Name _____ Date _____

Chemical Bonds CHAPTER 18 DRW

Section 1 Stability in Bonding

Predict *four topics that might be discussed after reviewing the objectives of Section 1.*

1. _____
2. _____
3. _____
4. _____

Review Vocabulary **Define** compound. *Use your book for help.*

compound _____

New Vocabulary *Define the following vocabulary terms. Use your book for help.*

chemical formula _____

chemical bond _____

Academic Vocabulary *Define* unique. *Use a dictionary for help. Then use the word in a sentence that demonstrates its scientific meaning.*

unique _____

Name _____ Date _____

Section 1 Stability in Bonding (continued)

Main Idea	Details

Combined Elements

I found this information on page _____.

Evaluate *why sodium chloride is not like the elements that form it.*

_____

_____

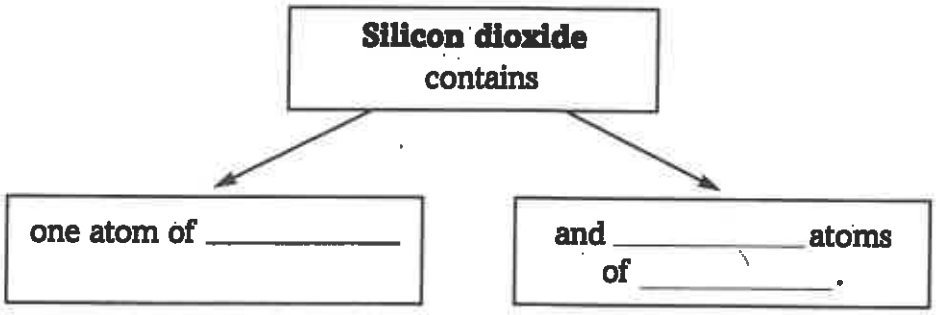
_____

_____

Formulas

I found this information on page _____.

Complete *the graphic organizer. Use the table in your book for information.*



Chemical Bond Formation

I found this information on page _____.

Summarize *what can be learned about an element from its electron dot diagram. Then draw an electron dot diagram of lithium below your answer. Use the examples of electron dot diagrams shown in your book for help.*

_____

_____

Name _____ Date _____

Section 1 Stability in Bonding (continued)

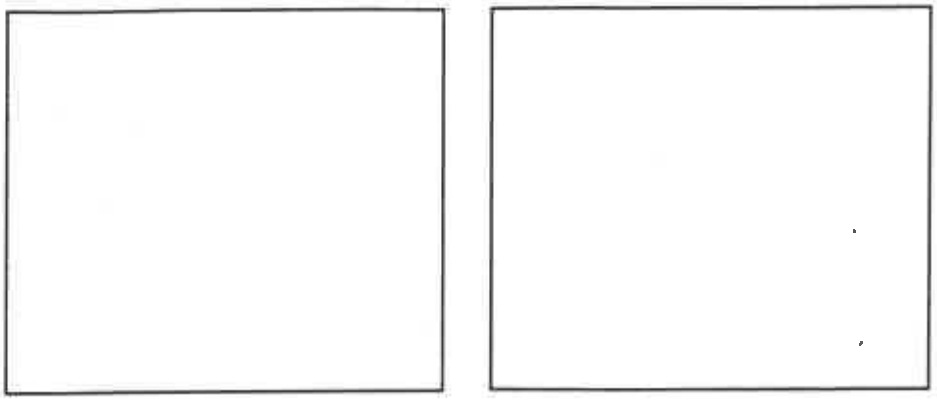
Main Idea

Chemical Bond Formation

I found this information on page _____.

Details

Create *your own electron dot diagrams for sodium and chlorine. Explain how both atoms could become more stable.*



_____

_____

_____

_____

Complete *the statements about chemical bonds.*

When atoms _____, _____, or _____ electrons, an attraction forms between the _____, pulling them together to form a _____. The attraction is called a _____. A chemical bond is the _____ that _____.

CONNECT IT **Make an analogy between the sharing of electrons and the completion of a jigsaw puzzle.**

_____

_____

_____

_____

_____

Name _____ Date _____

Chemical Bonds

Section 2 Types of Bonds

Skim *through Section 2 of the book. Write two questions that come to mind from reading the headings and the illustration captions.*

1. _____

2. _____

Review Vocabulary

Define atom. *Use your book for help.*

atom _____

_____

New Vocabulary

Read the definitions below. Then write the vocabulary word that matches each definition in the left column.

_____ a charged particle that has either more or fewer electrons than it has protons

_____ the force of attraction between a positive ion and a negative ion in an ionic compound

_____ the force of attraction between two atoms that share electrons

_____ the neutral particle that forms when atoms share electrons

_____ a covalent bond where the electrons are shared equally

_____ a covalent bond where electrons are unequally shared producing charged molecule ends

_____ a molecule that has a slightly positive end and a slightly negative end, but the molecule itself is neutral

_____ a molecule in which the electrons are shared equally between atoms in the chemical bond

Academic Vocabulary

Define transfer. *Use a dictionary for help.*

transfer _____

Name _____ Date _____

Section 2 Types of Bonds (continued)

Main Idea | **Details**

Ions

I found this information on page _____.

