



GMO? OMG! FRANKENFOODS!!
Do GMOs reduce pesticide use?
Are GMOs harmless?
Do GMOs need to be labeled?



Not sure who to believe?

Now is your chance to become informed on the topic of **genetically modified organisms (GMOs)** so that you can make an intelligent decision in the lunch line, grocery store, and at the ballot box.

You will take on the role of one of the following:

- 1) a GMO supporting scientist from Monsanto, Inc.,
- 2) organic farmer
- 3) member of the World Health Organization
- 4) Member of the Union of Concerned Scientists,
- 5) medical doctor,
- 6) USDA (United States Department of Agriculture)

You will ultimately be responsible for answering these big idea questions:

Are GMO foods safe to eat?

Should the government require GMO foods be labeled?

Do the benefits of GMO foods outweigh the possible risks?



GMO Perspectives Sites that may assist you in your research:

1. PBS: excerpts of interviews from NOVA/Frontline's 'Harvest of Fear'
<http://www.pbs.org/wgbh/harvest/viewpoints/>
2. Dr. Oz 'GMO foods: Get the Facts'
<http://www.doctoroz.com/videos/genetically-modified-foods-get-facts>
3. High Protein Corn
<http://www.sciencedaily.com/releases/2002/06/020605072808.htm>
4. Food and Drug Administration (FDA)
<http://www.fda.gov/Food/FoodScienceResearch/Biotechnology/ucm346030.htm>
5. Monsanto on Improving Agriculture
<http://www.monsanto.com/improvingagriculture/Pages/why-does-agriculture-need-to-be-improved.aspx>
6. Organic farming can feed the world:
<http://www.sciencedaily.com/releases/2007/07/070711134523.htm>
7. UCSF article 'Genetically Modified Food Labeling Through the Lens of Public Health'
<http://www.ucsf.edu/news/2012/11/13058/genetically-modified-food-labeling-through-lens-public-health>

8. Pollutants from GMO crops:
<http://www.sciencedaily.com/releases/2010/09/100927155324.htm>
9. Greenpeace 'Support Sustainable Agriculture'
<http://www.greenpeace.org/usa/en/campaigns/genetic-engineering/>
10. Debate and Policies on Labeling GM Foods (Pros and Cons)
<http://www.bio.davidson.edu/people/kabernd/seminar/2004/GMevents/NH/Debate.html>

Directions:

Step 1: Define GMO and explain how GMOs are created. (Take Notes-paper notes or google.doc)
<https://www.youtube.com/watch?v=2G-yUiqlZ0>

Step 2: Use the PBS interactive to go through the process of creating a genetically modified organism. Be sure to take notes below on the steps you took to create your GMO.

<http://www.pbs.org/wgbh/harvest/engineer/transgen.html>

- 1.
- 2.
- 3.
- 4.
- 5.
6. (what survives?)
- 7.
- 8.

Step 3: Learn what items are genetically modified and why. Use the attached worksheet to help you organize your findings with this site titled; 'Guess what's coming to dinner!' Use this interactive to learn more about what foods are being genetically modified and why.

<http://www.pbs.org/wgbh/harvest/coming/>

Food Item	Describe the next wave of GMO Technology for each food item
Bananas	
Fruit	
Coffee	
Sushi	
Fly	

List version of top 10 GMO foods- Record the top 10 with notes (paper or google.doc) describing the reason why they are part of the top 10 list of GMO foods:

<https://eatdrinkbetter.com/2013/06/18/top-10-most-common-gmo-foods/>

- | | |
|----|-----|
| 1. | 6. |
| 2. | 7. |
| 3. | 8. |
| 4. | 9. |
| 5. | 10. |

Step 4: Research information based on the respective role that you chose while completing your webquest. Use the GMO Perspectives section. These websites will help you determine some pros and cons of GMO argument.

- Create note cards, a google.doc, or a Word document with quotes that support your point of view as well as that of the role you are playing. (RESEARCH SHOULD BE ON ANOTHER SHEET OF PAPER)

Step 6: Participate in a classroom verbal debate on GMOs supporting the position you have been ASSIGNED. See evaluation page for a rubric. (Debate will take place on _____...be ready!)

Step 7: Write an editorial for a newspaper with your reflection/opinion on whether GMOs should be allowed for food production in the United States. You will include your personal stance on GMOs and address the big idea questions. Cite your sources! See evaluation page for a rubric.

Assessment:

1. Webquest documents, research documents

GMO Class Debate Rubric - you will be graded on only 3 different aspects. Please note that respect for others is as important as knowing your topic well.

2. GMO Newspaper Article Rubric - Notice that the rubric is grading you on how well you gain the reader's attention, use quotes or evidence to support your opinion, and cite sources.

Class Debate : GMO Debate Rubric

Person you are representing in this debate: _____

CATEGORY		Score
Understanding of Topic	You clearly understood the topic in-depth and presented their information forcefully and convincingly according to your assumed position.	____ / 10
Use of Facts/Statistics	Every major point was well supported with several relevant facts, statistics and/or examples.	____ / 10
Respect for Other Opinions	All statements, body language, and responses were respectful and were in appropriate language.	____ / 10
Total Points		= ____/30

Persuasive Essay : GMO Newspaper Article

CATEGORY	Above Standards
Attention Grabber	The introductory paragraph has a strong hook or attention grabber that is appropriate for the audience. This could be a strong statement, a relevant quotation, statistic, or question addressed to the reader.
Support for Position	Includes 3 or more pieces of evidence (facts, statistics, examples, real-life experiences) that support the position statement. The writer anticipates the reader's concerns, biases or arguments and has provided at least 1 counter-argument.
Quotes to Support Position	THREE or MORE quotes are used as evidence or examples. They are specific, relevant and explanations are given that show how each piece of evidence supports the author's position.
Sources and Grammar	All sources used for quotes, statistics and facts are credible and cited correctly. Less than 5 grammatical errors.
Total for Editorial	= ____/30

Name_____

Final Grade for GMO Project

Grade Descriptor	Score	Comments
Completed notes/worksheets turned in on due date.	____ /10	
Debate Total Points	____/ 30	
Newspaper Article Total Points	____ / 30	
Positive, mature and responsible throughout the project.	____ / 10	
TOTAL POINTS	____ / 80	