Introduction to Corn: Botany

Grade: 4th - 5th grade

Season: Any

IGS Unit: Farms, Food Systems

Essential Questions: Where does corn come from? How does eating corn affect the world?

Topical Question: How does corn grow and reproduce?

Objective: Students will understand the process of seed to fork through the lens of corn. Students will explore the transformation of corn over thousands of years, and how it has become the primary crop used in the U.S. today.

Materials:
- Teosinte (photos or artifact)
- Ear of sweet corn/dry corn (photos or artifact)
- Corn seeds
- Soaked corn seeds
- Plant Report Worksheet
- Time lapse videos: 105 days of corn, corn germination, corn worship video

Introduction:
Ask students: Who eats corn? What is a corn kernel? Where does it come from?
--- If students have completed the “Corn Investigation,” ask for their findings. What items did they discover contained corn? What did they find that was surprising? What questions do they have now?

Lesson:
Invite students to dissect a soaked corn kernel. Students work in pairs to find the embryo, endosperm and seed coat.
As a class, discuss corn reproduction. Show time lapse videos of corn growing, and if possible, display corn sprouts for students to observe.
Explain the process of pollination/cross pollination. Display to students the interaction between the tassel and silks.
Vocabulary includes: embryo, endosperm, seed coat, coleoptile, radicle, cross-pollination, monocot

Next ask students to list all the different types of corn with which they are familiar. Describe the corn we are using in class, and the path it took to reach the classroom.
Walk students through the process of “selective breeding,” and “domestication.” Start with teosinte, and travel along its path to the sweet corn, popcorn, and feed corn that we know today. Guide students through this process by asking them to make a list of the traits they can identify in modern sweet corn (it may help to compare sweet corn kernels to teosinte). For example:

- size of kernels
- number of kernels
- color
- shape
- height
- seed structure
- taste

Now invite students to imagine the efforts of agriculturalists over thousands of years to transform teosinte into modern sweet corn by choosing those traits and breeding from those seeds.

Explore the story of the particular type of corn growing in the school garden. Ask students why they think it is important to know the path our corn seeds have taken.

Invite students to share their knowledge of genetic modification.

--- “How do you think this may change the reproduction of corn?”
--- “What do you think the difference is between genetic modification and domestication of corn?”

**Extension:**

*If in spring:* Students start corn seedlings, and transplant them into the garden. “What is the life cycle of this corn? What journey are we putting it on?”

*If in fall:* Students save corn seeds from the school garden, label the jars and safely store them to be used in the spring.

**Assessment:**

Students work in groups to create signage for their corn garden bed. They include the evolution of corn, the reproduction process of corn, and facts about where corn comes from and where we see it today.

Students complete the Plant Report Worksheet, using corn as their crop.