

The World According to Monsanto

Lesson Plan

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Objective

Help students learn more about genetically modified organisms (GMOs), and the multinational companies that distribute them, so that they can understand the issues involved.

Target audience

Students ages 14 to 20

Connections

Languages
Science and technology

Film needed for lesson plan

The World According to Monsanto (documentary: 109 min 4 s).

Summary

The objective of this lesson plan (*see note 1*) is to help students learn more about genetically modified organisms (GMOs) and the way multinational companies control the distribution of transgenic seeds nationally and internationally. More specifically, it will encourage them to raise questions about Monsanto's monopoly. The company already owns 90% of all GMOs grown around the world. *The World According to Monsanto* will help students think about some of the issues around GMOs and develop their critical thinking on the subject. It will also help them realize that the film director-journalist has taken a stand on the issue. Her intent is to inform people of the dangers involved in letting the company take control of seeds and essentially the global food supply. Students will also be able to discuss the topic with their peers and write articles on GMOs for a special report that could become a class journal for school-wide distribution.

Start and preparatory activity: At the root of GMOs

Approximate duration: 30 minutes

First, explain to your students that you want them to gain a better understanding of the issues around GMOs so they can assess the impact they are currently having on Canadian society. Briefly introduce the film *The World According to Monsanto* directed by journalist Marie-Monique Robin. Tell the students they will have a chance to become journalists and write articles on GMOs for a special report that the class will compile.

Step 1: Before watching the first few minutes of the film, ask your students what they already know about cells, genes, DNA, proteins and GMOs. Write their perceptions of GMOs on a flip-chart size sheet of paper, then guide them toward a general understanding of what genetically modified organisms are (*see note 2*). Once the activities are over, you can take a second look at the students' initial perceptions to allow them to see how much their ideas may have changed as a result of watching the film.

Step 2: Next, watch the film's opening (from the beginning up to about 2 min 5 s) to show them how Marie-Dominique Robin introduces the topic. Ask for their first impressions. More specifically, get them to react to the introduction, using the following questions as a guide:

- What seems to be the intended use of Roundup? What makes the two people in Paris compare the labels on the two bottles and notice the word *biodegradable* on one? Why does one person say to the other jokingly that it is not a good idea to sprinkle Roundup on snails? And why does the other person answer by saying he isn't a murderer?
- What does the American farmer have to say about Roundup? How did he find out about the product?
- What is the director's intention in showing these scenes?

Step 3: Continue watching the film up to the point where Marie-Dominique Robin explains what prompted her to investigate Monsanto and describes the multinational company's main activities (from 2 min 5 s to 4 min 9 s). Lead a discussion as follows:

- Why did journalist Marie-Dominique Robin become interested in Monsanto? What does she have to say about it?
- In your opinion, what role do journalists play in informing the public about something as important as GMOs? How should they do so?
- How does Monsanto present itself to the public? What are the company's two major spheres of activity mentioned by the journalist? (Roundup and global leader in biotechnology)
- What do the images shown during the credits suggest (cow being injected, no entry sign, cotton plant stalks, rat eating from a jar, etc.)?

End the activity by asking your students to find an article during the week (on the Web, in a newspaper or magazine) that deals with GMO crops. Ask them to form writing teams with a maximum of four members each. Explain that they will be working together for the duration of the activities. Distribute the documents provided in the appendix so they can refer to them as needed.

ACTIVITY 1: GMOs and industrial pollution

Approximate duration: 90 minutes

Step 1: Ask the students to divide into their teams and focus on the article they found during the week. They should indicate the source of their article and identify its main idea.

Step 2: Continue watching the documentary (from 4 min 9 s to 44 min 55 s) and get their impressions, using the following questions as a guide:

