

## 2019 National Agriculture in the Classroom Conference

### Two Truths and Lie Workshop

*You're scrolling through social media and come across a food meme. Is this fact or fiction? Become more confident in your own agricultural fact finding by learning tips and tricks for debunking food and farming misconceptions. Then, put these resources to work in your classroom by incorporating agricultural themes into student research projects. Walk away with examples of agricultural research topics with credible sources for each topic.*

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### **Two Truths and a Lie Activity Answer Key and Resources**

#### ***Animal Characteristics***

- Farm animals live in herds to help them survive. (truth)
- Farm animals do not live in herds like wild animals. (lie)
- Wild animals and domesticated animals are not the same. (truth)

#### ***Resources for research projects***

[Breeds of Livestock](#), Oklahoma State University—this resource has some page dates that seem old, however the history of these breeds has not changed, therefore this site could be considered accurate. Great for research projects on breeds of animals.

[National Geographic Animals database](#)—mostly for wild animals, a few resources for domestic animals.

[U.S. Fish and Wildlife Service for Kids](#)—information about native wildlife Check your state's Department of Natural Resources for additional local resources

#### ***Animal Health***

- Cows raised for beef and cows raised to be milked are different breeds. (truth)
- Animals raised on farms in the United States are the same as animals raised on farms around the world. (lie)
- Veterinarians give antibiotics and vaccines to farm animals when they are sick or susceptible to disease. (truth)

#### ***Resources for research projects***

[National Cattlemen's Beef Association](#)—provides virtual tours of ranches, blogs by beef farmers across the U.S. and nutritional information about beef.

[International Agriculture](#), National Geographic—provides a concise overview of the history of world-wide agricultural practices and addresses differences in current practices across different countries.

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[International Agriculture](#), World Bank—provides a simplistic description of world-wide agricultural practices.

[Center for Veterinary Medicine's Kid's Page](#), U.S. Food and Drug Administration—provides age-appropriate facts about animal care and veterinary practices.

[American Veterinary Medical Association](#)—provides tools for teachers and students about animal and human health.

Consider having a student interview a local veterinarian, consider finding one who works with both small and large/farm animals

#### ***Animal Housing***

- Modern barns are designed specifically for the type of animals, equipment or farm products they house. (truth)
- Many farmers raise chickens inside barns to prevent predators from harming their birds. (truth)
- Robots are not used by farmers for raising animals. (lie)

#### ***Resources for research projects***

[Housing and Space Guidelines for Livestock](#), University of New Hampshire Extension—gives descriptions on barn types and amount of space required by different animal species.

[American Egg Board \(Incredible Egg\)](#)—defines different types of chicken housing and labels on egg cartons

[Robotics in Agriculture](#), Robotic Industries Association—provides examples of robot use in agriculture.

[Robotic Milking Systems](#), Dairy Herd Magazine—explains the use of robots to milk cows.

[How Robotic Milking Works](#)—quick and basic video showing how a robot milks a cow.

#### ***Plant Growth***

- Farmers do not care for their plants by using computers to monitor amounts of rain, sunlight and nutrients plants are receiving. (lie)
- If the environment is not providing enough nutrients, a farmer calculates the specific amounts of nutrients needed for best growth before giving plants fertilizer. (truth)
- If an insect pest is found in a farmer's crop, sometimes beneficial bugs like lady bugs can be used in place of an insect spray. If a spray has to be use, farmers must follow specific rules and measurements to use only enough chemical to kill or deter the pest. (truth)

#### ***Resources for research projects***

[Use of Insecticides and pesticides in agriculture](#), Food Dialogues—explains the use of chemicals on agricultural crops.

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[Poison Prevention Lesson](#), Penn State University Extension—provides a lesson about the dangers of chemicals.

[Plant and Soil Science for Kids](#), Nutrients for Life Foundation—provides kid-friendly lessons and activities to demonstrate soil nutrient needs.

[Soil Nutrient Use](#), Nutrients for Life Foundation—provides an explanation of how farmers decide to use fertilizer using the four “R’s”, right place, right time, right rate, right source.

#### *Energy/Renewable resources*

- Wool is a renewable resource. (truth)
- Petroleum and coal are renewable resources. (lie)
- Ethanol is a fuel made from corn and is a renewable resource. (truth)

#### *Resources for research projects*

[Alliant Energy Kids](#), Biomass Energy—provides kid-friendly explanations of using biomass to create energy.

[Biofuels for Kids](#)—defines use of biofuels in a simple way.

[National Corn Growers Association](#)--provides educational resources about the use of corn, including as a source to make biofuels.

[International Wool Textile Organization](#)—provides resources about the many uses of wool

[Facts about wool clothing](#)—Smartwool clothing provides a good description of the benefits wool clothing can provide in comparison to similar synthetic materials.

