



“The machines that make Wisconsin agriculture work”

Lessons and Activities for the Wisconsin Ag in the Classroom 4-5th Grade Essay contest

The following packet of lesson plans, activities, and presentation suggestions is to enable teachers, extension agents, home school parents and volunteers to help students learn about machines and equipment that make Wisconsin agriculture work.

The Essay Contest Brochure can be downloaded from www.wisagclassroom.org. Entries are due to county Farm Bureau offices postmarked by April 1 (new deadline). The brochure outlines all rules, deadlines and information that must accompany the essays. For more information, please contact Wisconsin AITC Coordinator Darlene Arneson at darneson.fbcenter@wfbf.com or 608-828-5719. The contest is sponsored by Wisconsin Milk Marketing Board/Wisconsin Dairy Council, We Energies and Wisconsin Farm Bureau Federation.

Possible angles students could write about

Students can pick a number of different ways to approach this topic. Here are some different options for starting points they could use for their research. Encourage them to consider other angles to explore as well! Any machinery or equipment related topics are acceptable.

- *My favorite farm machine or piece of equipment is a _____*
- *I wonder how this machine works? (i.e. How does a milking machine work? How does a tractor work? How does a methane digester work?)*
- *Life sure changed on farms when this machine was invented*
- *Did you know what kind of equipment is used in processing cheese? Milk? Cranberries? Other food products?*
- *What types of equipment or machines help with energy production or usage on farms?*
- *Do you know how bio-fuels and/or ethanol are produced?*
- *If I like farm machines and equipment, I wonder what kinds of careers I could go into when I get older?*
- *This farm machine helps to plant or harvest _____*
- *How machines and equipment help farmers*
- *Did you know that this machine was invented in Wisconsin?*
- *I'd love to learn how to operate this farm machine*
- *Did you know the history behind this piece of farm equipment or machinery?*
- *Students could select a commodity and discuss all the machines it takes to grow that crop from planting to harvest to processing*

Other places to find information

- About Inventors.com – <http://inventors.about.com/library/inventors/blfarm1.htm>
- Illinois Ag Mag - Technology- http://www.agintheclassroom.org/060605/Teachers/Printable/agmags/ag_mags.html
- *Transportation and Biofuels-* <http://www.need.org/needpdf/Biodiesel.pdf> - Biodiesel curriculum for 4-12 grades.
- www.agclassroom.org/gan - Growing a Nation – Classroom Resources, Instructional Unit, *Prosperity & Challenges*, Lesson 3, 1950-1969

- www.cfaitc.org Click on Lesson Plans, Grades 2-5, *Simple and Complex Machines Used in Agriculture*
- www.agclassroom.org – click on National Resource Directory
- www.farmcity.org – *Tractor Power* booklet available from National Farm City Council, Inc
- Minnesota Agriculture in the Classroom – Book Bundle Reader Guide- *Fantastic Farm Machines*- <http://www.mda.state.mn.us/kids/maitc/bookbundle/>

Answer Keys:

Machines and Agriculture Tile Puzzles:

The machines that make Wisconsin agriculture work.

Can you name any Wisconsin companies that manufacture machinery or equipment?

Can you identify (from Basic Facts handout)

A- Combine; B- Round baler (or Hay Baler); C- Irrigation System; D- Manure spreader; E- Bulk Tank (or Milk Tank); F- Tractor; G- Corn Planter; H- Cultivator

Fantastic Farm Machines Crossword

Across: 1- Tractor; 4- Irrigation pivot; 6-Skid steer; 7- Soil finisher; 8- Chisel plow; 9- Grain drill; 10- Crop sprayer

Down: 2- Corn planter; 3- Combine; 5- Mower conditioner; 6- Spreader

Machines and Equipment in Cheesemaking

Steps: 1- Milk intake, 2- Standardization; 3-Starter culture and coagulant; 4- Cutting; 5- Stirring, heating and draining; 6- Curd transformation; 7- Pressing; 8- Curing;

List 5 pieces of equipment- Answers might include milk truck; machines to weigh, heat treat or pasteurize the milk; stainless steel equipment including pails, vats, stirring equipment, presses; cutting equipment; packaging equipment; curing rooms.

Color of clothes- white. Also wearing hairnets and other items to keep the product clean

How is milk transported? Milk trucks. Need to keep the milk cold from the time it leaves the cow until it's delivered to the processing plant. From that time, cheesemakers will regulate the temperature depending on what stage it's in. All machines are inspected. Equipment or machines needed from the farm to the processing plant include milk tank (milk vat), bulk tank, pumps and hoses, test sample dipper and bags, refrigeration system on truck, milk vats at processing plant, pumps...

Renewable Energy Education for Kids

Matching- 1. Renewable energy; 2- Wind energy; 3- Nonrenewable energy; 4- Biomass energy; 5- Solar energy; 6- Hydro energy

Answers will vary for Machines and Energy related to energy production- get answers from Renewable Energy for Kids handout.

Tile puzzle: Renewable energy is energy from natural resources, such as wind and solar that replenish themselves naturally.

The lessons were correlated to Wisconsin Model Academic Standards for 4th grade students

Machinery Word Find

English	D.4.1	E.4.1	F.4.1
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Machines and Equipment in Cheesemaking

English	A.4.4	D.4.1	F.4.1					
Social Studies	D.4.4	E.4.8	G.4.1	G.4.2	G.4.3	G.4.4	G.4.5	H.4.1

Fantastic Farm Machines Crossword

English	A.4.4	D.4.1	F.4.1				
Social Studies	B.4.1	G.4.1	G.4.2	G.4.3	G.4.4	G.4.5	H.4.1

Can you identify? - Basic Facts About Farm Machinery and Equipment

English	A.4.4	D.4.1	E.4.1	F.4.1				
Social Studies	B.4.8	D.4.3	G.4.1	G.4.3	G.4.4	G.4.5	H.4.1	H.4.3

Machines and Agriculture- Tile Puzzles

English	B.4.3
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Renewable Energy Education for Kids

English	A.4.4	B.4.1	B.4.2	B.4.3	D.4.1	E.4.1	F.4.1		
Science	B.4.1	B.4.3	C.4.1	C.4.3	F.4.1	G.4.1	G.4.2	G.4.3	G.4.4
	G.4.2	G.4.3	G.4.4						
Social Studies	B.4.8	B.4.9	G.4.4						

www.wisagclassroom.org

- Essay contest information- A copy of the essay brochure, rules, lesson plans, and a full sheet of student information can be downloaded from the website.
- Hands-on activities- looking for hands-on activities that will add to your agriculture curriculum?
- Introducing Agriculture into Academia- our new career curriculum for middle and high school students. Visit the seven student handouts to see how core subjects can be tied to agricultural careers. It's never too early to teach about careers!
- Grant information- Wisconsin Ag in the Classroom offers both Teacher Mini-Grants and Matching Grants.
- Teacher Training Opportunities- watch the website to learn about teacher training opportunities for 2010. Graduate credits are also available.
- Not getting information from Wisconsin Ag in the Classroom? Email Darlene Arneson at **darneson.fbcenter@wfbf.com** to be added to the teacher database.
- Resources in your own county- check out the website to see who your county volunteer Ag in the Classroom coordinator and Soybean Science Kit coordinators are!
- Go to World Dairy Expo? Check out the lesson plans developed to enhance the World Dairy Expo 4th grade tours.
- And don't forget to check out the National Ag in the Classroom website at www.agclassroom.org!