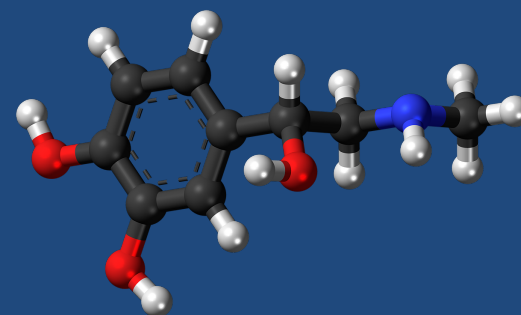
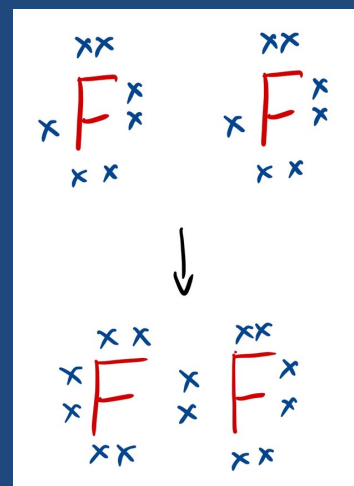
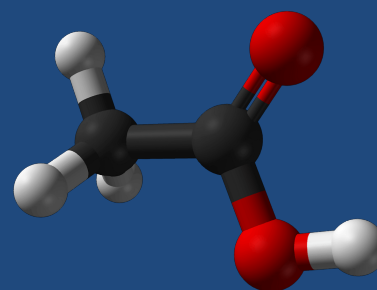


Molecular Compounds

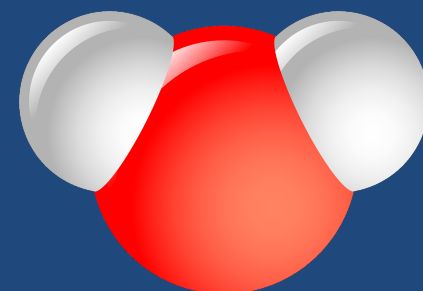
- Ionic compounds review
- examples
- Molecular compounds
- Electron sharing
- Single, Double, Triple bonds
- Naming compounds
- Writing formulas
- Diatomic gases



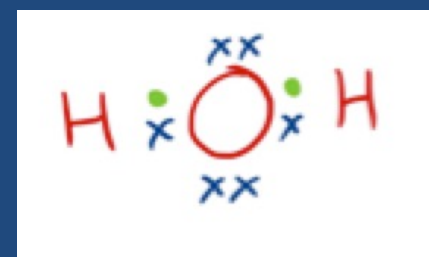
adrenaline



acetic acid



water



Preview File

Please enjoy this preview of your Student Version of the presentation. Please note within this sample file:

- Some slides appear blank because they have been removed
- Student versions have portions of the text removed which is given in the teacher version and appear as _____ which the students are to fill in
- Other slides may have on them, this represents writing that has been removed on this sample

The paid full version of your resource includes both Google Slides and PowerPoint and is Google Classroom Ready



Ionic Compounds Review

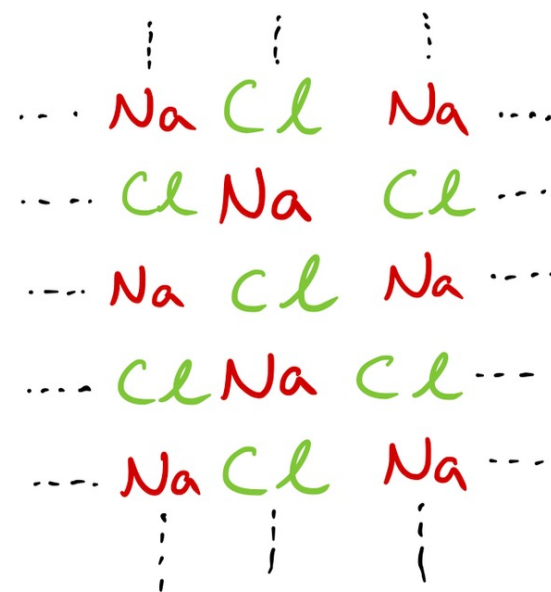
- Ionic compounds are the combination of ions

