

EDUCATIONAL CARD on genetically modified organisms (GMO)

 **A** Read carefully the following text.

Genetically Modified Organisms

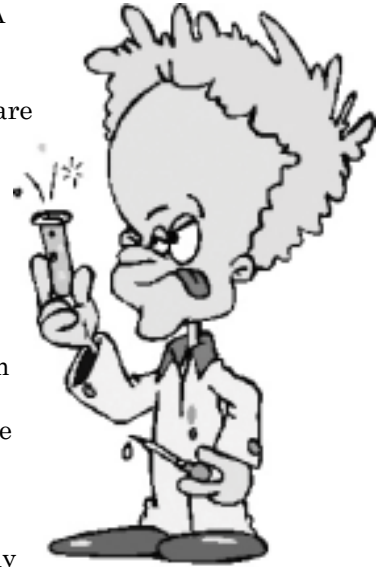
Is there one of us that has never eaten food containing genetically modified organisms? In North America, GMOs are rapidly drowning the market. About 60% of the food we buy in supermarkets contains traces or a certain quantity of GMOs. In 2000, roughly 45 million hectares were used to grow transgenic food, the USA represent 68% of this total, Argentina is second with 23% and Canada comes in with 7%. The most popular transgenic cultures are corn and soy, cotton and potatoes are far behind. Presently, some American multinational working in the fields of biotechnology are sharing the lucrative business of GMOs.


Using transgenic manipulation (modification of the genetic code), scientist can produce plants that would otherwise not exist naturally. Some characteristics of genetically modified plants are: they become weed-killer resistant, they produce pesticides and they rot less rapidly (ex: tomatoes).

Even animals, such as porks and salmons, are injected with growth genes to bring them to maturity more quickly. Some sheeps underwent genetic modifications in order to produce a protein used in the treatment of certain diseases. Also, most of the animals we eat are fed with food containing GMOs, such as corn.

Already, we are seeing a revolution in our agricultlure and in our diet. However, the production and the sale of GMO are still a controversial subject and are not unanimously accepted in the scientific community and amongst consumers. On a worldwide scale, GMOs are the cause of many debates. Are these biothechnological advancements a risk for humans and ecosstems? Some only see the advantages of these products. However, many countries, especially in Europe, prefer to stay cautious and demand producers to mark their products with the appropriate stamp if they contain any GMO.

Whatever the issue, citizens have a key role to play in this debate by informing themselves and demonstrating their positions to their political deputies.



 **B** After reading this text, what is your opinion on the following questions?

1. Knowing that you eat unconsciously or consciously genetically modified organisms everyday, how do you react?

2. In which part of the world are most of the GMOs grown?

3. Would you be in favour of labelling all GMO? Justify your answer.

4. According to you, are there any advantages to the production of GMO? Give some examples.

5. Write down some risks related to the production of GMO.

Did you know that...

• There is a law amongst the European union countries stating that any food containing more than 0.9% GMO must be labelled as so.

• The Cartagena Protocol on the prevention of biotechnological risks was adopted in 2003. The signatory countries of the Protocol are obliged to provide a necessary protection on the transfer, the manipulation and the safe usage of GMO.

• At present, there is no way of evaluating the long-term effects that GMO could have on your health.

• Certain groups of people opposed to GMO, call them Frankenstein Food.

• The environmentalist group Greenpeace has published a guide dividing up food in two categories: with and without GMO.

Note these facts





D Link the sentences in the left column with the proper one in the right to complete the arguments.

1. The spreading of GMO in the ecosystems due to the wind and the spreading of pollen by bees will...
2. Transgenic agriculture could allow populations in poor countries to feed themselves because...
3. Hunger worldwide could be completely solved without the help of GMO because...
4. Some transgenic vegetables enriched with nutritional elements...
5. The new genetic techniques allow farmers...
6. Produced to kill harmful insects, some pesticides applied on resistant transgenic plant...
7. Transgenic processes can accidentally produce...
8. Many security questions are left unanswered and that is why...

- a) ...genetically modified plants could grow on poor, dry and acid soils.
- b) ...could help fight against cancer and heart conditions.
- c) ...to use less chemical products and to produce healthier products at a lower price.
- d) ...harmful chemical substances hard to detect or allergic reactions to some consumers.
- e) ...could harm harmless insects such as the monarch butterflies and in time lead to extinction.
- f) ...more independent tests are required to understand the effects of GMO on our health.
- g) ...the problem is not the quantity of food produced for all but rather the fair distribution of resources amongst population in need.
- h) ...create a genetic pollution hard to control, if not impossible to control.



E Using the answers in the exercise above, determine if the arguments found are against (A) or for (F) genetically modified organisms.

Against (A) or For (F)?

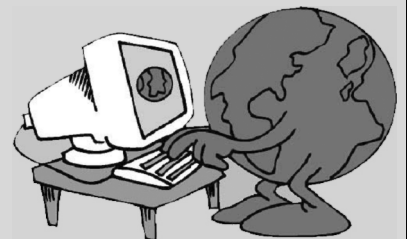
1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____



F Prepare and execute a debate on the problematic of GMO. Ask your teachers for the details of the preparation.

Don't hesitate to browse through the following references to learn more about GMO.

- <http://www.greenpeace.ca/e/campaign/gmo/>
- <http://www.fao.org/ag/default.htm>
- http://www.who.int/topics/food_genetically_modified/en/



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