



Issues Beware!

Middle School Food and Agricultural Literacy Curriculum

Precepts

- E. Awareness
- E1. Address issues important to the community

National Standards

- CS.01.05.01.a. Discuss trends and issues important to the community.
- NL-ENG.K-12.4 – Communication Skills
- NL-ENG.K-12.12 – Applying Language Skills
- NS.5-8.6 Science in Personal and Social Perspectives
- NSS-C.5-8.5 – Roles of the Citizen

Student Learning Objectives

As a result of this **unit** the student will...

Examine the components of the food and agricultural literacy: applying mathematics and science concepts.

As a result of this **lesson** the student will...

Recognize major issues associated with the agricultural industry.

Objective 1. Recognize major issues associated with the agricultural industry.

- I. Major issue vs. minor issue
- II. Identify issues within the agriculture industry.
- III. Recognize major issues associated with the agricultural industry.
 - Animal Rights & Animal Welfare
 - Biotechnology
 - Waste Management
 - Organic Animal Agriculture

Time

Instruction time for this lesson: 45 minutes.

Resources

Herren, Ray V. (2002). The Science of Agriculture: A Biological Approach, Second Edition. Albany, NY: Delmar Thomson Learning.

Introduction to Livestock & Companion Animals, Third Edition.

Taylor, R.E. & Field, T.G. (2007). Scientific Farm Animal Production, Ninth Edition.: Prentice Hall

Tools, Equipment, and Supplies

Student journal/notebook paper

MS.IAS.8.6.AS.A – one per group member

MS.IAS.8.6.AS.B – one per group member

MS.IAS.8.6.AS.C – one per group member

MS.IAS.8.6.AS.D – one per group member

MS.IAS.8.6.AS.E – one per group member

Microphone and stage for karaoke performance

Writing surface and markers

MS.IAS.8.6.AS.ESS.A – one per student

Key Terms

The following terms are presented in this lesson and appear in **bold italics**:

Animal Rights

Animal Welfare

Biotechnology

Content Outline

Interest Approach

Begin the class discussion by asking students to consider the fact that people face various issues every day. Allot students two minutes to create a list of issues they are currently facing in their lives. The point is for students to create a lengthy list of major and minor issues they are facing.

Every day you and I, along with a number of other individuals in the school, go about our daily lives facing obstacles and challenges. Some of these are good, some are bad. Regardless, we are faced with these issues and must find some way to deal with them or overcome them. Take the next two minutes to think about some issues that you face on a regular basis or issues that you are currently facing in your life today. Silently record these thoughts in your student journal.



Issues Beware!

At the conclusion of two minutes, begin a discussion on major versus minor issues. Have students determine which issues on their list are major and which are minor. Following this discussion, allow students one minute to circle the major issues they have identified in their life.

I'm sure we all have quite a list of issues we are currently facing or issues that we face on a daily basis. Now, let's take this a step further. Looking at your list, begin to determine which of these issues are more important than others.

Give students a few seconds to scan their list.

These issues that rise to the top are called major issues. The ones that fall closer to the bottom and do not necessarily affect us in a great way are considered minor issues. Let's practice. Scan your list. What is an example of a minor issue you see on your list?

Responses may include issues such as: I did not eat breakfast this morning, I missed the bus, I forgot my lunch.

Great! Now, let's determine some of the major issues we are facing or face on a regular basis. What do we see on our lists?

Responses may include issues such as: I forgot my homework, I only got three hours of sleep last night, I have a D in English.

It sure sounds like we are on the right track. When I say GO, take the next 60 seconds to circle the major issues on your list. GO!

At the conclusion of 60 seconds, bring students back and have them share again how they determined the difference between major and minor issues. Next, begin a discussion related to issues in the agriculture industry. Using the Me-You-Us e-Moment®, have students brainstorm a list of agriculture issues, both major and minor, for 90 seconds.

Great! Now just to review: How again did we determine which of these issues in our journals major issues were?

