

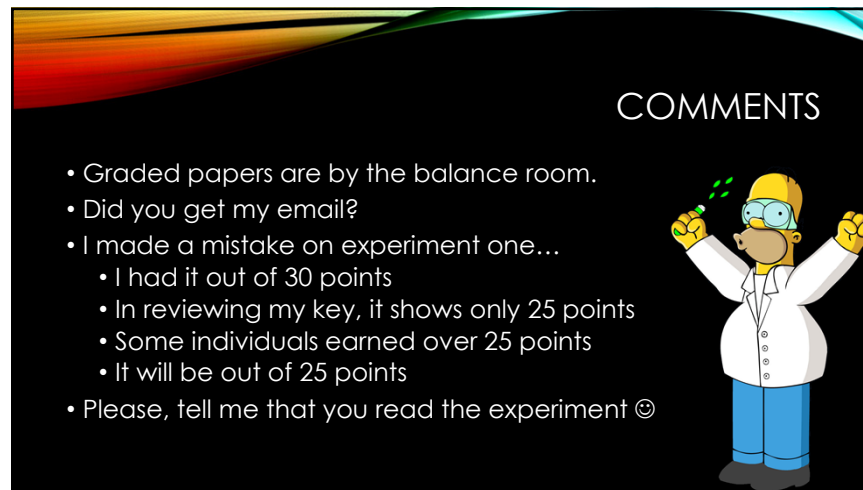


**EXPERIMENT 5**

Yes, did you read the syllabus?  
Also... your graded papers are on the left side of the room.


**Due Today**  
Experiment #2  
Exercise B

1

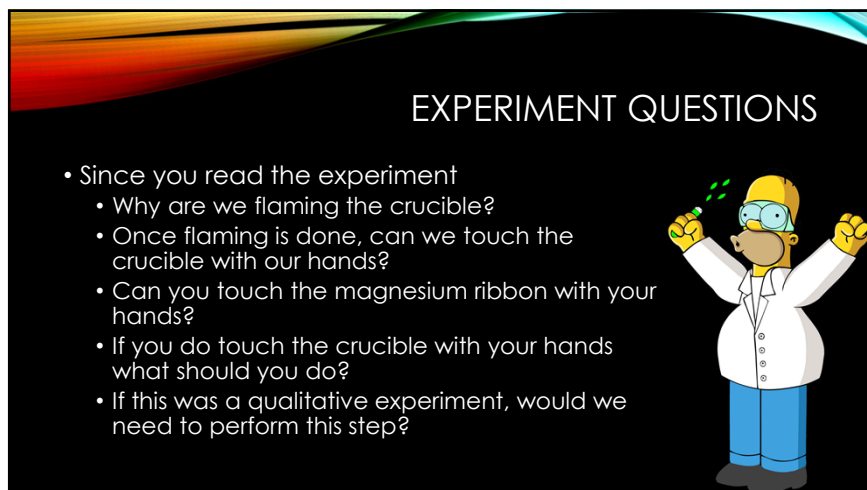


**COMMENTS**

- Graded papers are by the balance room.
- Did you get my email?
- I made a mistake on experiment one...
  - I had it out of 30 points
  - In reviewing my key, it shows only 25 points
  - Some individuals earned over 25 points
  - It will be out of 25 points
- Please, tell me that you read the experiment ☺




2

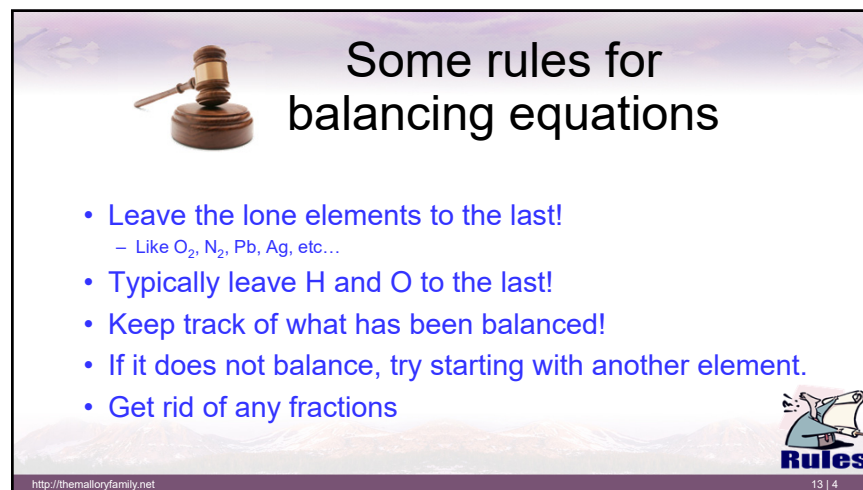


**EXPERIMENT QUESTIONS**


- Since you read the experiment
  - Why are we flaming the crucible?
  - Once flaming is done, can we touch the crucible with our hands?
  - Can you touch the magnesium ribbon with your hands?
  - If you do touch the crucible with your hands what should you do?
  - If this was a qualitative experiment, would we need to perform this step?




