

## Organic Foods Lesson Plan for High School Students

**Learning Objectives:** The goal of this lesson is to teach students what genetically modified foods (GMO's) are; determine which foods are genetically modified; determine how they compare to organic foods, and weigh their positive and negative impacts on health and the environment.

### Materials Needed:

- Handout copies of [Medline Plus: Genetically Modified Foods](#) and [WebMD's "Are Biotech Foods Safe to Eat?"](#)

### Procedure:

1. Have students define what organic foods are. Ask if they know what genetically modified foods are. Discuss both of these terms and come up with a classroom definition.

**Organic Foods:** Foods grown and processed using all-natural, organic farming and manufacturing methods. Organic foods are grown and processed without synthetic pesticides, growth hormones, antibiotics, chemical fertilizers, bioengineering or ionic radiation.

**Genetically Modified Foods (GMO's):** GMO's are foods or plants that have had their DNA genetically engineered or modified in a laboratory to make them resistant to disease and pests.

- [USDA Organic Foods Definition](#)
- [USDA What Are GMO's?](#)

2. Have students read both classroom handouts and perform additional online research if time allows.

3. Discuss and list why genetically modified foods were created:

- To feed more people
- To make foods more resistant to disease and harmful organisms
- To make food cost effective
- To give food a longer shelf life

4. Divide the classroom into two groups -- one group will focus on genetically modified foods and the other on organic foods. Divide each of these groups into two smaller groups so that there are two groups for each type of food.

5. Have one of the genetically modified foods small groups research and write out how genetically food is produced and what the pros and cons are. Have the other genetically modified foods small group research and list the foods they believe are genetically modified and determine the most commonly found genetically modified foods. Do the same procedure with

the organic food groups. Make sure students not only focus on grain and produce crops but also the animals that eat these foods and later enter the food supply.

- **GMO pros** are feeding larger numbers of people, resistant to pests and diseases, longer shelf life, and they are cost effective.
- **GMO cons** include causing adverse health reactions, may trigger new allergic reactions in some people, may create antibiotic-resistant bacteria, and they could potentially adversely impact ecosystems.
- **Common GMO foods and ingredients** include corn, potatoes, walnuts, soybeans, dairy products, some fruits and vegetables, rice and canola oil. These ingredients are found in thousands upon thousands of processed foods including cereals, candy, snack foods, baked goods, artificial sweeteners and condiments.
- **Pros of organic foods** include having no adverse health effects, they are grown naturally without chemicals, antibiotics or growth hormones, they are safe for wildlife and the environment, and they may have higher nutritional value than foods grown with pesticides.
- **Some cons of organic foods** are they are more expensive to grow and process, more susceptible to disease and pests, more expensive to buy, and have limited availability.

6. If possible, plan a trip to your local grocery store. If a trip to the grocery store isn't possible, have students look through foods at home. Have the students who researched genetically modified foods find and list as many GMO foods as possible and their nutrition values. Have the students who researched organic foods do the same for organic foods. When students return to the classroom, have them discuss the following:

- Because GMO labeling is not required by law, is it difficult to figure out which foods are genetically modified?
- Are GMO foods cheaper and more abundant?
- What are the most common types of GMO and organic foods?
- Is there an obvious nutritional difference in GMO and organic foods?
- Do students feel GMO's should undergo the same labeling standards as organic foods?

7. End the lesson by having students debate and determine if GMO's or organic foods are best. If they conclude that eating organic foods is best, have them identify easy ways they can spread the word about the benefits of eating organic foods and educate others about GMO labeling.