



Science Learning Packet

Grade 7:

Matter & Energy in Ecosystems,

Lesson 5

science learning activities for SPS students during the COVID-19 school closure.

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Due to the COVID-19 closure, teachers were asked to provide packets of home activities. This is not intended to take the place of regular classroom instruction but will help supplement student learning and provide opportunities for student learning while they are absent from school. Assignments are not required or graded. Because of the unprecedented nature of this health crisis and the District's swift closure, some home activities may not be accessible.

If you have difficulty accessing the material or have any questions, please contact your student's teacher.

Matter and Energy Lesson 1.6

Let's review what we have learned so far from the evidence we have collected:

1. Carbon is a key element (type of atom) that exists as part of carbon dioxide, which is abiotic matter. It is also part of energy storage molecules, which are _____ matter.
2. During the process of _____, _____ make energy storage molecules, using carbon from carbon dioxide and _____ from sunlight. This moves carbon from abiotic to biotic matter.
3. When there is more _____ in _____ matter (as carbon dioxide), more _____ is available to _____ for making energy storage molecules. When there is less carbon, the opposite is true.
4. When there is more _____, producers can make more energy storage molecules from the carbon in _____. When there is less sunlight, the opposite is true.

Vocabulary Bank:

- Producers
- Biotic Matter
- Abiotic Matter
- Photosynthesis
- Energy
- Sunlight
- Carbon
- Carbon Dioxide

Connecting Back to the Biodome:



To: Student Ecologists
From: Dr. Bryan Corry
Subject: Claims About the Biodome

Based on your investigations so far, it seems like there are two possible explanations for the plants and animals in the biodome not having enough energy storage molecules:

Claim 1: A change in the amount of **carbon dioxide** led to a decrease in the amount of energy storage molecules made by producers in the biodome.

Claim 2: A change in the amount of **sunlight** led to a decrease in the amount of energy storage molecules made by producers in the biodome.

Before you share your findings with the Econauts, you'll need to decide which explanation is best. I'm sending along some data that might help you decide. After you examine the data, send a message to the Econauts with a visual model and a written explanation.

Bryan
Dr. Bryan Corry, Head Ecologist
Biodome Investigation Team

After reading Dr. Corry's email, what is your thinking about **why** the biodome does not have enough energy storage molecules? (*Circle one*)

Claim 1

Claim 2

Dr. Corry has sent over some data for us to analyze and interpret. The data has been put into a graph. Read the tips below for how to understand and read graphs!

Understanding Graphs:

Title: This tells you what the graph is about, in this case it indicates the graph is about carbon dioxide, sunlight, and water in the biodome.

Key. There are different colors to represent different things!

Blue is representing: _____

Red is representing: _____

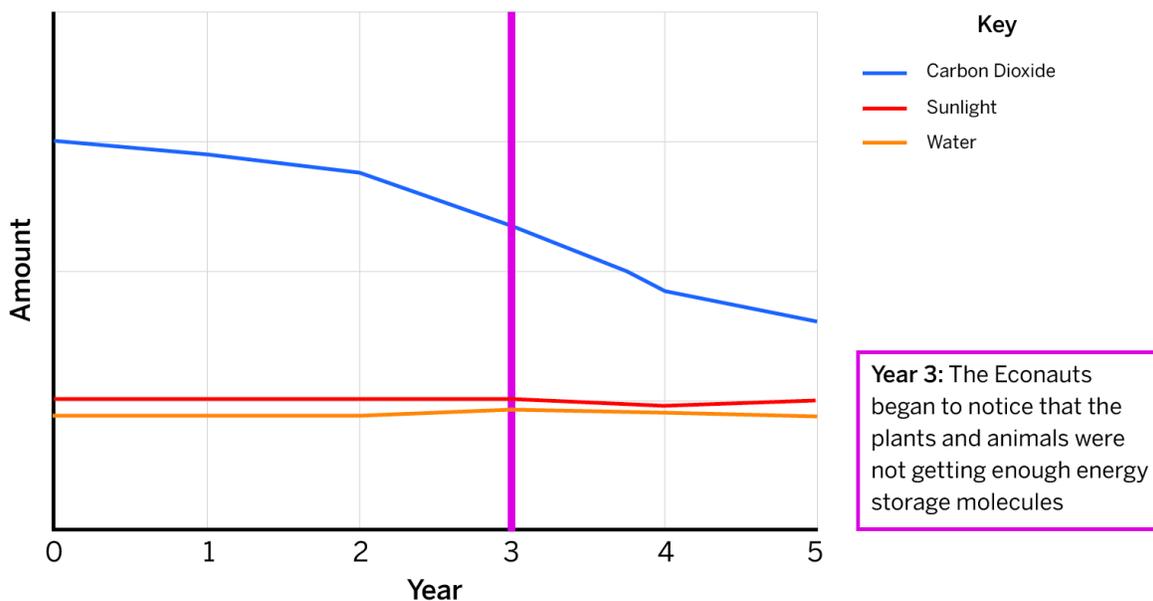
Yellow is representing: _____

X-axis. The x-axis is the horizontal line. In this case it is labeled Year, which indicates this graph shows changes in the biodome over time!

Y-axis. The y-axis is the vertical line and is labeled Amount, and that's for carbon dioxide, sunlight, and water in the biodome depending on which line you are looking at!

The y-axis amounts do not have numbers or units because these resources are measured in different ways. Exact numbers are not necessary here- our goal is to see the pattern of what they are doing over time.