E.g. $\text{Na}^+ + \text{Cl}^- \rightarrow \text{NaCl}$

- _____

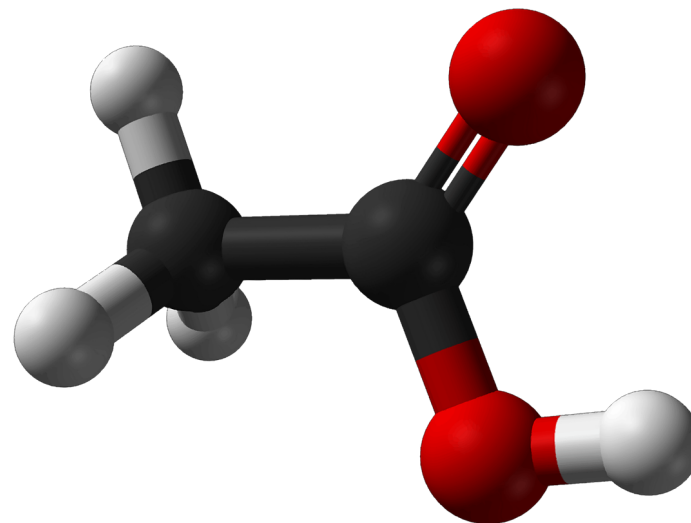
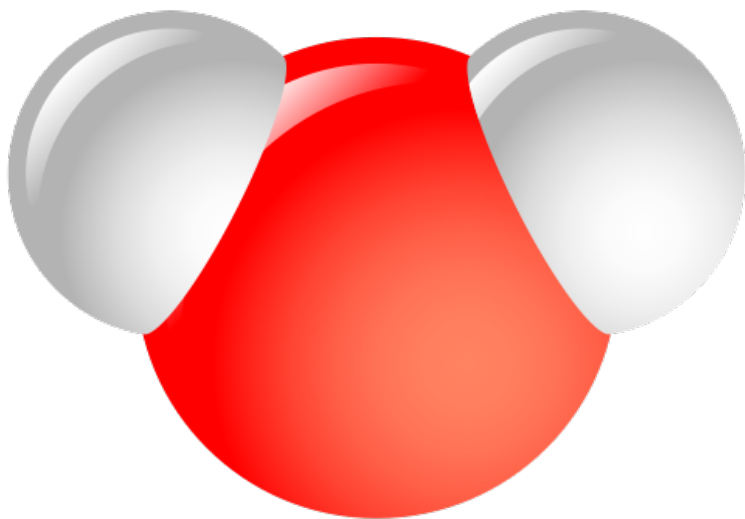
- _____

and form a crystal structure (e.g.
 NaCl and CaCl_2 which are both salts)



Molecular Compounds

- Consist of atoms covalently bonded together
- The elements involved are all _____



Some Examples

- $\text{N}_2\text{O} \rightarrow$ _____ = Gas used at the dentist to relax patients
- $\text{NO}_2 \rightarrow$ _____ = poisonous toxin emitted from car exhaust