Solicit responses from one or two students, recognizing the fact that the major issues are ones that may either positively or negatively affect our daily lives. These issues may be more controversial than the minor issues and do not necessarily have a correct answer or solution.

Let's take this a step further. We have identified both major and minor issues that we face on a daily basis. Now let's look at the issues farmers and agriculturalists face. In your journals brainstorm a list of issues, both major and minor, that farmers and agriculturalists face on a daily basis or are facing right now. Here's a hint for you: Think of the daily activities of farmers and agriculturalists, along with the technology advancements that are available to them. Let's have our lists complete in 90 seconds. GO!

At the conclusion of 90 seconds, split the class into pairs to compare lists. Students should take another 90 seconds to combine their team's list into one master list.

STOP! Finish writing your last idea. Thank you for some great brainstorming time. Now let's take another 90 seconds to share your list with your partner and expand our thoughts. In this time, combine your lists together to create one master list for your team. GO!

After 90 seconds have one person from the team write their list on the writing surface in front of the classroom. After all teams have their lists on the board, select one student to come forward and be the eraser. This person is responsible for erasing any duplicate issues that are found on the board. The eraser will need the help of his or her classmates to ensure he or she does not miss any duplicates.

Great work! The person with the longest finger nails from your team will now venture to the whiteboard and write your team's master list on the board so we can all read it.

Now, who will be our eraser? Let's help him/her erase any duplicate issues we have on the board. Great! Thanks for your help!

With one master list on the whiteboard, begin to identify major and minor issues within the list. Circle the major issues, especially those that will be discussed and explored later in this lesson.

**Issues Beware!**

Wow, what a list! Let's take a closer look. What items on this master list do we consider to be major issues (biotechnology, animal cloning, animal rights/welfare, etc.) as opposed to those minor issues (weather, price, etc.) we see?

Looks great! We have identified quite a list of major issues farmers and agriculturalists face on a daily basis or are facing at the current time. There is certainly a wide variety of items, and it is nearly impossible for us to be experts in them all, so we will do the next best thing. Today we have the opportunity to become an expert in one of these areas. It will be a challenge as we learn about these issues, but I am confident that we are up to the task. Make some room in your brains and keep an open mind as we work to become experts in agricultural issues today!

Summary of Content and Teaching Strategies

Objective 1. Recognize major issues associated with the agricultural industry.

Various major agricultural issues are summarized in **MS.IAS.8.6.AS.A-D**. It will work best to assign three or four students per issue, although this number may be determined by class size. Students will have 20 minutes to become experts on their agricultural issues by using classroom resources and the given activity sheets. After identifying at least five key points, students will use the *Karaoke e-Moment* to create a song about their specific issue. Students will perform this song for the class. During the performance of each song, other groups will record at least two key points they heard about the agriculture issue presented on **MS.IAS.8.6.AS.E**. Distribute **MS.IAS.8.6.AS.E**.

It's time to become experts. We have been divided into four groups. Each group has been assigned one major agricultural issue. Using the activity sheet provided and other resources throughout the room, each group must become an expert in their given topic. During this process, collect at least five key points your group plans to share with the class.

Finally, after you have strengthened your expertise in this area, create a song to teach the rest of the class about your group's issue. This song does not have to be lengthy, but it must include the five key points your group identified and should

resemble a familiar song. A song as simple as "Row, Row, Row Your Boat" or "Twinkle, Twinkle Little Star" would be a great tune to get your minds rolling. You will have 20 minutes to complete this task. At the conclusion of this time each group will present their song for the class.

How many key points are we looking for? Five

How much time do we have before we will begin our jam session? 20 minutes

Great! I am available as a sounding board if your group chooses to rehearse their jam before time is up. What further questions are there? Let's get busy!

Monitor groups to gauge progress and to make adjustments to amount of time, if necessary. Once time is up, have each group present their jam. As issues are presented during the jam session, students will complete **MS.IAS.8.6.AS.E**, identifying at least two key points during each jam session.

