Learning Guide for Lecture 3D – Acids and Bases II Chem 1010

<u>Review</u>

What is an acid?

What is a base?

What are some common acids, and where are they found?

What are some common bases, and where are they found?

What is the difference between a strong acid and a weak acid?

Measuring How Acidic or Basic a Solution Is

The pH scale is used to measure how acidic or basic a solution is.

The pH of a solution depends on two different things:

1)

2)

pH can be measured accurately using a:

You can also get a pretty good idea of the pH using:

The earliest indicator was:

acid –

base –

is often used in chemistry labs.

acid –

base -

Some foods have natural indicators:

pH paper combines several different indicators to give a rainbow of colors from pH 1 to 12.

strongly acidic – weakly acidic – neutral – weakly basic – weakly acidic –

	acid or base	pН
comet (in water)		
lemon juice		
vinegar		
ammonia		
baking soda		
The Works		
409		
aspirin (in water)		
Tide		
Coke		

Reactions of Acids and Bases

The most important reactions of acids and bases are their reactions with each other.

When an acid and a base interact, it is called a:

 $HCl + NaOH \rightarrow$

In these reactions, _____ and an _____ are formed.

If the acid and base are present in equal amounts, the final solution is:

Example:

 $2 \text{ HCl} + \text{CaCO}_3 \rightarrow$

Why would you want to neutralize stomach acid?

How are antacids different from acid blockers?

Why might antibiotics be useful?

Example:

 $NaHCO_3 + C_2H_6O_2 \rightarrow$

What other acids could baking soda react with?

Why is baking soda a good leavening agent?

What happens if you forget to add baking soda?

Example:

 $2 \text{ H}_3\text{PO}_4 + 3 \text{ CaCO}_3 \rightarrow$

Bases are good for _____,

but you need an acid for ______.

Why can't you have an acid and a base in the same cleaning solution?

Why shouldn't you ever mix cleaning solutions?

In addition to reacting with bases, acids also react with metals.

Example:

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 $Zn + 2 HCl \rightarrow$

Why does it seem like the acid is eating away the metal?

What precautions does this reaction suggest you should take with acidic cleaning products?

How could this cause a fire or explosion?