- What was Monsanto's main area of activity at the time? What products resulted from it?
- How does the journalist show Monsanto's past? What is her reason for showing it?
- Who were the first victims of some of Monsanto's chemical products in the U.S. and elsewhere in the world? How does the journalist report on the situation?
- How were Monsanto's archives made public and what were the consequences for the company, the residents of Anniston and the general public?
- Why was the company found guilty of false advertising concerning Roundup? What effects does this product have on health? How is its toxicity demonstrated in the film? What further insights about Roundup did you gain from this information and these images?
- What is the concept of substantial equivalence? What is its impact on GMOs?
- How did the U.S. government arrive at the decision to refrain from creating a special category for GMOs? Why? Who supported it and who was against it?
- What influence does Monsanto seem to have had on the U.S. government? What additional point is made through the archival images showing former U.S. President George Bush senior visiting Monsanto's greenhouses?
- What was the FDA's reaction to the scientific reports it received?
- The growth hormone was banned in Europe and Canada. In what scandal was Health Canada involved? What evidence did the three scientists include in their testimony before the Senate Committee on Agriculture and Forestry to oppose the sale of the transgenic hormone?
- What do the terms "whistle blowers" and "revolving doors" mean? How does the filmmaker describe them?
- What have you retained about GMOs from the first part of the documentary? How did the filmmaker move the investigation forward? What impact could it have on viewers?

Step 3: Ask the students to divide into their teams to decide on the topic of their article and their angle of approach (*see note 3*). Ask them to write the first draft of their article during the week. Explain that the opening lines are called the *lead* in journalistic jargon. The *lead* is supposed to grab the reader's attention, so considerable thought should be given to it.

ACTIVITY 2: GMOs and Monsanto's scheming

Approximate duration: 90 minutes

Step 1: Ask each team to discuss the preliminary draft of their article and have team members discuss it with one another.

Step 2: Continue watching the documentary (from 44 min 55 s to 1 h 14 min 54 s) and get the students' impressions, using these questions as a guide:

- What is meant by the concept of substantial equivalence? How was it adopted by the U.S. Administration? What is its impact on farming and food?
- What do the experts interviewed in this documentary say about this concept?
- What does James Marienski, the FDA's former head of biotechnology, admit concerning the EMS (eosinophilia-myalgia syndrome) epidemic caused by a genetically engineered amino acid (L-tryptophan) which resulted in the death of 37 people and handicapped 1,000 others? What conclusions can be drawn from this admission?
- Do you think researchers like Arpad Pustzai and Stanley Ewen were fired because of pressure tactics by Monsanto? What led the company to take such action?
- What is the significance of Monsanto's new slogan: food, health, hope. What direction does the company intend to take with this new slogan? What are your feelings about it?
- It is estimated that more than 70% of products in the U.S. are GMOs. Yet laws in the U.S. and Canada do not require labels to indicate that the product has been genetically modified. Europe has such a requirement. What do you think about this?
- Why did Monsanto patent its seeds? How does the patent change farmers' lives? What happens to farmers that the company accuses of using the same Monsanto seeds the year after the first planting?

Ask your students to finish writing their articles during the week.

ACTIVITY 3: Monsanto GMOs invade the South

Approximate length: 90 minutes

Step 1: Ask each team to discuss their articles.

Step 2: Continue watching the documentary (from 1 h 14 min 5 s to the end) and get the students' impressions, using these questions as a guide:

- How did Monsanto manage to set up operations in India?
- Do you think the cotton seeds that Monsanto sells to India, called Bollgard, are well adapted to farming in that country? Why? In what ways do these seeds make farmers dependent on markets?
- Why are Monsanto seeds called “the seeds of death?” What is driving Indian farmers to commit suicide?
- How is it that GMOs can be found in traditional corn crops in Mexico? What explains this contamination? How are farmers reacting?
- How were GMOs introduced into Paraguay? How did the Paraguayan government react?
- Do you think GMO crops can coexist with traditional organic crops? What do the experiences of countries like Brazil, Argentina and Paraguay demonstrate in this regard?
- Seven per cent of the world's farmable land is planted with Monsanto products. Do you believe there is still room for conventional farming?

Step 3: End the activity by getting the students' perceptions of GMOs and the multinational companies that produce transgenic seeds after watching the documentary *The World According to Monsanto*. Compare them to their initial perceptions.

Recap

Suggested duration: 60 minutes

Suggest that the students create a brochure on GMOs.

Reflective sharing

After the activities in this lesson plan, students should be able to:

- Explain what a GMO is;
- Name issues linked to GMOs and multinational companies that produce genetically modified seeds;
- Describe Canada's current stand regarding food labelling.