Review/Summary

Wow, this has been an awesome jam session! Thanks for your hard work and for sharing your creative talents. These agricultural issues are important to each and every one of us in this room, even if we don't live on a farm or are not directly related with production agriculture. We still need to be advocates and positive images for agriculture, and being aware of these issues is the first step. This is a challenge for all of us. How can we be activists for agriculture?

Solicit responses leading students to the importance of being aware of what is happening in their local community. Staying educated and aware is the first step to being positive activists for agriculture.

That's right. We all need to be educated about what is happening in our local communities. Being aware of both sides of these specific issues and working to improve them or respond to them will make us more productive and influential members of our community. That is the type of community member we should all strive to be – one who makes a difference. Every day something is happening that will ultimately affect the farmers, agricultural businesses, and consumers in our area. Being a leader in our community and being educated about both sides of these important issues will help us all to be positive activists for agriculture.



Lesson Number: MS.IAS.8.6

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Application

Extended classroom activity:

Find additional agriculture issues using the Internet. Students will select one issue and research that issue. Upon conclusion of this research, create an informative bulletin board or poster educating others on that issue.

FFA activity:

Identify a local agricultural issue. Contact community patrons, politicians, informants, etc. involved in this issue and the creation of its solution. Bring these members together in a public forum/debate to discuss the pros and cons of this issue.

SAE activity:

Interview an adult in the community who practices one of the agriculture issues discussed in class. These individuals could include a swine producer using confinement buildings, a dairyman using artificial insemination, or a row crop farmer using genetically modified seeds. Interview these individuals about their thoughts and feelings concerning this issue and/or how changes have affected their farm over the past years.

Evaluation

Refer to MS.IAS.8.6.ASSESS.A

Answers to Evaluation

Answers will vary from student to student, but generally, the responses should be based on the group activity where students became experts of an agriculture issue. In addition, students should be able to identify and explain one other agriculture issue and its effect on the industry.



Animal Rights & Animal Welfare

The issue of animal rights versus animal welfare has commonly been discussed and debated for a number of years. Animal rights is the idea that the most basic interests of animals should be same as the similar interests of humans, and that animals should not be exploited or used for human purposes. These individuals and groups believe that animals should not be used for food, clothing, or even companionship.

Animal welfare refers to the overall humane treatment and well-being of animals, whether they are used for human use and consumption or not. Those concerned with animal welfare believe that there is nothing wrong with using animals as resources as long as there is no unnecessary suffering.

There are a number of concerns on the minds of animal rights groups. Commonly used and scientifically-based production practices are questioned by individuals and animal rights activist groups. Another issue these groups promote is the utilization of free-range production systems, where animals have more freedom to roam, instead of producing animals indoors, where they are protected from weather conditions and natural predators. Although the price for free-range meat and poultry products is typically more expensive, a small percentage of consumers are still willing to spend the extra money to purchase food produced in this manner.

To address consumer concerns regarding the welfare of animals used for agricultural production, livestock and poultry producers recognize and accept responsibility for the humane care of their animals. Producers understand the moral and ethical obligation that they have to ensure animal well-being. They realize that consumers are increasingly interested in how the animals used to produce food are raised and trust that those animals were raised in a way that ensured their well-being. Also, good animal care provides an economic advantage. Animals that are cared for appropriately grow faster and more efficiently than those that are not. Good animal care practices promote good health, which reduces production costs associated with veterinary services and animal health products.



Biotechnology

Biotechnology is a constantly evolving technology. Through biotechnology, advancements are being made on a daily basis to continually improve the productivity and efficiency of agriculturalists.

