



Life on a Dairy Farm

Overview: Students will identify aspects of raising dairy cattle and producing milk products that are done in an economically, environmentally, and socially sustainable way.

Objectives:

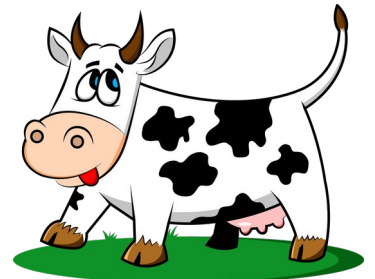
Grades: 3-5

Materials:

virtual tour of Middlebush Farms dairy farm, Somerset, NJ – video, available to download at njagclassroom.org, NJAITC Lessons, Animal Agriculture

My Family's Dairy Farm by Katie Olthoff, book and/or read-aloud

Life on a Dairy Farm: Writing Prompts, one per student



Optional: Climate Risks to Dairy Farms in the Northeast United States - infographic

NOTE: The teacher can choose to show the video, read the book, or both.

Vocabulary

Sustainability - doing things in a way that reduces negative impacts on the economy, environment, and society.

Heat stress - cows begin to experience heat stress at much lower temperatures than humans. In general, mild heat stress starts around 72°F with 50% humidity. High-producing cows eat more and generate more heat. They can begin to experience heat stress in well-ventilated barns at air temperatures as low as 65°F.

Efficiency - the work performed compared to the total energy expended.

Udder - Mammary gland of female cattle having four teats and hanging between the hind legs of the animal.

Natural selection - process where organisms that are better adapted to their environment tend to survive and produce more offspring.

Artificial selection - process by which humans use animal breeding to selectively develop particular traits (characteristics) by choosing which males and females will sexually reproduce and have offspring together.

Butter fat - or milkfat, is the fatty portion of milk. Milk and cream are often sold according to the amount of butterfat they contain.

Procedure:

Before showing the video or reading the book, ask the class what makes them comfortable when watching a movie or TV. Make notes of student responses. Some things they may mention are: a warm blanket in the winter or a cool room in the summer, fluffy pillows on a soft couch, some snacks to eat, their favorite drink, etc.

Ask students what might make a cow comfortable. Remind them to look back at the list the class made of their own comforts. Some answers may include: food, water, a soft bed, comfortable temperatures (heaters/fans), etc.

Next, ask students if they do chores and if they are able to do their chores better when they are happy and comfortable or unhappy and uncomfortable. An example would be shoveling snow with or without gloves and a hat.

Ask students what job or chores dairy cows have. Students should come up with “making milk” as an answer for the cow’s job. Then ask if they think a dairy cow would do a better job of making milk if they were happy or unhappy. Then introduce the book and/or the video by telling students that they are going to learn what makes dairy cows happy and comfortable and how by keeping dairy cows happy and comfortable dairy farms can be more sustainable.

Show the video/read the book.

Have students talk to a partner about what they saw in the video or book that was a way of keeping the cows comfortable and happy.

Show the video or read the book again. This time, have students take notes on the things that best help the dairy cows to survive.

There are three writing prompt options students can choose from in the attached resource. Explain to students that they are going to write a persuasive piece of writing. You can have them write an article for the local paper, write to their mayor, or write as a dairy farmer that is working on new ideas to help their cows, etc. However you frame it, they will write a persuasive passage in a Claim, Evidence, Reasoning (CER) style about why a barn/dairy farm is the ideal habitat for raising dairy cows and how it helps them to survive and thrive. If you choose to have them write as a dairy farmer working on new ways to help their cows, they will have an opportunity to brainstorm ideas. You can do an extension activity where students create models of their ideas also.

As part of the climate change option or as an extension, you can share the infographic below with your students. Have them discuss what it is showing and what happens to dairy cow milk production with a rise in temperature, rainfall, etc. This can be used to support what happens seasonally to dairy cow production but can also introduce the issues dairy farmers will face with climate change.

Give students a chance to peer edit and ask questions or make comments or suggestions on the writing.

