

## Exploration of Nonmetal Activity

Purpose: To explore the activity of halogens.

Materials: Solutions of  $\text{Cl}_2$ ,  $\text{Br}_2$ , and  $\text{I}_2$ , hexane (**don't get any of the previous solutions on your skin and avoid excessive inhalation**), .1M solutions of NaF, NaI, NaBr, NaCl, test tubes, test tube rack.

Procedure: Some halide ions can be replaced by elemental halogens. Determine what halogens can replace what halides.

With each test use 15 - 20 drops of hexane along with about 20 drops of the other solutions you are mixing. If a halide ion is displaced and changed into a halogen, the halogen will be dissolved in the hexane. **The color of the hexane layer tells you what halogen is dissolved.**

THE CYCLOHEXANE IS ONLY A SOLVENT AND IS NOT INVOLVED IN ANY REACTION.

Data: Record appropriate data in the table that follows

	Chlorine (green)	Bromine (orange)	Iodine (purple)
NaF	green	orange	purple
NaCl	XXXX	orange	purple
NaBr	orange	XXXX	purple
NaI	purple	purple	XXXX

## Conclusion.

1. Identify which pairs of chemicals reacted with each other. There are THREE PAIRS
2. Identify the pairs of chemicals that did not react. There are 6 pairs.
3. LIST the THREE pairs of chemicals that REACTED again. For each pair, CIRCLE the element that was replaced and put a BOX around the element that replaced it.
4. Were the atoms with the BOXES (the "replacers") BIGGER or SMALLER than the atom that they replaced?
5. When the atoms in the BOXES were alone, their charge was ZERO. When they made the replacement, their charge became NEGATIVE. Did they lose electrons, or did they gain electrons?
6. Do small atoms or big atoms gain electrons more easily?
7. WHAT IS THE MOST ACTIVE HALOGEN?