Carbon Dioxide, Sunlight, and Water



Analyzing and Interpreting the Graph

How has the amount of carbon dioxide changed over time?

The amount of carbon dioxide has increased / decreased / stayed the same over time.

How has the amount of sunlight changed over time?

The amount of sunlight has increased / decreased / stayed the same over time.

How has the amount of water changed over time?

The amount of water has increased / decreased / stayed the same over time.

Looking back at our key concepts, does this data help in understanding why the plants and animals in the biodome were not getting enough energy storage molecules? Why or why not?

Further explain a piece of evidence and pick which claim you think it supports:

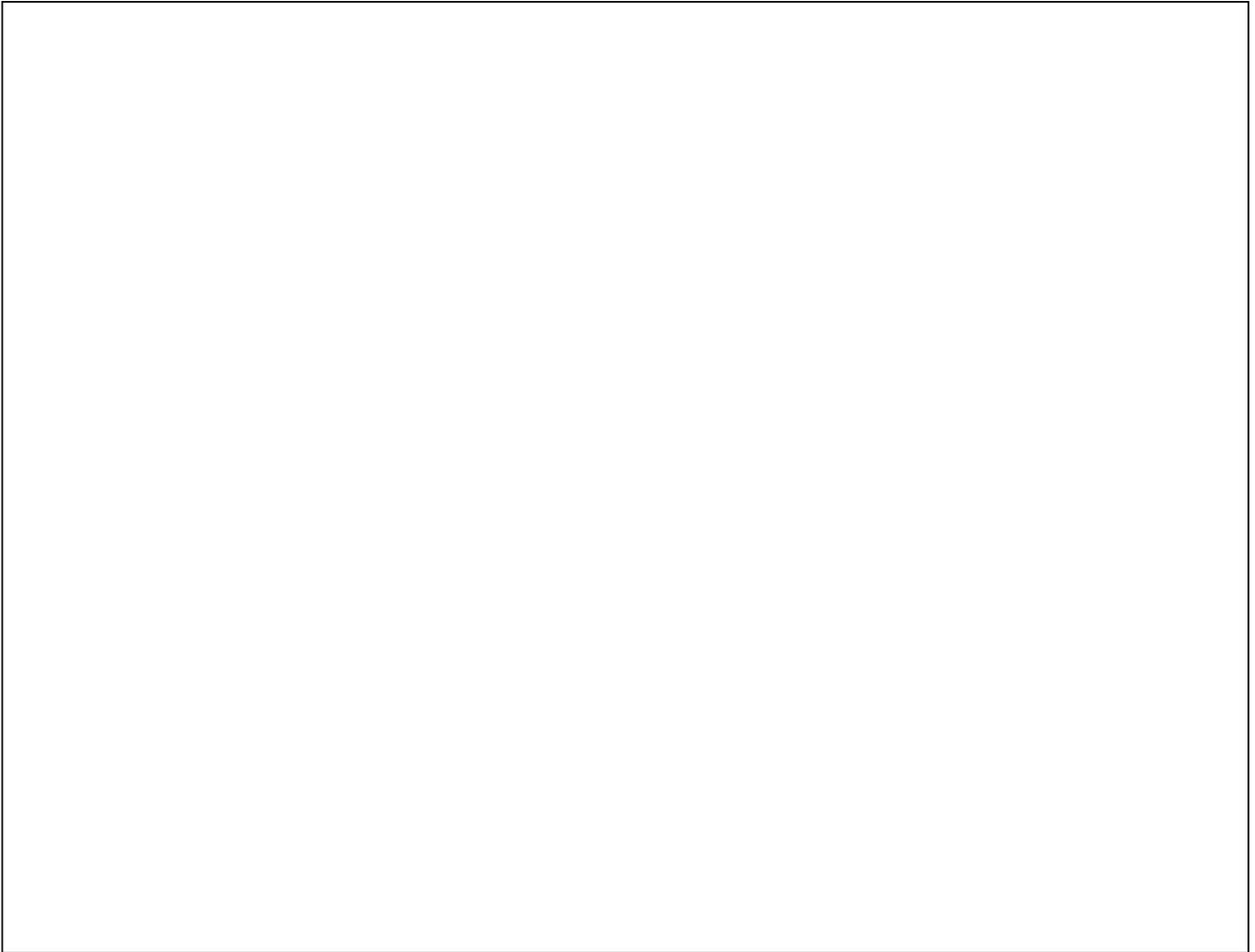
Evidence (<i>Something you observed from the graph</i>)	Reasoning (<i>connect to a key concept and make connections about why this piece of evidence is related to answering our question</i>)
In the graph I saw	This is important because

Therefore, I think that (*pick a claim*)

Claim 1: A change in the amount of carbon dioxide led to a decrease in the amount of energy storage molecules made by producers in the biodome.

Claim 2: A change in the amount of sunlight led to a decrease in the amount of energy storage molecules made by producers in the biodome.

Draw or Write about what you think happened in the Biodome:



Compare your thinking now to the start of the unit: (*circle one*)

My thinking has changed since the start of the unit

My thinking has stayed the same, but I have added more detail to it

My thinking has stayed the same and now I have evidence to back it up

Self-Assessment:

I understand where carbon can be found in the biodome Yes / No

I understand how having less carbon dioxide available in the biodome led to fewer energy storage molecules being made in the biodome Yes / No

I understand why the carbon dioxide in the biodome decreased. Yes / No

I understand why changing the amount of carbon in one part of the biodome affected the rest of the biodome
Yes / No