



The Impact of a Good Steward

Middle School Food and Agricultural Literacy Curriculum

Precepts

- C. Vision
 - C1. Contemplate the future
- D. Character
 - D3. Accept responsibility for personal actions.

National Standards

- AS.06.02.01.a. Identify animal production practices that could pose health risks or are considered to pose risks by some.
- AS.08.01.01.a. Evaluate the effects of animal agriculture on the environment.
- ESS.04.02.01.b. Evaluate environmental hazards created by different types of solid waste, solid waste accumulation and solid waste disposal.
- NL-ENG.K-12.4 – Communication Skills
- NL-ENG.K-12.12 – Applying Language Skills
- NS.5-8.3 – Life Science
- NS.5-8.6 – Science in Personal and Social Perspectives

Student Learning Objectives

- As a result of this **unit** the students will...
- Identify environmental impacts related to animal production.
- As a result of this **lesson** the students will...
- Identify various ways that animal production impacts the environment.

Content Outline

- I. **Environment** – the sum total of all the external conditions that may act upon an organism or community to influence its development or existence
- II. **Pollution** – the presence of substances in water, air, or soil that impair usefulness or render it offensive to humans
- III. **Stewardship** – the careful and responsible management of something entrusted to one's care

Time

Instruction time for this lesson: 45 minutes.

Resources

Gillespie, J.R. (2002). Modern livestock and poultry production (6th ed.). Albany, NY: Delmar Thomson Learning, Inc. — grazing. (n.d.). Dictionary.com Unabridged (v 1.1). Retrieved August 27, 2009, from Dictionary.com website: <http://dictionary.reference.com/browse/grazing> — Herren, R. (2000). The science of animal agriculture (2nd ed.). Albany, NY: Delmar Thomson Learning, Inc. — Herren, R. (2004). The science of agriculture: A biological approach (2nd ed.). Albany, NY: Delmar Thomson Learning, Inc. — National FFA Organization. (2009). LifeKnowledge Online. Retrieved August 27, 2009, from <http://agedlearning.org> — National FFA Organization. (2003). LifeKnowledge Precepts and Signs of Success. — stewardship. — Merriam-Webster Online Dictionary. Retrieved August 27, 2009, from <http://www.merriam-webster.com/dictionary/stewardship>

Tools, Equipment, and Supplies

- Overhead projector/transparencies
- Scissors
- Scotch tape
- Scratch paper – one per student
- Writing utensils
- Notebook paper
- MS.AS.6.1.TM.A – one per teacher
- MS.AS.6.1.TM.B – one per teacher
- MS.AS.6.1.TM.C – one copy, posted on wall prior to class
- MS.AS.6.1.TM.D – one copy, posted on wall prior to class
- MS.AS.6.1.TM.E – one copy, posted on wall prior to class
- MS.AS.6.1.AS.A – one per student
- MS.AS.6.1.ASSESS.A – one per student

Key Terms

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

Grazing

Stewardship

Pollution

Environment

IV. **Animal production has an impact on the environment through:**

- A. ***Grazing*** – to feed on growing grass and pasturage, as do cattle, sheep, etc.
 - 1. Reduces the need for mechanical practices (mowing) and weed management (spraying)
 - 2. It is in the best interest of producers to take care of land to ensure longevity of their operations



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3. Rangelands are in the best condition they have been in during the past century; however, overuse of the land can potentially lead to erosion
- B. Animal manure used as fertilizer
 1. Can reduce the need for commercially produced fertilizers
 2. Natural high-quality fertilizer
 3. Once the decomposition has taken place there is no harm to the **environment**; however, prior to this point animal manure that enters the water supply can become a potential form of **pollution**
- C. Animal manure used as a fuel source
 1. Methane gas produced by animals can be collected and used as a fuel source
 2. Potential to reduce the need for commercially produced fuels
 3. When the biogas is used it potentially releases less **pollution** into the air

Interest Approach

Before students arrive place **MS.AS.6.1.TM.C**, **MS.AS.6.1.TM.D**, and **MS.AS.6.1.TM.E** around the room in conspicuous and inconspicuous places to be used later in the lesson for a Go Get It e-Moment®.

Have scratch paper available to the students when they enter class. Utilize a Me-You-Us e-Moment to have students think about responsibility and the environment. Show students **MS.AS.6.1.TM.A** and have them explain what responsibilities come with having a dog and how the environment changes once that dog is introduced into a home.

Have scratch paper setting out or pass out scratch paper to students.

Good to see everyone. Let's be ready to engage in class today. When I say PUPPY, we will have three minutes to think of all the responsibilities that come with having a little guy like this

Display **MS.AS.6.1.TM.A**.

Let's write our answers on our own scratch paper provided. What questions do you have? PUPPY.

