

STUDENT GUIDE

ENGAGE LESSON 2



Part 1: Our Motivation

Record what we were trying to figure out that led to this investigation.

- We weren't exactly sure how the dairy industry impacts the environment, so we wanted to know more about how dairy foods are made so we could figure out how that process impacts the environment.
- How does a dairy product get made?
- What are the steps in the process that might impact the environment?
- Does the dairy system pollute the environment?



Part 2: Sharing Our Life Experiences

How do you use dairy products in your life? Consider the following questions and answer 1-2 that resonate the most with you.



What are your experiences with dairy products?

I eat yogurt for breakfast every day. I don't really like drinking milk, but I like cheese.

Do any of your family members eat these products?

My Dad loves cheese and uses milk in his protein shakes. My little brother and sister drink a lot of milk. My mom uses cheese in lunches and dinners. We have ice cream sometimes.

How much dairy do you eat in a week?

A lot of yogurt and maybe a snack or two of cheese.

What family/cultural recipes do you use dairy in?

One of our favorite family recipes is Baked Oatmeal. My mom makes it, and it uses milk in the recipe, but we also pour milk over the oatmeal once it is baked.

How do you get these products?

We buy them from the grocery store. Sometimes we get frozen custard from our favorite dessert place on the weekends.



Part 3: Observing the Module Phenomena

After watching the video about how milk gets to the table in the past and present, write your thoughts about how milk gets to your table today.

Consider: What tasks are these systems designed for? What similarities do you notice about the way the systems are designed? Differences?

We don't produce milk the same way we did in the past. I know I don't have a cow in my backyard, and to be honest I don't even know if a dairy farm is near me. Farmers must have set up new ways to get milk to people far away. I would guess that is why we saw a lot of trucks on the farm in the video. Also, there are a lot of cows in one place. I think that is because so many people don't have their cows so there are more cows at one farm to feed many families.



Part 4: Creating and Sharing Initial Models

Record the Class Consensus Model of how dairy products were produced in the past in the space below.

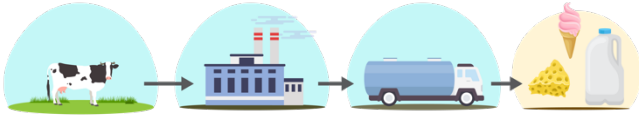
Past


With your group, create an initial model that shows how you would currently answer our Module Question, *“How does the dairy system produce dairy products and get them to our table?”* In your model, be sure to:

- Use the systems model conventions we agree on as a class.
- Utilize images, icons, and pictures to visually represent different parts of the system.

Draw a copy of your group model below.

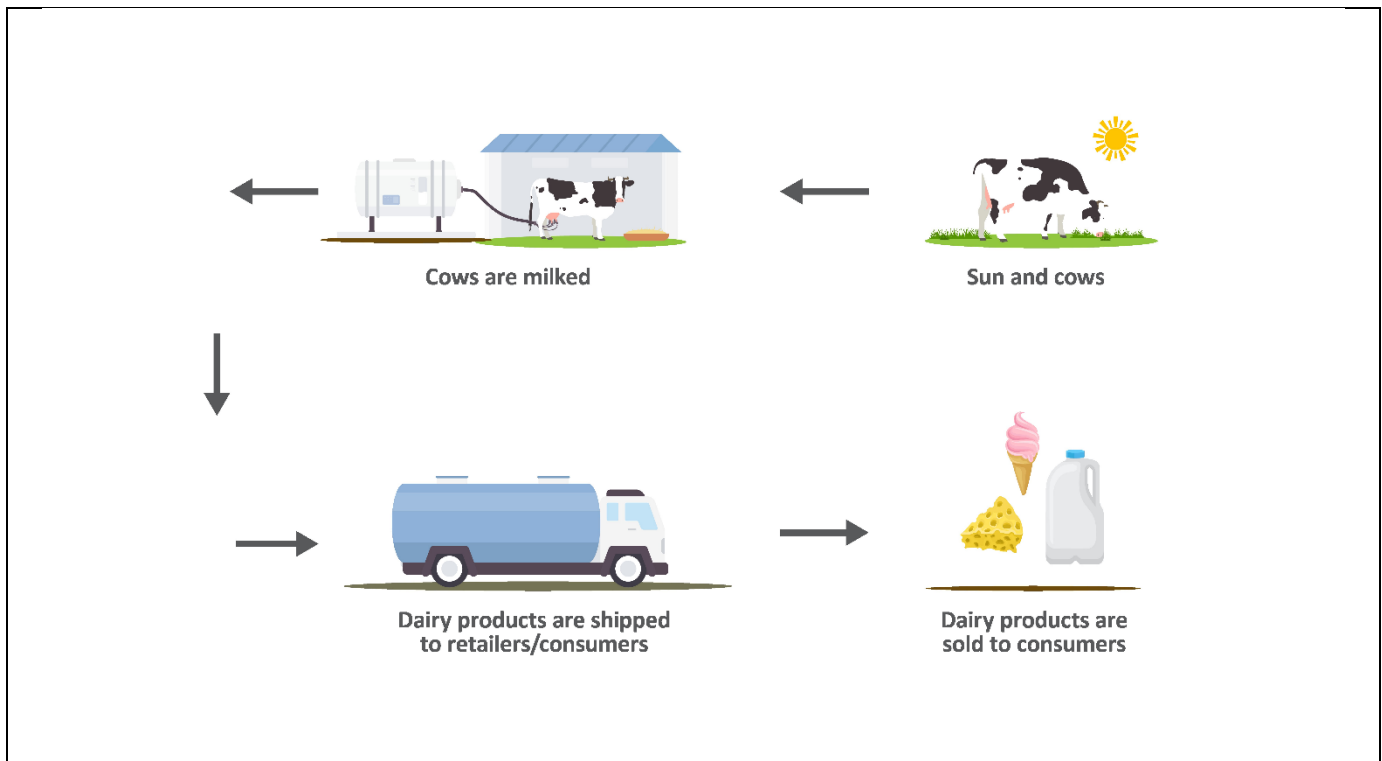
Present



Share your model with the class as instructed by your teacher. In the space below, record parts of the model you agree on with your peers and parts you disagree on.

Parts of the Model We Agree On	Parts of the Model We Disagree On
I agree with Group 1 & 2's steps in the process. They are the same as my group's (cow, processing plant, truck, then ice cream).	I don't agree with Group 3's model which has an extra step between the cow and the processing plant. I think that processing happens at the farm.

Record our Class Consensus Model in the space below.



So far, what do our models show about the task(s) the dairy system was designed to accomplish? How does this help or harm humans?

Our model shows that the dairy system takes milk and makes it into products for people to buy. This seems good that people can have food to buy. It looks like there are a lot of steps that could impact the environment.

What are the gaps in our class model that you want to figure out more about?

Now that I have seen other groups and we discussed with the class, I think our model is missing these steps:

- Something happens to get milk from the farm
- Something happens to take milk and make other dairy items like ice cream
- Anything before the cow is milked
- Wondering if there is testing that happens to the milk at any point



Part 5: Asking New Questions

Record new questions you have that might help you:

- Find additional information about how the dairy system impacts the environment.
- “Fill in a gap” in your model or our class model.
- Settle an area of disagreement that we’ve identified in our models.

- When/where do they make the different dairy products?
- Are there steps we are missing before the milk?
- What is the impact of [step] on the environment?