



Core-iculum Connections

FREE lessons, materials & resources for K-12 teachers!

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Students will see science in action with this hands-on activity as they make milk into curds and whey. The lesson explores the physical and chemical changes that happen in the cheese making process.

Save the Dates:

November 15 – Ag Science Grant Application Deadline

November 17 – Postmark Deadline Merry Dairy Holiday Card Contest

November 24 – Maitland Grant Application Deadline

December 6 – 3 to 6 p.m. Open House & STEAM Workshop at Evergreen FS

Cheesy Science Activity

Check out the science of cheese with an easy recipe for hands-on learning!

Using heat, acid and an enzyme called rennin students will explore the chemical and physical changes that happen to transform milk into cheese.

Contact us to request the kitchen equipment and ingredients needed to make cottage cheese in your classroom: aitctablet@gmail.com

Students will discover the chemical reaction that occurs when lemon juice (an acid) is mixed with

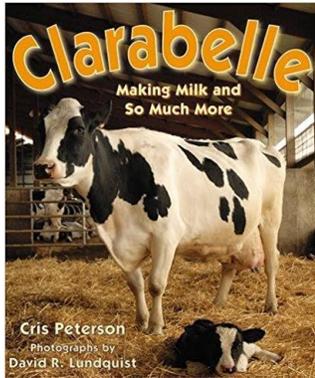
milk. The proteins in milk coagulate (clump together) and separate into curds and whey.

What's the best part about this science experiment? The results are edible! Please be sure to check for dairy allergies or sensitivities.

To see the complete lesson plan for elementary students, use this link: <https://goo.gl/Ds2Nfh>

For a higher level version suited for Junior High Science or High School Chemistry, use this link: <https://goo.gl/Cxrema>

Featured Resources: Dairy - From Moo to You!



Nonfiction: Clarabelle – Making Milk & So Much More

Author: Cris Peterson

Grade Level: 4 – 6

Lexile Measure: NC1180L

Following a day in the life of Clarabelle, one of 1,200 cows on a Wisconsin dairy farm, we learn what it takes for a cow to produce life-giving milk and also by-products like electricity.

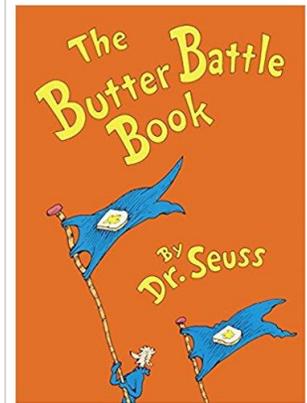
Fiction: The Butter Battle Book

Author: Dr. Seuss

Grade Level: K – 4

Lexile Measure: AD710L

The Butter Battle Book, Dr. Seuss's classic cautionary tale, introduces readers to the important lesson of respecting differences. The Yooks and Zooks share a love of buttered bread, but animosity brews between the two groups because they prefer to enjoy the tasty treat differently.



What is Dairy? Dairy Breeds

Dairy cows are amazing animals. They can turn grass and grains into milk! Heifers are female dairy cattle and after two years, they give birth to their own calves. Once a heifer gives birth, it is called a cow. All female dairy cows must have a calf to produce milk. The gestation (pregnancy) period for cows is nine months. Newborn calves weigh about 80-100 pounds. Male dairy cattle are called bulls and do not produce milk. Milk provides your body with calcium, which is...

Dairy Ag Mag: <https://goo.gl/5QCwUL>

Activities: Butter Races & Ice Cream in a Bag

Butter Races – Grades 2-3

Make your own butter in a baby food jar and explore the physical changes from milk to butter.

Common Core State Standards: Language Arts: CCSS.ELA-Literacy.W.2-3.1; RL.2.1-6; RL.3.1-6

Next Generation Science Standards: Engineering Design: K-2-ETS1; 3-5-ETS1 Matter and Its Interactions: 2-PS1-1-3

Ice Cream in a Bag – Grades K to 4

Make ice cream in a zip lock bag and explore the states of matter.

Next Generation Science Standards: Matter and its Interactions: 2-PS1-1; 2-PS1-4

Find Both Activities in the “From Moo to You” Lesson Packet from Illinois Ag in the Classroom: <https://goo.gl/RGc6Cv>

DAIRY USES: milk, cheese, yogurt, ice cream, butter, sour cream, cream cheese, cottage cheese, coffee creamer, baby formula

WHAT IS DAIRY?

Dairy cows are amazing animals. They eat farm grass and grains into milk! Heifers are female dairy cattle and after two years, they give birth to their own calves. Once a heifer gives birth, it is called a cow. All female dairy cows must have a calf to produce milk. The gestation (pregnancy) period for cows is nine months. Newborn calves weigh about 80-100 pounds. Male dairy cattle are called bulls and do not produce milk. Milk provides your body with calcium, which is needed for healthy bones and teeth. Calcium also helps our muscles and nerves work properly, and helps blood to clot. Milk products also provide us with carbohydrates, protein and Vitamin D. You should have 3 servings of nonfat or low fat milk and milk products each day. One serving of dairy is equal to 1 cup of milk, yogurt or ice cream and 1-2 ounces of cheese.



Dairy Terra Nova: <https://goo.gl/KVsskE>

Moo-re Dairy Resources: Check it Out!

Check Out a Local Dairy!



