LESSON 45 ACTIVITY

I Can Relate
Polar Molecules and Smell

Name _____

Date _____ Period _____

Purpose

To practice determining the polarity of molecules with more than two atoms and to relate polarity to smell.

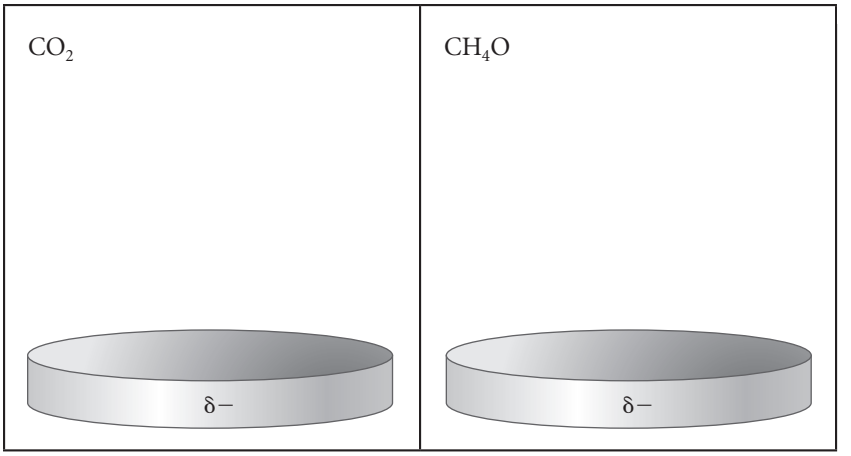
Materials

- handouts—Molecules Cutouts, Electronegativity Scale, scissors, glue stick

Instructions

1. Cut out the paper molecules provided for you on the handout. Put the water molecules aside for now.
2. Use the electronegativity scale to determine the location of partial negative and partial positive charges on each molecule.
3. Label the partial charges on the molecules using δ+ and δ− signs.
4. Imagine that these drawings represent receptor sites with a partial negative charge. Figure out how each cut-out molecule would align itself in relationship to the receptor site. Then glue it in place.

HCl 	NH_3 	H_2S 
CF_4 	CH_2O 	$CClF_3$ 



5. How are $CClF_3$ and CF_4 similar? How are they different?

6. Two of the molecules you cut out do not have a smell. Which ones do you think they are, and why?

7. The chart shows some molecules that have a smell and some that have no smell. What do you think those that have a smell have in common? What about those that don't have a smell?

Molecule	Has a smell?
N_2	no
PH_3	yes
CH_4	no
H_2Se	yes
NH_3	yes
HBr	yes
CO_2	no
AsH_3	yes

8. Ammonia, NH_3, dissolves in water. Use the four water molecules you have cut out to determine how an ammonia molecule might interact with water. Be prepared to demonstrate your answer to the class.

9. Is water a polar molecule? Why can't you smell it?

10. Making Sense How can you identify which molecules are nonpolar? Explain the process you would use.

MOLECULES CUTOUTS

Cut out these molecules on the dashed lines.