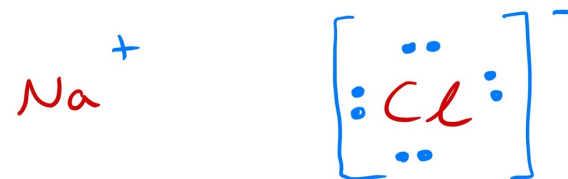


Hopefully your dentist doesn't get them mixed up

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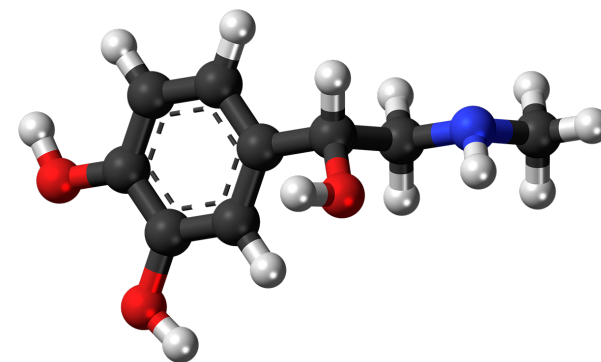
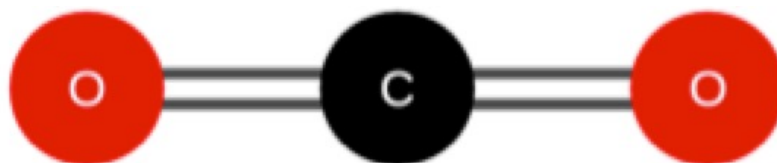
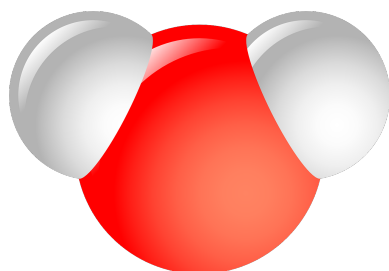
Ionic Compounds

- In ionic compounds, the nonmetal rips away the electron(s) from the metal because the metals loosely hold their electrons
- This creates a positive and negative ion which attract each other making them stick together (opposites attract)



Molecular Compounds

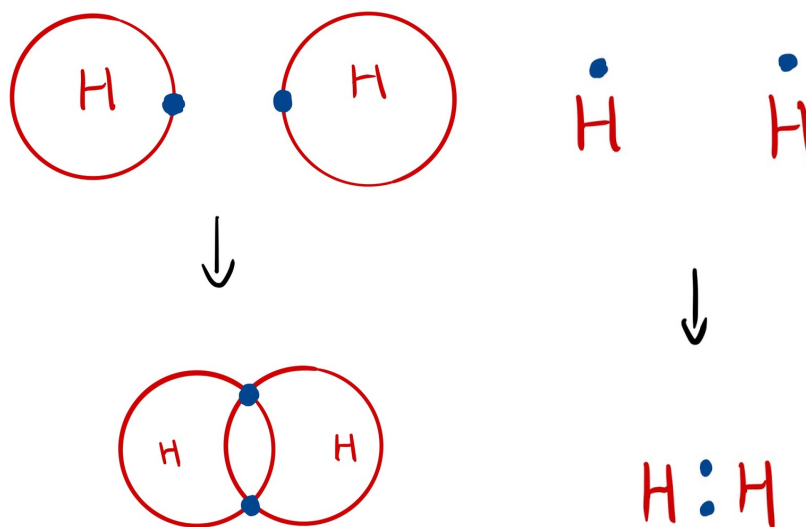
- Are made up of a nonmetal and a nonmetal
 - Unlike Ionic Compounds which are created through the combination of a metal and a nonmetal
- They are also called _____



