

Name _____ Block _____ Date _____

Review for Unit 2 Test - Ch 15.1, 4 and 7

Daigneault Chemistry

Station 1 – GO OVER ALL WORK FROM THE UNIT

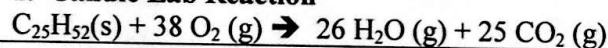
- Go through all of the work listed on the study guide.
 - Fill in any portions you did not get to or finish.
 - Check all answers on the keys.
 - Mark with a star questions you find helpful or would like to go back to and use for review.

Station 2 – GO OVER YOUR STUDY GUIDE/ REVISE

- Go over your study guide with the members of your group.
 - Did you include all of the following sections:
 - Vocabulary section**
Include all bold vocabulary from each section that you need to review as well as any words you do not understand from the unit.
See the end of the chapter review pages for a word bank.
 - Outline notes section**
From each section we covered write bulleted notes.
Use the end of the chapter review as guidelines for ideas on what to include.
 - Example section**
Redo at least 2 examples from each of the in class and homework problems assigned. Place them at the end of your study guide or you may reprint the worksheets and attach them to your study guide.
 - Complete 1-3 of the blue section review questions at the end of the chapter for the sections you still need to review and check the answers.
 - Make additions and or edits to your study guide.
 - Mark all areas you would like to go back and study for your test.

Station 3 – LABS

1. Candle Lab Reaction



Reaction Balance the Reaction	Chemical or Physical Change	Reactant(s) Use the name	Product(s) Use the name
$\text{C}_{25}\text{H}_{52}(\text{s}) + 38 \text{O}_2(\text{g}) \rightarrow 26 \text{H}_2\text{O}(\text{g}) + 25 \text{CO}_2(\text{g})$ - burning of a candle (paraffin)	chem	paraffin(s) oxygen(g)	water(g) carbon dioxide(g)

Describe what is happening by:

Classify the reactant or product as an atomic element, molecular element, ionic compound or a molecular compound

~~molecular compound~~ molecular element → molecular compound molecular compound

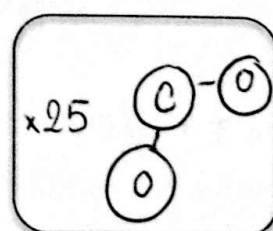
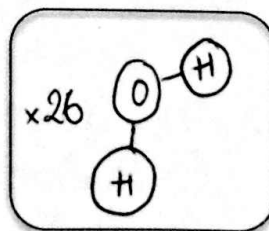
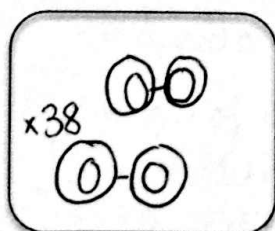
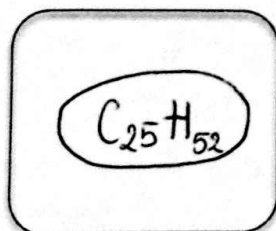
Describe the state of each reactant and product

solid gas → gas gas

Discuss the ratio between each of the reactants and product

1 38 → 26 25

Draw what is happening



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2. Crystal Lab Reaction

Reaction Balance the Reaction	Chemical or Physical Change	Reactant(s) Use the name	Product(s) Use the name
$\text{KAl}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O} (\text{s}) \rightarrow \text{K}^+ (\text{aq}) + \text{Al}^{3+} (\text{aq}) + \text{SO}_4^{2-} (\text{aq}) + 12 \text{H}_2\text{O} (\text{l})$	physical	alum(s)	potassium ion(aq) aluminum ion(aq) sulphate ion(aq) water(l)

Describe what is happening by:

Classify the reactant or product as an atomic element, molecular element, ionic compound or a molecular compound

ionic compound → ions + molecular compound

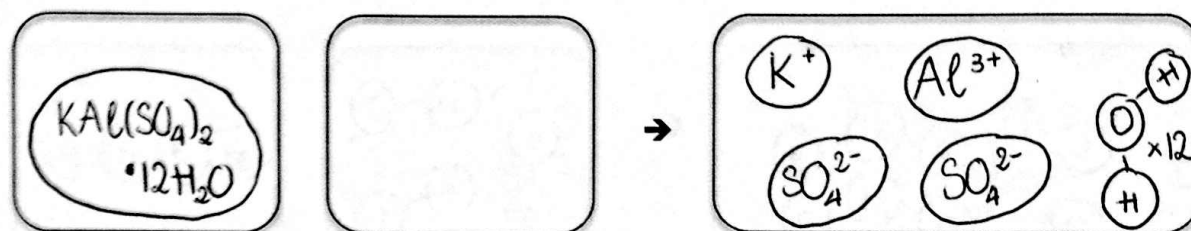
Describe the state of each reactant and product

solid → aqueous

Discuss the ratio between each of the reactants and product

1 → 1 : 1 : 2 : 12

Draw what is happening



Describe using a drawing how your crystal is growing in your cup. Be very specific. Show all ions.

discuss with your partner(s)

answer will vary.

