

Lesson Title: Tug of War

Grade: 4-6

Duration of Lesson: 45-minute class

Brief: Students will learn safety around grain bins and trucks. They will become aware of hazards of grain and how to prevent accidents.

Materials:

- Plastic milk jug
- Small toy figure
- Container of wheat
- Large bowl

Key Terms

Safety, combine, gravity, funnel, storage bins, suffocation

Standards / Objectives

ELA Common Core: 4-6. Speaking and Listening

Comprehension and Collaboration 1. Engage effectively in a range of collaborative discussions with diverse partners on grade appropriate topics and texts, building on others' ideas and expressing their own clearly.

ELA Common Core: 4-6. Writing

Production and Distribution Writing 4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

<u>Understanding(s) /Big Ideas:</u> Transporting and storing grain can be dangers—it is possible to suffocate and die. It is critical be to aware of dangers to avoid entrapment.	<u>Essential Question(s):</u> How does grain suffocate people? What are ways to prevent entrapment from grain?
<u>Students will know:</u> Students will learn safety around grain bins and trucks. They will become aware of the hazards of grain and how to prevent accidents.	<u>Students will be able to:</u> Be able to explain the dangers of grain and share with others precautions to take to avoid being hurt.
Performance / Observations	
<u>Performance Task(s):</u> Students will discuss the dangers of being around grain and brainstorm possible precautions after watching a demonstration.	<u>Other Evidence:</u> Students will write a poem or rap song to illustrate the dangers of grain and precautions that should be taken.
Learning / Inquiry Activities	

Introduction: When grains such as wheat, barley, and oats are harvested, they are emptied from the hopper of the combine into wagon, trucks, and storage bins. The grain moves from a large area into a small opening so a funnel is created by gravity. This funnel can pull people into the grain and cause them to suffocate and die. It only takes two to four seconds to become helpless in the flow of grain. In ten seconds, a person can be completely covered. We advise you to never play around grain equipment and NEVER go in a grain truck, wagon, or bin while grain is unloading.

Grain suffocation can also happen in grain bins where the grain is stored. Sometimes a crust or bridge forms over the grain and people think it is safe to walk on. When in actuality there is an open pocket underneath the crust that is not filled with grain. When a person steps on the crust, they can fall through, be covered by grain and suffocate. Even adults do not have the strength to pull themselves out of grain before they are covered.

Learning / Inquiry Activities:

1. The teacher and students will have a discussion about farm safety. (Possible questions: How can grain suffocation be prevented? Why do people get trapped in grain as it is being unloaded? Why do people get trapped in grain while it is being stored?) Show the students pictures of farm machinery. These can be found at your local equipment dealer or search online.
2. Cut the bottom off of a plastic gallon milk jug.
3. Turn the jug upside down and fill it with grain while the cap is on.
4. Place a small toy figure on top of the grain and place a bowl under the milk jug.
5. Remove the cap. As the grain quickly flows out of the jug, it will pull the toy figure along with it. Soon the toy will be submerged in the grain, as it would be in real life.
6. As a classroom, brainstorm a list of words related to the dangers of grain suffocation. Some words might include: care, safety, wariness, warning, alert, advice, caution, watchfulness, mistake, etc.
7. Ask students to individually write a poem or rap song that discusses the dangers of unloading grain and how to avoid those dangers.

8. Student will then share their product with a partner or within a group.

We invite you to send photos or information on your experience teaching the lesson to the Montana Department of Agriculture's Ag in the Classroom lbrenneman@mt.gov

This lesson was adapted from Agriculture in Montana Schools, aginmontanaschools.com.

