Name _____ Period _____ Bio- Chem December 9, 2017

https://www.youtube.com/watch?v=b1t9aJjDAo8 https://www.youtube.com/watch?v=9QpIcX-xw1Q

Label the parts of the Bunsen burner: ***Air Vents. Needle Valve. Barrel. Flame. Gas inlet. Base***

Outline the steps to connecting and using the Bunsen burner:

1. Make sure Bunsen burner air vent is closed
2. Open needle valve one full twist counter-clockwise.
3. Hook Bunsen burner to the Bunsen tubing
4. Hook Bunsen burner to the gas jet, which is on either side of the sink.
5. Be sure Bunsen burner lies flat on the surface, if it does NOT, make adjustments by twisting the tubing next to the gas inlet.
6. Make sure ALL loose clothing and hair is tied back and out of the way
7. TURN ON gas at gas jet
8. Hold striker at a 45°, 1.5 inches away from top of barrel -light Bunsen
9. Adjust the height of the flame by using the needle valve (3-4'' high)
10. Open air vent until a smaller inner flame is seen
11. When finished turn off Bunsen burner at the valve jet

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ENERGY EFFICIENCY ACTIVITY SHEET

NAME: _____ **CLASS:** _____ **DATE:** _____

Wasted energy

When energy is transformed, generally it is transformed into more than one other form of energy. The problem is that not all of these forms are useful. For example, in an electric circuit, the metal components have some resistance to the flow of electricity through them. As a result, their temperature increases. If a cell or battery is the source of the electrical energy, it too will get warmer. This means that not all of the chemical potential energy of the chemicals in the cell or battery is transformed into electrical energy. Some is transformed into heat energy.

One way to represent this energy transformation is known a **Sankey diagram**. An example is shown in Figure 1. Notice how the diagram indicates the relative proportions of the two forms of energy that are produced, by the relative sizes of the arrows.

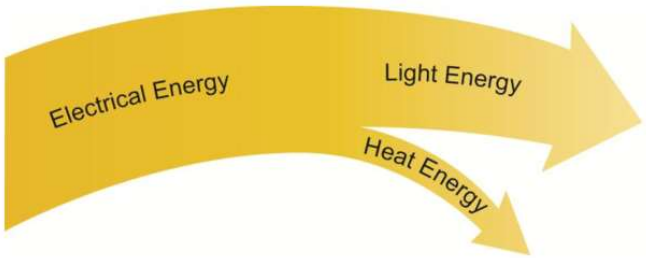


Figure 1 A Sankey diagram

The non-usable heat energy produced in an energy transformation can be considered as wasted energy.

Energy also can be wasted in another way. The spreading out of energy, so that not all the energy is transferred to a desired object, can cause a loss of useful energy as well. For example, when you heat a solution in a beaker over a Bunsen burner, not all of the heat energy supplied by the burning gas is transferred to the solution. Some is absorbed by the tripod and gauze mat and the glass of the beaker, and some is absorbed by the air. This loss of useful energy is termed the **dissipation** of energy.

Measuring energy

The international metric unit (SI unit) used for energy is the **joule**, symbol **J**.

