Name_____ Class_____ Date_____

CHAPTER 34 SECTION 5

Note Taking Study Guide

ADVANCES IN SCIENCE AND TECHNOLOGY

Focus Question: How have advances in science and technology shaped the modern world?

As you read this section in your textbook, complete the chart below to compare the impacts of modern science and technology.

Important Science and Technology	
Medicine and Biotechnology	• • • • • • •
Computers	• • • • • •
Space Science	• • • • • •

Name_____ Class_____ Date_____

CHAPTER 34 SECTION 5

Section Summary

ADVANCES IN SCIENCE AND TECHNOLOGY

READING CHECK

What is biotechnology?

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Since 1945, scientific research and technological developments have transformed human existence. One example is the exploration of space. During the Cold War, the United States and the Soviet Union competed in a "space race." This began in 1957 when the Soviet Union launched *Sputnik,* the first **artificial satellite.** By 1969, the United States had landed the first human on the moon. Both superpowers explored military uses of space and sent spy satellites to orbit Earth.

However, since the end of the Cold War, nations have worked in space together. For example, several countries are involved in the **International Space Station (ISS).** Thousands of artificial satellites belonging to many countries now orbit Earth. They are used for communication, observation, and navigation.

VOCABULARY STRATEGY

What does the word *manipulation* mean in the underlined sentence? It comes from the Latin word *manus,* meaning "hand." Use this word-origins clue to help you figure out the meaning of the word *manipulation.*

Another important technological development is the invention of the computer. It has led to the "Information Age." **Personal computers**, or **PCs**, have replaced typewriters and account books in homes and businesses. Factories now use computerized robots, and computers remotely control satellites and probes in space. The **Internet** links computer systems worldwide and allows people to communicate instantly around the globe. It also allows people to access vast storehouses of information that were unavailable before.

Other important developments have occurred in medicine and **biotechnology**—the application of biological research to industry, engineering, and technology. Vaccines have been developed that help prevent the spread of diseases. In the 1970s, surgeons learned to transplant human organs. **Lasers** have made many types of surgery safer and more precise. Computers and other technologies have helped doctors diagnose and treat diseases. The fields of genetics and genetic engineering have made dramatic advances. **Genetics** is the study of genes and heredity. **Genetic engineering** is the manipulation of genetic material to produce specific results. Genetic research has produced new drug therapies to fight human diseases and has created new strains of disease-resistant fruits and vegetables. Genetic cloning has many practical applications in raising livestock and in research. However, cloning raises ethical questions about the role of science in creating and changing life.

READING SKILL

Compare How have people benefited from advances in science and technology since the space race began?

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Review Questions

1. What are the three uses of artificial satellites?

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2. Why is cloning controversial?

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