

Acids and Bases: Chapter 19

I. Defining Acids and Bases

Property	Acids	Bases
Taste		
Touch		
pH ()		
Litmus paper turns...		
Chemical formula		
What they do with H ⁺		
Electrical Conductivity		
When they react with metals		

A. The Bronsted-Lowry Definition (Shake and Take!)

1. Acid –
2. Base –
3. Determine this by finding out what the substance needs to do to become what it is on the other side.

$$\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4^+ + \text{Cl}^-$$
 (Which of these is an acid? base?)

B. Water is

1. Amphoteric –
2. Example: $\text{HCl} + \text{H}_2\text{O} \rightarrow \text{H}_3\text{O}^+ + \text{Cl}^-$
3. Example: $\text{NH}_3 + \text{H}_2\text{O} \rightarrow \text{NH}_4^+ + \text{OH}^-$

C.

1. A _____ that _____
2. Conjugate acids and bases are _____
3. An acid _____ and it _____
 Example: $\text{HCl} \rightarrow \text{H}^+ + \text{Cl}^-$
4. A base _____ and it _____
 Example: $\text{NH}_3 + \text{H}^+ \rightarrow \text{NH}_4^+$
5. Example: Determine the acid-base pairs. $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4^+ + \text{Cl}^-$

II. Strengths of Acids and Bases

A. Acid and base strength:

B. _____ Acids and Bases

1. Will _____ (_____) or _____
 a. _____ : $\text{HCl} + \text{H}_2\text{O} \rightarrow \text{H}_3\text{O}^+ + \text{Cl}^-$
 b. Examples: HCl, HBr, HNO₃, H₂SO₄, NaOH, LiOH, KOH, Ca(OH)₂
 c. _____

C. _____ acids and bases.

1. Will _____ : $\text{CH}_3\text{COOH} + \text{H}_2\text{O} \leftrightarrow \text{H}_3\text{O}^+ + \text{CH}_3\text{COO}^-$
 a. _____
 b. Examples: HC₂H₃O₂ (vinegar), NH₃ (ammonia)
 c. _____

D. Strength is measured by

1. pH is _____
2. The _____, the _____ (_____)
3. The _____, the _____ (_____)

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4. pH scale is

a. Based on the

b. pH of 2 has

than a pH of 5 and

than a pH of 3

c.

E. Trends

1. The

2. The

F.

1. When mixed, acids and bases

(meaning that

).

2. Mixing a strong acid and base

G. Reactions of acids and bases (products are ALWAYS H_2O and a salt)

1. Strong acid with strong base:

2. Strong acid with weak base:

3. Weak acid with strong base:

4. Weak acid with weak base: