

# pH and You

Label the numbered parts of the pH scale

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Classify:** Which items are the weak acids shown on this pH scale?

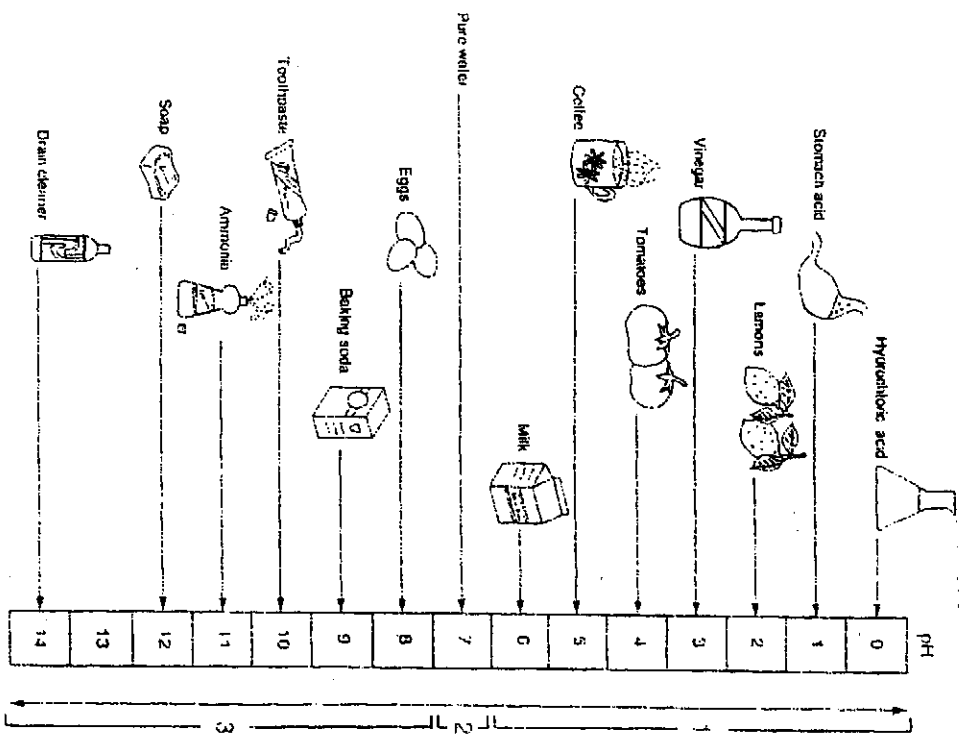
4. \_\_\_\_\_
5. \_\_\_\_\_

**Reason and Conclude:** Which of the following would work best to neutralize excess stomach acid?

- Tomato juice, lemonade, coffee, milk, or
- Baking soda and water?

**Specifically** – what is it about your choice that neutralize Stomach acid?

6. \_\_\_\_\_



**Interpret data:** Each number in the pH scale corresponds to a tenfold change in the concentration of the hydrogen ion in the solution.

7. How much more acidic is vinegar than milk? \_\_\_\_\_
8. How much more basic is toothpaste than eggs? \_\_\_\_\_

**Infer:** Some recipes call for buttermilk, which has a sour taste. You can make buttermilk substitute by adding lemon juice to milk. Why would adding lemon juice make the milk taste sour?

9. \_\_\_\_\_

**Relating Cause and Effect:**

You wish to buy some fish for your new fish tank. The sales person at the store tells you that different fish require different pH values for the water in which they live. Assuming your tap water has a pH value of 7.0, you purchase five Type A fish that require water with that pH value. After the first week, however, all of the fish die.

If you are sure that the water itself is the problem, and you know that there are no chemicals in the water that could have killed your fish, what are you to believe about your original assumption?

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You then buy two different types of fish and place five of each type in the tank. Type B fish require a pH range of 3.87 to 6.8. Type C fish require a pH range of 7.1 to 9.0. After another week, all Type C fish die, but all Type B fish live.

What does this tell you about your tap water?

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Knowing this, you purchase 15 more fish with the following pH requirements: Type D fish, 5.5 to 8.2; Type E fish, 6.0 to 9.0; Type F fish 4.5 to 7.5. These fish continue to live for months. Then one day you notice that a container of liquid has accidentally spilled into the tank. You do not know what the liquid is or how it will affect your fish. Unfortunately, Type D fish and Type F fish soon die.

What must have happened to the water in the fish tank?

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What does this tell you about the liquid that spilled into the tank?

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What might the pH of this liquid have been?

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