

## Polarity of Chemical Bonds

What is polarity and how does it relate to electronegativity?

**Purpose:**

In this lesson you will be exploring **polarity** and bonding between atoms in greater detail. A comic strip will provide new information about these topics and will discuss the concept of **electronegativity**, which helps us to understand partial charges.

**Directions:** Use the comic strip called "The Bare Essentials of Polarity" to answer the questions.

1. How does the comic define a "polar molecule?"

A molecule with a difference in electrical charge between two ends.

2. Define electronegativity as you understand it, after reading the first two pages of the comic strip.

The ability of an atom to attract electrons in a chemical bond.

3. Interpret the picture at the bottom of page 1. Consider the following: what does the iceberg, penguins and polar bears represent? Be specific.

Iceberg - Periodic Table  
Penguins - metals w/ low EN  
Polar bears - nonmetals w/ high EN

4. What is the artist trying to represent when there are two polar bears arm wrestling together, or two penguins arm wrestling together?

Nonpolar bond

5. What three types of bonds are represented on page 3 of the comic book?

nonpolar covalent, polar covalent, ionic

6. What happens to the bonding electrons in each type of bond?

↓  
equally shared

↓  
unequally shared

↘ transferred

7. Explain why there are four scoops of ice cream in the illustration of  $O_2$  on page 3. (hint: consider what each scoop of ice cream represents)

Double bond

## Summary Questions

1. What does electronegativity have to do with polarity?

The greater the  $\Delta EN$ , the more polar the bond.

2. Using polar bears and penguins, create an illustration showing a HBr molecule. (It may be easiest to start with a Lewis dot structure – draw each individual atom and then start sharing electrons!)



**Turn this activity into the bin**  
**(there is no key and Miss Virga will be grading this so be sure to ask questions for clarification).**  
**If there is still time in class, work on Assign. #7.**