



# Science Learning Packet

## **Grade 7:**

# **Matter and Energy in Ecosystems,**

## **Lesson 7**

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.

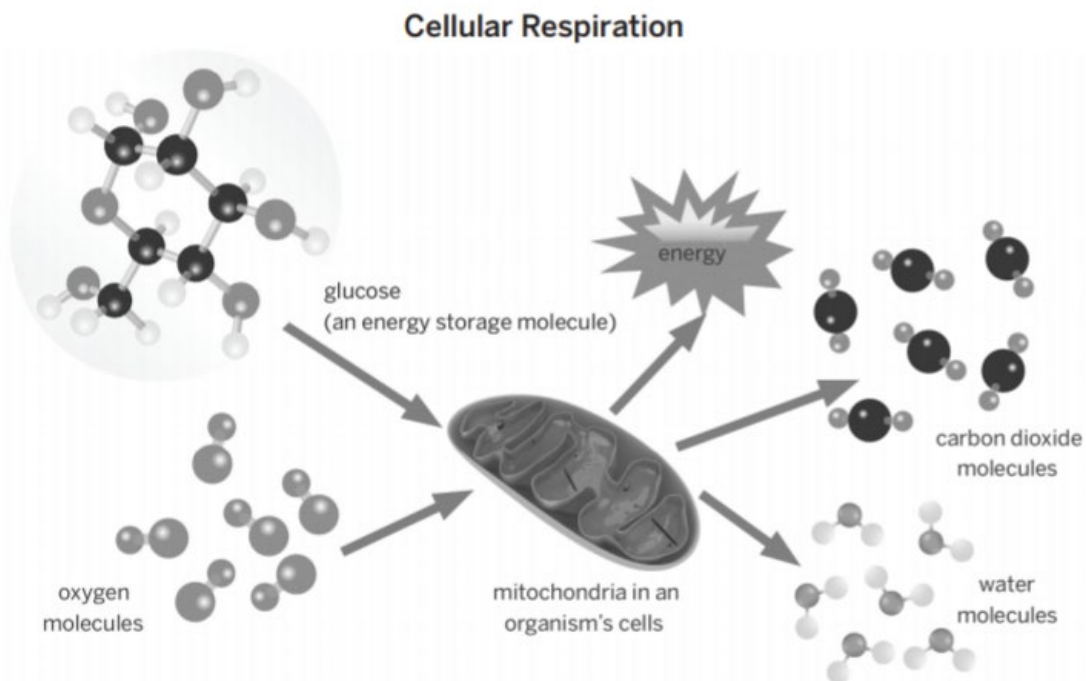
## Matter and Energy Lesson 2.2

By now, you've seen that organisms like Elodea plants (producers), snails (consumers), and decomposers all give off carbon dioxide, **but how does this happen?** Today, you'll use the Sim to look inside a single cell as you search for clues about how living things give off carbon dioxide.

Student ecologists keep investigating! With each step, the Biodome Investigation Team gets closer to finding out why the amount of carbon dioxide in the biodome decreased.

### Entry:

In *A Feast for Decomposers*, you read a bit about cellular respiration. Now, look carefully at this diagram and write what you think it shows about cellular respiration.



In cell parts called the **mitochondria**, glucose (an energy storage molecule) plus oxygen combine to make carbon dioxide plus water, releasing energy. This process is called **cellular respiration**.

What is something you notice about cellular respiration from the diagram above?

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We will now use a digital model to zoom in on a mitochondrion so we can see what happens in more detail.

**Investigation Question:** How do organisms give off carbon dioxide?

1. Press VIEW CELL for all the different organisms.
2. Compare what you see in the Sim to the diagram from the article we observed in the entry

Similarities between Sim and diagram	Difference between Sim and diagram

Now that you have gathered evidence in the Sim, revise or add to your summary of cellular respiration:

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**Does cellular respiration require energy from the sun?**

1. Open the Sim.
2. Click PLAY to run the Sim with the default settings.
3. Observe the Sim. Which parts of an ecosystem perform cellular respiration?
4. **Turn off sunlight in the ecosystem.** Observe whether the amount of sunlight affects which parts of an ecosystem perform cellular respiration.

Which parts of the ecosystem perform cellular respiration?

