combination can be incorporated back into the mound at the end of the season, to build up the organic matter in the soil and improve its structure. (Formiga, n.d., para. 4).

Procedure:

Interest Approach:

- Students read "Three Sisters" article and complete "The Three Sister Worksheet."

Procedure:

- Review "How to Plant the Three Sisters" website.
<http://gardening.cals.cornell.edu/lessons/curricula/the-three-sisters-exploring-an-iroquois-garden/how-to-plant-the-three-sisters/>
- Lab: Establish Three Sister System in greenhouse.
- Students research articles regarding commercial squash, green beans, and sweet corn production practices.
- Lab: Establish commercial production of squash, green beans, and sweet corn.

Conclusion:

- Students complete Venn Diagrams comparing and contrasting past and present production practices of beans, corn, and squash.
- Review key concepts regarding squash, green beans, and sweet corn commercial production practices.

Extensions: Track the progress of Three Sisters System for the upcoming weeks and develop report

Teacher Notes: If greenhouse is not available, implement labs in garden or large containers.

Assessment:

- Group discussions during interest approaches.
- "The Three Sister Worksheet" questions

References

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- Formiga, A. (n.d.). Celebrate the three sisters: Corn, beans, and squash. Retrieved on May 28 218 from <http://www.hwdsb.on.ca/mountainview/files/2012/07/Three-Sisters.pdf>.
- [https://en.wikipedia.org/wiki/Three_Sisters_\(agriculture\)](https://en.wikipedia.org/wiki/Three_Sisters_(agriculture))
- <http://www.hwdsb.on.ca/mountainview/files/2012/07/Three-Sisters.pdf>
- <http://gardening.cals.cornell.edu/lessons/curricula/the-three-sisters-exploring-an-iroquois-garden/how-to-plant-the-three-sisters/>

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