



## Lesson Four: Crop Talk

**Grade Level:** 4<sup>th</sup> Grade

**Time:** 45-60 minutes

**Essential Question:** How can we be stewards of Wyoming's agriculture to benefit current and future generations?

**Objectives:** Students will:

- Discuss important facts about plant structures and where they are grown in Wyoming.
- Engineer various Wyoming crops and their structures.
- Predict how farmers practice stewardship of their crops.

**Purpose:** Students will understand how different plant characteristics support survival, growth and reproduction of various Wyoming crops.

**Required Materials/Resources:**

- "All About Crops" articles 1-6 about crops (Hay, Wheat, Barley, Corn, Beans and Sugarbeets); 1 set per class
- Optional: larger paper for each group to diagram crop if not constructing a model
- "Crop Challenge" sheet for each group
- Various materials for crop construction (ex: yarn, fabric, felt, straws, toothpicks, various kinds of paper, glue, tape, any other supplies on hand that may be useful)
- Highlighters or colored pencils
- Sticky notes for students to write on
- Chart paper to hold student sticky notes

**Suggested Teacher Preparation:**

- Copy and cut apart "All About Crops" texts
- Gather crop building supplies

- Copy and cut apart “Crop Challenge” sheets

**Standards:**

Science: 4-LS1-1 (Explicit)

Social Studies: SS5.2.1, SS5.5.4 (Practiced/Encountered)

ELA: 4.RI.1, 4.RI.7, 4.SL.1, 4.SL.2, 4.SL.4 (Practiced/Encountered)

CVE: CV5.1.4, CV5.2.1, CV5.2.2, CV5.2.3 (Practiced/Encountered)


**Vocabulary:**

- **Consume** - (1) eat or drink resource; (2) use a resource
- **Crop** - a cultivated plant that is grown for food, fiber, or livestock feed
- **Farmer** - a person who cultivates land or crops and may also raise livestock
- **Sustainable** - able to be maintained, able to last or continue for a long time

**Instructional Procedures/Steps:**

Students will work in small groups to build a model of one of Wyoming’s crops.

1. **“Yesterday, we discussed Wyoming livestock and their internal and external structures that make them well suited to survive in our state. Today, in groups, we are going to read about crops that are grown in Wyoming, and as you read, you will highlight important structures they have for growth, reproduction, and survival. With your group, highlight facts in the text that relate to growth structures/systems green, reproduction structures/systems pink and survival structures/systems yellow. Each group will read about a different crop grown in our state. Based on the information read and the highlighted facts about structures, you will construct a model of your crop. Once all groups are finished, you will use your model to teach the class about your crop and its structures.**

2.  Divide the class into 5 groups. Assign each group a crop and give them the corresponding All About Crops article and highlighters. **“You have 5-10 minutes to read and highlight your article. Once that time is up, we will go over the constraints of building your crop.”** Monitor discussions/reading and clarify misconceptions where needed.
3. Pull students back together after the given reading time to go over the Crop Challenge sheet. **“Your challenge is to construct a model of your crop. You may only use the provided materials.”** (Go over materials you have gathered.) **“You will have 15 minutes to plan and build. Within your planning/building time, you also need to plan what you are going to teach the class. Think about structures, products and interesting facts. When presenting, every member of the group must share at least 1 piece of information. All crops must be completed within the allotted time. Any questions?”**
4. Set a timer and periodically remind students of the remaining time so they can plan accordingly. Monitor teams as they build.
5. At the end of construction, pull students back together for crop presentations. **“Each group will now have 2-3 minutes to present their crop to the class.”** Make sure that groups have met the success criteria that was given on the “Crop Challenge” sheet. (In presentations, students should address structures and products.)
6. As preparation for tomorrow, give each student a sticky note to answer the question, **“What do you think farmers and ranchers do to be good stewards of their resources?”** Have students put their sticky note on a piece of chart paper and save for the initial discussion in tomorrow’s lesson.



In this task, students will be engaged in the higher order thinking skill of analysis by creating a representation of their crop.

**TEACHER NOTE:** If you are doing this lesson during nice weather, a great extension activity would be to go outside and locate plants that have similar structures to the ones that were discussed and have students identify them.



In this task, students will be engaged in the higher order thinking skill of synthesis by combining information gain from the article to about plant structure and good stewardship.

**Assessment:** The success criteria on the “Crop Challenge” sheet will be used as the assessment for this lesson.

**Credits/Sources:**

1. Casper Star Tribune. (2018). *Wyoming Sugar Beet Production Increases*. Retrieved July 10, 2019, from [https://trib.com/news/state-and-regional/wyoming-sugar-beet-production-increases/article\\_a83e168f-01d3-5ca6-a6a2-9f5fe778edaf.html](https://trib.com/news/state-and-regional/wyoming-sugar-beet-production-increases/article_a83e168f-01d3-5ca6-a6a2-9f5fe778edaf.html)
2. Cropwatch. (2019). *Irrigation and Water Management for Corn*. Retrieved on July 10, 2019, from <https://cropwatch.unl.edu/corn/water>
3. Encyclopedia.Com. (2019). *Barley | Encyclopedia.Com*. Retrieved July 10, 2019, from <https://www.encyclopedia.com/plants-and-animals/plants/plants/barley>
4. Encyclopedia Britannica. (2019). *Corn | History, Cultivation, Uses, & Description*. Retrieved July 10, 2019, from <https://www.britannica.com/plant/corn-plant>
5. Encyclopedia Britannica. *Sugar Beet | Plant*. (2019). Retrieved July 10, 2019, from, <https://www.britannica.com/plant/sugar-beet>
6. Extension.Iastate.Edu. (2019). *Alternative Agriculture - Iowa State University*. Retrieved July 10, 2019, from <https://www.extension.iastate.edu/alternativeag/cropproduction/drybean.html>
7. Home Guides. (2018). *How Long Do Wheat Plants Take Before the Harvest?*. Retrieved July 10, 2019, from <https://homeguides.sfgate.com/long-wheat-plants-before-harvest-69823.html>
8. Home Guides. (2019). *Ideal Climate & Soil for Corn Growth*. Retrieved on July 10, 2019, from <https://homeguides.sfgate.com/ideal-climate-soil-corn-growth-37426.html>
9. Hot, dry Big Horn Basin suits dry bean crop. (2017). *Wyoming Livestock Roundup*. Retrieved from <https://www.wylr.net/the-roundup/archives/290-crops/dry-beans>
10. Cropwatch. (2019) *Dry Edible Bean Production Systems*. Retrieved July 10, 2019, from <https://cropwatch.unl.edu/drybeans/production>

11. NSW Department of Education - Learning Systems. (2019). *Anatomy And Physiology of The Wheat Plant*. Video. Retrieved July 10, 2019, from <https://www.youtube.com/watch?v=u1t6tRYHyEo>
12. The Story of Wheat for Kids Grades 3 to 5. (2011). Retrieved July 10, 2019, from <https://nebraskawheat.com/wp-content/uploads/2014/01/StoryOfWheat.pdf>
13. United States Department of Agriculture. (2019). *BARLEY*. Retrieved from [https://plants.usda.gov/plantguide/pdf/ccpg\\_horde.pdf](https://plants.usda.gov/plantguide/pdf/ccpg_horde.pdf)
14. *Uwyo.Edu*. (2019). *Timothy | Department Of Plant Sciences | College Of Agriculture And Natural Resources | University Of Wyoming*. Retrieved July 10, 2019, from <http://www.uwyo.edu/plantsciences/uwplant/forages/grasses/timothy.html>