

2027-01-29 · 80 minutes

Wk2 Lab notebook: Anatomy vs physiology, homeostasis

Your goal: Distinguish body structure from function and label a warming-response model with five stages.

One product: A dated temperature-feedback diagram with five labels and an explanation of negative feedback.

Question: How can a response oppose a rise in body temperature?

Start the work

State what the evidence supports and what remains unknown.

1. Read the vocabulary and structure/function examples.
2. Sort all ten supplied statements as anatomy or physiology.
3. Read the warming-response model and the separate worked feedback example.
4. Draw or write the five-stage temperature diagram and explain the return arrow.
5. Check the diagram against the supplied reference and submit the original notebook product.

If upload is blocked, keep your paper or file and tell Mr. Mendoza what failed. Use plain paper if your notebook is unavailable. No partner or temperature measurement is required.

Words you will use

anatomy

The study of body structure: what a part is like and where it is.

physiology

The study of body function: what a part does.

homeostasis

Regulation that keeps internal conditions within a suitable range.

set point

A reference value around which a regulated condition varies.

negative feedback

A response that opposes the change that started it.

stimulus

The change that starts the modeled response.

sensor or receptor

A structure that detects a change.

control center

The part that uses incoming information to direct a response.

effector

A structure that carries out the response.

response

The action or effect produced.

hypothalamus

A brain region involved in temperature regulation.

evaporation

The change of liquid water into water vapor.

model

A simplified representation used to explain a relationship.

E1: Structure and function

An anatomy statement describes form or location. A physiology statement describes an action or job. A sentence can contain both, so read the whole claim. The practice statements below focus on one type at a time.

Worked sort: “A sensor sits on the wall” describes location, so it is a structure statement. “The sensor detects a change” describes its job. In biology we call that a function statement.

The ten cards are supplied teaching statements. Your task is to classify what each describes. You are not being asked to verify a measurement or examine a real organ.

Ten sorting statements

1. The heart has chambers.
2. The heart pumps blood.
3. The lungs contain small air sacs.

4. Oxygen moves from air in the lungs into blood.
 5. The skin forms the body's outer covering.
 6. Sweat glands release sweat.
 7. The diaphragm is a muscle below the lungs.
 8. The diaphragm contracts during breathing in.
 9. The brain contains a region called the hypothalamus.
 10. Temperature regulation involves signals directed by the hypothalamus.
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E2: A warming-response model

In this simplified model, body temperature rises. Temperature sensors detect the change. Information reaches the temperature-regulating control center in the brain. Sweat glands act as effectors. Sweat evaporates from the skin, carrying heat away. That heat loss opposes the initial rise.

Use five labels: stimulus, sensor, control center, effector, response. The five labels include the starting change and resulting action. They do not mean there are five separate organs.

E3: Model limits

Homeostasis allows variation; it does not hold every value perfectly fixed. This model predicts the direction of a response. It supplies no measured temperature, cooling rate, patient result, or guarantee that cooling will succeed in every environment.

Separate the original work from official work

Today's supplied reading, sorting statements, and diagram are original HBS preparation. They do not complete Activity 1.1.1 Meet the Patients. No official homeostasis screen is established by these materials.

If the teacher assigns an official segment, use the licensed inputs and stopping point the teacher names. Follow that task's directions separately and use evidence from work you actually do. You can finish this original diagram using only the material here.

Five-stage reference: a falling temperature

Stimulus: body temperature falls. → Sensor: temperature-sensitive cells detect the change. → Control center: the hypothalamus directs a warming response. → Effector: skeletal muscles. → Response: shivering increases heat production.

Return arrow: heat production opposes the temperature fall. Label this arrow “opposes the initial change.” This is a teaching model, not measured data. For your warming diagram, fill each stage from E2 yourself.

Text alternative: read the five labelled stages in order, then add a sentence explaining the return relationship. A clear written sequence is equivalent to arrows.

Worked example, a fictional room controller: the room warms, a sensor detects it, a controller activates a fan, and the fan moves air. If that action lowers room temperature, it opposes the warming.

