

Read over this sheet ***before*** viewing the video so you can anticipate some of the questions.

_____ 1. How much sulfuric acid is produced in the U.S. per year?

_____ 2. Caustic soda is actually which base?

3. Three weak acids and bases are:

_____ 4. Bases are used in which household industry?

_____ 5. Fertilizer is made by reacting phosphoric acid with _____.

_____ 6. Lime is used to neutralize acid in _____.

_____ 7. Lime is also used to remove impurities from _____.

_____ 8. Lime is add to coal fired furnaces to remove ____ percent of acidic pollutants that would normally be put into the air.

9. Two natural weak acids found in fruits are

Properties: Taste Litmus Mg ribbon Limestone

Acids _____

Bases XXXX _____

10. What is the relationship between all three acid/base reactions?

11. Why is sulfuric acid used as a catalyst for so many reactions?

12. What are *stationary* and *mobile* sources? What are they sources of?

13. What is are natural sources of acid rain producing gases?

_____ 14. The gas that is primarily the producer of acid rain in the east is ____.

_____ 15. The family of gases that are primarily the producers of acid rain in the west is ____.

14. Why might some lakes be better at absorbing the affects of acid rain than other?

15. Write equations to show the reaction of HCl and NH₃ with water. Identify the acid/base, conjugate acid and conjugate base in each equation.

16. Write an equation to show the self ionization of water as an equilibrium.

_____ 17. 1 in 500,000,000 molecules of water accepts a proton to become a ____.

_____ 18. The concentration of hydronium in pure water is _____ moles/liter.

_____ 19. The pH scale is used to express concentrations of hydronium over a range of _____ powers of ten.

$$[\text{H}_3\text{O}^+] = 10^{\text{pH}}$$

Fill in the chart below:

[H ₃ O ⁺]	pH
10 ⁻¹ M	= _____
10 ⁻² M	= _____
10 ⁻⁷ M	= _____ (pure water, dividing line between acids and bases)
bleach	= _____
seawater	= _____
blood	= _____
black coffee	= _____
vinegar	= _____
stomach	= _____
battery acid	= _____

_____ 20. Antacids neutralize stomach acids because they are really _____.

Write molecular equations for the the following acid/base reactions. Include physical state symbols on all reactants and products.

A) ammonia and hydrogen chloride

B) nitric acid and sodium hydroxide

C) acetic acid and sodium carbonate