



Activity  
**2**

# FARM BIOLOGY

**Farms are the first biotech labs.** Since ancient times, farmers have used selective breeding to develop nearly all the foods we eat today. In the 21st century, farmers, with the help of scientists, can transfer specific genes from one organism to another using a process called *genetic engineering*.

The chart below compares these two ways to improving our food supply. Discuss the chart with your class and then use the space below and the back of the sheet to write a paragraph comparing and contrasting both methods.



Selective Breeding	Genetic Engineering
Choose parents with traits you want. These will be passed on to the offspring.	Add the gene for the trait you want into the DNA of the organism so it can be passed on to the offspring.
<b>Examples</b>	<b>Examples</b>
<p><b>1.</b> Disease-resistant wheat is created by breeding hardy wheat plants with wheat plants that have a high yield.</p> <p><b>2.</b> Milk protein is improved by breeding dairy cows to bulls that have high levels of protein production.</p> <p><b>3.</b> Hardy snacking apples are created when a sweet variety of apple is grafted onto the trunk of a fungus-resistant variety. This gives the benefit of higher-producing sweet apple trees that are fungus-resistant.</p>	<p><b>1.</b> Scientists have created pesticide-resistant soybeans by adding a bacteria gene to soybean DNA.</p> <p><b>2.</b> Scientists have created a salmon that grows faster while eating less food by adding a gene from Chinook Salmon to Atlantic Salmon DNA. The result is the first genetically engineered animal food product, currently available in Canada.</p> <p><b>3.</b> When scientists added the genes that produce Vitamin A in carrots to white rice DNA, they created “golden rice” — a food rich in Vitamin A for countries where Vitamin A deficiency causes childhood blindness.</p>
Similarities:	
Differences:	

Use this space or the back of this sheet to write a compare/contrast paragraph on these two methods of genetic modification.

