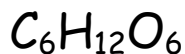


Unit 2: 1A. BASIC CHEMISTRY CONCEPT DEVELOPMENT

Use the Formula below in order to answer the questions which follow.



FOR THE FORMULA ABOVE,
DESCRIBE WHAT EACH OF THE
FOLLOWING REPRESENT:

C=

H=

O=

THE NUMBERS REPRESENT.....

-HOW MANY TOTAL ATOMS ARE
REPRESENTED IN THE FORMULA
SHOWN ABOVE?

-THE FORMULA SHOWN REPRESENTS:

ATOMS ELEMENTS MOLECULES

-ATOMS ARE LINKED TO EACH OTHER
USING THESE?

-WHAT TYPE OF BOND IS STRONGEST?
SINGLE DOUBLE TRIPLE

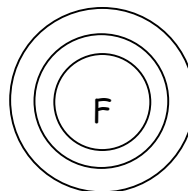
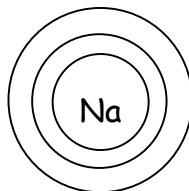
BONDING:

PREDICT WHAT TYPE OF BOND EACH OF THE FOLLOWING ATOMS
WOULD MAKE WITH EACH OTHER... DRAW A DIAGRAM THAT MIGHT
EXPLAIN HOW THE BOND HOLDING THEM TOGETHER IS CREATED!!

This compound is
the most popular
active ingredient
in toothpaste to
prevent cavities.



Sodium and
Fluorine



Formula:
NaF

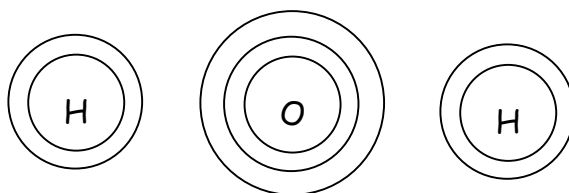
What does this mean?

THESE ATOMS WILL FORM _____ BONDS
HOW? How does this affect atomic stability??

BONDING: (cont.)

The compound **dihydrogen monoxide** has been widely recognized to be hazardous to your health if you are exposed to this for prolonged periods of time!!

Hydrogen
and Oxygen



Formula:

H_2O

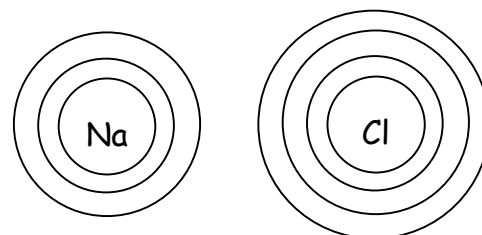
What does this mean?

THESE ATOMS WILL FORM _____ BONDS
HOW? How does this affect atomic stability??

And now... a demonstration... *WOW, THAT WATER IS REALLY STRONG!! HOW DOES IT DO THAT?*

1. WHAT IS THE CHEMICAL FORMULA FOR WATER?
2. HOW DOES THE WATER HOLD THE PAPER CLIP UP?
3. DOES THE CHEMICAL COMPOSITION OF THE WATER MOLECULE HELP IT HOLD THIS PAPER CLIP UP? EXPLAIN!!
4. WHAT DOES IT MEAN FOR A MOLECULE TO BE POLAR? IS WATER A POLAR MOLECULE?
5. WHAT IS HYDROGEN BONDING? CAN YOU DRAW A DIAGRAM WHICH EXPLAINS HOW DIFFERENT WATER MOLECULES BOND TOGETHER? WHAT DOES HYDROGEN BONDING HAVE TO DO WITH SURFACE TENSION?

SALT (NaCl) AND WATER



WHAT TYPE OF BONDS WILL
THESE ATOMS FORM?

WHY DOES SALT DISSOLVE IN WATER??

THAT OIL AND WATER SURE DISLIKE ONE ANOTHER! WHY DON'T THEY MIX??

MAKE AN ATTEMPT AT EXPLAINING WHY OIL AND WATER DON'T MIX WITH EACH OTHER IN THE SPACE BELOW. HINT.....THE CHEMICAL PROPERTIES OF EACH HAVE SOMETHING TO DO WITH IT!!!!

YOUR SUMMARY....

COVALENT	IONIC	HYDROGEN
<ul style="list-style-type: none"> • HOW DO ATOMS FORM COVALENT BONDS WITH ONE ANOTHER? (ELECTRONS MUST BE IN YOUR DESCRIPTION!!) 	<ul style="list-style-type: none"> • HOW DO ATOMS FORM IONIC BONDS WITH ONE ANOTHER? (ELECTRONS MUST BE IN YOUR DESCRIPTION!!) • WHAT TYPE OF ATOMS WILL GENERALLY FORM IONIC BONDS? • Describe an ion. Use protons and electrons in your description. 	<ul style="list-style-type: none"> • HOW DO MOLECULES FORM HYDROGEN BONDS WITH EACH OTHER? (POLARITY MUST BE IN YOUR DESCRIPTION!!)

POLAR	NONPOLAR
EXPLANATION	EXPLANATION
EXAMPLE:	EXAMPLE:

HYDROPHYLIC	HYDROPHOBIC
EXPLANATION	EXPLANATION
EXAMPLE:	EXAMPLE:

MORE PRACTICE!

CREATE DIAGRAMS LIKE THOSE SHOWN PREVIOUSLY THAT EXPLAIN THE BONDING BETWEEN THE FOLLOWING ATOMS. REMEMBER THAT ALL ATOMS WANT TO HAVE A STABLE (8 ELECTRON) OUTER ELECTRON SHELL (Except H - it wants 2)!!

1 CARBON AND 4 HYDROGEN ATOMS (methane)

WHAT TYPE OF BOND WILL THESE ATOMS FORM?

This cow is carrying a flexible, lightweight “tank” used to capture methane emissions in global warming experiments. (Seriously – I’m not good enough at photoshop to make this up!! <http://www.telegraph.co.uk/news/newstoppers/howaboutthat/2274995/Cow-farts-collected-in-plastic-tank-for-global-warming-study.html>)



1 MAGNESIUM AND 1 OXYGEN ATOM

WHAT TYPE OF BOND WILL THESE ATOMS FORM?

WHAT IS MAGNESIUM OXIDE?



It is used by many libraries for preserving/deacidifying books, and as an insulator in [industrial cables](#). It is also used as a medication to relieve heartburn, sour stomach, or acid indigestion. Medical uses of Magnesium oxide also include using it as a short-term laxative, or used to supplement a diet with magnesium.

Magnesium oxide is a principle ingredient in construction materials used for fireproofing.