Biotechnology refers to the application of physical, chemical, or engineering practices to living organisms. The following are examples of improvements that can be made as a result of biotechnology:

- Improvement of animal production's impact on the environment
- Reduce dependence on agricultural chemicals
- Pest/disease-resistant plants and animals
- Improved vaccines
- Increased milk production in dairy cattle
- Improvement of feeds to increase nutritional value
- Genetic improvement of livestock to meet consumer demand
- Genetically modifying fruits and vegetables to allow for transportation to all parts of the country and world

Even as this list continues to grow, there a number of individuals concerned about the reliance on the use of biotechnology in agriculture. The following are common concerns:

- Labeling genetically modified foods for human consumption to allow consumers to choose how their food is produced
- Potential for genetic defects and increased risk of disease
- Adverse affects these genetic modifications in plants and animals may have on humans when consumed
- Foreign markets' reaction to plants, animals, and food products exported from the U.S. produced as a result of biotechnology



Waste Management

Areas where a large number of livestock and/or poultry are housed or maintained – such as swine operations, dairy farms, laying houses, and cattle feedlots – can often cause concern regarding proper waste management and their impact on the environment. These systems produce a regular flow of manure, therefore creating an issue for waste management and odor control.

Livestock and poultry producers are committed to managing their farms and feedlots in an environmentally responsible manner in order to protect the environment and conserve the natural resources for future generations. Today's operations employ waste treatment systems that capture, treat, and recycle the valuable nutrients produced in manure so they can be used as a natural source of fertilizer. Producers work to address environmental challenges by partnering with government, scientists, conservationists, and the communities in which they live and farm.

Odor management is a commonly discussed topic when it comes to livestock and poultry production's impact on the environment. Some states have put stipulations on farmers and farming operations concerning the odor coming from their facilities. Some are required to keep lagoons covered, while other states have enacted zoning ordinances to restrict the development of more of these types of operations.

Another impact of farming on the environment that is often discussed is the issue of waste runoff. The Environmental Protection Agency (EPA) as well as other state and federal agencies oversee farming operations and ensure that that runoff levels are within a scientifically-based measurement considered safe for the environment.

While there isn't presently a clear solution to waste management, producers understand that the only way to ensure their operations will continue to exist is to minimize their environmental impact. Farmers are considered the first environmentalists, and they continue to strive to be on the forefront of technology, research, and best management practices in order to maintain natural resources.



Organic Agriculture

A production system known as organic farming came to be in the late 1960s and early 1970s when some people became concerned about the amount of chemicals, such as pesticides and synthetic (or man-made) fertilizers, that were being applied to cropland. The solution for some farmers was to use natural elements to fertilize crops rather than using products that had been manufactured. Organic farming also restricts the use of any chemicals such as herbicides, insecticides, or fungicides.

The idea of organic foods is growing to incorporate a larger group of producers and consumers for some of the following reasons:

- Some consumers believe organically grown food is more nutritious and wholesome
- Increased availability and awareness of organic food production
- Development of worldwide organic standards for food products
- Increased financial support and investments for organic food production
- Consumers are more financially able to afford additional premiums for organic foods

Meat and poultry can also be produced organically. This includes raising animals without the use of pesticides, growth stimulants, medications, or hormones. These animals are also raised in open-air environments instead of barns and other production buildings.

Although this may be a growing industry, there is still controversy surrounding organic farming. These concerns include:

- Organic foods are more expensive and of poorer quality
- Self-defense mechanisms in plants may often let off more toxins than those that would be applied in pesticides
- Some studies have shown that organic foods contain higher levels of unsafe bacteria and other organisms
- Organic production requires more land and labor to produce food



Issue #1 _____

- _____
- _____

Issue #2 _____

- _____
- _____

Issue #3 _____

- _____
- _____

Issue #4 _____

- _____
- _____



Name _____

Directions: Earlier we became experts of an agriculture industry. Below, identify the agriculture issue in which you are an expert. Explain the issue using three to five points from the resource materials, and explain how you feel that particular issue has affected or now affects the agriculture industry today. Secondly, identify one additional agriculture issue and explain how you feel that issue has affected the agriculture industry today.

Issue #1 _____

Describe the issue:

How has this issue affected or how is, this issue affecting American agriculture today?

Issue #2 _____

How do you believe this issue has affected or is affecting American agriculture today?
