

Lesson 2.7: Diagnosing Elisa

Today, you will finally diagnose Elisa! You'll share your expertise with your group, explaining the condition you investigated and how it could affect Elisa's body systems. Then, you'll receive Elisa's test results and compare them to the Sim tests you did earlier. Together, your group will consider the possible claims about why Elisa is tired and decide on a diagnosis that is supported by all the available evidence. You'll craft a written argument supporting this diagnosis. This will help Elisa get the treatment she needs.

Unit Question

- How do the trillions of cells in the human body get what they need to function, and what do the cells do with the things they absorb?

Chapter 2 Question

- What is happening in Elisa's body that could be preventing molecules from getting to her cells?

Key Concepts

- Cells can only use molecules that are small enough to enter a cell.
- The respiratory system brings in oxygen molecules from the air. These oxygen molecules are already small enough to fit into cells.
- The digestive system brings in food and breaks it down into smaller molecules, such as glucose and amino acids, that can fit into cells.
- The circulatory system transports glucose, oxygen, and amino acid molecules to every cell in the body.
- In a functioning human body, body systems work together to deliver glucose, oxygen, and amino acid molecules to the cells in the body.
- A problem with a body system can result in fewer oxygen, glucose, and/or amino acid molecules getting to the body's cells.

Vocabulary

- | | | |
|----------------------|-------------|----------------------|
| • circulatory system | • evidence | • oxygen |
| • diagnosis | • glucose | • respiratory system |
| • digestive system | • molecules | |

Name: _____

Date: _____

Warm-Up

Read the message below. Then, answer the questions below the message.

To: Medical Students
From: Dr. Walker, PHD
Subject: Elisa Rodriguez

Today is an exciting day; you will get Elisa's test results and work together to use all the available evidence to make a diagnosis.

Remember, our hospital medical team started you out with four possible claims about Elisa's condition:

- Elisa is feeling tired because she has diabetes.
- Elisa is feeling tired because she has anemia.
- Elisa is feeling tired because she has an injury to her pancreas.
- Elisa is feeling tired because she has asthma.

1. Which condition are you investigating? (circle one)

anemia

asthma

diabetes

injury to the pancreas

2. Which body system would have a problem if Elisa has the medical condition you've been investigating? (circle all that apply)

respiratory system

circulatory system

digestive system

3. Which molecule that cells need is affected by the medical condition you've been investigating? (circle all that apply)

