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| Properties of Matter: Got Goat's Milk? Make Ice Cream! |
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| AP Photo/Eric Risberg  *Elizabeth Pacheco tries goat's milk ice cream at Laloo's Goat's Milk Ice Cream Company in California. Laura Howard founded Laloo's in 2004, and now the company's goat's milk ice cream is more popular than ever.*  **PETALUMA, California** (Achieve3000, February 15, 2007). There's a new kind of ice cream out there, and it tastes like no other. That's because it is made like no other. Laloo's ice cream uses goat's milk instead of cow's milk.  "Some people see goat's milk ice cream and they sort of wrinkle their noses," says Laura Howard. She is the owner of Laloo's Goat's Milk Ice Cream Company. "After they try it, it's a different story."  Those who have tried Laloo's ice cream report that it tastes better than regular ice cream. Laloo's has become so popular that it is selling in supermarkets across the country.  Just seven years ago, Laura Howard could not have expected such enthusiasm over ice cream. In fact, Howard's life as a film producer in Hollywood was far removed from goat farms and freezer trucks. Then came September 11, 2001. That was the day when New York City and Washington, D.C. were attacked. Like many people, Howard began to question what she was doing with her life. She realized that she had to start appreciating her life more.  "I wasn't going to have any answers until I learned how to treat my body better and treat my mind better," Howard remembers. She changed her diet. For one thing, she switched from cow's milk to goat's milk, which is easier to digest. The only problem was that Howard loves ice cream. She could not bear the thought of giving it up. One day, Howard pulled out her grandmother's old-fashioned ice cream maker. She decided to make a batch of ice cream with goat's milk. The result was so tasty that Howard started her own company.  Howard's venture started out small. Her first step was to find some goats to supply the milk for her ice cream.  "I . . . would look for goats in the field and go knock on the door," she said. She began to get milk from goats on a farm in California. The farm was in a dairy town called Petaluma. In 2004, Howard started her company, Laloo's. She began selling the ice cream at farmers' markets. Within a short time, she bought a small freezer truck and began to deliver her goods farther away. Soon, Laloo's was winning taste awards.  The excitement caught the attention of a countrywide chain of supermarkets called Whole Foods Market Inc. Perry Abbenante of Whole Foods decided to carry the ice cream in some stores. He did not expect the product to do very well. Why not? The ice cream costs $6.99 a pint. That is because it is handmade in small amounts. It has done better than expected, however. Howard sold about 20,000 pints last year. She believes that her sales will double in 2007. Laloo's is now sold in most Whole Foods locations, as well as some other stores.  "Pretty good for a small company selling goat milk ice cream," Abbenante said. "It's unique, and it's something that's growing."  People have drunk goat's milk all over the world for centuries. Only recently, have Americans taken a greater interest in it. These days, goat's milk, as well as cheese and yogurt made from it, have become more popular and widely available.  Howard never expected so much success with Laloo's ice cream. She is not surprised that people like it, however.  "It wouldn't probably find a wide audience if it didn't taste really good," Howard said.  *The Associated Press contributed to this story.*  **PAGE 2**  **Dig Deeper**  Goat's milk ice cream was a solution to Howard's desire for a new lifestyle. Making ice cream involves a "solution" as well.  Sometimes a mixture is completely blended. Its ingredients cannot be seen as different substances. A solution is a type of mixture. It is called a homogeneous mixture. This means the mixture is the same throughout. A solution can be physically separated. However, all portions of a solution have the same properties.  What happens when you stir sand into a glass of water? The sand falls to the bottom of the glass. Sand in water is a mixture. It is not a solution. Suppose you stir sugar into a glass of water. You cannot see the sugar as a separate substance. Sugar in water is a common solution. Seawater, gasoline, and the liquid part of your blood are other common solutions.  A solute is a substance dissolved to make a solution. When a solute dissolves, it separates into single particles. A solvent is a substance that dissolves a solute. It is not possible to see the solute and solvent as different substances when they form a solution. Think about a solution of table salt and water. The salt is the solute and the water is the solvent. Water is the most common solvent. It is also the most important. But other substances can also be solvents.  What happens in every solution of solid, liquid, or gas? Solutes change the physical properties of a solvent. The freezing point is the temperature at which a liquid becomes a solid. What happens to the freezing point of the liquid solvent when a solute is dissolved in it? The freezing point becomes lower. Pure water freezes at 0°C (32°F). This changes when the solute salt is dissolved in water. The solution now has a freezing point below 0°C.  People use this result to make ice cream at home. They use a small, hand-cranked device. How does it work? Ice cream has to be chilled and whipped at the same time. So the device holds the liquid ice cream ingredients in a canister. Surrounding the canister, there is a mixture of salt and ice. Because salt lowers the freezing point of water, the solution that results may have a temperature far lower than 0°C (32°F). The extra-cold water outside the canister causes changes inside the canister. Ice crystals form all at once in the constantly stirred ice cream mixture. The result of this process is smooth, creamy ice cream.  **Dictionary**   |  | | --- | | **digest** *(verb)*    to process food in the body | | **enthusiasm** *(noun)*    lively interest | | **solute** *(noun)*    in a solution, a substance that is dissolved in a solvent | | **solution** *(noun)*    a mixture of two or more substances that is identical throughout; a homogeneous mixture | | **solvent** *(noun)*     the substance that dissolves a solute and makes up the greatest percentage of a solution | | **unique** *(adjective)*    different from all others | | **venture** *(noun)*    a new activity, usually a business, which involves uncertainty | |

Week 2, Day 1: **Read**, **Annotate** (mini main idea for each paragraph in the margins), and **Summarize**the article.

Week 2, Day 2: **Re-read the article, Annotate using a new color, and Cite evidence from the article to support you answer.**Describe cause and effect relationships from the readings that are related to solutes and solvents. Explain how the relationships might be used in making ice cream. Make connections among the facts to show these relationships. Cite facts from the texts in your answer. Also cite what you may already know about the topic.