The example states a condition, not a promise that a fan always cools a room. For the body model, use the supplied sweat-and-heat relationship rather than copying the fan.

Try the decision

The supplied model shows a rise in temperature followed by heat loss through sweat evaporation. No measured outcome is supplied. Which conclusion is supported?

- The response opposes the rise, so the model illustrates negative feedback.
- Homeostasis holds temperature perfectly fixed, so a rise proves regulation failed.
- Using this model establishes that every person cooled back to the same temperature.

Explain your choice using the reading. Discuss it or say it to yourself. This practice does not add another submission.

Your 80-minute flow

0–8 minutes	Read the target and classify the example.
8–23 minutes	Complete all ten numbered classifications.
23–38 minutes	Trace each stage and distinguish effector from response.
38–48 minutes	Explain what makes its response opposing feedback.
48–65 minutes	Draw or write five stages, return relationship and explanation.
65–75 minutes	Check sorting and diagram; record correction and model limit.
75–80 minutes	Submit diagram and practice record together or retain a copy if blocked.

Your response record

Use these labels on paper or in your document. The space below also works when this page is printed.

Sort all ten statements

For each statement numbered 1 to 10, write anatomy or physiology. Choose one structure statement and one function statement and explain your choices.

Record ten numbered answers. Use form or location for anatomy and action or job for physiology.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

Your labelled temperature diagram

Date your page. Show the warming model with all five labels: stimulus, sensor, control center, effector, response. Add the return arrow and explain why it is negative feedback.

Use the five-stage reference as a pattern and E2 for the content. Write a sequence if arrows are difficult. An effector is a structure; a response describes what its action does.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.



Check and revise

Check all ten sorting answers and each diagram label against the E1 sorting rule and five-stage model. Record one correction, or explain one answer you checked and kept.

Sorting rule: form or location means anatomy; an action or job means physiology. Check each label against its role in E2 and the pattern in the five-stage reference.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.



State the model's limit

Does your diagram prove that a person's temperature returned to its starting value? Explain what information is missing.

No measurements are supplied. You can explain a mechanism without claiming a measured result.

Use this space or the same labeled section in your existing document. Add paper when your table, graph or drawing needs more room.

Check your product

- Classify all ten statements and explain two classifications.
- Include all five stage labels on the dated diagram or written sequence.
- Explain that the response opposes the initial rise.
- Separate a model prediction from an actual measured result.

Keep the limit: This original model explains an opposing response. It cannot measure a person's temperature, diagnose illness, guarantee successful cooling, or complete official PLTW work.

Turn in your work

Submit your dated diagram with the sorting and check responses in Wk2 Lab notebook: Anatomy vs physiology, homeostasis in your HBS section. Keep these parts together in one submission.

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[Section 1292: Wk2 Lab notebook: Anatomy vs physiology, homeostasis](#)

[Section 6792: Wk2 Lab notebook: Anatomy vs physiology, homeostasis](#)

Carry forward

A negative-feedback response opposes the change that started it.

Use the same distinction between a structure and its job when you study body organization. How will you distinguish a body structure from the job it performs?

Sources and resources

[Open today's page](#)

openstax-homeostasis · Anatomy and Physiology 2e, 1.5 Homeostasis

OpenStax; temperature model and negative-feedback explanation

<https://openstax.org/books/anatomy-and-physiology-2e/pages/1-5-homeostasis>

nhlbi-respiratory · How the Lungs Work: The Respiratory System

NHLBI, NIH

<https://www.nhlbi.nih.gov/health/lungs/respiratory-system>

nhlbi-breathing · How Your Body Controls Breathing

NHLBI, NIH

<https://www.nhlbi.nih.gov/health/lungs/body-controls-breathing>

nhlbi-heart · How the Heart Works: What the Heart Looks Like

NHLBI, NIH; chambers and pumping background

<https://www.nhlbi.nih.gov/health/heart/anatomy>