Name _____ ANSWER KEY _____ Date _____

Digital vs. Analog Signals

Keep going! Read the text, and then answer the questions that follow.

Because digital signals only contain noncontinuous digits, like ones and zeros, they are transmitted as short pulses and can be easily corrected to remove noise. This makes digital signals ideal for transmitting signals over long distances.

Digital technology has transformed our world in many ways. Just think about how many hundreds of songs you can store on a cell phone, which is the size of your hand, versus how much space it would require to store the equivalent amount of music on vinyl records! In the medical field, the transition from hard-copy to digital medical records makes it possible to store vast amounts of patient data in a small amount of space for easy retrieval and to send a patient's medical records from doctor to doctor in a matter of seconds. Additionally, digital technology is generally more secure than analog. Medical records, cell phone messages, and other forms of digital information can be *encrypted* before transmission, meaning that the information is scrambled as it travels so that only the intended recipient gets to see it.

How different would modern life be without digital signals?

Based on the reading, answer the questions below. Sample answers

1. What is the difference between analog and digital signals?

An analog signal is an analogy of something that you convey with continuous data. A digital signal is a signal that represents continuous data as a series of noncontinuous digits, like zero and one.

2. Explain how analog signals can be converted to digital signals.

To convert an analog signal to a digital signal, data points from the continuous data set are sampled. Each point is assigned a number. These numbers are then translated into a digital code of noncontinuous digits.

3. Why are digital signals a more reliable and secure way to encode and transmit information than analog signals?

Digital signals are ideal for transmitting over long distances because, unlike analog signals, they can be easily corrected to remove noise. Digital signals also make it possible to store vast amounts of data in a small amount of space for easy retrieval. Digital signals are generally more secure than analog because they can be encrypted.

4. Name two types of technology that use analog signals and two that use digital signals.

Analog Technology	Digital Technology
1. Record player	1. Music streaming service
2. Radio	2. Cell phone