When the three minutes are complete have students work with a partner to further develop their list of responsibilities.

Time is up! Set the writing utensil down. Looks like we have quite the lists!

Our goal is to make that list of responsibilities even more thorough. Take the next two minutes and share the list with your neighbor and add their thoughts to the list. Begin sharing.

When the two minutes are complete have students share some of their examples to the entire group. Record their ideas on a writing surface for all to see.

Thank your partner for sharing their list.

Allow students to thank each other.

Let's put all of the responsibilities together to make an even larger list. When I point to your team, share an example and I will record the responsibilities on the board for everyone to see. Point to teams and develop a large list on the writing surface.

Great work! Let's think about how the environment in the home would change once the puppy was brought into it.

Pause for a moment.

Make a new list with the same partner and on the same piece of scratch paper on how the environment of a home might change when a puppy is brought in. You will have three minutes to list as many changes as you can. What questions do you have? Answer questions posed by students.

Begin listing.

Circulate around the room to answer questions that may arise. Announce the remaining time at two minutes and one minute. After time has expired have students share their lists with the class. As students share their lists it may be beneficial to ask clarification questions to have the students further explain their answers.

Time is up! Share with the class how the environment of a home changes when a puppy arrives. Have students share.

Along with this large list of responsibilities comes change: changes in the **environment** like you just described. Any time we introduce something new to an area or engage in an action we must take responsibility for that action and the results of that action. A puppy is a lot of fun but also comes with a lot of responsibility and work.



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Let's increase the challenge. What if this new puppy came into an environment where there were three other puppies already living there. Before an owner does this, he should prepare a suitable environment for all the puppies. The owner would provide a space large enough for all of the animals to move around, and he would maintain the puppies' environment by keeping it clean. This is what good stewardship looks like.

Summary of Content and Teaching Strategies

Objective 1. Identify how animal production has an impact on the environment.

Discuss and have students record the definitions of environment, stewardship, and pollution. Use **MS.AS.6.1.TM.B** to provide the definitions.

After examining how an environment can change, let's try to define the term **environment** in our own words because it is important that we all understand what **environment** means.

Allow students to give suggestions.

Take out some paper so we can take notes today. Title the page "Animal Production and the Environment." Write down this definition for **environment**: the sum total of all the external conditions that may act upon an organism or community to influence its development or existence.

Another term that we often hear mentioned when talking about the **environment** is **pollution**. Today we are going to learn about some potential causes of **environmental pollution** that relate to animal production. Below the term **environment** in your notebook record the definition for **pollution**. We are also going to explore some safe animal production practices that show good **stewardship** of the land. Let's record the definition for **stewardship** in our notes as well.

Use **MS.AS.6.1.TM.B**.

Use a *Go Get It e-Moment* to have students record in their notebooks three areas of environmental concern with respect to animal production. The areas and a description can be found on **MS.AS.6.1.TM.C**, **MS.AS.6.1.TM.D**, and **MS.AS.6.1.TM.E**.

The three sheets around the room each have an example of how animal production can have an impact on the environment. When you hear **CAPTURE**, travel to each sheet and record the information you see. Everyone will have eight minutes to neatly write this information in your notebooks. When all the information has been recorded return to your seats. What questions do you have? **CAPTURE**.

Monitor student progress. More time may be needed; if so, provide accordingly.

Answer any questions that students might have as they work around the room.

Announce the remaining time for the students to keep them on task and efficiently recording the information.

As students finish have them return to their seats and review the information they have just recorded.

As the students record their information, address any questions they may have. Then have them look at **MS.AS.6.1.AS.A**. Students will be asked to think about the future and write down three ways they can demonstrate being a steward to the environment. You may need to share an example if necessary.

As we have just discovered, there are many ways that animal production impacts the **environment**. Think about what you hope the environment will look like in 15 years.

Pause.

In 35 years?

Pause.

Will our water be clean?

Pause.

Will the air be clear and free of smog?

Pause.



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What will these things look like, smell like, and taste like?

Pause.

What do you hope the **environment** will look like?

Pause to allow students to think.

On the activity sheet (**MS.AS.6.1.AS.A**) there is a place to write three ways you can demonstrate being a steward to the environment. By being stewards we help to ensure a promising future. Take the next two minutes and write down three examples of how you will demonstrate stewardship in the future. What questions can I answer?

Share the following examples if necessary: "recycle all plastic products" or "will plant a tree each year on my birthday."

Begin contemplating your future actions.

Circulate around the room and help students if needed. Once they have their examples written, have the students share with a neighbor to build a sense of potential accountability.

Writing these examples is a start, but when we share them with others they are taken to a different level. Now someone else has heard them and can help us stay accountable for our actions. In the next two minutes, share with a neighbor your examples of how you will be a **steward** in the future. Then allow the neighbor to share their examples. Begin sharing.

