

OMG it's GMOs - part 2

Dr. B answers 3 questions about genetically modified organisms: What's the controversy? Should you be concerned? How do we balance innovation and caution?



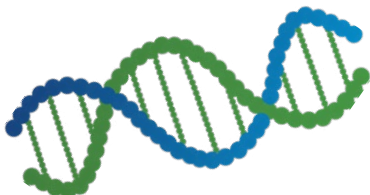
Watch the show!



<https://www.youtube.com/watch?v=xQpMICHxu5U>

Quick Questions

1. What controversies about GMOs had you heard about before watching this video?
2. Were you aware that GMOs can be patented?
3. What technologies do you use every day that past generations may have had concerns about?
4. Name some technological advances besides GMOs that the public currently has concerns about.
5. Is there any research or evidence that you think might help alleviate concerns about GMOs?



Deep Dives

1. It can be said that all technological innovation takes place at the intersection of hope and fear. This means that each new technological advance brings with it concerns for its impact and consequences, as well as optimism for what benefits it can lead to. How would you describe the hope and the fear that surround genetic modification? What hopes might someone have for GMOs? What Fears? Do the benefits outweigh the negatives? Or the other way around?
2. Dr. B mentions that one of the controversies regarding GMOs has to do with ownership. A person can have a patent for a new invention—including a genetically modified organism. Some people consider this “owning a piece of nature.” Do you think that having a patent on a GMO is the same as owning a piece of nature? What pros and cons do you see for someone having a patent on a genetically modified organism?
3. Sometimes there are barriers to the public’s acceptance of new technologies. One barrier is science literacy and the source of scientific information. Mainstream media, social media, politicians, companies, and others translate science in their own way to convey their own messages. What could be done to improve science literacy? How might better science literacy improve the public’s understanding of new technologies?
4. The video discusses the fact that ownership of GMO patents is not equally distributed. Why might it be concerning that one company owns 90% of patents in a particular realm? Are there any benefits to one company owning most of the patents? Does this impact your opinion of GMO products? If so, how?
5. It can take some time to adopt and feel comfortable with new technologies. For example, in the 1980s, many people saw no need to have personal computers in their homes and worried about the connectivity of the internet. Yet today, we cannot imagine life without it. Technology exists and will continue to advance, whether or not you choose to use it. What technologies do you see today that worry you for the future? How quickly do you adopt new innovations? What do you do to help yourself feel comfortable?

Engaging in Science Discussions



Recommended Grade Level: Middle and High School

Objective: To engage in open-ended discussions about critical science topics. While leading these discussions, it is important to ensure that everyone is heard, and everyone is treating one another with respect. There is no “right answer” during these discussions, and it’s okay to respectfully disagree.

Additional Notes: We recommend having these discussions multiple times with the same group of participants. This provides the opportunity to explore different topics and improve one’s abilities to have successful conversations about STEM topics. Quick Questions are optional and are recommended to be used as warm-up questions.

Materials: TV or projector Paper and writing utensils

TIMELINE (30 – 40 MINUTES)

5 min	10 min	5 min	10 min	10 min <i>(optional)</i>
Intro + prompts	Watch segment	Think/write time	Share with partner	Small groups

Intro (5 min) Before starting, select one Deep Dive question. Tell the group you will be asking them a question that has no right or wrong answer. After they watch the clip, they will have time to think about and write their response. They will share their response with a partner or small group. Now share the question you selected.

If participants are new to these sorts of discussions, you may want to review the following concepts:

- When you are sharing your responses, provide reasoning and evidence. Reasoning is your own thinking behind your answer. Evidence is facts that support your answer, such as historical facts or scientific facts. You may also have experiences from your own life that support your answer.
- When listening to your classmates, ask questions. The purpose of questions is to better understand their thought process, not to challenge them. Some ways to frame questions are: “I didn’t understand X.” “Could you explain Y again?” “What do you mean by Z?”
- If someone asks you questions, provide clarification. Explain your reasoning and evidence. Remember that there are no right or wrong answers.

Watch the segment (10 minutes)

Think/write time (5 minutes): Participants write down their answers

Share with a partner (10 minutes): Pair up participants. Each person has 5 minutes to share their response and answer questions from their partner. Then switch so each partner gets a turn.

(Optional) Small groups (10 minutes): Put participants in groups of 4 for share-outs and conversations.

(Optional) Homework prompts: Expand your response into a report, picture, poem, essay, short story, song, or performance. Or, write your own discussion question for the group.