Answers to the homework that was due today

How do we show something dissolving?

CλeMis+ry: http://genest.weebly.com

Stop in for help every day at lunch and Tues, Weds., &Thurs after school!

After-hours question? Email me at home: eagenest@madison.k12.wi.us

ANSWER

Name_____

Period_____

1. From the textbook, copy the diagrams from **page 483** in good detail, including the caption:

	caption

2. Now add a tiny "+" to the hydrogen atom on each water molecule and a tiny "-" to each oxygen atom on a water molecule in your drawings above. (that will be a few dozen of each symbol altogether)

For each of the following, Underline compounds that are molecular, circle compounds that are ionic

3. C_2H_3OH SO_3 $MgCl_2$ $CH_3OH_{(L)}$ FeF_3

IONIC IONIC

For each substance below write a dissociation equation (something like "$A_{(s)}$ -> $B_{(aq)}$ + $C_{(aq)}$") to describe that substance dissolving:

(a) LiCl This is ☒ionic ☐molecular (don't forget to write solid, liquid, aqueous next to each symbol)

$LiCl_{(s)} \rightarrow Li^+_{(aq)} + Cl^-_{(aq)}$

(b) $CH_3OH_{(L)}$ This is ☐ionic ☒molecular (don't forget to write solid, liquid, aqueous next to each symbol)

$CH_3OH_{(L)} \rightarrow CH_3OH_{(aq)}$

(c) LiNO This is ☒ionic ☐molecular (don't forget to write solid, liquid, aqueous next to each symbol)

$LiNO_{(s)} \rightarrow Li^+_{(aq)} + NO^-_{(aq)}$

(d) $NaBr_{(s)}$ This is ☒ionic ☐molecular (don't forget to write solid, liquid, aqueous next to each symbol)

$NaBr_{(s)} \rightarrow Na^+_{(aq)} + Br^-_{(aq)}$

(e) $C_{12}H_{22}O_{11(s)}$ This is ☐ionic ☒molecular (don't forget to write solid, liquid, aqueous next to each symbol)

$C_{12}H_{22}O_{11(s)} \rightarrow C_{12}H_{22}O_{11(aq)}$

4. Write the correct formula that each compound would have. Remember, the total charge of any substance is **zero charge**

	O^{2-}	OH^-	PO_4^{3-}
Mg^{2+}	MgO	$Mg(OH)_2$	$Mg_3(PO_4)_2$
K^+	K_2O	KOH	K_3PO_4
NH_4^+	$(NH_4)_2O$	NH_4OH	$(NH_4)_3PO_4$
Iron(III) ion {look up the symbol on your chart}	Fe_2O_3	$Fe(OH)_3$	$FePO_4$

5. For each description below, fill in one row on the table below

A single Cation (show charge)	A single Anion (show charge)	Formula
Mg^{2+}	Cl^-	$MgCl_2$ (You made this in lab last week)
H^+	PO_4^{3-}	H_3PO_4 (a semi-harmless acid found in cola)
Al^{3+}	O^{2-}	Al_2O_3 ('rusty aluminum', a major component of clay)

H+ H+ H+

← single elements break up into single atoms

6. Draw a cartoon, similar to the drawing in #1 to show the dissolving of $MgCl_2$

Q: What can make a substance ionic besides a metal? The presence of

Answer: NH_4^+

PURPOSE: How do we depict dissolving solids that are "complicated"?

WARM UP: Draw the formula of aluminum nitrate.

$Al^{3+} + NO_3^- + NO_3^- + NO_3^- \rightarrow$

$Al(NO_3)_3$

One aluminum atom and three nitrates.

$Al(NO_3)_3$

#1 "I think that when KNO_3 dissolves the water will get colder"

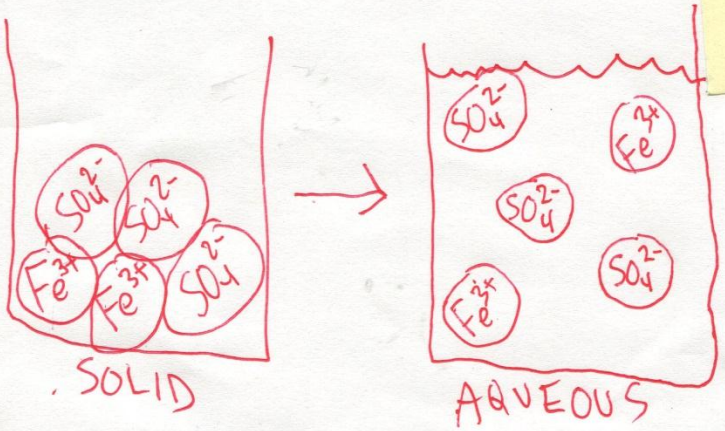
Because it takes energy to ~~heat~~ seperate the ions. The water loses that energy."

