UNIT 3 TECHNOLOGY

3.1 Advantages and disadvantages of technology

Work with your partner and discuss the questions
- What are the three items of technology you use most often?
- How important is technology for you?

Work in small groups. Do you agree with the following statements?
- People rely too much on technology nowadays.
- Technology can solve all the world's problems.
- Technology often lead to social and environmental problems.
- Technology does not make people's life better.
- The amount of technology in developed countries has a negative influence.

3.2 GMOs

What is genetically modified food?
Why do many people avoid buying it?
What is your opinion about genetically modified food?
Do you buy genetically modified products? Why?
What are the advantages and disadvantages of GMP?
Read the text and find answer to some of the questions.
Do you know what's in your food? Chances it's been genetically modified are up to 80% of processed foods in the U.S. But what does that mean, and what's all the fuss about GMOs these days?
"Like it or not, genetically modified foods are almost impossible to avoid," says Sheldon Krimsky, PhD, an professor of public health and community medicine at Tufts Medical School in Boston.
Unless you eat only fresh, unprocessed foods that are marked as non-GMO or certified organic, you're probably eating food that has been genetically modified. Is that a bad thing? It depends on who you ask.

What's a GMO?

Genetically modified organisms (GMOs) may sound more like something out of Star Trek rather than anything you'd expect to find on your dinner plate. They are plants that have been changed by scientists. But they aren't something new. They've been sold since 1994.
Want apples that won't brown when you slice them? Potatoes that don't get bruises from farm to table? The FDA has approved genetically modified versions of these foods that can do that.
People who are pro-GMO say they help farmers grow better crops faster. That means more, and cheaper, food for us.
But people on the other side of the GMO debate worry about their safety. They ask, "Do we know whether eating them over the long run can hurt people?"

How GMOs Are Made

Here's how it works. Scientists take a plant. They change the plant by adding DNA from another plant, bacteria, or virus to it. DNA is what gives everything its special characteristics. So in this way, the original plant now has new qualities. The changes can make them more resistant to disease, bugs, or drought. It can give them other qualities too, like those that affect their taste or shelf life.

How is that different from the way we've improved crops for centuries? One big difference is that genetic modification speeds up the process.

Where it might take years to raise several generations of plants outside in fields to get all the right traits, inside, scientist can grow several generations in one year. Conditions are perfect in the lab. They don't need to wait for the seasons to change.

Genetic modification has made plants with extra vitamins, minerals, and other benefits. Swiss researchers created a strain of "golden" rice with a lot of betacarotene.

This antioxidant is good for the eyes and skin. And those bruise-free potatoes are supposed to cut down on cancer-causing chemicals created when potatoes are fried.

What's another benefit of using science to build better plants, according to people who are pro-GMO? You can combine plants that could never mate in the wild. An example of this is "Roundup Ready" corn. It can survive being sprayed by the weed killer. It is made of DNA from a few different types of plants. Because of this, farmers can treat their entire field instead of just targeting weeds. Weeds die, but the corn is OK.

Are GMO Foods Safe?

Industry and health leaders cite hundreds of studies to support the safety of GMOs. That includes 20 years of studies in animals that have eaten modified food. But experts like Krimsky say nearly two dozen studies show bad effects, like harm to the kidneys, liver, heart, and other organs. He says they should carry more weight as people judge the pros and cons.

People who are against GMOs do not like that Roundup Ready corn is sprayed with toxic chemicals. Even though the corn can survive, they worry about how it might affect people or animals that eat it.

An agency of the World Health Organization has classified the main chemical used in Roundup as a "probable carcinogen." That means they think it probably increases the risk of cancer.

Monsanto, the maker of Roundup, disagrees and stands by the safety of its corn and GMO foods. The company is responsible for a lot of the world's genetically modified crops.

"They're the most thoroughly tested food on the market," says Dan Goldstein, MD, senior science fellow at Monsanto.

How Can I Tell If My Food Has Been Genetically Modified?

China, Australia, and the European Union require GMO foods to be labeled. The U.S. does not.

If you choose organic foods, you may be able to avoid GMOs. You can also look for foods that are labeled as non-GMO. The makers of these foods volunteer to tag them, but that isn't regulated by the government, so they may or may not be right.

More Pros and Cons

So are you good with GMOs? To make your decision, consider these other things.

The Pros

More food: Fans of GMOs say they will help us feed the extra 2 billion people that will fill the planet by 2050. Farmers can grow more food because these plants can live through a drought or cold snap. They aren't as likely to die from disease.

"Not using these tools would push us back 40 to 50 years in food production," Bradford says.

Less stress on the environment: Crops made so bugs won't like them lower farmers' need for toxic chemical pesticides, Goldstein says. Plants that resist weeds can live in fields that don't have to be tilled as often. Tilling, or stirring up the dirt, gets rid of weeds, but it also causes dirt to be washed away into streams and rivers.

The Cons

More medical problems: Opponents say that besides possibly leading to cancer, GMOs can cause new allergies and hurt the effects of antibiotics. But no studies confirm this.

The rise of "superweeds": Crops built to survive weed killer could breed with weeds. These "superweeds" would also survive. Farmers would have to use more and more and stronger pesticide to keep up.

Inventing new weed killers is hard and expensive. Plus, people worry about the safety of new chemicals that haven't been tested as much as older ones. On the other hand, people say this is nothing new.

Where Can You Find Non-Genetically Modified Food?

The movement to have non-modified food options is picking up some traction. Some food companies voluntarily label their foods as non-GMO. At least one fast food chain has pledged to take genetically modified foods off their menu. And at least one grocery store chain is working to label possible GMO foods in the coming years.

Group work 1:

Make two groups. One group will be in favor of GM product, another group will be against it. Collect arguments in favor of each opinion and be ready for the cross discussion.

Group work 2:
Read the quotation: *The rapid tempo of technology development has improved our lives.*

Group 1: for the quotation
Group 2: against the quotation

Collect arguments in favor of each opinion and be ready for the cross discussion. These ideas can help each group

- People learn new skills
- There are more advances in medical treatment
- Housework is more convenient
- Communication is easier
- Technology can lead to future improvements in pollution
- Most people have a higher standard of living
- People lose their job
- People basically do not like change
- Medical advances only help rich people
- Technology can lead to more pollution
- People cannot communicate as well as before
- People may become richer, but not happier