

Name: _____

Date: _____

Acid/Base lab:

Go to: <https://phet.colorado.edu/en/simulation/ph-scale-basics> and click the play button. Use the simulation to answer the questions below.

1. What is the pH of 0.25Liters of chicken soup? How about 0.5L? Is it acidic or basic?
2. Does the pH change if you have a greater volume of the substance?
3. What happens to the pH of the soup if you start with 0.25L and add 0.75L of water? What value is the pH now? Is it acidic or basic?
4. What is the pH of 0.05L of hand soap? Is it acidic or basic?
5. What happens to the pH if you add about 0.5L of water? What is the new value?
6. What is the pH of 0.2L of blood? Is it acidic or basic?
7. What happens to the pH if you add 0.4L of water to the blood? What is the new pH value?
8. What happens to the pH if you then add 0.6L of blood to the mixture? Is the mixture acidic or basic? Was the pH the same as it was in #6?
9. Let's say that I want to get my mixture to a certain pH but I add too much water to my solution. Can I just add the same volume of my substance as the water I added back into the mixture to get my initial pH? Why/ why not?
10. I want to have orange juice with my breakfast but my teeth are very sensitive to acidic drinks. What is the pH of orange juice? Is it acidic or basic?
11. I've decided that I still want to have some orange juice. In order to make it less acidic, I need to raise the pH 0.5 units higher. How much water do I need to add to dilute my juice to this level?
12. Most of the things that we can drink (safely) on this list are acidic / basic (circle one).

13. If I have 0.35L of soda (12 fluid ounces), what is the pH? Is soda acidic or basic? How much water do I need to add to increase the pH to 3?

13. As you probably know, a dentist will tell you that soda is bad for your teeth. What other item on this list is soda's pH closest to? Is it acidic or basic? Knowing this information, why do you suppose soda (even diet) is bad for your teeth?

14. An acid is called an acid because of the amount of positive hydrogen ions that are dissolved in the solution. Based on this concept, which substance has more hydrogen ions dissolved in the solution? (circle one for each)

a. Vomit or chicken soup

b. Hand soap or drain cleaner

c. Blood or soda

15. A base is called a base because of the amount of hydroxide ions that are dissolved in the solution. Based on this concept, which substance has more hydroxide ions dissolved in the solution? (circle one for each)

a. Milk or spit

b. Blood or coffee

c. soda pop or battery acid