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

### Lesson 1.3 Investigating Combustion

In this investigation, we are going to study what happens to matter and energy when fuels are burned. We will compare wood, ethanol, and paraffin. Wood is, of course, a fuel which is part of a plant. Ethanol is also made from plants. Paraffin is a fossil fuel made from petroleum/crude oil. You will be assigned one of these 3 fuels.

**Procedure**

1. Add the substance you are investigating to an open glass Petri dish.
2. Turn on a digital scale so that it reads “0” g. Place the Petri dish containing the substance on the scale. Record the mass in the “Measurements” section.
3. Fill a plastic Petri dish with fresh BTB. On the worksheet. Fill in your observation of the color of the BTB.
4. Place the Petri dish with BTB next to the Petri dish with the substance you will burn so that the large container lined with aluminum foil fits on top of the two dishes.
5. Light the fuel with the lighter and then immediately put the inverted large container lined with aluminum foil on top of both the glass Petri dish with burning fuel and the Petri dish of BTB. The flame will go out quickly inside the container.
6. Wait about 20 minutes before taking the lid off the container. While you are waiting, write your predictions about what you think will happen and why in section C.
7. After 20 minutes, remove the glass petri dish with the burned fuel from underneath the container. Place it on the digital scale and record the mass of the burned substance and Petri dish.
8. Fill in your observation of the color of the BTB after the experiment.

**B. Measurements**

The fuel you are investigating:

|  |  |
| --- | --- |
| ***Measurements Before*** | ***Measurements After*** |
| **Mass of Petri dish with fuel before**  Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Mass: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ grams | **Mass of Petri dish with fuel after**  Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Mass: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ grams  Change in mass: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ grams |
| **Color of BTB before**  Color of BTB: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | **Color of BTB after**  Color of BTB: \_\_\_\_\_\_\_\_\_\_\_ |

**C. Predictions**

* Will any matter move when the fuel is burned?
* Explain why you think this will happen.
* Where will carbon atoms move when the fuel when it is burned?
* Explain why you think this will happen.
* What will happen to the energy of the fuel when it is burned?
* Explain why you think this will happen.