Have students share their finished writing with the class or in a small group.

Evaluation:

Completed writing prompt

NOTE: This lesson can be used to support science units in the areas of Ecosystems, Interactions, Energy, and Dynamics or Heredity: Inheritance and Variation of Traits. It can also be used to introduce or reinforce climate change standards.

New Jersey Learning Standards:

English Language Arts

Key Ideas and Details

- RI.3.1. Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RI.3.3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

Craft and Structure

- RI.3.5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.

Text Types and Purposes

- W.3.1. Write opinion pieces on topics or texts, supporting a point of view with reasons.

A. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.

B. Provide reasons that support the opinion.

C. Use linking words and phrases (e.g., because, therefore, since, for example) to connect opinion and reasons.

D. Provide a conclusion.

Science

Ecosystems, Interactions, Energy, and Dynamics

- 3-LS2-1 Construct an argument that some animals form groups that help members survive.

Heredity: Inheritance and Variation of Traits

- 3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.

Climate Change - Science

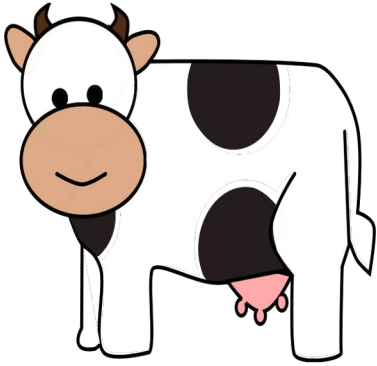
Core Idea: Populations live in a variety of habitats and change in those habitats affects the organisms living there.

3-LS4-4: Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

Name: _____

Date: _____

Life on a Dairy Farm Writing Prompt (Option 1)



Dairy cattle need to be well cared for to be comfortable so they can produce the most milk. Write a story about all of the things that you would do to keep your cows comfortable if you were a farmer. Be sure to explain why you would be doing each of those things.

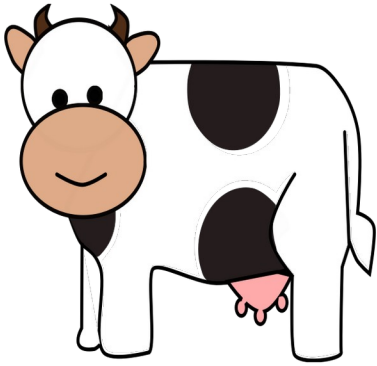
(You can use some examples of things mentioned in the video or book but also try to come up with something different. Don't be afraid to think outside the box. Maybe even create an invention that would help care for your dairy cows.)

Use the space below to illustrate something you would do to help make your dairy cows comfortable on your farm.

Name: _____

Date: _____

Life on a Dairy Farm: Writing Prompt (Option 2)




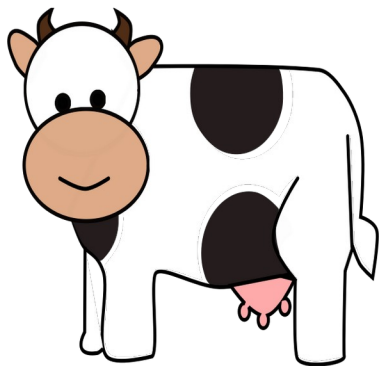
You are a dairy farmer in a town that has elected a new mayor. The new mayor does not want dairy farms in his town, because he thinks that cows shouldn't be kept in barns or live on farms. You have been asked to present your side of the story at a town meeting.

Write a speech that will convince your new mayor that your farm is the best habitat for a dairy cow to live in and that you provide the cows with everything they need to be comfortable, happy, and productive.

Name: _____

Date: _____

Life on a Dairy Farm Writing Prompt (Option 3)



You are a dairy farmer that is very concerned about climate change and how rising temperatures and rainfall will affect your cows. Write an article to be published in the local paper that will explain all the ways you work hard to keep your cows comfortable, happy, and productive and also present the struggles you will face with climate change.

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