Molecular Compounds

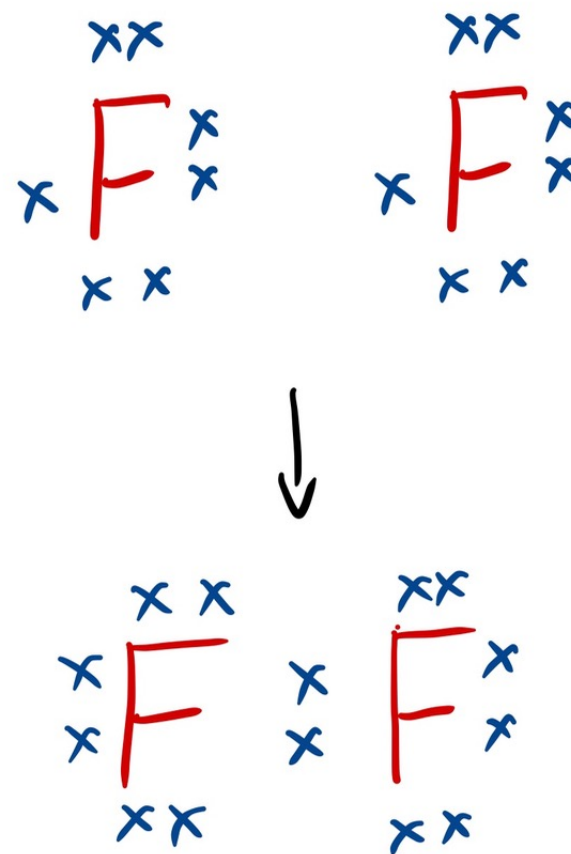
•

- Negative electrons are attracted to the positive nuclei of both atoms
 - This causes them to attract



Molecular Compounds

- Molecular
- If we draw the Lewis Structure for Fluorine, we can see that it needs _____
- It can share one electron with another fluorine atom
- _____



Shared electron pair → both now have 8 in outer orbit

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Molecular Compounds

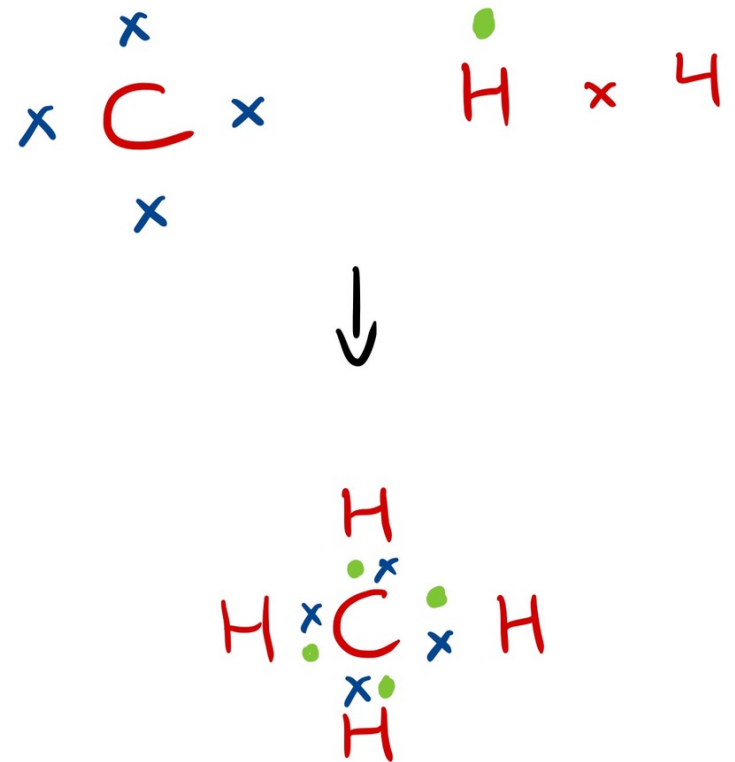
How will carbon bond with hydrogen to form a molecule?

