

STUDENT GUIDE

ELABORATE LESSON 23



Part 1: Our Motivation

Record what we were trying to figure out that led to this investigation.



Part 2: Observing a New Phenomenon

Record the observations you have as you watch the video of the ultramarathon runner.

Record the question we will investigate based on the results you observed.



Part 3: Analyzing and Interpreting Data

Use the space below to record your observations as you compare and contrast the experiments performed and corresponding data sets collected by scientists.

Compare the three data sets. Explain if you think the findings are consistent with one another and why.

What conclusions about how the body uses fatty acids during long periods of exercise can you make from these three studies?

How did scientists use the lens of stability and change in designing and analyzing the results of this study? Is this consistent with how we've seen scientists use this lens previously?

**Part 4: Obtaining Information from Scientific Texts**

Read the Lesson 23 *The Body's Fuel Sources* article. Determine what you think are the three central ideas of the text that will best help us answer our investigation question. Record a summary of these three ideas in the space below. As you do so, be sure to:

- Summarize the text in simpler but still accurate terms
- Describe how the body gets energy from different fuel sources during exercise.

Central Idea	Summary of What the Text Says About This Central Idea

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Part 5: Constructing an Explanation of How Energy Keeps the Body Moving Over Longer Duration Exercise

Using the evidence you have obtained, construct an explanation that answers the question we set out to investigate. In your explanation, be sure to:

- Describe how the ultramarathoner gets energy to exercise in the early stages of his run.
- Describe how the ultramarathoner gets energy to exercise for several hours beyond the early stages of the run.
- Cite evidence from Studies 1-3 in this lesson and/or from the reading to support your response.

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Part 6: Revising the Effects of Exercise and Recovery Models

As a class, we will update the Effects of Exercise and Recovery Models to help explain the different experiences we have after exercise. List 2-3 additions you would make to the class model in the space below. These may be:

- Organs and their function
- Specialized cells and their function
- Molecules and where they move

