Balancing Act:

Urban Trees and The Carbon Cycle → A microlab

Materials modified and adapted from The Natural Inquirer: Volume 6 No. 1

Do now

- Using your notes individually complete the Homework Reading check handout at your desk.

Answers

1. When trees die they are still able to absorb CO_2.
   - True
   - False

2. What are **one** of the five reasons people plant trees in urban areas (as provided by the reading)

To keep areas cool To hold soil in place to make areas prettier to absorb CO_2 To make areas quieter

3. According to the reading, what types of things do we use to maintain (maintain means to take care of) trees in urban settings?
   a) Humans
   b) Axes
   c) Machines
   d) Animals like squirrels and birds

4. What is the question that the scientists doing this research are trying to answer?

Which tree species can grow the longest before reaching the point where they are giving off more Carbon Dioxide then they are taking in.

5. Why would scientists want to know what tree species absorb the most CO_2 over time?

To Help make decisions about what types of trees are the best to grow in cities.

Reading and Discussion

- Today we will be doing more group discussion. The format for today will be as follows.

1. *Reflect* individually on the issue or topic being examined (usually in writing).
2. *Share*: The first person in the group shares for a set time. **The other members listen attentively without comment or interruption**.
3. *Pause* for 20-30 seconds of silence to take in what was said.
    1. This should be you re-reading what you wrote, thinking about how what they say connects to what you got from the reading. Does what you read look differently now that you heard someone else's ideas
4. *Repeat* for persons two and three, pausing for a moment of silence after each round.
5. *Discuss* as a triad (5-10 minutes), referencing the comments that have been made and making connections between the responses of the group.

Part 1: Method Section Reading (10 minutes)

- **At a level 0**, you will individually read, annotate and take notes on pg 35-36. Stop when you get to **FINDINGS**

- Write the following questions on the Left Side of your Notebook.
  1. What was the control in this experiment?
  2. What data was measured in this experiment?
  3. How was the data used to answer the original question posed by the scientists?

Triad Share Out

1. ***Stand UP and with your group of 2 or 3 bring your notebooks and stand in a small circle.***
2. ***Share***: The first person in the group shares for a set time. **The other members listen attentively without comment or interruption**.
3. ***Pause*** for 20-30 seconds of silence to take in what was said.
    1. This should be you re-reading what you wrote, thinking about how what they say connects to what you got from the reading. Does what you read look differently now that you heard someone else's ideas

REPEAT FOR THE NEXT 2 PEOPLE IN YOUR GROUP

1. What was the control in this experiment?
2. What data was measured in this experiment?
3. How was the data used to answer the original question posed by the scientists?

Discussion → Return to Tables

- With your whole group (both tables) Share what you heard with your small groups and work to clarify, improve and re-write the answers to the 3 questions you discussed.

1. What was the control in this experiment?
2. What data was measured in this experiment?
3. How was the data used to answer the original question posed by the scientists?

Share Out! What did we get for our answers

1. What was the control in this experiment?
    1. The way that the trees were cared for was the control.

2. What data was measured in this experiment?
    1. How much CO_2 the trees absorbed by calculating the mass of Carbon in the tree
    2. How much CO_2 was emitted (given off) by the machines caring for the tree

3. How was the data used to answer the original question posed by the scientists?
    1. Comparison of these two numbers, let scientists determine what trees will live the longest before their emitted numbers are greater than their absorbed values.

Part 2: Findings and Implications (6 minutes)

- **At a level 0**, you will individually read, annotate and take notes on pg 36-37. Stop when you get to **the end**
- Write the following questions on the Left Side of your Notebook.
  1. What types of trees did scientists find were the best options?
  2. Why do you think the scientists from this study say that people should be careful about what types of trees they should grow in urban areas?

Triad Share Out

1. ***Stand UP and with your group of 2 or 3 bring your notebooks and stand in a small circle.***
2. ***Share***: The first person in the group shares for a set time. **The other members listen attentively without comment or interruption**.
3. ***Pause*** for 20-30 seconds of silence to take in what was said.
    1. This should be you re-reading what you wrote, thinking about how what they say connects to what you got from the reading. Does what you read look differently now that you heard someone else's ideas

REPEAT FOR THE NEXT 2 PEOPLE IN YOUR GROUP

1. What types of trees did scientists find were the best options?
2. Why do you think the scientists from this study say that people should be careful about what types of trees they should grow in urban areas?

Discussion → Return to Tables

- With your whole group (both tables) Share what you heard with your small groups and work to clarify, improve and re-write the answers to the 3 questions you discussed.

1. What types of trees did scientists find were the best options?
2. Why do you think the scientists from this study say that people should be careful about what types of trees they should grow in urban areas?

Share Out! What did we get for our answers

1. What types of trees did scientists find were the best options?
    1. Trees that live long and have a moderate growth rate

2. Why do you think the scientists from this study say that people should be careful about what types of trees they should grow in urban areas?
    1. Because not all trees give the same benefits in regards to absorption of carbon dioxide. Some trees are more efficient and more beneficial for removing more carbon dioxide from the atmosphere.