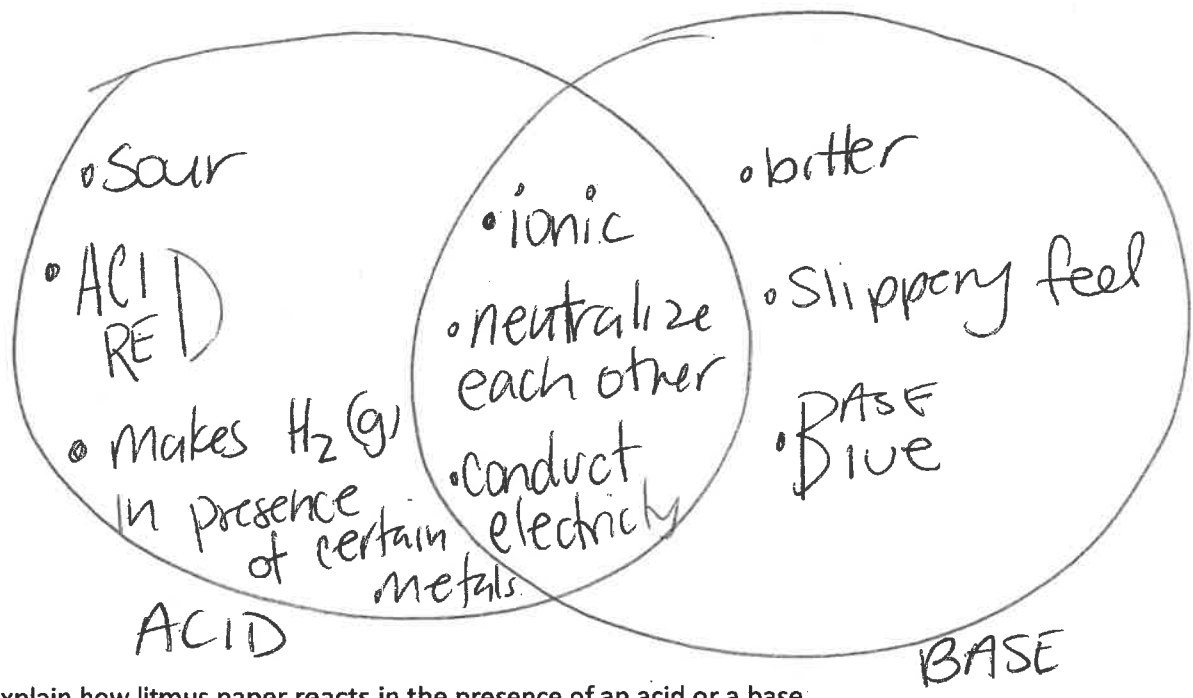


### ACID SOLUTIONS

Watch the video: "Crash Course Chemistry Acid-Base Reactions in Solution #8". Then read the photocopied pages 370-379 before completing the following assignment.

1. Use a Venn Diagram to compare and contrast the properties of acids and bases.



2. Explain how litmus paper reacts in the presence of an acid or a base.

ACID RED      Base BLUE

3. The earliest definition of an acid was proposed by SVENTE ARRHENIUS.

- a. according to him an acid is..... a substance that dissociates in water to produce one or more
- b. a base is.....



(H<sup>+</sup> ions) hydrogen ions  
a substance that dissociates in water to form one or more hydroxide ions ( $OH^-$ )

4. Explain the limitations to Arrhenius' definition of an acid and a base:

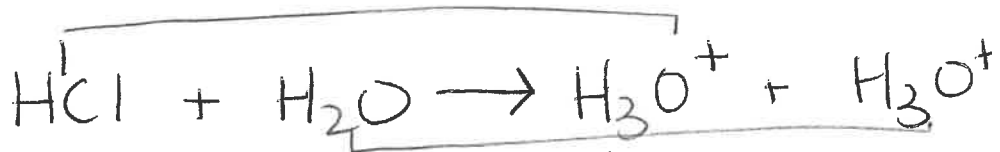
- The Arrhenius theory didn't account for the existence of the hydronium ion ( $\text{H}_3\text{O}^+$ )
- It doesn't explain why  $\text{NH}_3$  is a base
- It presumes all reactions occur with water as the solvent (not always the case)

1. Because of the above limitations, Brønsted and Lowry came up with a new definition of an acid and a base. Explain them here:

acid: any substance from which a proton ( $\text{H}^+$ ) can be donated.

base: any substance that can receive (accept) a proton  $\text{H}^+$ .

2. What is a conjugate acid-base pair? Show an example of one here:



3. Complete the Section Review on page 79 #1 a & b.

79.  $\text{A} \rightarrow$  glows dimly  $\text{B} + \text{D} \rightarrow$  glows strongly  $\text{C} \rightarrow$  no glow

a) Both B+D have high concentrations of dissolved ions as they both glow strongly

b) Both A+C have low concentrations of dissolved ions as they glow dimly or not at all.