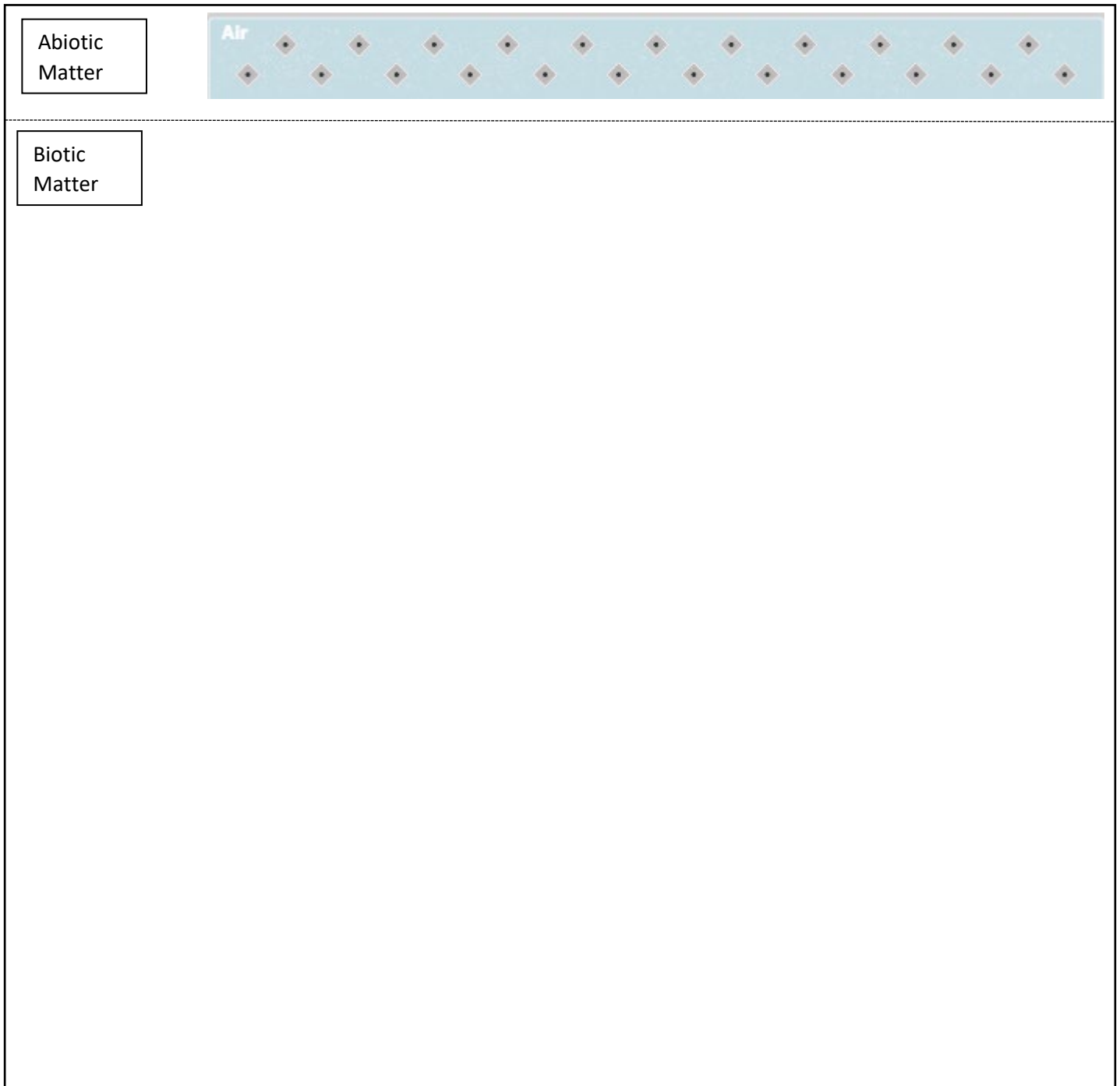
- Producers
- Primary consumer
- Secondary consumers
- Decomposers
- Dead matter

Does the amount of sunlight affect which parts of an ecosystem perform cellular respiration?

- Yes
- No

**Diagram** where carbon dioxide found in the air comes from:

Make sure to make a **key** to explain your diagram



Your Key:

**Write a caption that explains your diagram:**

- abiotic matter
- biotic matter
- carbon
- carbon dioxide
- cellular respiration
- consumer
- decomposer
- ecosystem
- energy storage molecule
- producer

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**New Science Word(s)**

**cellular respiration:** the chemical reaction between oxygen and glucose that releases energy into cells