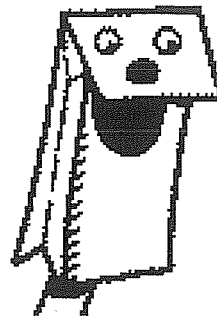


Paper Molecule Activity

Purpose: To build molecules out of paper models and observe how they bond together.

Materials: Scissors, Glue, Pattern Sheet, Paper Bag



Procedure:

1. Use the scissors to cut out all the atoms from the element pattern sheet. Be sure that the **outer electrons (dots) are not cut off when cutting the atoms from the sheet.**
2. Use the paper atoms to build the molecules shown in the data section. When a molecule is built correctly, glue it on your lab report – one paper per group (2 students).
3. Remember that all the atoms want to have 8 valence electrons (except for Helium and Hydrogen which want to have 2).
4. When you are finished – clean up the scrap paper from your work area, put the glue away and turn in your lab with both student's names on the lab sheet.

Data: Build these molecules

- | | |
|------------------------------------|----------------------------------|
| 1. H ₂ O | Water |
| 2. CH ₄ | Methane (natural gas) |
| 3. CF ₂ Cl ₂ | Di fluorodichloro methane |
| 4. NH ₃ | Ammonia |
| 5. HCl | Hydrochloric Acid (stomach acid) |

Conclusion: Answer these questions in complete sentences on the bag.

1. What is a valence electron? Why are they important?
2. How many atoms can be attached to the oxygen atom? Why does an oxygen atom bond with exactly this many other atoms?
3. Neon (Ne) does not bond with other atoms. Give an explanation why?
4. How does the periodic table show us the number of valence electrons?
5. What is an ionic bond?
6. What is a covalent bond?
7. In all the examples that you used in this lab, where the bonds ionic or covalent?