amino acids

glucose

oxygen

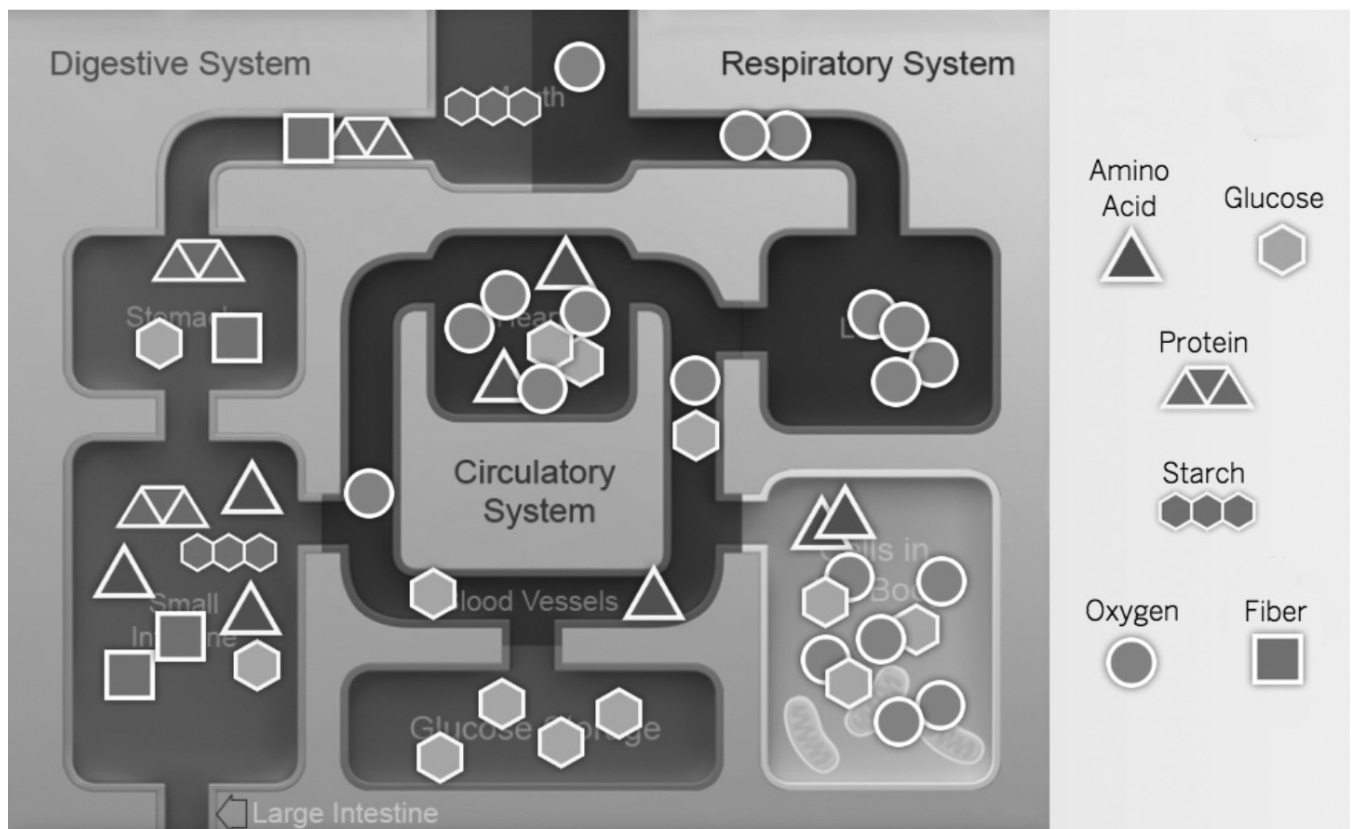
water

Analyzing Elisa’s Test Results

Part 1: Using the Diagram to Explain Medical Conditions

Take turns explaining your medical conditions, using the diagram and these sentence starters:

- The medical condition I investigated was . . .
- This medical condition affects the body’s ability to get the molecules . . .
- This medical condition works like this . . .
 - (Explain how the molecules move through the body system(s) when someone has this condition, and how or why the number of molecules that get to the cells changes because of the condition.)
- If Elisa has this condition, I would expect to see in her test results . . .



Analyzing Elisa's Test Results (continued)

Part 2: Comparing Test Results to Data from the Sim

1. Work with your partner to compare Elisa's test results (in the table below) to your experiments with the Sim:
 - One partner stays on this notebook page, and the other partner turns back to the Data for Healthy Body and the Data for Body with the Medical Condition from Lesson 2.4 (on pages 39–40).
 - Compare Elisa's test results below to the Healthy Body and the Body with a Condition results. Does the evidence support the claim that Elisa has this condition?
2. Switch and compare to the other condition.
3. Discuss your evidence with your group and agree on a diagnosis.

Elisa's Test Results

	Test result
Total glucose molecules absorbed by cells	19
Total amino acid molecules absorbed by cells	54
Total oxygen molecules absorbed by cells	273
Oxygen molecules taken in per breath	25

Name: _____

Date: _____

Writing an Argument to Support a Diagnosis

You and your group are presenting a diagnosis for Elisa. Each of you will be responsible for explaining why Elisa does or does not have one of the four conditions.

1. First, you will explain how a healthy body functions.
2. Then, you will write an argument in which you explain what happens in the body of someone who has the condition you investigated and support your claim that Elisa does or does not have that condition.

Part 1: Explaining a Healthy Body

Elisa feels tired because she has a condition that affects whether the right molecules are getting to her cells. If her body were functioning correctly, this is what would happen with oxygen:

If her body were functioning correctly, this is what would happen with starch/glucose:

Name: _____

Date: _____

Writing an Argument to Support a Diagnosis (continued)

Part 2: Diagnosis

For each claim below, circle **supported** or **not supported**.

Elisa is feeling tired because she has diabetes.	supported / not supported by the evidence
Elisa is feeling tired because she has anemia.	supported / not supported by the evidence
Elisa is feeling tired because she has an injury to her pancreas.	supported / not supported by the evidence
Elisa is feeling tired because she has asthma.	supported / not supported by the evidence

Now explain your diagnosis.

- Start your argument by writing something like this:

“My group believes that Elisa has/does not have _____. I think that she does/does not have the _____ condition because . . .”

- Then, explain how molecules move through the body when someone has the condition you investigated, and compare that to Elisa’s test results.

Name: _____

Date: _____

Homework: Check Your Understanding

This is a chance for you to reflect on your learning so far. This is not a test. Be open and truthful when you respond to the question below.

Scientists investigate in order to figure things out. Are you getting closer to figuring out why your patient, Elisa, could be feeling so tired?

1. I understand what molecules Elisa's cells need and where they come from.

yes

not yet

Explain your answer choice above.

2. I understand how those molecules get to the cells in Elisa's body.

yes

not yet

Explain your answer choice above.

3. I understand how the cells use those molecules to release energy for Elisa's body to function.

yes

not yet

Explain your answer choice above.

Name: _____ Date: _____

Homework: Check Your Understanding (continued)

4. What do you still wonder about Elisa's condition or how her body gets what it needs to function?
