Temperature Lab

Objective: To learn how to measure with the centigrade scale thermometers; to practice temperature
conversions, practice percent error, and practice Bunsen Burner safety.

Materials: Bunsen burner, lighter, ring stand, ring, large beaker, stupid water (ask me), smaller beaker, and a
thermometer. You may NEVER EVER put the thermometer down. Hold it by the TOP, only.

1st: Observe demonstration of how to read a thermometer. To the NEARST 10th degree Centigrade.
2nd: Learn how to use the sparkers and replace the flints. Look at the 4 photos: closed, open, bad, and good
3rd: Observe how a Bunsen burner is lit safely. Think headphones, not a hat.
4th: Practice lighting and lifting the Bunsen burners. Be brave. First fill in the blanks on the photo.
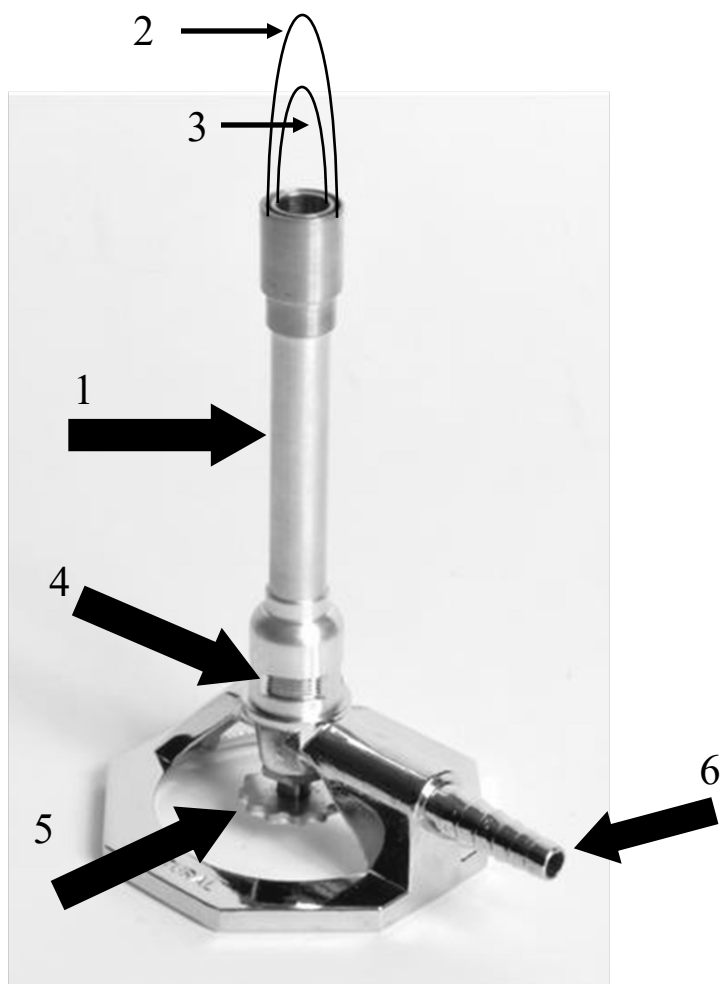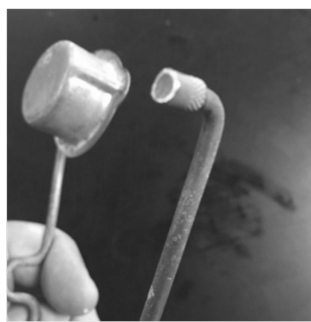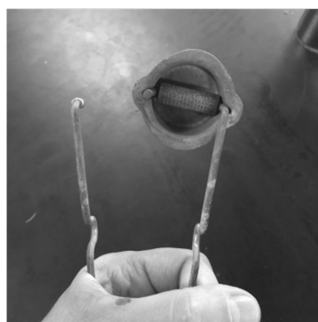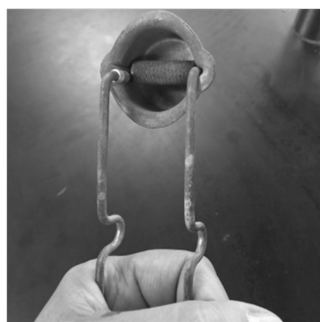
Number	Descriptor
	Gas enters the burner
	Gases mix together
	Hottest part of the flame
	A really hot but not hottest part of flame
	Oxygen gas enters burner
	Control valve (don't touch often)

You need to make 4 temperature measures, to the NEAREST 10th degree centigrade. Never touch the bottom of a thermometers (unless you are measuring body temperature, which you are not!)

Air temp to the nearest 10th degree _____°C   actual value is 26.9°C

Tap water to the nearest 10th degree _____°C   actual value is 25.3°C

Icy water to the nearest 10th degree _____°C   actual value is 1.2°C

Boiling water to the nearest 10th degree _____°C   actual value is 101.0°C

Lab Questions, to be done on loose leaf paper, NO SPIRAL FRILLS allowed. Use space between the questions so I can make comments if necessary.

7. What was your percent error for the air temperature? (write a formula, watch SF)

8. What was your percent error for the tap water temperature? (write a formula, watch SF)

9. What was your percent error for the icy water temperature? (write a formula, watch SF)

10. What was your percent error for the boiling water temperature? (write a formula, watch SF)

11. What is meant by absolute zero? Calculate absolute zero into Centigrade with a formula.

12. Calculate the melting point of iron in centigrade with a formula.

13. Skip this one, okay?

14. The freezing point of iron is also 1811 K. Explain that. (hint: think of ice melting and water freezing points)

15. Convert the melting point of zinc into centigrade. (write a formula)

16. The balanced equation for the combustion of Bunsen burner gas is this: $CH_{4(G)} + 2O_{2(G)} \rightarrow CO_{2(G)} + 2H_2O_{(G)}$
     Write a WORD equation, include energy as a third product

17. The temperature of a solution changes from 12.0°C to 29.0°C, when heated. The change in temperature is 17.0°C (which we call delta T, or we use this symbol: ΔT) . What is the ΔT in Kelvin?
     This is tricky and won't be graded here, but this problem will come up a lot in chem. You MUST figure this out. If you need to, draw a diagram of 2 temperature scales next to each other.

This lab report	includes	points
Cover page	Science title, funny subtitle, an introduction sentence: Why did we do this lab? What was the point?	1
Lab handout	6 blanks to be filled in on the first page.	3
On Paper	16 Lab questions above	16
Loose Leaf Paper	conclusion: what did you learn, summary of your findings	5
deduct five points for lateness, due on: _____		25 total points.