Notes:

1. This lesson plan was devised for a very varied clientele. You can adapt it to suit the needs of your students and do the suggested activities either in whole or in part.
2. A number of sites provide definitions and descriptions of GMOs. We recommend that your students watch [this video](#), available on the Web. It is an excellent lecture (in French) on GMOs by Christian Velot, a professor of molecular genetics, where he explains various types of GMOs in easily understandable terms. Students will also find useful information in the document [Les biotechnologies et les OGM](#) produced by the professional farmers' union (Union des producteurs agricoles).
3. Your students can get ideas for the point of view they want to take in their article from the document “Suggestions for discussion and writing articles to analyze GMOs from various angles” provided in the appendix. They might also read the “Journalistic procedure for writing an article” (also in the appendix) to ensure they include all relevant information.

Webography

Arte TV

The Arte TV site contains interviews with the filmmaker and a blog.

[Arte – TV](#)

The investigation's official Web site

<http://www.combat-monsanto.co.uk/>

Canadian Food Inspection Agency

It provides information on a variety of topics, including biotechnology, the farm products regulation system and other issues relating to the safety of plants, animal feeds, biofertilizers and other products.

www.inspection.gc.ca

Combat Monsanto

This site is dedicated to global struggle and seeks to give citizens around the world a better picture of Monsanto's true identity.

<http://www.combat-monsanto.co.uk/>

Greenpeace Canada

<http://www.greenpeace.org/canada/en/>

See especially the guide on GMOs in Canadian products:

http://gmoguide.greenpeace.ca/shoppers_guide.pdf

Web site of the Union des producteurs agricoles – UPA (professional farmers' union)

This site provides a reference document from December, 2006 on biotechnologies and GMOs.

[Les biotechnologies et les OGM](#)

Les OGM c'est quoi? (What are GMOs?) Lecture by Christian VELOT, professor of molecular genetics.

<http://video.google.fr/videoplay?docid=2728390780950241633>

Government of Quebec Web site

Provides current information on what is generally and scientifically known about GMOs. See in particular the section: What is a GMO?

http://www.ogm.gouv.qc.ca/info_quoi.html

Monsanto Company Web site

<http://www.monsanto.ca/> et <http://monsanto.fr/>

- **To learn more about the media and media education.**

Crem

<http://www.reseau-crem.qc.ca/>

This site provides tools that teachers, students, and the general public can use in school or at home to work with all types of media productions with a critical eye.

Le chemin de l'information in PDF

<http://www.reseau-crem.qc.ca/medias/medias.pdf>

This image-rich interactive document provides information about what media are and various aspects of the journalist's trade.

Bibliography

ROBIN, Marie-Dominique. *Le monde selon Monsanto*. Éditions Stanké, 2008, 377 p.

Appendix

Suggestions for discussion and writing articles to analyze GMOs from various angles

Biodiversity

What is meant by biodiversity? How might GMO seeds be a threat to biodiversity?

Economic

What does the GMO sector represent for a company like Monsanto? How was this multinational company able to build such an empire and what economic repercussions could result from this monopoly?

Environmental

What are the environmental impacts of transgenic crops and Roundup Ready pesticide on farming and on food? How can Monsanto seeds pose a threat to biodiversity?

Political

What is the Canadian government's stand regarding GMOs? How might the revolving door phenomenon described in the film occur in other countries?

Legal

Do you believe that GMO labelling should be made mandatory by law? What is the impact of the concept of substantial equivalence on food product regulations and identification? How does patenting change the way farmers operate?

Food industry

What foods are likely to contain GMOs? How are Canadian consumers informed about them? Is the situation the same elsewhere in the world?

Media

How should the media inform the public about GMOs? What responsibility do journalists have in informing us about GMOs? And what is the responsibility of GMO owners?

Scientific

How are GMOs made? What procedures have been set up for testing GMO food products in Canada?

Food safety

What relation do GMOs have with food? What should consumers be watching for? How can GMOs make their way into the food consumers eat?

Social

What are the possible effects of GMOs on people's health? What is Health Canada's stand regarding GMOs? What place should learning about GMOs have in Canada's education programs?

Note-taking during the screening of the documentary

Point of view, facts expressed	By whom? (person interviewed and his/her role)	Link with GMOs

Journalistic procedure for writing an article

Choose the information you want to present. The information is intended to answer a question or address a concern you have about the topic. Next, fill in this chart to answer the six basic questions journalists usually ask to get an overall view of the topic they are examining.

		Description
Who?	Person, event, fact	
What?	What is happening, action	
Where?	Place where the action is happening	
When?	Time	
How?	Means and ways	
Why?	Reasons, motives	