

Name \_\_\_\_\_ Teacher \_\_\_\_\_ Date \_\_\_\_\_

## Activity 5.3: Grading the Organic vs Inorganic Worksheet

*This worksheet has “grading” in the title because at this point, students can be held accountable for correct answers. Level 4 (correct) responses to the questions are in **blue bold italics** below. Red italics suggest ways to grade student responses by giving them points for correct or partially correct answers. There are 26 points total on this worksheet.*

**A: Sorting based on properties you can see or the origins of materials.** Sort the materials based on your knowledge of where they came from.

**1. Organic materials.** In this group you should include:

- Foods* or materials made from foods.
- Fuels* or materials made from fuels.
- Bodies of living things* or materials made from the bodies of living things.

List the organic materials here.

***Ethyl alcohol, Sugar, Cellulose/Wood, Propane, Butane, Gasoline, Lipids***

*1 point for each correct material, 7 points total*

**2. Inorganic materials** include materials that are not foods, fuels, or made from the bodies of living things. List the inorganic materials here.

***Water, Salt, Limestone, Sand, Air***

*1 point for each correct material, 5 points total*

**B. Sorting based on bonds in molecules.** Sort the materials based on the kinds of bonds they have in their molecules.

**1. Organic materials.** In this group you should include materials whose molecules have high-energy bonds: C-C and C-H. List the organic materials here.

***Ethyl alcohol, Sugar, Cellulose/Wood, Propane, Butane, Gasoline, Lipids***

*1 point for each correct material, 7 points total*

**2. Inorganic materials** include materials whose molecules do not have C-C or C-H bonds. List the inorganic materials here.

***Water, Salt, Limestone, Sand, Air***

*1 point for each correct material, 5 points total*

**C. Chemical energy.** What is the difference in chemical energy between organic and inorganic materials?

***Organic materials have available chemical energy in C-C and C-H bonds***

*1 point for correct answer*

**D. Unknown liquid.** How could you predict whether an unknown material—a clear liquid—will burn or not? What tests could you do or questions could you ask to predict whether it will burn?

***Students should suggest one of the two criteria in this worksheet:***



**A. Origins: Does the liquid come from a food, a fuel, or from the body of a living thing?**

**B. Bonds in molecules: Does the liquid have C-C or C-H bonds?**

*1 point for identifying either criteria (origins or bonds); students do not need to identify both for credit*