

Living Earth: Week 3 Assignments → 4/20 – 4/24

Summary from previous work: Even though your cells have different shapes and jobs, they all have the exact same DNA. Once a cell has differentiated, it is stuck doing only one job and cannot take on another job (for example, a lung cell cannot decided to change jobs and become a liver cell).

Your body cells are organized into different levels: cells → tissues → organs → organ systems → individual. Each organ system depends on each other. If one organ system stops functioning or is damaged, the other systems suffer and the organism could die.

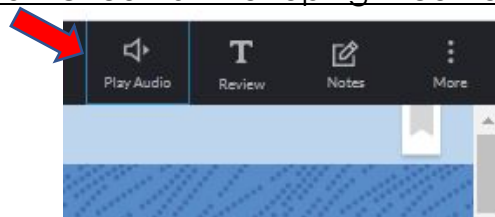
Big Ideas We'll Be Discussing: Homeostasis and Feedback

- While cells, tissues, and organs may perform very different functions, all the cells in the body are similar in their metabolic needs. Maintaining a constant internal environment by providing the cells with what they need to survive (oxygen, nutrients, and removal of waste) is necessary for the well-being of both individual cells and the entire body. The many processes by which the body controls its internal environment are called **homeostasis**. The function of major body systems is what keeps homeostasis.
- Homeostasis is an important characteristic of all living things. Keeping a stable internal environment requires constant adjustments as conditions change inside and outside the cell. The adjusting of systems is done by **feedback loops**. Because the internal and external environments of a cell are constantly changing, adjustments must be made continuously to stay at or near the set point (the normal level or range).
- Feedback occurs when the response to a stimulus has some kind of effect on the original stimulus. The type of response determines what the feedback is called. **Negative feedback** occurs when the response to a stimulus reduces the original stimulus. **Positive feedback** occurs when the response to a stimulus increases the original stimulus.

Assignment #1: Mechanisms of Homeostasis

1. Log into the HMH Textbook via Clever (login instructions on my website)
2. On the top tab bar in the middle is "Assignments"...click on that.
3. Click on "Student EBook: Explore/Explain 1: Control Systems in Organisms"
4. Read and click/watch the interactives. (I suggest you have the "quiz" open and complete it as you are reading. It will make things go more quickly)
 - a. Please skip the Model, Hands on Activity (Modeling Feedback), and Evidence Notebook.

Get the **text read to you by clicking** the PLAY AUDIO icon at the top right corner



5. As you are reading the textbook, please complete these the "Week 3: Assignment 1" questions:

https://forms.office.com/Pages/ResponsePage.aspx?id=bsSeXYwVl0uXor1txqc9H02SV_cSVJDowk8BQeYaexURUdINDhSTkw5VUdaTVNDOTFFMkFGRU9XRi4u

✓ **Assignment #2:** Feedback Loops

These videos do a great job of explaining what homeostasis is and what the difference is between positive vs negative feedback loops.

1. Watch **Amoeba Sisters Video** on YouTube "Homeostasis and Negative/Positive Feedback"
<https://www.youtube.com/watch?v=Iz0Q9nTZCw4> **6:24 min video**
2. Watch the **GCSE Biology Video** on YouTube titled "Control of Blood Glucose Concentration"
<https://www.youtube.com/watch?v=OhrX3X3LGzI&t=110s> **4:33 min video**
3. **As you are watching both videos,** take the **Week 3: Assignment #2 Video questions:**
https://forms.office.com/Pages/ResponsePage.aspx?id=bsSeXYwVl0uXor1txqc9It02SV_cSVJDowk8BQeYaexUMIdGWlc4S0NFWDBLRidKSTFHwUxXV0pYNy4u

✓ **Assignment #3:** Diabetes Feedback Loop

This assignment is applying concepts from the first two assignments in a real example of homeostasis and feedback loops. Diabetes is a disease that occurs in people that don't produce enough insulin (a hormone that helps keep sugar levels in our blood balanced so we don't overdose and die from sugar).

1. Complete the **Assignment linked below:**

https://forms.office.com/Pages/ResponsePage.aspx?id=bsSeXYwVl0uXor1txqc9It02SV_cSVJDowk8BQeYaexUQUZRWIk2SVRaRVVWM1M5QThWOVFRM05KNi4u

That's it for this week! Email, text, or join our Zoom if you have any questions!

Mrs. Horton