Describe two conditions you are using to grow your crystal and how these conditions are affecting its growth.

Why are you using these conditions? What is your goal?

Use at least 5 of the following words in your description. saturated, unsaturated, temperature, evaporation, heat, clear, cloudy, shape, concentration, solute, solvent

Condition 1: raise the temperature of water and add the alum to make a saturated solution (solution with very high concentration of solute)

Condition 2: allow the solution to cool down so that the solute (alum) can precipitate out of the solution. The solvent will also evaporate to speed up this process. to make seed crystal

Condition 3: the position of the seed crystal in the cup will affect the shape of the crystal (the ideal shape is octahedral)

Condition 4: the rate of crystal forming affect the clarity of crystal. Slow → clearer

Station 4 – BALANCING AND DRAWING CHEMICAL REACTIONS

1. Complete the information below:

Reaction Balance the Reaction	Chemical or Physical Change	Reactant(s) Use the name	Product(s) Use the name
$4 \text{ Fe (s)} + 3 \text{ O}_2 \text{ (g)} \rightarrow 2 \text{ Fe}_2\text{O}_3 \text{ (s)}$ Rust ☺	chem	iron(s) oxygen(g)	iron(III) oxide (s)

Describe what is happening by:

Classify the reactant or product as an atomic element, molecular element, ionic compound or a molecular compound

atomic element molecular element \rightarrow ionic compound

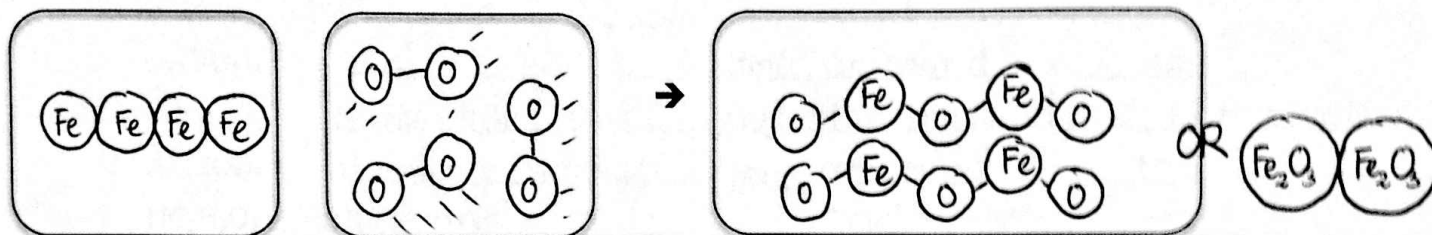
Describe the state of each reactant and product

solid gas \rightarrow solid

Discuss the ratio between each of the reactants and product

4 3 \rightarrow 2

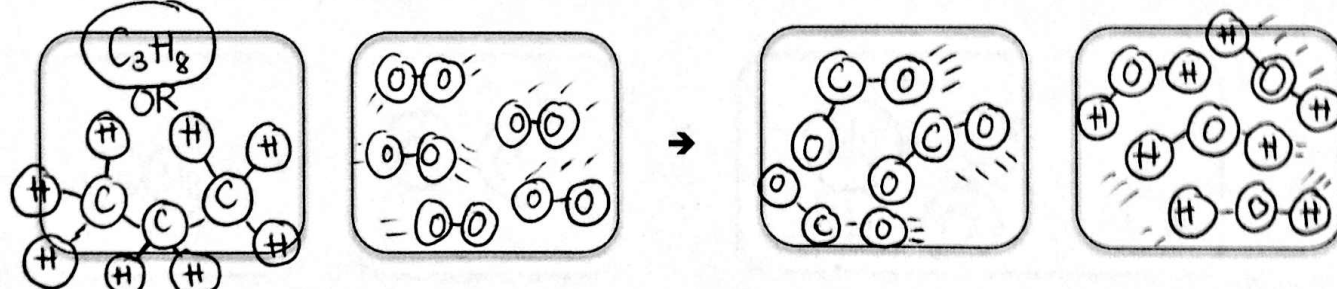
Draw what is happening



2. Complete the information below:

Reaction Balance the Reaction	Chemical or Physical Change	Reactant(s) Use the name	Product(s) Use the name
$1 \text{ C}_3\text{H}_8 \text{ (g)} + 5 \text{ O}_2 \text{ (g)} \rightarrow 3 \text{ CO}_2 \text{ (g)} + 4 \text{ H}_2\text{O} \text{ (g)}$ your propane gas grill	chem	propane(g) oxygen(g)	carbon dioxide (g) water (g)

