

# Homeostasis and Feedback Loops

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Homeostasis:** The process by which organisms maintain a stable internal environment.

**Negative Feedback:** Works against a change to return a system to a set point.

**Positive Feedback:** Amplifies changes until a specific event is reached.

## Things to Remember:

- Organisms can only live within certain environmental conditions.
- Feedback loops help maintain homeostasis.
- Negative feedback works against the change, positive feedback reinforces the change.

1. If you feel cold, your body might start shivering to produce heat.

**Type of Feedback:** \_\_\_\_\_

**Reason:** \_\_\_\_\_

2. During childbirth, contractions push the baby's head into the cervix. This pressure triggers more contractions.

**Type of Feedback:** \_\_\_\_\_

**Reason:** \_\_\_\_\_

3. Choose the correct answer: Homeostasis is important because:

- A. organisms can live in any environment.
- B. it allows organisms to adapt to any change instantly.
- C. it helps maintain a stable internal environment.
- D. it's the same as metabolism.

4. Fill in the blanks:

- (a) The main goal of homeostasis is to maintain a \_\_\_\_\_ internal environment.
- (b) When your body heats up, it starts to produce sweat. When the sweat evaporates, it cools down the body. This is an example of \_\_\_\_\_ feedback.

5. Match the words in the left column to their correct meaning on the right.

Homeostasis

Enhances changes until a specific endpoint

Negative Feedback

Opposes changes to return to a set point

Positive Feedback

Maintaining a stable internal environment

6. When you exercise, your muscles need more oxygen. They get oxygen from the blood, which is pumped by the heart. Oxygen enters your blood through your lungs when you breathe. Describe what happens to your body when you exercise and how this relates to homeostasis.
7. When we eat food, our blood has more sugar. A part of our body called the pancreas helps deal with this sugar to maintain acceptable blood sugar levels. It releases insulin which tells cells to take in more sugar and reduce the sugar in the blood. What type of feedback loop is this? Explain.
8. All living things, including plants and animals, rely on certain conditions in their surroundings to stay healthy. As the temperature increases, humans can sweat to reduce their body temperature. But temperature across the world are increasing due to global warming. How might this be a challenge for humans? What do you think would happen if you can't sweat enough?