



OMG it's GMOs - part 1

Dr. B answers 3 questions about genetically modified organisms: What is a GMO? Where do GMOs come from? How are they currently used?



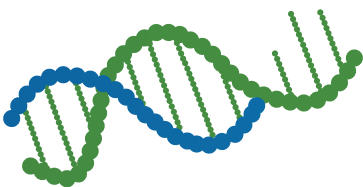
Watch the show!



<https://www.youtube.com/watch?v=gtObhBR7u5Q>

QUICK QUESTIONS

1. Have you heard about GMOs? Where did you hear about them?
2. Had you ever heard the benefits of GMOs before?
3. Did it surprise you that so many important medicines stem from GMOs?
4. Did you know that genetic modification has been happening for 30,000 years? Or did you understand genetic modification to be a new technology?
5. If GMOs are millennia old, why do you think there are so many concerns about GMOs today?



Deep Dives

1. Some people have concerns about the safety of genetically modified organisms – especially those used for food. What concerns have you heard? Where do you think these concerns come from? What type of research or evidence would be needed alleviate these concerns?
2. Dr. B mentions many uses for genetically modified organisms – from reducing the use of pesticides on farms, to producing insulin to treat diabetes, to reducing the impact of oil spills on the environment. Which area of use for GMOs interests you the most? Are you excited about it, worried about it, or both? Why?
3. If you were asked to create an advertisement promoting genetically modified organisms, what information would you want to include? What images might support the advertisement? Are there bits of information you would include to allay fears or explain the benefits of GMOs?
4. In the video, Dr. B mentions many uses for GMOs: food, reducing pesticides on farms, medicines, helping the environment, and domestication of animals. Pick one of these topics. Think about what you already know about the topic you chose. What more do you want to know about it? What additional information would you need to know to better inform your opinion on the topic?
5. "Genetic modification" can occur in a few different ways. As we saw in the video, this can mean selectively breeding organisms with certain traits encoded in their DNA, or it can mean physically changing DNA molecules in a lab. Despite the different processes, the end results are equivalent. But people are often more accepting of one process over the other. Why do you think that is?

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.