#### *Economy*

- Most of the United States’ agricultural exports are sold to business in China, Mexico, and Canada. (truth)
- The top three processed agricultural items exported from the United States are grains, meat (including beef, pork and poultry), and fruit. (truth)
- The top three agricultural items imported into the United States are fresh or processed fruits, fresh or processed vegetables and meat. (lie, sugar/confections not meat is the third)

#### *Resources for research projects*

[International agricultural trade](#), U.S. Department of Agriculture—resource provides an overview of international agricultural trade.

[National Geographic Trading Game](#)—this learning game provides a fun way to demonstrate the concept of trade.

#### *Nutrition*

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- Farmers do not raise foods to fit in every food group of the My Plate diagram. (Lie)
- Foods labeled organic are just as nutritious as the same food without an organic label. (truth)
- Washing fruits and vegetables before you eat them is one way to be safe and healthy. (truth)

#### *Resources for research projects*

[Washing Fruits and Vegetables](#)—the Dirty Dozen Debunked, Center for Food Integrity

[The difference between organic and conventional](#), U.S. Farmers and Ranchers Alliance,

[Organic vs Conventional foods](#), Mayo Clinic—provides a non-farm source of information about the health of foods raised via both methods.

Visit your state's agriculture in the classroom website for products grown in your state!

#### *Weather*

- For farmers, a drought is as bad as a flood. (truth)
- The climate of a region does not affect the types of plants and animals that can grow and live there. (lie, plants and animals very much depend on local weather conditions, some prefer tropical climates whereas some prefer more temperate)
- Farmers can make plans to till the soil, plant seeds, or harvest a crop but a change in the weather can change these plans. (truth)

#### *Resources for Research Projects*

[Ag Web Weather](#)—provides resources about current weather conditions across the United States

[On-farm weather stations](#), Farm Progress—explains technology use in on-farm weather monitoring.

[Precipitation outlook](#)—predicts the precipitation in 10, 30 and 90 day increments across North America.

[Climate by region of the U.S.](#), NOAA—defines climate patterns by region of the United States.

[Weather affects planning in the Midwest](#)--news article shares realities of how weather has affected agriculture in spring 2019.

#### *Careers*

- Through 2020, 39% of agricultural job openings will be filled by people who did not grow up on a farm or have a degree in agriculture, food or natural resources related areas. (truth)
- Being a farmer is the only job opportunity in agriculture. (lie, check out Ag Career Explorer for all the opportunities!)

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- To work in agriculture, food, and natural resources, after high school, you have many options for additional education or training. Some jobs require a certificate or apprenticeship, some jobs require an associate's degree, bachelor's degree, or graduate school. (truth)

#### *Resources for Research Projects*

[Agriculture Careers](#)—recruiting website for agricultural careers, showing the variety and depth of careers available.

[Ag Career Explorer](#), National FFA Organization—site provides information for various sectors of agricultural jobs including types of training needed, examples of hiring companies, locations of possible jobs, working conditions, etc.

[USDA Careers in Agriculture Study](#)—statistical analysis of types of agricultural careers in demand

#### *History*

- Farms are old fashioned and use the same equipment used 50 years ago to work with plants and animals. (lie)
- Presidents George Washington and Thomas Jefferson were agricultural inventors. (truth)
- Many plants and animals raised on farms in North America today were originally brought here by settlers from other continents. (truth)

#### *Resources for Research Projects*

[Growing a Nation](#)—resource from National Agriculture in the Classroom providing a step through time of agricultural practices in the United States.

[George Washington, the farmer](#), Mount Vernon—resources from George Washington's estate providing

[Thomas Jefferson, the farmer](#), Monticello—historical artifact information from Thomas Jefferson's estate relating to his agricultural practices and inventions.

[Founding Father inventors](#), Forbes—news article highlighting inventions of all Founding Fathers, including some specifically agricultural items.

[Timeline of crop and livestock imports](#), Growing a Nation—additional resources from National Agriculture in the Classroom about the transport of crops and livestock to the “new world.”

[Modern Farming Technologies](#), USDA—provides insight into

[20 Technologies changing agriculture](#), Farm Progress publication—a news story from agricultural industry media sharing technological advancements in agriculture.

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#### Additional Resources

[Journey 2050: Agriculture Resources](#)

[Your Food, Farm to Table \(video\)](#)-- Watch the video to learn how food production has developed over time to bring food from the farm to your fork at home.

[The Real Dirt on Farming](#)-- You asked. We answered. This is how your food is grown.

