

Student Discussion Worksheet

Directions: Read the online *Science News* article "<u>Grainy ice cream is unpleasant. Plant-based</u> <u>nanocrystals might help</u>" and answer the questions according to your teacher's instructions. A version of the article, "Cellulose helps ice cream go down smooth," appears in the May 7, 2022 & May 21, 2022 issue of *Science News*.

Picture this

1. Find the pictures within the text of the article. Without reading the picture caption, spend about 30 seconds observing the picture silently. Spend the next minute with a partner stating as many observations as you can about the pictures. Go back and forth naming observations.

2. Based on what you observed in the pictures and the headline of the online *Science News* article "Grainy ice cream is unpleasant. Plant-based nanocrystals might help," what do you think the pictures show?

3. Read the text of the article, again making sure to avoid reading the picture caption. Using details that you learned from the article, explain what you see in the pictures.

4. Write your own caption for the pictures.

5. Do you think the pictures are an effective addition to the article? Why or why not?

The molecular lens

1. If you could see water ice crystals in the solution at a molecular level, describe what you might see. How would the molecules be arranged, how would they be moving, etc.?

2. Describe what you would probably see in the sucrose solution without cellulose nanocrystals as it experiences cycles of warming and cooling.

3. Describe what you would probably see as the sucrose solution with cellulose nanocrystals experienced cycles of heating and cooling.

4. Cellulose nanocrystals are considered food additives. Define the term "food additive" based on your understanding of the article.

Frozen favorites

1. According to the first sentence of the *Science News* article, "You can never have too much ice cream, but you can have too much ice in your ice cream." What have you learned about the composition and texture of ice cream from this article?

2. What's your favorite type of frozen dessert (ice cream, gelato, sherbet, sorbet, frozen yogurt, nondairy frozen dessert, etc.)? Why?

3. Look up information about your favorite dessert's ingredients and their ratios. Does the dessert contain any food additives? Write a one-sentence description of your dessert using this additional information.

4. Imagine you are making your favorite frozen dessert. How could you improve the flavor or texture of the dessert by altering the ingredients or their ratios? Propose a testable scientific question for this modification.



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