Draw what is happening



Station 5 – PRACTICING NOMENCLATURE

1. Write the formula and indicate the type of bonding found in the following:

	Formula	Classification	Type of bonding
a. sodium fluoride	NaF	ionic compound	ionic
b. dinitrogen pentoxide	N_2O_5	molecular compound	molecular covalent
c. lead	Pb	atomic element	metallic
d. diamond	C	molecular element	network covalent

e. cupric phosphate	$\text{Cu}_3(\text{PO}_4)_2$	ionic compound	ionic
f. steel	Fe	atomic element	metallic
g. ammonium perchlorate	NH_4ClO_4	ionic compound	ionic
h. vanadium (V) fluoride	VF_5	ionic compound	ionic
i. calcium chloride	CaCl_2	ionic compound	ionic
j. oxygen	O_2	molecular element	molecular covalent

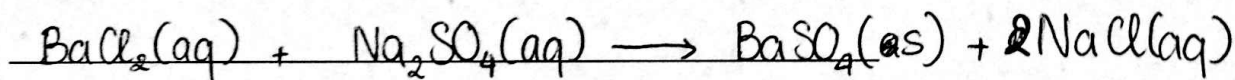
2. Write the name of the following and identify the type of bonding:

	Name	Classification	Type of bonding
a. KMnO_4	potassium permanganate	ionic compound	ionic
b. HNO_2	nitrous acid	acid	—
c. PCl_3	phosphorus trichloride	molecular compound	molecular covalent
d. CsClO_4	cesium perchlorate	ionic compound	ionic
e. FeBr_3	iron (III) bromide	ionic compound	ionic
f. HCN	hydrocyanic acid	acid	—
g. $\text{Co}(\text{NO}_3)_3$	cobalt (III) nitrate	ionic compound	ionic
h. CBr_4	carbon tetrabromide	molecular compound	molecular covalent
i. $\text{Al}_2(\text{SO}_4)_3$	aluminum sulphate	ionic compound	ionic
j. $\text{HC}_2\text{H}_3\text{O}_2$	acetic acid	acid	—

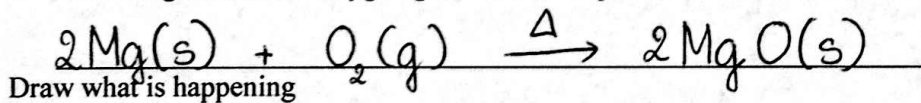
Station 6 – PUT IT ALL TOGETHER

1. Write and balance an equation for the following.

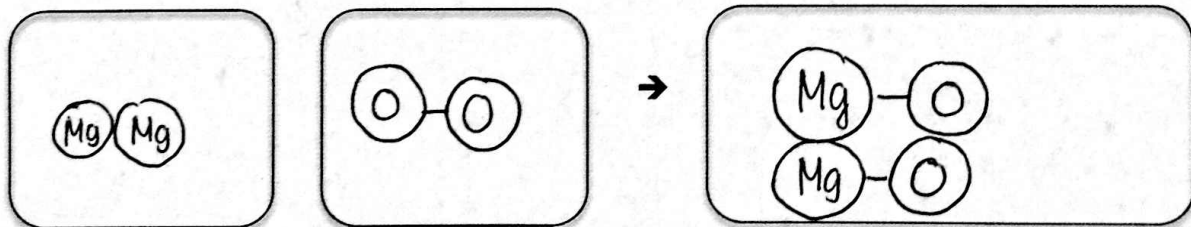
- a. Aqueous barium chloride and aqueous sodium sulfate react to form solid barium sulfate and an aqueous solution of sodium chloride.



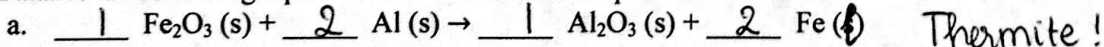
- b. Solid magnesium and oxygen gas react in the presence of heat to form magnesium oxide.



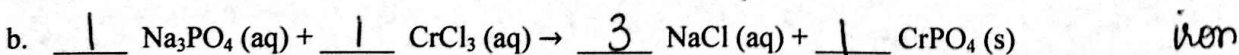
Draw what is happening



2. Balance the following equation and rewrite in a complete sentence.



solid iron(III) oxide reacts with solid aluminum to form solid aluminum oxide and liquid



aqueous sodium phosphate reacts with chromium chloride aqueous to form aqueous sodium chloride and chromium phosphate solid