

Chemistry 12

Lab 20A: Introduction to Acids and Bases

NAME _____

Partner _____

DATE _____ Block _____

Pre-Lab Questions:

1. The term **acid** is derived from the Latin word *acidus*. What is the meaning of this Latin word?

2. From what did people first prepare common bases? What were they first used for?

3. What happens to chemical indicators when they are placed in certain acidic or basic conditions?

4. Define the term **operational definition**.

5. Define the term **conceptual definition**.

6. Define the term acid as described by **Arrhenius**.

7. Define the term acid as described by **Brönsted-Lowry**.

Experimental Procedure:

Follow the procedures as given in Parts 1 & 2 (page 230 of lab book).

Complete the following data tables as you conduct your tests.

Part 1: Tests of Unknown Solutions

Unknown Solution	Chemical Indicators				Magnesium Metal
	Phenolphthalein	Methyl Orange	Blue Litmus	Red Litmus	
A					
B					
C					
D					
E					
F					

Part 2: Tests of Common Household Products

Unknown Solution	Chemical Indicators				Magnesium Metal
	Phenolphthalein	Methyl Orange	Blue Litmus	Red Litmus	
Vinegar					
Easy Off oven cleaner Easy Off oven cleaner					
Household ammonia					
7-up					
Lemon Juice					
Milk of magnesia Milk of magnesia					

Post Lab Questions:

- Examine the data in Table 1, and form groups of solutions on the basis of similar properties. Circle either "acid" or "base" to describe the solution.

Solution	A	acid	base
	B	acid	base
	C	acid	base
	D	acid	base
	E	acid	base
	F	acid	base

- Complete the following operational definitions of acids and bases according to your results in Part 1.

(a) In the presence of an acid, phenolphthalein turns _____ while in the presence of a base, phenolphthalein turns _____.

(b) In the presence of an acid, methyl orange turns _____ while in the presence of a base, methyl orange turns _____.

(a) In the presence of an acid, blue litmus turns _____ while in the presence of a base, blue litmus turns _____.

(a) In the presence of an acid, red litmus turns _____ while in the presence of a base, red litmus turns _____.

- Classify the household products in Part 2 as either acid or base.

Solution	Vinegar	acid	base
	Easy Off (ammonia)	acid	base
	ammonia	acid	base
	7-up	acid	base
	Lemon juice	acid	base
	Milk of magnesia (ammonia)	acid	base

- Find out the chemical formulas of the active ingredients in the household products.

Vinegar	_____
Easy Off (ammonia)	_____
ammonia	_____
7-up	_____
Lemon juice	_____
Milk of magnesia (ammonia)	_____