



Name _____

Period _____

Date _____

SECTION
28.2

MECHANISMS OF HOMEOSTASIS
Reinforcement

KEY CONCEPT Homeostasis is the regulation and maintenance of the internal environment.

Conditions within the body must remain within the narrow limits that support life. These conditions include fluid balance, internal body temperature, levels of trace minerals, and so on. **Homeostasis** is the regulation and maintenance of the internal environment. The body has many control systems that keep its internal environment stable. Control systems are composed of four parts.

- Sensors gather information about internal and external conditions. For example, sensors in the skin gather information about air temperature.
- A control center receives information from the sensors, compares it to set points, or ideal values, and responds by sending messages through a communication system.
- The nervous and endocrine systems act as communication systems. Nerve impulses or hormones are messages sent to targets throughout the body.
- Targets are organs, tissues, or cells that respond to messages.

The parts of a control system work together in what is known as a feedback loop. **Feedback** is information from sensors that allows a control center to compare current conditions to a set of ideal values. **Negative feedback** loops counteract any change that moves conditions above or below a set point. For instance, if your fluid balance falls below a set point, your brain sends signals that cause you to drink more. **Positive feedback** loops increase change away from set points. In an emergency, for example, adrenaline pours into your system to give you more strength until the emergency is over.

1. What is homeostasis?

2. Name the four parts of a control system.

3. Your stomach is growling in hunger. Is this signal part of a positive or negative feedback loop? Explain.

4. A friend tells you that people can hold their breath until they die. Use your knowledge of homeostasis and control systems to explain why this is highly unlikely to happen.

