

# Harvest Machines

**SUBJECT AREA:** Science

**GRADE: 8**

**KEY CONCEPTS:** Unit D: Mechanical Systems



## SUMMARY

Students will conduct research to gain understanding of mechanical systems in agriculture. They will analyze the structures and functions of an agriculture harvesting machine, and discuss its role in meeting human needs. Students will share learning in a Google Slide presentation.



## MATERIALS

- Computer and Wi-Fi access for research and completion of the Google Slide assignment.



## LEARNING RESOURCES

[Agriculture for Life eLearning Lab: Tech and Innovation](#)  
[The Agricultural Revolution: Crash Course World History #1](#)  
[Interactive Timeline of Canadian Agriculture](#)



## ASSESSMENT

**Students will provide evidence of learning by:**

Creating a Google Slide presentation that discusses a mechanical device used for harvesting an agricultural crop in Canada.



### Mechanical Systems in Agriculture

The use of land, energy, water and soil are central to agricultural practices and the food supply. Not only are resources such as soil and water vital to agriculture productivity, but agriculture both affects and is affected by the local, regional, and global environment. Mechanical devices used in agriculture demonstrate great advances in efficiency and effectiveness as we meet a growing demand for food. Numerous machines used for harvesting agricultural crops in Canada provide interesting research for students.

To demonstrate an understanding of concepts presented in Unit D: Mechanical Systems, students will:

- Choose a Canadian agricultural product that they are curious about, that is now harvested by machine
- Create a Google Slide presentation that follows the Slide outline in the Student Assignment

In order to prepare students for their assignment review and discuss:

- Student Assignment
- Learning Outcomes
- Marking Rubric

<b>Grade 8 Science</b> <b>Unit D:</b> <b>Mechanical Systems</b>	<b>Student Learning Outcomes</b> LearnAlberta Program of Studies
<b>General Learner Outcomes:</b>	<b>Students will:</b>  1. Illustrate the development of science and technology by describing, comparing and interpreting mechanical devices that have been improved over time. 2. Analyze machines by describing the structure and functions of the overall system, the subsystems and the component parts. 4. Analyze the social and environmental contexts of science and technology, as they apply to the development of mechanical devices.
<b>Specific Learner Outcomes:</b>	<b>Students will:</b>  1. Investigate and provide examples of mechanical devices used in the past to meet particular needs. 1. Illustrate how a common need has been met in different ways over time. 1. Illustrate how trial and error and scientific knowledge both play a role in technological development. 2. Analyze a mechanical device. 2. Identify the source of energy for some familiar mechanical devices. 2. Identify linkages and power transmissions in a mechanical device, and describe their general function. 4. Evaluate the design and function of a mechanical device in relation to its efficiency and effectiveness, and identify its impacts on humans and the environment.

### To complete your assignment:

- Work with a partner or group of 3 students.
- Choose a Canadian agricultural product that is harvested mechanically, that your group is curious about. (e.g. raspberries, grains, hay, apples, blueberries, olives, peas).
- Create a Google Slide presentation.

### Slide Outline:

1. Title slide that fully captures the attention of the audience (include group names).
2. History of the crop harvested and the mechanical device used.
3. Identify and illustrate how the mechanical device is used during harvesting and how it is powered.
4. Discuss the mechanical design, and explain how it works.
5. Discuss the impact of the present-day device on the environment.
6. Discuss the effect of the present-day device on daily life.
7. Bibliography slide.

- Slide information must be in point form.
- You may need more than 1 slide to complete the slide outline points (maximum number of slides = 12).
- URLs must be collected for information and pictures. Use the Bibliography slide to post URLs as your research progresses.
- Insert audio you have recorded to further explain slide content if you do not present live (maximum time for presentation = 12 minutes).





# Marking Rubric

## Harvest Machines

Criteria	Excellent	Proficient	Satisfactory	Limited
<b>Introduction - Title Slide</b>  Slide includes your group names and a catchy image	Fully captures the attention of the audience. Topic has a clear focus.	Captures the attention of the audience. Topic is focused.	Few audience members seem interested. Topic focus is vague	Audience is not captured. No topic focus.
<b>Organization</b>  Introduction (title slide), body content and bibliography	Present findings in an organized manner, and interesting sequences that are easy to follow.	Presents findings with some degree of organization and logical sequence that the audience can follow.	Information and graphics are placed haphazardly and students jump around content.	Audience is not captured. No topic focus. Audience cannot understand the presentation because there is no sequence and information is disorganized.
<b>Content- Accuracy</b>	Covers topic completely and in depth. All content throughout the presentation is accurate. There are no factual errors. Students demonstrate full knowledge (more than required) with detailed explanations.	Includes essential information. Most of the content is accurate but there is one piece of information that might be inaccurate. Students demonstrate knowledge with content, but fail to fully explain.	Includes some essential information. The content is generally accurate but some of the information is clearly flawed or inaccurate.	Includes little essential information. Content is typically confusing or contains factual errors.
<b>Presentation</b>	Includes 9 - 12 slides. Information on slides is kept short and expands on information in attached videos and/or audios.	Includes 7-8 slides. Information on slides contains many sentences and group has some difficulty explaining ideas beyond the slide information in attached videos and/or audios.	Fully captures the attention of the audience. Topic has a clear focus.	Fully captures the attention of the audience. Topic has a clear focus.

