**[Biotechnology](http://www.ncbiotech.org/biotech-basics/what-is-biotechnology)**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = the use of organisms and living systems to develop or make products that are useful to humans.

The foundation of biotechnology is based in our understanding of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_.

Three main topics in biotechnology:

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. *Faster Diagnosis*

Biotechnology has made it possible to diagnose strep throat in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, rather than \_\_\_\_\_\_\_\_\_\_\_.

1. *New Treatments*

Biotechnology delivered the first new treatment for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and the first new therapy for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. In the future, defective genes or damaged cells may be repaired or replaced through the use of biotechnology.

1. *Better Prevention*

New vaccines help prevent hepatitis, meningitis, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. **FEEDING THE WORLD**
2. *Hardier Crops*

Innovative biotechnology solutions are creating crops that are more resistant to insects, diseases, and harsh weather, increasing U.S. farm income by more than \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a year.

1. *Healthier Animals*

In the future, it may be possible to breed animals naturally resistant to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. *Better Food*

Biotechnology can make food safer by reducing naturally-occurring \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, as well as enhancing nutrient content and flavor.

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Improved crops through biotechnology helps farmers remain profitable while preventing deforestation.

1. **FUELING THE FUTURE**
2. *New Fuels*

New "designer" enzymes from biotechnology labs are being used to manufacture \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Using renewable resources such as \_\_\_\_\_\_\_\_or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce a cleaner fuel is a win-win benefit for the environment.

1. *New Materials*

Researchers have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_cells so that they can use plant sugars instead of petroleum-based chemicals to create biodegradable plastics and polyesters.

1. *Clean Water Air & Soil*

Plants and bacteria can be used to safely clean up oil spills and remove \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and other \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_from our air, water, and soil.

1. **GROWING THE ECONOMY**
2. *Economic Impact juicy j*

According to a report from the Battelle Institute, North Carolina biotechnology industry's total impact is:

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ jobs
* $\_\_\_\_\_\_\_\_\_ billion in North Carolina business volume
* $\_\_\_\_\_\_\_\_\_ billion in taxes generated for state and local government
* A thriving industry with more than \_\_\_\_\_\_\_\_\_\_\_ companies

## https://www.ncbiotech.org/sites/default/files/pages/2013%20Battelle%20graph_0.png

Transcript.

**Transcript of Biotechnology**

Biotechnology
"a toolbox that solves problems"
Feeding the World
Fueling the Future
**What is biotechnology?**

Fighting Disease
Sustainable agriculture combines different methods to make agriculture both profitable and environmentally sound.
New "designer" enzymes from biotechnology labs are being used to manufacture bioethanol, a non-polluting fuel made from plant material that can be used in place of gasoline. Using renewable resources such as corn or agricultural waste to produce a cleaner fuel is a win-win benefit for the environment.
Biotechnology = the use of organisms and living systems to develop or make products that are useful to humans.

We use biotechnology to grow our food to feed our families. We use biotechnology to make medicines and vaccines to fight diseases. And we are now turning to biotechnology to find alternatives to fossil-based fuels for a cleaner, healthier planet.

Biotechnology has made it possible to diagnose strep throat in minutes, rather than days. Some types of cancer can now be diagnosed with a simple blood test, rather than surgery.

Biotechnology delivered the first new treatment for multiple sclerosis & the first new therapy for cystic fibrosis through stem cell research. In the future, defective genes or damaged cells may be repaired or replaced through the use of biotechnology.

New vaccines help prevent hepatitis, meningitis, and influenza. New vaccines in food may eliminate the need for a trip to the doctor and a shot.

**"Biotech"**

Innovative biotechnology solutions are creating crops that are more resistant to insects, diseases, and harsh weather, increasing U.S. farm income by more than $1.5 billion a year.
Biotechnology-engineered vaccines are available for parasites and infectious diseases. In the future, it may be possible to breed animals naturally resistant to parasites and disease.

One of the first biotechnology foods was a tomato that could ripen on the vine for better flavor and still remain firm for shipping.

Biotechnology can make food safer by reducing naturally-occurring toxins and allergens, as well as enhancing nutrient content and flavor.
Helping Farmers Prosper
Better Food
Healthier Animals
Better Prevention
New Treatments
Faster Diagnosis
Hardier Crops

By helping farmers get more out of their existing farmland through improved crops biotechnology helps farmers remain profitable while preventing deforestation.

New Fuels

New Materials

Researchers have genetically engineered cells so that they can use plant sugars instead of petroleum-based chemicals to create biodegradable plastics and polyesters. "Green plastics" made from corn are being used to manufacture packaging materials, clothing, and bedding.
Water Air & Soil

Plants and bacteria can be used to safely clean up oil spills and remove toxic chemicals and other pollutants from our air, water, and soil.
**Biotechnology is grounded in the pure biological sciences of genetics, microbiology, animal cell cultures, molecular biology, embryology and cell biology.**
**The foundation of biotechnology is based in our understanding of cells, proteins and genes.**
**Biotechnology is not just one technology, but many, including:
A new way to cure cancer
Plastic from corn instead of petroleum
Microorganisms that clean up oil spills
Drought-resistant crops
Stem cell research**

Growing the Economy
Economic Impact
North Carolina biotechnology industry's total impact is:

237,665 jobs
$59 billion in North Carolina business volume
$1.73 billion in taxes generated for state and local government
A thriving industry with more than 500 companies