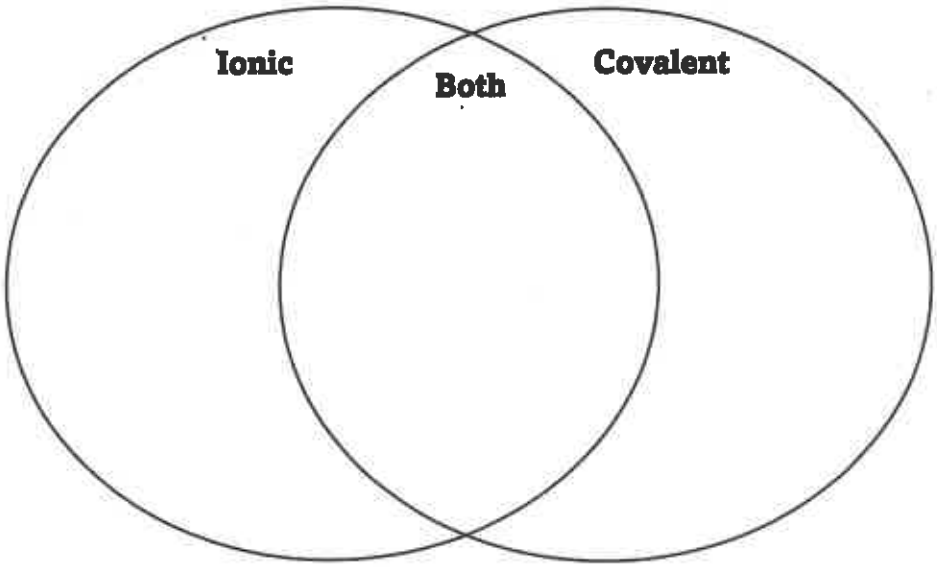
Complete ***the steps in the formation of a*** **potassium ion.**

1. An atom of potassium has _____ electron in its _____.
2. A potassium atom _____ one electron in its outer level when it combines with an _____.
3. The potassium atom is now a _____.
4. The potassium ion has a _____ charge.
5. The symbol for a positive potassium ion is _____.

Molecules

I found this information on page _____.

Compare **ionic** ***and*** **covalent bonds** ***in the Venn diagram below with at least eight facts.***



I found this information on page _____.

Analyze ***and discuss why it is much easier for Group 14 elements to become stable by sharing instead of transferring electrons.***

_____

_____

_____

_____

Name _____ Date _____

Section 2 Types of Bonds (continued)

Main Idea — **Details**

SUMMARIZE IT

Write two key facts in each of the boxes below.

Covalent Bonds

1.

2.

Polar Covalent Bonds

1.

2.

Sharing Electrons

1. Sharing requires less energy.
2. A covalent bond is formed.

Unequal Sharing

1.

2.

Nonpolar Covalent Bonds

1.

2.

Name _____ Date _____

Chemical Bonds

Section 3 Writing Formulas and Naming Compounds

Scan *Section 3 of your book, using the checklist below.*

- Read all section titles.
- Read all bold words.
- Read all charts and graphs.
- Look at all the pictures and read their captions.
- Think about what you already know about chemical formulas and compounds.

Formulate two questions about what you would like to learn.

1 _____

2. _____

Review Vocabulary

Define ion. *Use your book for help.*

ion _____

New Vocabulary

Define the following vocabulary words. Use your book for help.

oxidation number _____

_____

binary compound _____

polyatomic ion _____

hydrate _____

_____

Academic Vocabulary

Define formula. *Use a dictionary for help.*

formula _____

Name _____ Date _____

Section 3 Writing Formulas and Naming Compounds (continued)

Main Idea | **Details**

Writing Chemical Formulas

I found this information on page _____.

Complete *the table below for* sodium *and* chlorine. *Use the periodic table in your book.*

Element	Oxidation Number	Positive or Negative Charge?
Sodium		
Chlorine		

Define *what an oxidation number of 1+ means.*

_____

_____

_____

I found this information on page _____.

Summarize *the three steps in writing a formula for an* ionic compound *by completing the graphic organizer below.*

1. _____

_____

_____

2. _____

_____

_____

_____

3. _____

_____

_____

_____

_____

Name _____ Date _____

Section 3 Writing Formulas and Naming Compounds (continued)

Main Idea | **Details**

Compounds with Complex Ions

I found this information on page _____.

Organize *the steps for finding the formula for* **ammonium sulfate** *by completing the questions and answers below. Look at the Polyatomic Ions table in your book for help.*

Question: What is the positive ion and its charge?

Answer: _____

_____

Question: What is the negative ion and its charge?

Answer: _____

_____

Question: Balance the charges to make the compound neutral.

Answer: _____

_____

_____

The formula is: _____

Compounds with Added Water

I found this information on page _____.

Summarize *the information about* **hydrates** *by filling in the blanks below.*

Some ionic compounds have _____ as part of their structure. A _____ has water _____ and written into its _____. The _____ can be removed from the hydrate crystals by _____ them. The form of the compound without water is described as _____. The formula $CaSO_4 \cdot 2H_2O$ is named _____, whose common name is gypsum. The _____ form (without water), _____ is the common powder known as plaster of paris.

Name _____ Date _____

Section 3 Writing Formulas and Naming Compounds (continued)

Main Idea — **Details**

Naming Binary Covalent Bonds

I found this information on page _____.

Analyze *eight different* binary covalent compounds *of your choice. Write the formula for each compound in the left column. Write out the name in the right column. Use the Prefixes for Covalent Compounds table in your book for help.*

Formula	Name

CONNECT IT

Think of three common chemical compounds people use every day. Based on the rules listed throughout this section, write out the chemical formulas and chemical names of each one.