Announce the remaining time at 45 seconds left and 15 seconds left.

Thank your neighbor for sharing their examples. Allow students to thank each other. Now tell your neighbor that you will hold them accountable for those examples and you wish them the best in demonstrating stewardship.

Allow students to do so.

Review/Summary

Engage the students in a Bob the Weather Guy e-Moment to review the content from the class session. Have students work with their teammate from before to assemble a 45-second "weather report" that defines environment, pollution and stewardship, what current animal production impacts look like now, and what they predict will happen in the future if animal producers are good stewards of the land.

One small way of demonstrating stewardship is being aware of upcoming weather patterns. What has the weather been like in the past week?

Pause.

What it is right now?

Pause.

What is it predicted to be like for the next week?

Pause.

Because good stewards know what has happened and what to expect, they can use this knowledge to prepare the right environment for animals.

When you hear ACTION, develop a weather report with the same partner based on the information we learned in class about the **environment**, **pollution** and **stewardship** in animal production. The weather report should include a definition for **environment**, **pollution**, and **stewardship**, what current animal production impacts look like now, and a prediction for what the future looks like based on animal producers being good **stewards** of the land.

You will have eight minutes to prepare a 45-second weather report. Remember, the three essential parts to the weather report are providing a definition of **environment**, **pollution**, and **stewardship**, what current animal production impacts look like now, and a prediction for what the future looks like based on animal producers being good **stewards** of the land. What questions can I answer?

Answer any questions that may be asked.

ACTION.



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Allow students to share their weather reports to the entire class or in small groups.

Thank you for sharing the weather reports based on your new knowledge of how good stewardship practices in animal production can protect the **environment**. Give yourselves a round of applause.

Lead applause.

As we think about the future it is our responsibility to be **stewards** of the **environment** and to make sure our actions demonstrate **stewardship**. This can be done by utilizing proper animal production methods that positively impact the **environment**, or can be as simple as picking up an extra piece of trash each day. We not only thought about the future today, but also wrote down three good stewardship practices to demonstrate **stewardship** in the future. It is important that we all work toward the goal of being good **stewards** of the **environment** to ensure a promising future.

Application

Extended classroom activity:

Have students search for pictures (or take pictures) of positive and negative impacts animal production can have on the environment. Students should describe the environmental impact that can be seen in the pictures.

FFA activity:

Have students set up a public meeting to discuss animal production stewardship. Invite a guest speaker who is an expert in the positive impacts animal production can have on the environment. Advertise the event and have students help with the discussion.

SAE activity:

Have students contact organizations that work with the animal industry to be environmentally conscious. Determine what background the individuals working in those organizations have and how a person might prepare to obtain a career in this field.

Evaluation

MS.AS.6.1.ASSESS.A.

Answers to Evaluation

1. B
2. A
3. B
4. C
5. A
6. C





Demonstrating Stewardship in the Future

(Stewardship means careful and responsible management of something entrusted to one's care)

1. _____
2. _____
3. _____



Environment – the sum total of all the external conditions that may act upon an organism or community to influence its development or existence

Pollution – the presence of substances in water, air, or soil that impair usefulness or render it offensive to humans

Stewardship – the careful and responsible management of something entrusted to one's care



Animal production has an impact on the environment through:

A.Grazing – to feed on growing grass and pasturage, as do cattle, sheep, etc.

1. Reduces the need for mechanical practices (mowing) and weed management (spraying)
2. It is in the best interest of producers to take care of land to ensure longevity of their operations
3. Rangelands are in the best condition they have been in during the past century; however, overuse of the land can potentially lead to erosion



B. Animal manure used as fertilizer

- 1. Can reduce the need for commercially produced fertilizers**
- 2. Natural high-quality fertilizer**
- 3. Once the decomposition has taken place there is no harm to the environment; however, prior to this point animal manure that enters the water supply can become a potential form of pollution**



C. Animal manure used as a fuel source

- 1. Methane gas produced by animals can be collected and used as a fuel source**
- 2. Potential to reduce the need for commercially produced fuels**
- 3. When the biogas is used it potentially releases less pollution into the air**



Name: _____

Directions: Write the correct letter in the blank provided to match the animal production practice to the impact it has on the environment.

A. Grazing	B. Animal manure as fertilizer	C. Animal manure as fuel
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- _____ 1. Once the decomposition has taken place there is no harm to the environment; however, prior to this point animal manure that enters the water supply can become a potential form of pollution
- _____ 2. Reduces the need for mechanical practices (mowing)
- _____ 3. Can reduce the need for commercially produced fertilizers
- _____ 4. Potentially reduces the need for commercially produced fuels
- _____ 5. Reduces the need for weed management (spraying)
- _____ 6. When the biogas is used it potentially releases less pollution into the air