

Comparing Chemistry Concepts

Engage

1. Look at the graphic below.
2. In the 6th grade you had several lessons about this graphic.
3. Work with a partner and write down anything you can remember about this graphic.



Explore

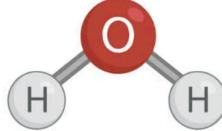
Materials: Copy of the Periodic Table

What To Do:

1. Use the copy of the Periodic Table to identify the names of the following substances.
2. Leave the third column blank for now.

Substance	Name	What the Rule Says
		
		

3. Identify the names of the substances in these groups.

Substance	Names	What the Rule Says
		
		

4. Look at the following rules and identify what each substance is called.

Rule 1 An ATOM is the smallest unit of an element.

Rule 2: A MOLECULE is formed when two or more atoms are chemically joined.

5. In the third column write atom or molecule according to what the rule says.



6. Use the copy of the Periodic Table to identify the names of the following atoms.

7. Leave the third column blank for now.

Atom	Name	What the Rule Says

8. Identify the names of the substances in these groups.

Atoms	Names	What the Rule Says

9. Look at the following rules and identify what each substance is called.

Rule 1: An ELEMENT contains one kind of atom.

Rule 2: A COMPOUND contains more than one kind of atom.

10. Use the copy of the Periodic Table to identify the following elements.

11. Leave the third column blank for now.

Element	Name	What the Rule Says
C		
O		

12. Identify the names of the elements in these groups.

Groups of Elements	Name	What the Rule Says
SiO₂		
H₂SO₄		

13. Look at the following rules and identify what each element or groups of elements are called.

Rule 1: A SYMBOL is a one or two letter abbreviation for an element.

Rule 2: A FORMULA represents a molecule or compound and uses symbols and subscripts.

CHEMISTRY CONCEPTS

Explain

ATOM



MOLECULE

ELEMENT

COMPOUND

SYMBOL

FORMULA

Elaborate

1. Read through the Word Bank and the fill in the blank questions below.
2. Watch the video “Difference Between a Molecule & a Compound at <https://www.youtube.com/watch?v=54GaGIDHwxY> without trying to answer any of the questions.
3. Read through the Word Bank and questions again.
4. Watch the video and fill in the blanks.

Word Bank			
molecules	two	same	
atoms	compound	different	

1. A molecules is formed when _____ or more atoms join together.
2. A compound is a molecule that contains at least two _____ elements.
3. A molecule can consist of two or more of the _____ element joined together.
4. A compound must have at least two _____ of different elements joined together.
5. All _____ are molecules but not all _____ are compounds.

1. Review the rules for compounds and molecules.

Molecules – formed when two or more atoms are chemically joined together.

Compounds – contains more than one kind of atom.

2. Look at the following groups of atoms and determine if they are a molecule, a compound or both.

3. Circle your answer under each group.

4. Explain your answer in the bottom box.

Molecule	Molecule	Molecule	Molecule
Compound	Compound	Compound	Compound
Both	Both	Both	Both

Name _____

period _____

EXIT TICKET

Comparing Chemistry Concepts

Use what you have learned in this lesson to answer the question below.

Question:

Are elements and compounds the same thing?

Claim:

I think

Evidence #1

An element -

Evidence #2

An element -

Evidence #3

A compound -

Reasoning:

These facts lead to the conclusion that -

Periodic Table of the Elements

Periodic Table of the Elements																								
Group																								
1	1 H 1.008 Hydrogen	2 He 4.0026 Helium	3 Li 6.941 Lithium	4 Be 9.012 Beryllium	5 Na 22.990 Sodium	6 Mg 24.305 Magnesium	7 Al 26.982 Aluminum	8 Si 28.086 Silicon	9 P 30.974 Phosphorus	10 S 32.066 Sulfur	11 Cl 35.453 Chlorine	12 Ar 39.948 Argon	13 B 10.81 Boron	14 C 12.011 Carbon	15 N 14.007 Nitrogen	16 O 15.999 Oxygen	17 F 18.998 Fluorine	18 Ne 20.179 Neon						
2	19 K 39.098 Potassium	20 Ca 40.08 Calcium	21 Sc 44.966 Scandium	22 Ti 47.88 Titanium	23 V 50.942 Vanadium	24 Cr 51.996 Chromium	25 Mn 54.938 Manganese	26 Fe 55.847 Iron	27 Co 58.933 Cobalt	28 Ni 58.89 Nickel	29 Cu 63.546 Copper	30 Zn 65.39 Zinc	31 Ga 69.72 Gallium	32 Ge 72.61 Germanium	33 As 74.922 Arsenic	34 Se 78.96 Selenium	35 Br 79.904 Bromine	36 Kr 83.80 Krypton						
3	37 Rb 85.468 Rubidium	38 Sr 87.62 Strontium	39 Y 88.906 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.906 Niobium	42 Mo 95.94 Molybdenum	43 Tc (98) Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.908 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.868 Silver	48 Cd 112.41 Cadmium	49 In 114.82 Indium	50 Sn 118.71 Tin	51 Sb 121.763 Antimony	52 Te 127.60 Tellurium	53 I 126.904 Iodine	54 Xe 131.29 Xenon						
4	55 Cs 132.905 Cesium	56 Ba 137.33 Barium	57 La 138.906 Lanthanum	72 Hf 178.49 Hafnium	73 Ta 180.948 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.22 Iridium	78 Pt 195.08 Platinum	79 Au 196.967 Gold	80 Hg 200.59 Mercury	81 Tl 204.303 Thallium	82 Pb 207.2 Lead	83 Bi 208.980 Bismuth	84 Po (208) Polonium	85 At (210) Astatine	86 Rn (222) Radium						
5	87 Fr (223) Francium	88 Ra 226.025 Radium	89 Ac 227.008 Actinium	104 Rf (261) Rutherfordium	105 Db (262) Dubnium	106 Sg (263) Seaborgium	107 Bh (262) Bohrium	108 Hs (265) Hassium	109 Mt (266) Meitnerium	110 	Mass numbers in parentheses are those of the most stable or most common isotope.													
Lanthanide Series																								
Actinide Series																								
6	58 Ce 140.12 Cerium	59 Pr 140.908 Praseodymium	60 Nd 144.24 Neodymium	61 Pm (145) Promethium	62 Sm 150.36 Samarium	63 Eu 151.97 Europium	64 Gd 157.25 Gadolinium	65 Tb 168.925 Terbium	66 Dy 162.50 Dysprosium	67 Ho 164.930 Holmium	68 Er 167.26 Erbium	69 Tm 168.934 Thulium	70 Yb 173.04 Ytterbium	71 Lu 174.967 Lutetium										
7	90 Th 232.038 Thorium	91 Pa 231.036 Protactinium	92 U 238.029 Uranium	93 Np 237.048 Neptunium	94 Pu (244) Plutonium	95 Am (243) Americium	96 Cm (247) Curium	97 Bk (247) Berkelium	98 Cf (251) Californium	99 Es (252) Einsteinium	100 Fm (257) Fermium	101 Md (258) Mendelevium	102 No (259) Nobelium	103 Lr (262) Lawrencium										

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