- Draw the Lewis Structure of both atoms

- _____

- Therefore, we need four hydrogen atoms

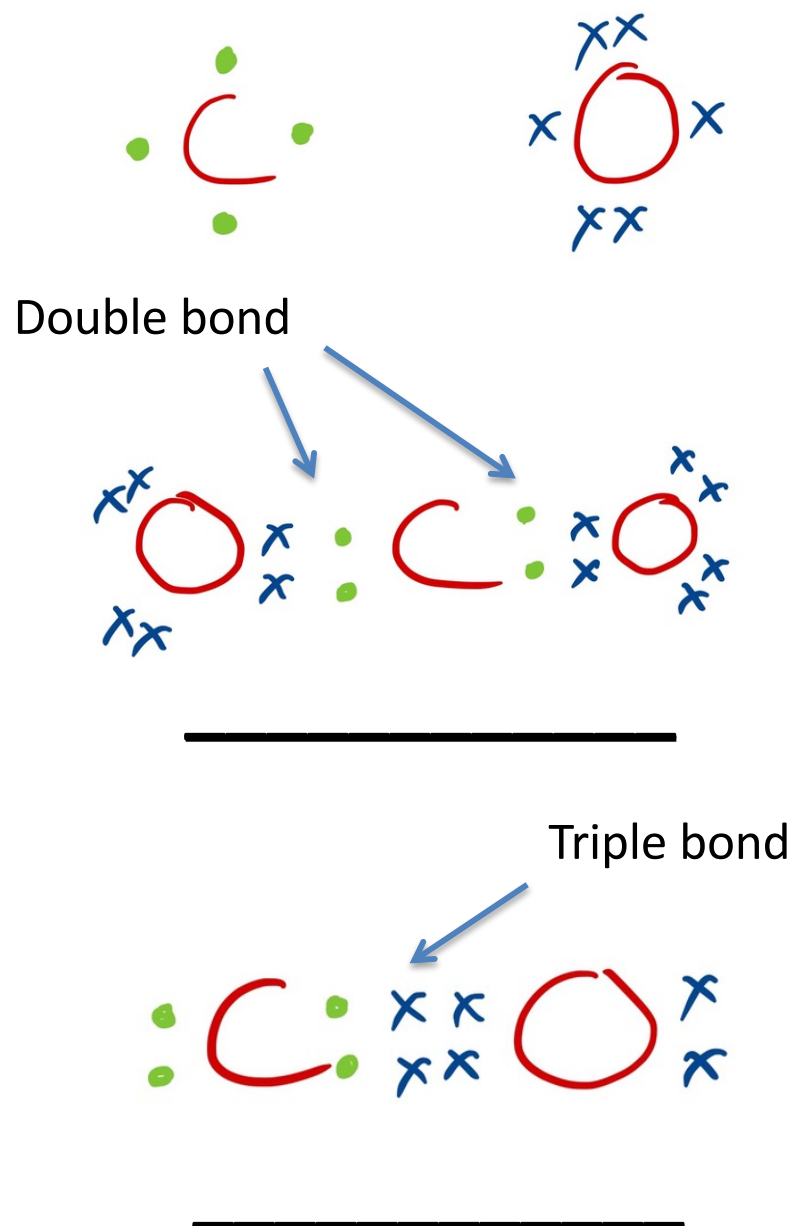
- Put the shared electrons between the atoms
- The resulting molecule, CH_4 , includes 1 carbon atom with 8 valence electrons (full) and 4 hydrogens that each has 2 valence electrons (full)



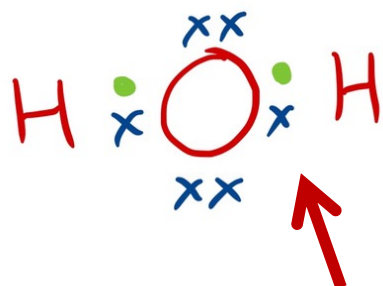
Molecular Compounds

Not all molecular compounds are as predictable. Example: How will Oxygen bond with Carbon?

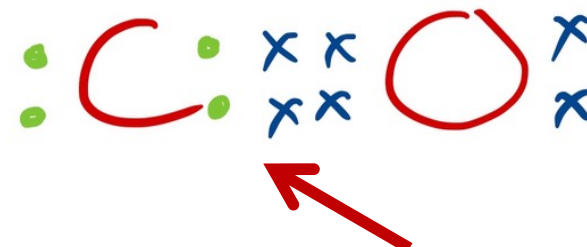
- Draw the Lewis Structures of each atom
 - _____
 - _____
- If we add one more oxygen, each oxygen can share two
 - This creates carbon dioxide which includes a double bond between each carbon/oxygen pair
- However, if oxygen will share two and donate one of its other electrons pairs, oxygen can bond with just on carbon atom
 - This



