

The Case of the Arctic's Missing Ice

Cross-Curricular Connections, student questions

Directions for students: The *Science News* article "[The case of the Arctic's missing ice](#)" describes the prolific phytoplankton blooms observed in the Arctic in 2018. Less and thinning sea ice, as well as the presence of melt ponds, means more light can reach through to the sea below, encouraging the growth of such blooms. In some cases, the blooms can become toxic, killing fish and leading to neurological damage in humans. After reading the article, follow the prompts below to design a strategy to minimize or mitigate the effects of the blooms on one group of people.

- 1. Identify one group of people — living locally or across the globe — whose lives might be adversely affected by an increase in Arctic phytoplankton blooms. How might these people be affected?**
- 2. Over what time frame might the consequences of the phytoplankton blooms play out for this group?**
- 3. Propose one strategy (whether an engineering solution, policy approach, lifestyle change or something else entirely — get creative) that might minimize or mitigate the adverse effects of the phytoplankton blooms on the group you've selected.**
- 4. What would be the goal of the strategy? How would you measure success?**
- 5. Outline at least eight steps you would take to implement your strategy? What step would be first? What would come last?**
- 6. To implement your strategy successfully, what background scientific knowledge would you need? What types of experts could you hire to provide or help you acquire that knowledge?**
- 7. How might you determine the cost of your strategy? How might you fund your project?**
- 8. How would you communicate the strategy to the group you've identified in Question 1?**

9. Can you foresee any unintended consequences of your strategy? Consider safety, ethical, cultural or environmental consequences for the group you identified and others.

10. Pair up with another group and present your impact and strategy in three minutes or less. Once you have presented, ask the members of the other group for feedback. Has the other group brought up any concerns or issues that you hadn't considered?

11. After getting additional feedback on your strategy, do you still think it will be successful?

12. How would you refine your strategy based on the feedback?