

Teacher \_\_\_\_\_ Grade \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_ Your initials \_\_\_\_\_

**Systems and Scale Unit Pre- and Post-test**

**Lesson 1, Activity 1**

1. Answer these questions about what happens inside the flame of a kerosene lamp (kerosene is  $C_{12}H_{26}$ ).



Do you think that <b>materials</b> (solids, liquids, or gases) are going into the flame? (circle one answer below) Yes            No            I'm not sure	Do you think that <b>energy</b> is going into the flame? (circle one answer below) Yes            No            I'm not sure
What materials do you think are going into the flame?	What forms of energy do you think are going into the flame?
Do you think that <b>materials</b> (solids, liquids, or gases) are coming out of the flame? (circle one answer below) Yes            No            I'm not sure	Do you think that <b>energy</b> is coming out of the flame? (circle one answer below) Yes            No            I'm not sure
What materials do you think are coming out of the flame?	What forms of energy do you think are coming out of the flame?
How do you think that <b>materials</b> are changing inside the flame?	How do you think that <b>energy</b> is changing inside the flame?
What are you <b>not sure about</b> in your answers? Explain what you need to know to answer these questions better.	

2. A scientist started sorting materials into two groups, with these materials:

**Group A:** Gasoline, alcohol, wood

**Group B:** Sand, water, steel, carbon dioxide

a. Which group would you put these materials in?

Salt	Group A	Group B
Sugar	Group A	Group B
Pork	Group A	Group B
Soil minerals that help plants grow	Group A	Group B
Leaves of a living tree	Group A	Group B

b. Explain how you decided. How are the materials in Group A different from the materials in Group B?

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c. Is there a different way of grouping the materials that makes more sense to you? Yes No

d. Explain your answer. How would you group the materials differently, or why do you like these groups?

3. When alcohol burns, the alcohol loses weight. What happened to the **matter** that used to be in the alcohol?

a. Which of the following statements is true? Circle the correct answer.

ALL of the matter is still somewhere in the environment, OR

SOME of the matter was consumed by the flame and no longer exists.

b. Circle the best choice to answers the questions about possible places where the matter in the alcohol might go.

How much of the matter in the alcohol goes into the AIR?	All or most	Some	None
How much of the matter in the alcohol turns into HEAT AND LIGHT ENERGY?	All or most	Some	None
How much of the matter in the alcohol IS BURNED UP AND DISAPPEARS?	All or most	Some	None
How much of the matter in the alcohol goes into WATER VAPOR?	All or most	Some	None

c. Explain your choices. What happens to the matter in alcohol as it burns?

d. Does the air change when alcohol burns? Yes No

e. If you answered "yes" explain how the air changes when alcohol burns.

4. Answer these true-false questions:

True	False	Carbon is a kind of atom.
True	False	Carbon is a kind of molecule.
True	False	There is carbon in pure air.
True	False	There is carbon in pure water.
True	False	There is carbon in alcohol.
True	False	There is carbon in wood
True	False	There is carbon in our muscles.