

Chapter 17 Project

GMOs, Yes or No?

Project Goal + Timeline

While the development of the technology to produce genetically modified organisms (GMOs) was a huge scientific achievement, application of those technologies to food production has not been without controversy. For all the “wins” of GMOs—such as the creation of desirable traits in crops, increased disease resistance, and improved nutritional value—their widespread commercial use has given rise to serious ethical and environmental concerns.

In this project, you’ll expand upon what you’ve learned about applications of biotechnology by conducting a debate that explores the advantages and disadvantages of GMOs in agriculture. You’ll pick a side (in support of or against GMOs), research and prepare your arguments, anticipate possible counterarguments, and draft your opening remarks. Then, you’ll hold your debate in the presence of judges (your classmates). You should work in groups of four for this project, with two team members on the “in support” side and two on the “against” side. This project should be completed in two different phases. First, you will take time to prepare your arguments, and then you will have a debate in class. Teams may meet outside of class to work on their arguments.

Directions

Part 1 : Research and Prepare

Work with your group to decide which pair of group members will debate in support of and which will speak against GMOs. Then, work with your partner to conduct some preliminary research to identify major arguments in support of and against the use of GMOs in agriculture. The arguments should address a variety of topics (such environmental impacts, economic impacts, etc.). Fill out Table 1 with the arguments you find.

TABLE 1: Arguments in Support of and against GMOs in Agriculture

Topic	In Support	Against
Human Health & Safety		
Environment		
Economics		
Social Impacts		

Now, dive deeper into your research. Find specific examples and evidence to support each argument that aligns with your position. For example, if you’re arguing in support of GMOs, you’ll find evidence to support each of the arguments in the “in support” column. Then, find examples and evidence to counter each of the arguments that is opposed to your position. You’ll need this information so that you’re prepared to rebut the opposing side’s arguments.

Once you’ve conducted your research and are confident you’ve obtained information to support your own arguments and counter the opposition’s arguments, prepare your opening statement. Your opening statement should last between two and four minutes and should persuasively present your main arguments.

Part 2 : Have a Debate

Now that you've prepared, you're ready to initiate your debate. Meet with all four members of the group to agree upon the rules you will follow, such as no interruptions when one side is speaking and setting a time limit for each speaker. You should also agree upon the general structure for the debate. An example format is provided, but feel free to set your own.

1. Side 1 presents their opening statement.
2. Side 2 presents their opening statement.
3. Side 1 provides more detailed information in favor of their position.
4. Side 2 provides more detailed information in favor of their position.
5. Sides take a short break to prepare rebuttals.
6. Side 2 gives rebuttal.
7. Side 1 gives rebuttal.
8. Rapid discussion: sides alternate in making quick responses to specific arguments for a set duration of time
9. Side 2 gives closing remarks.
10. Side 1 gives closing remarks.

However you decide to structure your debate, make sure to include time for opening remarks, presentation of specific evidence and rebuttal arguments, and closing remarks.

Have other members of your class observe your debate and act as judges. Elect one of these judges to time speakers if you've agreed upon a time limit. During the debate, make sure to listen to the arguments presented by the other side and respond respectfully. After the debate, collect information from the judges to determine if one side was more persuasive than the other.

Project Materials

- Pen or pencil
- Computer with internet access
- Timing device, such as a phone, stopwatch, or computer

Student Checklist

- ☐ Complete Table 1
- ☐ Research and prepare for the debate
- ☐ Conduct your debate
- ☐ Collect information from judges