

Carbon Cycle Lesson (7th Grade Science Class)

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NOTE: By the time students experience this lesson, they should have a general understanding of cellular respiration.

- 1) Project a picture of a giant redwood tree and ask students:



- a. “Looking at this enormous tree, where do you think most of the mass of this tree comes from?”
- b. Have students write down their answers on the private white boards in the “Think, Pair, Share” model. Students first keep their answers to themselves (Think), followed by sharing with one or two neighbors (Pair) before having a class discussion (Share).
 - Possible ideas proposed might include, soil, water, nutrients, fertilizer, or the correct answer: CO₂ from the atmosphere, but this is not expected to be known for this age group.

Lesson Plan Disclaimer

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- 2) Display the “Nature’s Perfect Recycling Factory” poster provided in the Education Kit.
 - a. Elicit a discussion around the poster information. “Does anyone see any clues to answer our question on where most of this tree’s mass comes from?”
 - i. As students think/discuss answers, pass around the tree cookies as to get them thinking.
 - b. Explain that the answer to our question is that the majority of the mass in a tree comes from the CO₂ it removes from the atmosphere. Through photosynthesis, plants remove some of the CO₂ from the atmosphere that all living organisms release during respiration.
- 3) In their Journals, have students create a T-chart for ways that a tree could release its carbon into the atmosphere, and ways that a tree could retain its carbon.
 - a. After a few minutes, have students share answers in a class discussion. Possible responses could include:
 - i. Release carbon: Burned, decomposed by bacteria/other organisms
 - ii. Retain carbon: Continue growing, built into house/furniture, turned into paper
 1. Discuss: How could using wood in a home or table keep the CO₂ from being released into the atmosphere?
- 4) In order to demonstrate a variety of ways trees can be used, play “The Miracle Resource”. Have students record 10 different ways the DVD shows how trees can be used that would not release the carbon stored in its wood.
 - a. After the DVD, have students share the different ways a tree can be used.
 - b. Ask: “Did anyone see any use for the trees in the DVD that might release some or all of its stored carbon in the atmosphere as CO₂?”
 - i. Answer: The only way the carbon from a tree can be released is through combustion (burning) or decomposition from other organisms (cellular respiration).

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