3



**Some rules for balancing equations**



- Leave the lone elements to the last!
  - Like  $O_2$ ,  $N_2$ , Pb, Ag, etc...
- Typically leave H and O to the last!
- Keep track of what has been balanced!
- If it does not balance, try starting with another element.
- Get rid of any fractions

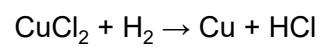


<http://themalloryfamily.net>

13 | 4

4

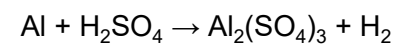
## Questions

<http://themalloryfamily.net>

13 | 5

5

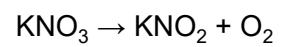
## Questions

<http://themalloryfamily.net>

13 | 6

6

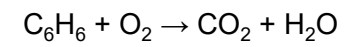
## Questions

<http://themalloryfamily.net>

13 | 7

7

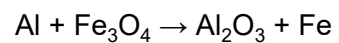
## Questions

<http://themalloryfamily.net>

13 | 8

8

## Questions

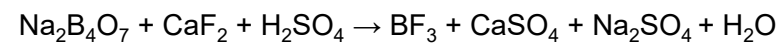


<http://themailoryfamily.net>

13 | 9

9

## Questions

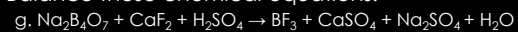


<http://themailoryfamily.net>

13 | 10

10

2. Balance these chemical equations.



11

## CALCULATION QUESTIONS

- Do you know how to determine the molar mass of a compound?
  - In atomic mass units
  - In grams
- Do you know how to determine the percent of each element in a compound?
- Do you know how to use Avogadro's number?
- Do you know how to balance equations?



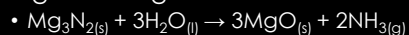
12

## WHAT WE ARE DOING TODAY

### Burning magnesium in air

- Burning – always reacts with oxygen
- But... Nitrogen will also react

We will remove the magnesium that reacts with nitrogen through the addition of water.



13

## STUFF YOU SHOULD KNOW

### Quantitative

- Always has numbers
- Technique is paramount
- Provide precise data

Homer's shirt has four buttons

### Qualitative

- Typically "Yes" or "No" answers
- Typically does not require in depth calculations

Homer's buttons are white



14

## HOW NOT TO MAKE A MISTAKE

- Yes this experiment is quantitative
- Follow the directions
- Always use crucible tongs with your crucible and cover
- Once you start with a balance, stay with that balance
- Make sure you use the milligram balances
- Never move a balance!
  - Ever, don't even think about moving it.
  - Really, don't do it!
  - Any balance!



15

## POLYATOMIC IONS

Please verify...  
(Lecture Grade Breakdown)

- 89 A
- 79 B
- 70 C
- 55 D

Ask me about checking your data

POLYATOMIC IONS					
1- CHARGE		2- CHARGE		3- CHARGE	
$\text{H}_2\text{PO}_3^-$	dihydrogen phosphite	$\text{HPO}_3^{2-}$	hydrogen phosphite	$\text{PO}_3^{3-}$	phosphite
$\text{H}_2\text{PO}_4^-$	dihydrogen phosphate	$\text{HPO}_4^{2-}$	hydrogen phosphate	$\text{PO}_4^{3-}$	phosphate
$\text{HCO}_3^-$	hydrogen carbonate OR bicarbonate	$\text{CO}_3^{2-}$	carbonate		
$\text{HSO}_3^-$	hydrogen sulfite OR bisulfite	$\text{SO}_3^{2-}$	sulfite		
$\text{HSO}_4^-$	hydrogen sulfate OR bisulfate	$\text{SO}_4^{2-}$	sulfate		
$\text{NO}_2^-$	nitrite	$\text{S}_2\text{O}_3^{2-}$	thiosulfate	<b>+ CHARGE</b>	
$\text{NO}_3^-$	nitrate	$\text{C}_2\text{O}_4^{2-}$	oxalate	$\text{NH}_4^+$	ammonium
$\text{OH}^-$	hydroxide	$\text{CrO}_4^{2-}$	chromate	$\text{H}_3\text{O}^+$	hydronium
$\text{C}_2\text{H}_3\text{O}_2^-$	acetate	$\text{Cr}_2\text{O}_7^{2-}$	dichromate	$\text{Hg}_2^{2+}$	mercury(I)
$\text{CN}^-$	cyanide	$\text{O}_2^{2-}$	peroxide		
$\text{OCN}^-$	cyanate				
$\text{MnO}_4^-$	permanganate				
$\text{ClO}^-$	hypochlorite	$\text{BrO}^-$	hypobromite	$\text{IO}^-$	hypiodite
$\text{ClO}_2^-$	chlorite	$\text{BrO}_2^-$	bromite	$\text{IO}_2^-$	iodite
$\text{ClO}_3^-$	chlorate	$\text{BrO}_3^-$	bromate	$\text{IO}_3^-$	iodate
$\text{ClO}_4^-$	perchlorate	$\text{BrO}_4^-$	perbromate	$\text{IO}_4^-$	periodate

16