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**SYNOPSIS:**

This program delves deep into living cells to reveal one of life's most intriguing secrets, DNA, the basic set of chemical instructions that controls our unique size, shape and other biological characteristics. Learn how its discovery led to a new scientific field called biotechnology and see how researchers are using their knowledge of nature's "blueprints" to genetically engineer changes in living organisms to help them live healthier, longer and more productive lives.

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**CURRICULUM UNITS:**

Biology  
Biotechnology  
Genetics  
General Science  
Health & Medicine  
Life Science

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**CAREER OPPORTUNITIES:**

Animal Breeder  
Biochemist  
Biologist  
Biotechnologist  
Botanist  
Entomologist  
Genetic Engineer  
Laboratory Technician  
Immunologist

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**PROGRAM OVERVIEW:**

This program introduces students to the fascinating field of science called Biotechnology, which is based on our understanding of how the DNA and GENES within cells serve as "blueprints" to guide the growth and development of organisms.

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**ISSUES & CRITICAL THINKING:**

After showing the program, ask your students the following questions:

- 1) What substance within our cells determines that a person becomes a person instead of a tomato or other organism?
- 2) What is the name for the smaller portions of the DNA chain that hold the codes for how we look and how we develop?
- 3) Why may we resemble our biological parents or other relatives?
- 4) What is the name of the field of science that uses scientific principles and methods to change organisms by changing the instructions in their genes?

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**GLOSSARY:**

**BIOTECHNOLOGY-** A field of science that uses various methods such as genetic engineering to change or improve organisms and the products we get from them.

**CROSS-POLLINATION-** Fertilizing the flower of one plant with the pollen from the flower of another plant.

**DNA-** A substance within each living cell that holds the plan for how that life form will develop.

**GENES-** Small segments of DNA that hold the codes for traits such as eye and hair color.

**GENETIC ENGINEERING-** A method of biotechnology used to alter the characteristics of organisms by introducing DNA from other life forms into their cells to change the instructions in their genes.

**INHERIT-** To receive genetic traits from ancestors.

**ORGANISM-** A living individual that can metabolize, grow, respond to stimuli and reproduce.

**TRAITS-** Characteristics.

The Wonders of Technology,  
Genetic Engineering,  
Biotechnology



Show Me Science

BIOTECHNOLOGY: DECODING  
NATURE'S SECRET



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