Oregon State University
Precollege Programs

Envision, Believe, Succeed
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Lesson 1: Life on a Farm

PROCEDURE

PART 1: A Dairy Farm and a Cheese Factory VR experience

VR objectives
Students will understand that:

- Discover the dairy processes and farm decisions driven by sustainability and efficiency
- Identify ways milk and cheese quality is assessed and maintained
- Describe how science promotes animal health and well-being
- Illustrate the team and community of people involved in the care and production of dairy commodities

PRE-VR Discussion:

- What is your favorite kind of cheese? (or cheese alternative)
- Where do you think it comes from? (could be a farm in Oregon or elsewhere)
- Think about its path from the farm to the store to your house. Could you draw this imagined path?
- Have you ever visited a dairy farm? Write down 3-5 things that you already know or think you know about a dairy farm.
- Compile a class list of what students know. If time allows, have them do more research.

EXPLORING THE APP.
As students go through the VR experience, have them pay attention to:

- The ways that farmers care for the cows
- Resources that farmers GET from the cows
- Resources farmers USE in order to keep cows healthy
- The kinds of technology that are used on the farm
- The sustainable practices that are used on the farm

POST VR Exploration
When students are done exploring, choose some of the POST exploration questions to ask them.

Lesson Materials

- VR Headset OR iPAD and TimeLooper App.

Download the Free App

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PART 2: Dairy Designs

Lesson objectives
Students will understand that:

- Oregon has a large dairy industry and it produces products that we all eat
- Making butter and ice cream requires milk derived from jersey cows which produce a higher percentage of milk-fat
- The decisions we make about which products to eat in part has to do with visual appeal and marketing

Activity
Tell students that now that they have done a virtual field trip to Threemile dairy farm, they are ready to take on a dairy challenge. They will be going to work for a dairy farm, like Threemile, that would like to produce new dairy products. Until now, this farm has primarily been focused on producing milk and cream, they would now like to add ice cream and butter to their list of products. The farm staff will bring together the groups they hired to take part in an EXTREME dairy championship. Judges will pick their favorite product based on taste and visual appeal.

Ask:

- Do you have a favorite ice cream flavor or type of butter you like more than others?
- What about a favorite brand? What do you like about it? (invite students to go home and pay attention to this)

1. Break students into small teams that will work together on producing a dairy product. Tell half of the class that they will focus on making butter and the other half that they will specialize in ice cream. Pass out the ***Dairy Designs worksheet*** and recipes to students. Let students know the variety of materials that they will have to work with- they can add whatever they like to create a product that they believe will be the most appealing.

- Before students begin making their product they will need to decide:
  - What will your specialty recipe include?
  - What will this product be called?
  - What will the design and branding on the label include?
    - think about who will buy the product?
    - what makes this product unique or better than others?
  - How will you introduce the product to the community and entice people to buy it?

Once students have their recipes developed, invite them to collect the materials they will need- milk, cream, sugar, plastic bags, jars, ice, salt, flavorings, etc. Remind them to record and follow the recipes they create so that they will know what needs to stay the same or change.

While some of the group gets started on making the product, encourage others to research existing products to get some ideas, have them consider what parts they liked/didn't like and why (or show images).

Highlighted NGSS

Disciplinary Core Ideas
- Structure & Properties of Matter

Crosscutting Concepts:
- Scale, Proportion, & Quantity

Science and Engineering Practices:
- Obtaining, Evaluating, & Communicating Information

Lesson Materials

Teaching Tips

Lesson 1: Life on a Farm

PROCEDURE

PART 2: Dairy Designs cont.

Tell students that they have 15 minutes (about the time it takes to make butter and ice cream) to:

- make their product
- create an appealing label for the product
- develop a tagline for the product

Once students are done making their dairy products each group will bring them up to the front of the room to the "judges panel" (pre-select students for this role or teachers can act as judges). Each group will share about their items and why they chose the branding and then judges will do a product taste test. Products will be rated (1-5 etc.) on taste, visual appeal, and effectiveness of the slogan.

Judges will share with each group what they liked and disliked about the products as well as make suggestions for improvement to the overall taste (more or less sugar, salt, etc.) and visual appeal.Once all groups have shared and gotten feedback, invite them to make changes to their recipes (even if they do not have time to make a second batch) and labels (depending on feedback.

Debrief

- What would you change in your recipe? label? slogan?

References

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Teaching Tips

If students want more information about life on a dairy, show them the short video "From a Farm Family Near You".

Remind students that all of the products they are using (unless they use milk!) comes from Jersey cows due to the high fat content in its cream.

Encourage students to pay attention to the dairy that they consume at home. How many different kinds of dairy do they have in their refrigerator? Freezer? Where does it come from? What kind of cow did the product originate from?

Career Corner

Someone in Dairy!

Basic Recipe's

BUTTER

- 1 cup cream or half & half
- Salt
- Flavoring (optional)

Directions

Pour the dairy product into a pint-sized jar with a screw-top lid and add a pinch of salt and any desired flavoring. Screw on the lid tight and shake the jar for 5-10 minutes until a solid ball forms. Drain the liquid from the butter. This is the buttermilk.

ICE CREAM

- ½ cup cream, half & half, or milk
- ½ teaspoon vanilla
- 1 TBSP Sugar (or other sweetener)
- Flavoring (optional)

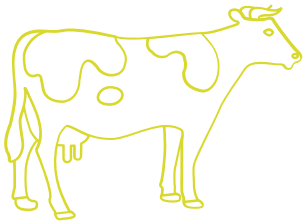
Directions

Mix together ingredients in a quart sized bag. Seal the bag tightly and make sure there is no air inside. Put the bag inside a gallon bag and fill with ice and salt. Seal bag tightly. Shake the bag for 4-5 minutes.

Science Break

- Stop every 2 minutes and record your observations. What happens to the ingredients over time? How do the ingredients look after 1 minute, 2, 3, 4, etc.? How do they look in the end?
- Does using warm or cool dairy to start make a difference?
- Can you make butter or ice cream with dairy products that have less fat that cream?
- How quickly does it change from a liquid to solid?

Dairy Designs Student Worksheet



What will your specialty recipe include? (*see the basic recipe, what can you add to make it your own?*)

What will this product be called? *(think of any of your favorite products, what are they called? Do some research if you aren't sure!*)

What will the design and branding on the label include?

- think about who will buy the product?
- what makes this product unique or better than others?

What is your products slogan?

What is a slogan?

A slogan is a short, memorable phrase used to advertise a product (*e.g. Go for a fide on our Rocky Road; Poppin' Fresh Ice Cream; Let your trouble melt away; Original Butter for Original Foods; Straight from Jersey Cows*).

How will you introduce the product to the community and entice people to buy it?