#### Follow these Farmers on Social Media

[Faces of Farming and Ranching](#)

[Jay Hill](#)-Texas

[MN Millennial Farmer](#)--Minnesota

[Schweitzer Orchards](#)—Michigan

[Farmer Tim](#)--Ontario

[Farm Babe](#)—Iowa



# Gauging Website Credibility Rubric

	Not Credible	Maybe Credible	Strong Credibility
<b>Author</b>	Authors' names are incomplete or nonexistent, making it impossible to search and verify their experience and credentials	Many various authors, difficult to verify their journalistic experience and credentials	Author's full name is searchable and has verifiable credentials
<b>Current Date</b>	No publishing date.	Publishing date provided but not current.	Publishing date is current and visible.
<b>Citations and Links</b>	Links provided lead to questionable sources. Purpose is to gain web traffic to increase ad revenues. Good, current, reliable information is not the priority.	Links provided lead to information to back up the article, not necessarily primary	Citations and links provided lead to primary or trusted sources
<b>Publisher</b>	Publisher found to have questionable credibility and does not take responsibility for the content.	Publisher found to be credible, but not necessarily responsible for the content	Publisher visible and searchable. Found to be credible and responsible for the content

## Other Considerations:

Main Criteria	Descriptions/Details
<b>Purpose</b>	What is the purpose of the article/website? To sway the reader to a position? To sell a product?
<b>Accuracy</b>	Can the sources of the article/website be traced to primary or trusted resources?
<b>Complete</b>	Is the source comprehensive?
<b>Design &amp; Quality</b>	Is the website easy to use? Is the presentation aesthetically pleasing? Do the design elements serve the purpose of the site?
<b>Reproduced</b>	Is this article or elements of it reproduced from another source? Where? Was permission granted when needed? Is proper Copyright or disclaimer information cited?



# Animal Characteristics





**Farm animals live in herds to  
help them survive.**



# Animal Characteristics



**Farm animals do not live in  
herds like wild animals.**



# Animal Characteristics





**Wild animals and  
domesticated animals are not  
the same.**



# Animal Health



**Cows raised for beef and  
cows raised to be milked are  
different breeds.**



# Animal Health





**Animals raised on farms in the  
United States are the same  
as animals raised on farms  
around the world.**



# Animal Health



**Veterinarians give antibiotics  
and vaccines to farm  
animals when they are sick or  
susceptible to disease.**



# Animal Housing





**Modern barns are designed specifically for the type of animals, equipment, or farm products they house.**



# Animal Housing



**Many farmers raise chickens  
inside barns to prevent  
predators from harming their  
birds.**



# Animal Housing



**Robots are not used by farmers  
for raising animals.**



# Plant Growth



**Farmers do not care for their plants by using computers to monitor amounts of rain, sunlight, and nutrients the plants are receiving.**



# Plant Growth





**If the environment is not providing enough nutrients, a farmer calculates the specific amounts of nutrients needed for best growth before giving plants fertilizer.**



# Plant Growth



**If an insect pest is found in a farmer's crop, sometimes beneficial bugs like lady bugs can be used in place of an insect spray. If a spray has to be used, farmers must follow specific rules and measurements to use only enough chemical to kill or deter the pest.**



# Energy and Renewable Resources



**Wool is a renewable resource.**



# Energy and Renewable Resources



**Petroleum and coal are renewable resources.**



# Energy and Renewable Resources





**Ethanol is a fuel made from corn and is a renewable resource.**



# Economy

**Most of the United States' agricultural exports  
are sold to businesses in China, Mexico, and  
Canada.**



# Economy

The top three processed agricultural items exported from the United States are grains, meat (including beef, pork, and poultry), and fruits.

# Economy

**The top three agricultural items imported into the United States are fresh or processed fruits, fresh or processed vegetables, and meat.**



# Nutrition





**Farmers do not raise foods to fit in every food group of the MyPlate diagram.**



# Nutrition



**Foods labeled as organic are just as nutritious  
as the same food without an organic label.**



# Nutrition



**Washing fruits and vegetables before you eat them is one way to be safe and healthy.**



# Weather

**For farmers, a drought is as bad as a flood.**



# Weather



**The climate of a region does not affect the types of plants and animals that can grow and live there.**



# Weather

**Farmers can make plans to till the soil, plant seeds, or harvest a crop but a change in the weather can change these plans.**



# Careers



**Through 2020, 39% of agricultural job openings will be filled by people who did not grow up on a farm or have a degree in agriculture, food, or natural resources related areas.**



# Careers



**Being a farmer is the only job opportunity in  
agriculture.**



# Careers





**To work in agriculture, food, and natural resources after high school, you have many options for additional education or training. Some jobs require a certificate or apprenticeship. Some jobs require an associate's, bachelor's or graduate degree.**



# History

**Farms are old fashioned and use the same equipment used 50 years ago to work with plants and animals.**



# History

**Presidents George Washington and Thomas Jefferson were agricultural inventors.**



# History

**Many plants and animals raised on farms in North America today were originally brought here by settlers from other continents.**

