**How Bonds and Energy are Connected**

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

 When bonds form between atoms, it gives off energy. This energy can be heat, sound, or light energy. The more bonds are formed, the more energy is released. Bonds need energy to be broken. When bonds break apart, they take energy away from things around them. Most of the time the bonds take energy out of heat. This makes the air around it colder.

1. Fires produce a lot of heat. This mean that bonds are being \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (broken or formed).
2. Ice cubes melting makes the air around them cold. This means that bonds are being. \_\_\_\_\_\_\_\_\_\_\_\_\_ (broken or formed).

True or False?

T F Five bonds being formed gives off more energy than two bonds being formed

T F Even though glow sticks light up, they don’t release any energy because it doesn’t get hot

T F If you mix two things together that are the same temperature, the temperatures will stay the same.

Baking soda

Thermometer with

Ending temperature

Thermometer with

Starting temperature

|  |  |
| --- | --- |
| Starting Temperature |  |
| Ending Temperature |  |

Baking soda and

Vinegar mixture

 Wsd We are going to be mixing baking soda and

Vinegar

Vinegar and check the temperature at the end to see if bonds are being broken or formed.

Did our baking soda and vinegar reaction get colder or hotter? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Does that mean that bonds were being broken or formed? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

If we change the amounts of the baking soda and vinegar, do you think it would change the ending temperature? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Do you think it would be colder or warmer than the ending temperature we just saw? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why?