

# Molecular Polarity

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## Molecular Polarity

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### The Big Idea

- Why does sugar dissolve in water?
- Why doesn't sugar dissolve in gasoline?
- Why does water expand when it freezes? It is the only substance on earth that does.
- What do we put salt on our roads in the winter?

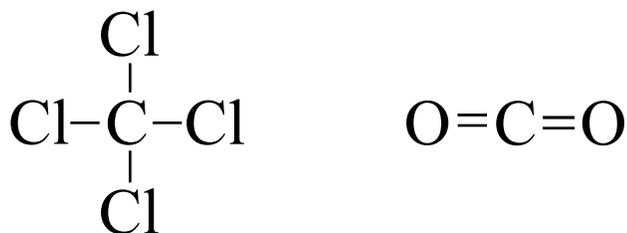
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## Molecular Polarity

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### Connecting To The Last Unit

- Draw the LDMS of the following molecules. Then, identify:
  - Domain Geometry
  - Molecular Geometry
  - Central Angle
- $\text{CCl}_4$
- $\text{CO}_2$
- $\text{H}_2\text{O}$
- $\text{NH}_3$
- $\text{HCl}$



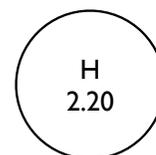
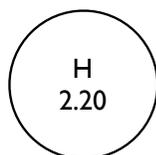
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## Covalent Bonding

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### Types of Covalent Bonds - A Review

- Non Polar Covalent Bonding
  - Equal Sharing
  - Two of the same atoms



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## Covalent Bonding

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### Types of Covalent Bonds - A Review

- Polar Covalent Bonding
  - Unequal sharing
    - 2 atoms that aren't the same
    - Closer to the stronger atom
  - Creates Dipoles
    - The partial charge on a bond caused by unequal sharing
      - More electronegative atom is negative dipole
      - Less electronegative atom is positive dipole



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### Molecular Polarity

- Thoughts on determining and representing molecular polarity
  - Draw the LDMS as realistically as possible
  - Draw polarity arrows for each bond - optional
  - Determine if the molecule is polar...does it have an imbalance in force (non-symmetrical)
    - If it is balanced (symmetrical), it is nonpolar. Label it Non-Polar
    - If it is imbalanced (non-symmetrical), it is polar. Use an arrow to represent the overall polarity of the molecule.

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### Connecting To The Last Unit

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