Kilgus Farmstead near Fairbury is the only on-farm milk bottling facility in Illinois:
www.kilgusfarmstead.com



Ropp Jersey Cheese just west of Normal makes cheese on the farm: www.roppcheese.com

Where is my Milk From?



Find out how your milk goes from grass to glass!

Visit whereismymilkfrom.com and type in the code found on the lid, carton or label of milk and other dairy products. Hint: It's often preceded by the letters "PLT."

Students can find where their dairy products come from on a map or calculate the mileage.

High Tech Tools

Check out some of the new technologies dairy farmers are using to improve cow care, increase efficiency and reduce environmental impact.

Each link will take you to a YouTube video to see the technology in action.

- **Robotic Milking Machines:** high tech and hands free <https://goo.gl/XtxJHh>
- **Fitness Trackers:** monitoring the health of each individual cow <https://goo.gl/KHd4oA>
- **Methane Digestors:** turning poo into power <https://goo.gl/aqdLsc>

Prescription for Safety: From Cow to Your Cup

Are there antibiotics in milk?



Nope! All milk is tested at the farm & again at the processing plant for antibiotics. If any medication is detected the milk is discarded.

Dairy farmers care about taking good care of their cows and they also care about providing safe, healthy food products.

Just like doctors might write a prescription for an antibiotic to treat an infection in a person, farmers work with veterinarians to treat sick cows.

Cows that are treated with an antibiotic are milked separately from the healthy herd. Any milk from a cow that has received an antibiotic is discarded until the medicine is no longer in the cow's system.

Each antibiotic has a specific withdrawal time that farmers use

to make sure there is no trace of antibiotics left in the cow's system.

Once this period is up and the cow is healthy again, the farmer tests her milk to make sure it is clear.

In addition, every truckload of milk is tested at each farm to confirm it is free from any medicine including antibiotics. Then the milk is tested again at the processing plant to doublecheck.

According to national Milk Drug Residue Database compiled for 2013-14, 0% of milk tested positive for drug residues. No milk sold in the U.S. has any antibiotics!

Dairy Vocabulary



Homogenization

Process of breaking down the fat in milk to prevent it from separating as cream

Pasteurization

Process of using heat to kill any harmful bacteria or pathogens. Named for French Scientist Louis Pasteur who invented it.

Apply Today! Grants Available

Looking for a way to add food and farm related resources, books or materials to your classroom?

Check out these grant opportunities available to McLean County Educators:

McLean County Farm Bureau Ag Science Grant:

- Projects must be related to incorporating learning about food, fuel, feed and fiber in your science lessons
- Deadline: Nov. 15, 2017
- Application online at: www.mcfb.org/grants
- Up to \$2,500 in funding available annually
- K-12 educators eligible

John Maitland Agricultural Awareness Grant:

- Grants for up to \$1,000 agriculture-related lessons, resources and equipment
- Deadline: Nov. 24, 2017.
- Application online at: <http://web.extension.illinois.edu/lmw/steam/5509.html>
- K-12 educators eligible
- Last year, seven grant winners received a total of \$5,555!

The grant was established and is supported by the family of retired Illinois State Senator John Maitland. University of Illinois Extension McLean County.

Merry Dairy Holiday Card Artwork Contest



Enter your students in the Merry Dairy Holiday Card Contest and their artwork could be featured on St. Louis District Dairy Council's 2017 holiday card!

One Grand Prize winner will be selected from each of the following categories: PreK - 2nd grade, 3rd - 5th grade and 6th - 8th grade.

Three Grand Prize winners will receive a premium gift basket and a gift card for their teachers. Runners-up in each category will also receive a gift basket.

For all the details visit: www.stldairycouncil.org/Dairy-Holiday-Card-Contest/

Official Rules:

- Open to all MO & IL students in grades PreK-8.
- Entries should be on 8.5 x 11" paper, landscape orientation
- Entries must be postmarked by November 17, 2017
- Include student name, grade, school, teacher name & e-mail on the back of each entry

Mailing address for entries:

St. Louis District Dairy Council
Attn: Merry Dairy Holiday Card Contest
325 N. Kirkwood Rd. #222
St. Louis, MO 6312

Dollars for Dairy: Teachers - Receive up to \$1 per student (max \$100 per class) in reimbursement from the St. Louis District Dairy Council for purchase of eligible dairy products! Details: <https://goo.gl/K4pY6b>



Ag in the Classroom & STEAM Teacher Workshop & Open House

Explore the FREE resources available for K-12 educators from McLean County Ag in the Classroom & University of Illinois Extension STEAM programs!

Professional Development: Earn 2 PDCHs

(must attend workshop for 2 hours plus complete online graphic organizer & survey to earn credit)

Plus learn about Grant opportunities!

STEAM Stations Include:

1. Boston Tea Party Container Creation
2. Experiments That Failed - Corn Plastic & Slime
3. Tinker Box - Create a Vehicle
4. Think Outside the Box - Escape Boxes

Standards: NGSS DCI for Engineering, Technology & Application of Science

NEW Date!

December 6, 2017 • 3 - 6 p.m.
Evergreen FS Building
402 N Hershey Rd, Bloomington

RSVP to aitctablet@gmail.com or esaddler@illinois.edu by Monday at noon

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If you need a reasonable accommodation to participate in this program, please contact us.