*7th Grade Science*

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| Lesson Title | The Carbon Cycle |
| Lesson Objective(s) | SWBAT Provide evidence that supports the premise “In the flow of matter system the total amount of matter remains constant even though its form and location change. |
| Standard | *District 1.1*: Explain that the transfer and transformation of matter and energy links organisms to one another and to their physical setting*NGSS: MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. [Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.]**MCCRS:* **RST.6-8.1** Cite specific textual evidence to support analysis of science and technical texts.**RST.6-8.2** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. **RST.6-8.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the sametopic.  |

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| 1. Engage – 10 min
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| Teacher will ask the following questions:* After watching a video on global warming, how is the Earth warming up? How do humans contribute to this warming? List as many contributions as you can
* Today, we are going to be talking about the atom carbon, and how it is recycled in ecosystems!
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| 1. Explore
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| * Scholars will read an article on the Carbon Cycle and will answer questions based on the analysis of the text
* Article will be tied into questioning about the Inner Harbor in order to have significance to the scholars.
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| 1. Explain
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| * Teacher and students will read the selection together and teacher will describe the Carbon cycle on board.
* Teacher will explain that there are multiple cycles, not just the Carbon Cycle
* Scholars will relate the carbon cycle to photosynthesis and to cellular respiration using a diagram of the carbon cycle
* Teacher will elaborate on their findings and explain the carbon cycle.
* Scholars will watch a short clip on the carbon cycle and will use observations and evidence from the video in order to complete their assignment.
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| * Elaborate
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| * Scholars will have the opportunity to go outside and perform a global warming scavenger hunt. Using their technology, scholars will have to take 5 pictures of different things that contribute to global warming on the school grounds and 5 pictures of different things that have the reverse effect on global warming.
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| 1. Evaluate
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| Scholars will then answer the independent practice questions on loose leaf paper.If time permits, Teacher and scholars will review answers to the independent practice section.1. Carbon ENTERS the atmosphere through all of the following ways except-1. Cellular respiration
2. Photosynthesis
3. Decomposition
4. Burning Fossil Fuels

2. Carbon EXITS the atmosphere *only* by-1. Cellular respiration
2. Photosynthesis
3. Decomposition
4. Burning Fossil Fuels
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The Carbon Cycle

**Objective:** Ecologists will be able to diagram and describe the carbon cycle.

**Vocabulary**

* carbon
* carbohydrates

**Today's Lesson:**

As we learned yesterday, there are many cycles on Earth that help to keep the processes of life moving. Today we are going to learn about the carbon cycle.

What do air, trees, the ocean, rocks, plants, oil, and animals all have in common? Carbon. This amazing element is the building block for much of what we see on the Earth. Carbon exists in different forms all around you. It is always being used and reused in the carbon cycle.

* Both plants and animals release carbon dioxide into the air through the process of cellular respiration.
* Carbon dioxide contains carbon.
* In photosynthesis, plants use carbon dioxide and water to make oxygen and carbohydrates (glucose).
* Carbon is also used for growth, which is why carbon is inside the bodies of all living things.
* When plants and animals die, their bodies decompose, and some of the carbon from their bodies is released into the air.
* The rest of the carbon becomes part of the soil and rock beneath us.
* Some of this carbon may eventually end up in fossil fuels, such as coal and oil.
* Humans burn fossil fuels to power cars, heat homes, create products, and so on.
* When burned, fossil fuels release this carbon back into the air in the form of carbon dioxide.
* The burning of other materials, as well as volcanic eruptions, releases carbon into the air

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**Independent Practice**

1. What is carbon?
2. Where can you find carbon?
3. What is the carbon cycle?
4. Why is the carbon cycle important?
5. What are the four ways that carbon gets into the atmosphere?
6. How does carbon get into producers?
7. How does carbon get into consumers?
8. How do humans burning of fuels affect the carbon cycle?
9. How do humans clearing forests (cutting down trees) affect the carbon cycle?
10. Where are carbohydrates in the carbon cycle?
11. What happens to the carbon in the bodies of organisms after they die?

**Diagram and describe the carbon cycle.**

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