

Acid & Base Questions **ANSWERS**

1. What happens to acids in water? **Yields H^+ ions.**
2. What happens to bases in water? **Yields OH^- ions.**
3. Why are solutions of acids & bases often good conductors? **Because when they are dissolved they contain ions.**
4. What part of an acid's chemical formula is responsible for its acidic properties? **H**
5. What polyatomic ion most commonly appears in bases? **OH^-**
6. Identify each of the following substances as an acid or a base:
 - a. Calcium hydroxide = **Base**
 - b. $NaHCO_3$ = **Base**
 - c. H_3PO_4 = **Acid**
 - d. KOH = **Base**
 - e. H_2SO_4 = **Acid**
 - f. $NaOH$ = **Base**
7. Water can dissociate into the hydrogen ion and the hydroxide ion according to the following reaction:
 $H_2O \rightarrow H^+ + OH^-$
 - a. What would you classify water as (acidic, basic or other)? **Neutral, has even proportion of H^+ (acid) and OH^- (base).**
 - b. Why is water considered a conductor of electricity? **Ions are easily dissolved in it.**
8. Do you agree with the following statements? Explain.
 - a. Stomach acid can dissolve metals. (ie if you swallow a penny your stomach acid can dissolve it)
Agree, acid + metal \rightarrow salt + water, although it doesn't stay in your stomach long enough
 - b. All acids are dangerous.
False, acids with pH close to 7 are not, they are weak acids, such as orange juice & vinegar
 - c. We all contribute to the production of acid rain
Agree, non-metal oxides such as CO_2 + water in the air combine to make acids, we all produce CO_2 so we are all responsible for making some acid rain
 - d. Medications for heartburn work by cooling the stomach.
Disagree, they work by decreasing the acidity of the stomach. They don't completely neutralize it either.
9. Teeth can be damaged by acid erosion. What foods could contribute to this problem? How can it be avoided?
Pop, citrus fruits, tomatoes...
10. The fluid inside an alkaline battery can be corrosive.
 - a. Describe a chemical test that you could perform to determine if the substance is an acid or a base.
Litmus paper test – if it turns blue it is a base.
 - b. What safety precautions must you take when conducting this test?
Wear gloves & goggles because they break down proteins and could damage your eyes & skin.
11. The ingredient list for Coke contains: water, sugar, colour, phosphoric acid, flavor and caffeine. Why must they add so much sugar (about 12 teaspoons per can)?
Acids are sour, so the sugar is needed to offset the taste.