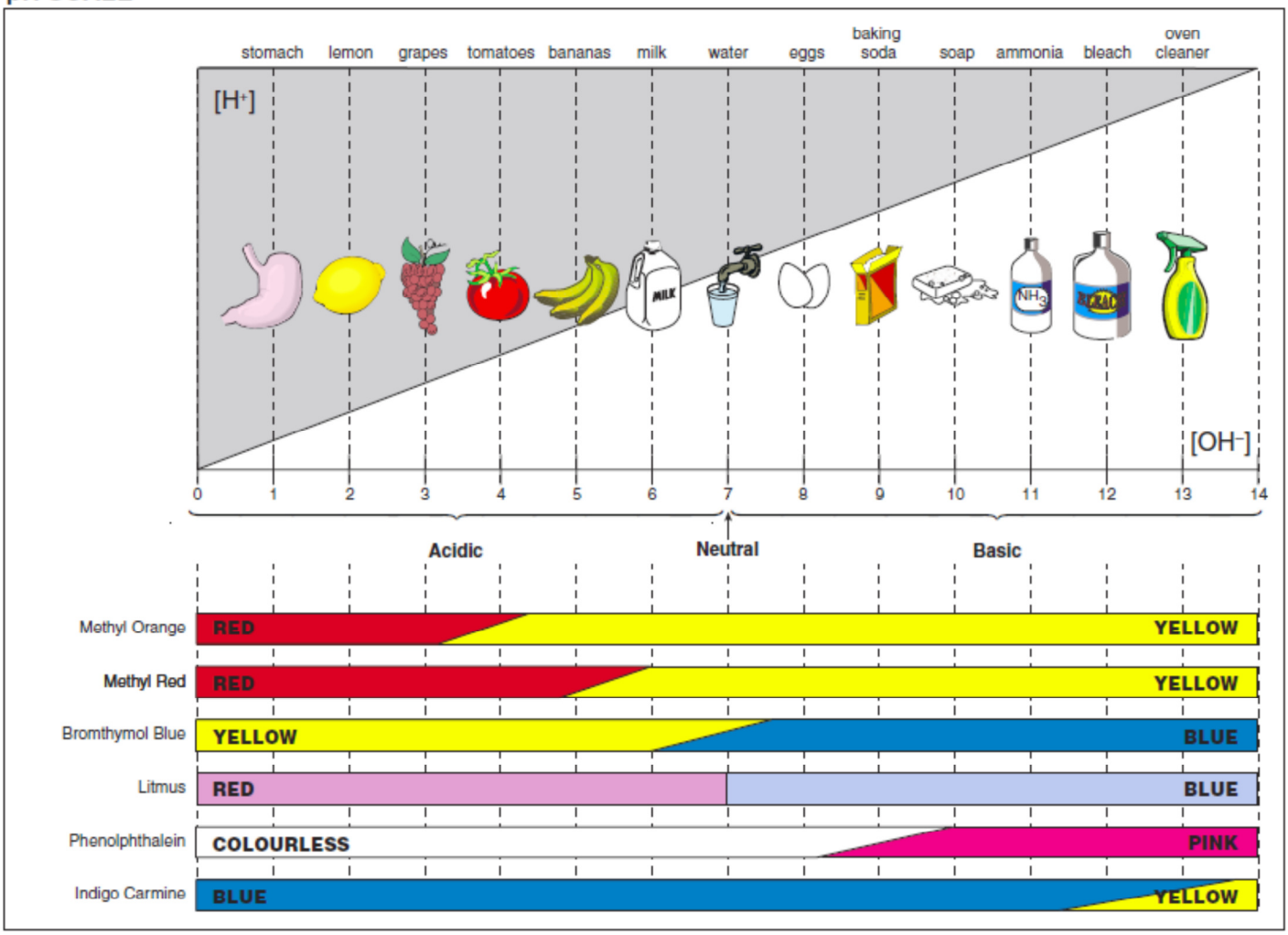
pH SCALE



pH Scale clues:

What is the ***pH range*** of the following solutions?

1. Red in methyl red, yellow in methyl orange and red with litmus _____
2. Colourless with phenolphthalein, blue with bromothymol blue and blue with litmus _____
3. Pink with phenolphalein, blue with indigo carmine and yellow with methyl red _____

8.1 Name: _____ Date: _____

pH Scale

The pH scale is based on powers of 10. A change in 1 pH unit represents a tenfold change in the acidity of a solution. For example, a solution with a pH of 1 is not twice as acidic as a solution with a pH of 2, but 10 times more acidic.

Use the following to help you calculate the difference in pH.

10^n, where n = the difference between the pH of two solutions

Subtract the lower pH from the higher pH and multiply by −1. For example:

$$(\text{pH } 5 - \text{pH } 7) \times -1 = 2$$

$$n = 2$$

$$10^2 = 10 \times 10 = 100$$

Therefore, a solution with a pH of 5 is 10^2 or 100 times more acidic than a solution with a pH of 7.

Calculate the difference in the acidity of the following solutions.

1. a solution with a pH of 3 and a solution with a pH of 1

2. a solution with a pH of 4 and a solution with a pH of 5

3. a solution with a pH of 2 and a solution with a pH of 6

4. a solution with a pH of 8 and a solution with a pH of 3

5. a solution with a pH of 13 and a solution with a pH of 1