

*Initials*

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### Ecology Pre-test (Middle School)

Science is easier to understand if you can make connections between what you know now and the new ideas that you are studying. This is a test that will help us to understand what you know now.

Please answer these questions as carefully and completely as you can. If you aren't sure of the answer, please write about any thoughts that you have. If you can help us to understand how you think about these questions, then we can do a better job of explaining science in ways that make sense to you.

Please put your initials (not your full name) in the boxes

First	Middle	Last

Date \_\_\_\_\_

Class \_\_\_\_\_ Teacher \_\_\_\_\_

1. What are some things that help plants live and grow? Use the lines given below (as many as you need) to answer this question.

\_\_\_\_\_ helps plants grow because \_\_\_\_\_

\_\_\_\_\_ helps plants grow because \_\_\_\_\_

\_\_\_\_\_ helps plants grow because \_\_\_\_\_

\_\_\_\_\_ helps plants grow because \_\_\_\_\_

\_\_\_\_\_ helps plants grow because \_\_\_\_\_

\_\_\_\_\_ helps plants grow because \_\_\_\_\_

2. What are some things that help people live and grow? Use the lines given below (as many as you need) to answer this question.

\_\_\_\_\_ helps humans grow because \_\_\_\_\_

\_\_\_\_\_ helps humans grow because \_\_\_\_\_

\_\_\_\_\_ helps humans grow because \_\_\_\_\_

\_\_\_\_\_ helps humans grow because \_\_\_\_\_

\_\_\_\_\_ helps humans grow because \_\_\_\_\_

\_\_\_\_\_ helps humans grow because \_\_\_\_\_

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3. A small acorn grows into a large oak tree.

(a) Which of the following is FOOD for plants (circle ALL correct answers)?

- Soil                                      Air                                      Sunlight                                      Fertilizer                                      Water
- Minerals in soil                                      Sugar that plants make

(b) How does a plant change as it grows?

(c) Where do you think the plant's increase in weight comes from?

4. An infant grows to become a big adult.

(a) What causes the infant to grow?

(b) Explain how an infant gains weight as she grows.

5. When a person loses weight, what happens to some of the fat in the person's body?

- (a) The fat leaves the person's body as water and gas.
- (b) The fat is converted into energy
- (c) The fat is used up providing energy for the person's body functions
- (d) The fat leaves the person's body as feces

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6. Explain your answer to the previous question. Why do you think this happens to the fat?

7. Explain what happens to an apple after we eat it.

8. Explain what happens to the air that we breathe when it's inside our bodies.

9. When an apple is left outside for a long time, it rots.

(a) What causes the apple to rot?

(b) Explain what happens to the weight of an apple as it rots.

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10. Explain how are the following living things connected with each other:

- (a) Grass.      (b) Cows.      (c) Human beings.      (d) Decomposing bacteria.

11. What happens to the wood of a match as the match burns? Why does the match lose weight as it burns?

12. Explain why it might be important to preserve our forests?

13. Carbon exists as a part of different molecules or substances in nature. Name several places where carbon can be found in an ecosystem, and describe which molecule or substance that carbon is part of in each place.

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14. Humans must eat and breathe in order to live and grow. Are eating and breathing related to each other? (circle one)

YES      NO

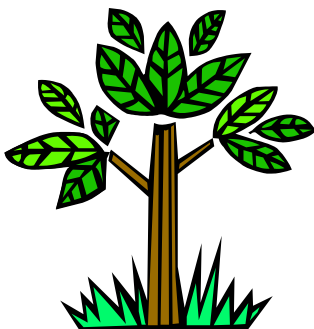
15. Explain why you circled your answer for the previous question.

16. Which gas(es) do plants take in from their environments? (you may circle more than one)

oxygen                      carbon dioxide                      other

17. Explain what happens to the gases once they are inside the plant.

18. Draw arrows to explain where water moves in a green plant.  
Explain why it needs to go there.



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19. Draw arrows to explain how food moves through a green plant.  
Explain why it needs to travel this way.



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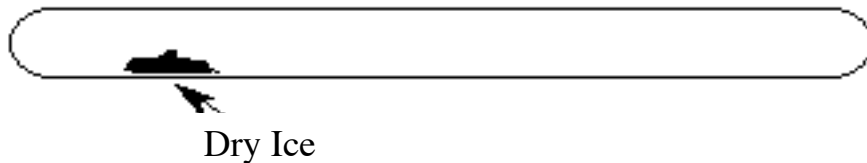
20. A small car on average uses 400 gallons of gasoline a year. About how many pounds of carbon dioxide do you think the car emits from burning the 400 gallons of gasoline?

- (a) close to 0 lbs of carbon dioxide as gases weigh almost nothing.
- (b) close to 80 lbs of carbon dioxide
- (c) close to 800 lbs of carbon dioxide
- (d) close to 8000 lbs of carbon dioxide
- (e) close to 80,000 lbs of carbon dioxide

21. About how many trees would you have to grow to absorb the amount of carbon dioxide emitted per year by the small car mentioned in the previous example?

- (a) about 2000
- (b) about 200
- (c) about 20
- (d) about 2

22. A sample of solid carbon dioxide (dry ice) is placed in a tube and the tube is sealed after all of the air is removed. The tube and the solid carbon dioxide together weigh 27 grams.



The tube is then heated until all of the dry ice evaporates and the tube is filled with carbon dioxide gas. The weight after heating will be:

- (a) less than 26 grams.
- (b) 26 grams.
- (c) between 26 and 27 grams.
- (d) 27 grams.
- (e) more than 27 grams.

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23. Do you think that wood is a mixture of different substances? (Circle one)

YES NO

Please explain your ideas about what makes up wood.

24. Do you think that a muscle cell is a mixture of different substances? (Circle one)

YES NO

Please explain your ideas about what makes up a muscle cell.

25. When you open a bottle of soda, the soda starts to fizz. Does anything happen to the weight of the soda? (Circle One)

YES NO

26. Explain your answer to the previous question.