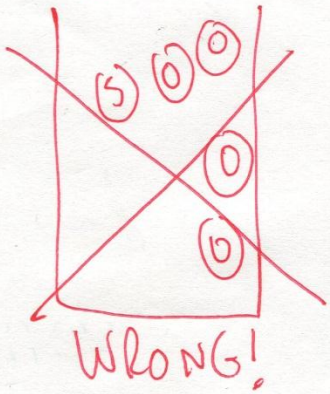
#2 Show how this dissolves

$AlBr_{3(s)} \rightarrow Al^{3+}_{(aq)} + Br^-_{(aq)} + Br^-_{(aq)} + Br^-_{(aq)}$

$Zn_3(PO_4)_{2(s)} \longrightarrow \underline{Zn^{2+}} + \underline{Zn^{2+}} + \underline{Zn^{2+}} + \underline{PO_4^{-3}} + \underline{PO_4^{-3}}$

#3 DRAW IRON(III) SULFATE DISSOLVING





Rule: if an ion is just one type of element, it exists as single atoms

example

Fe_3N_2 would exist as Fe^{2+} Fe^{2+} Fe^{2+} N^{3-} N^{3-}

That's five SEPERATE ions

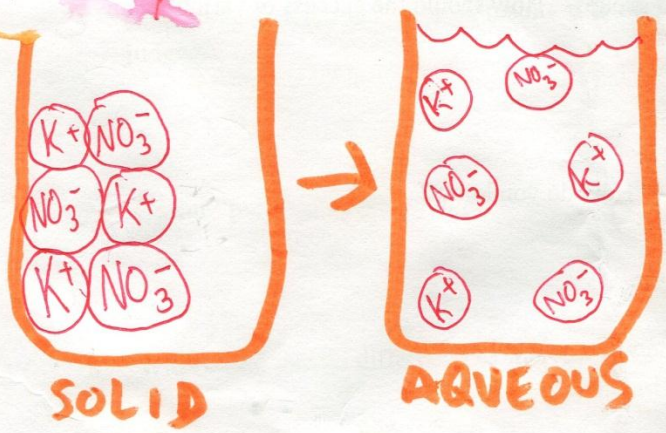
example

$Ca(NO_3)_2$ exists as Ca^{2+} NO_3^- NO_3^-

Thats three ions.

$(NH_4)_3PO_4 \rightarrow NH_4^+ \; NH_4^+ \; NH_4^+ \; PO_4^{3-}$

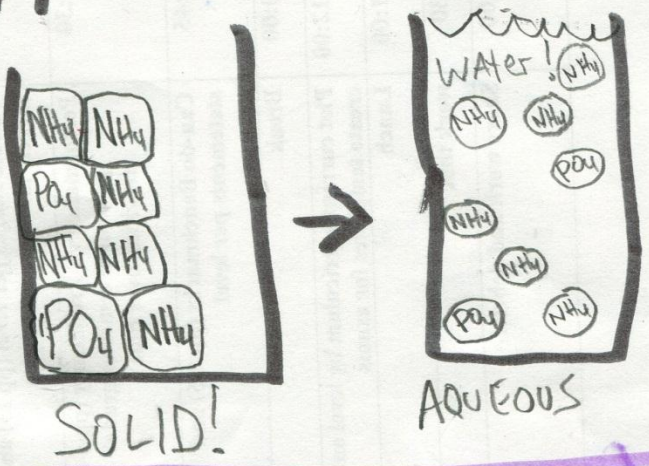
#3 DRAW ~~KNO3~~ dissolving



#4 SOLUTIONS

1. transparent
2. the solid stays dissolved
3. are homogenous

#4



#5

A solution is

① transparent

② the solid won't settle out

③ • ARE [redacted] HOMOGENEOUS

Here are a couple of hints to help you get started on tonight's Trikke Sheet Homework (download separately at hhttp://genest.weebly.com:

How do Odd Formula Ions Dissolve?

CAeMis+ry: http://genest.weebly.com

Stop in for help every day at lunch and Tues, Weds., &Thurs after school!

After-hours question? Email me at home: eagenest@madison.k12.wi.us

Name _____

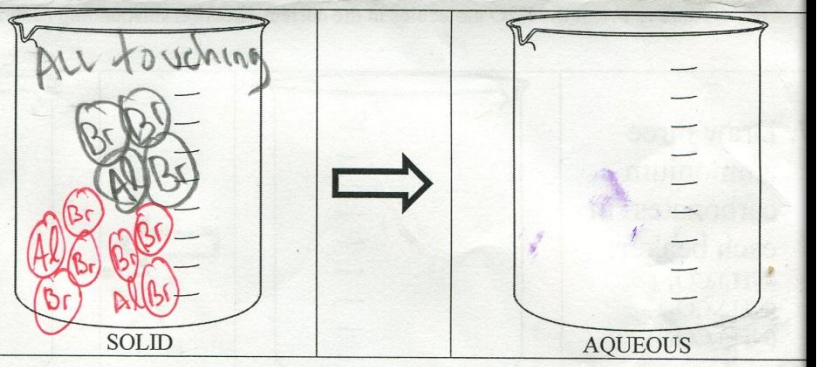
Period _____

1. Circle the metallic element in each.

Circle any element that is a metal	This substance is…
$CuSO_4$	ionic / molecular
N_2O_4	ionic / molecular

Circle any element that is a metal	This substance is…
$NaCH_3COO$	ionic / molecular
CoO	ionic / molecular

2. Draw three aluminum bromides in each beaker:
   $AlBr_3$
   $AlBr_3$
   $AlBr_3$



3. **Draw a slash** through the molecule to show the half that would fall off. How many pieces will this fall apart into if made into an aqueous solution? (circle your choice)

KI	1? 2? 3? 4? 5?	$AlBr_3$	1? 2? 3? 4? 5?
K_2S	1? 2? 3? 4? 5?	$(NH_4)_2CO3$	1? 2? 3? 4? 5?
$MgCO_3$	1? 2? 3? 4? 5?	$Ca(CH_3COO)_2$	1? 2? 3? 4? 5?
$Zn(NO_3)_2$	1? 2? 3? 4? 5?	CH_3OH	1? 2? 3? 4? 5?