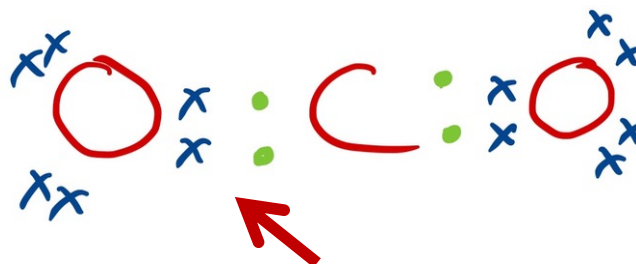
Types of Bonds



Water – Single bond
because _____
pair of electrons are
shared



Carbon monoxide – Triple
Bond because _____
pairs of electrons are shared



Carbon dioxide – Double bond because _____
pairs of electrons are shared

Molecular Compounds – Naming

We need a more flexible naming system for covalent compounds to reflect the many different bonding possibilities.

To name a covalent compound,

1. Starting with the atom that is to the left in the periodic table, (or lower if in the same group).
2. Write the

1. Change the ending of the last atom to – ide.

The prefixes are,

- | | |
|----|-------|
| 1 | _____ |
| 2 | _____ |
| 3 | _____ |
| 4 | _____ |
| 5 | _____ |
| 6 | _____ |
| 7 | _____ |
| 8 | _____ |
| 9 | _____ |
| 10 | _____ |

Note, the mono is omitted on the first atom.

CO	_____
CO ₂	_____

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Check Your Understanding

Example: C_2H_4

- Carbon- use prefix Di (2)
- Hydrogen – change ending – ide
- Hydrogen – use prefix Tetra (4)

Writing Formulas

The left-most element goes first

Example: Carbon monoxide

→ Carbon (C) → no prefix therefore = C

→ Monoxide – Mono = 1 therefore, 1 oxygen atom = O

= _____

Check Your Understanding

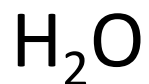
Example: Nitrogen dioxide

→ Nitrogen (N) → no prefix therefore = N

→ Dioxide – Di = 2 therefore, 2 oxygen atoms (O₂)

Check Your Understanding

Name the following compounds



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Molecular Compounds – Diatomic Gases

- Molecular compounds show an incredible variety in structure, physical and chemical properties.
- There are categories that further divide covalent compounds into categories with common properties.
- Diatomic Gases – _____

Molecular Compounds – Diatomic Gases

The Halogens, Oxygen, Nitrogen and Hydrogen form diatomic gases.

These compounds are named: [Element name] gas not Di[element name].

Eg.

N_2 = _____

O_2 = _____

H_2 = Hydrogen gas

Exceptions that need to be Memorized!

CH_4 – _____

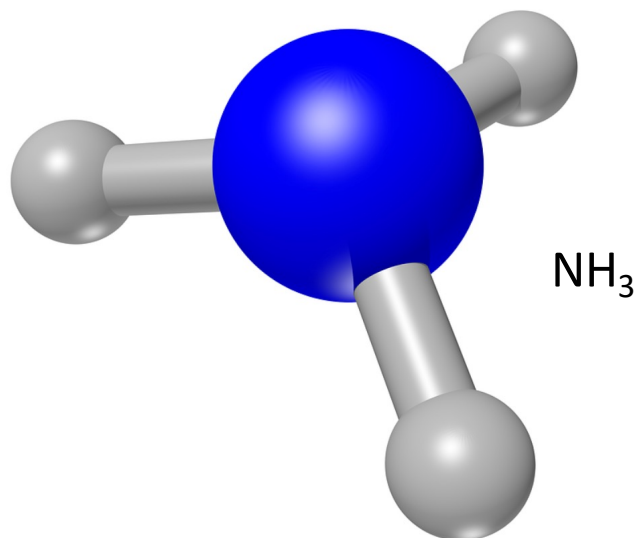
H_2O_2 – _____

H_2O – Water



These Too!

NH_3 — _____



O_3 — _____