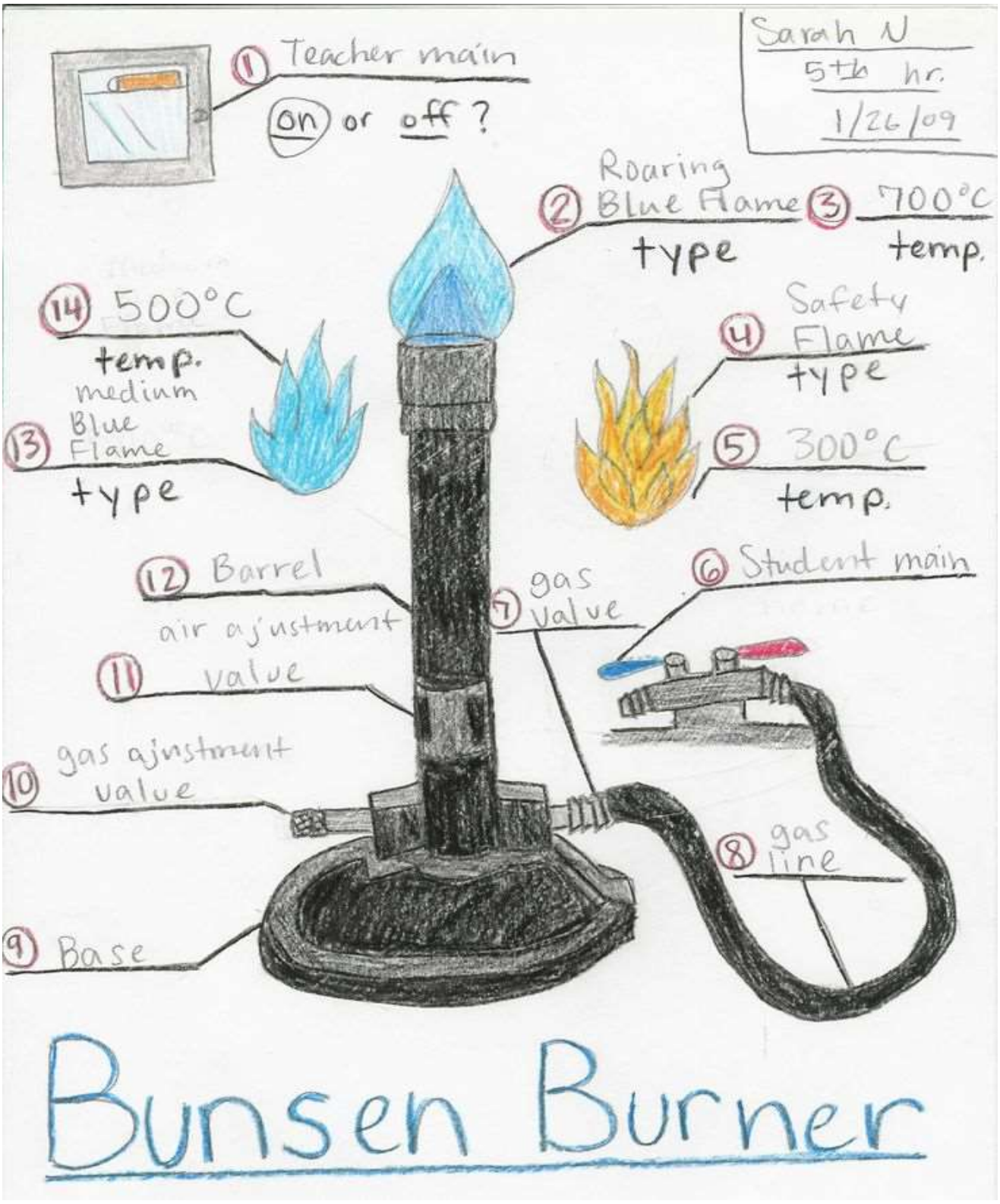
The joule can be used to measure all forms of energy. Later you will learn about another energy unit, which is commonly used for electrical energy.

Prefixes

As with other measurement units, standard prefixes can be used for the units used to measurer large amounts of energy. The most commonly used prefixes are shown in Table 1.

Table 1 Common prefixes for energy

Prefix	Symbol	Factor	Example
kilo	k	1000	One kJ is a thousand joules
mega	M	1 000 000, i.e. 10^6	One MJ is a million joules
giga	G	1 000 000 000, i.e. 10^9	One GJ is a thousand million joules
tera	T	1 000 000 000 000, i.e. 10^{12}	One TJ is a million million joules


Sarah N
5th hr.
1/26/09
1 Teacher main
on or off ?
2 Roaring Blue Flame
type
3 700°C
temp.
4 Safety Flame
type
5 300°C
temp.
6 Student main
7 gas Valve
8 gas line
9 Base
10 gas ajustment value
11 value
12 Barrel
air ajustment
13 Blue Flame
type
14 500°C
temp.
medium
Bunsen Burner