STRONG VS. WEAK ACIDS

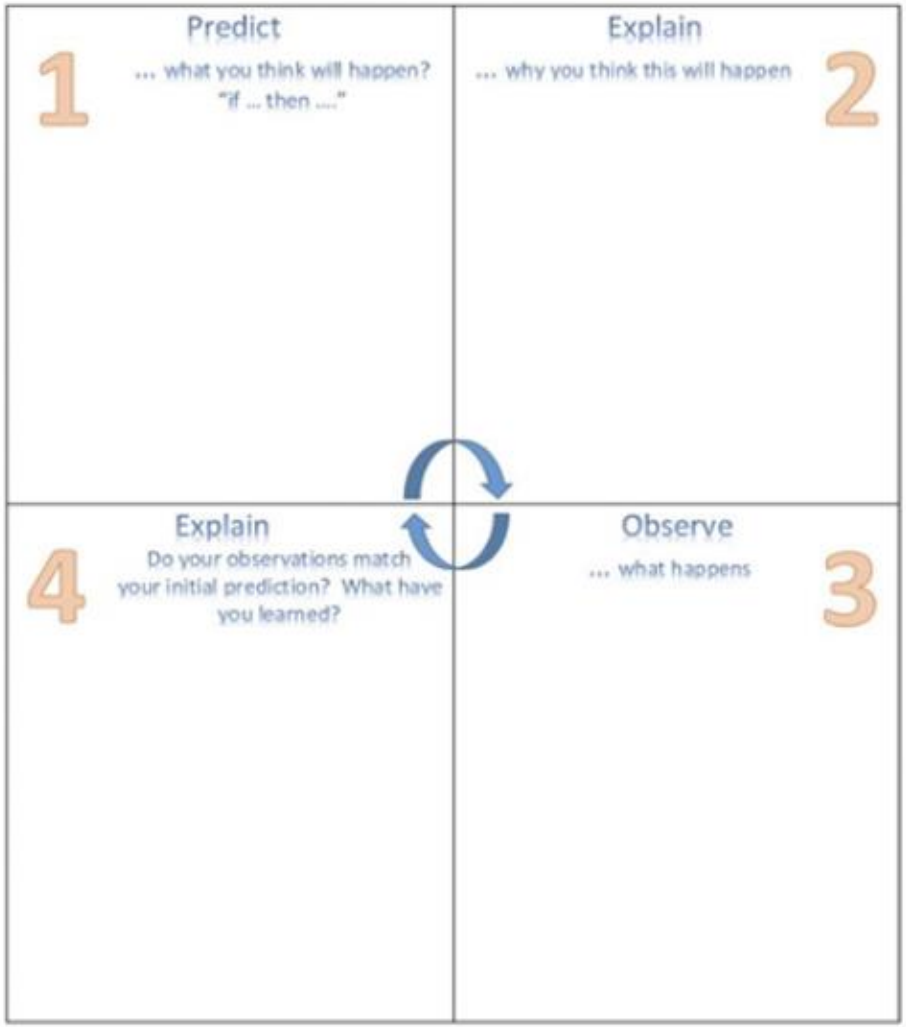
SCH4U

Grade 12 Chemistry

University Preparation

P.E.O.E Activity

- Using the template:
  - Divide your whiteboard into 4 sections – number each section.
  - Write the title for each section.



Question

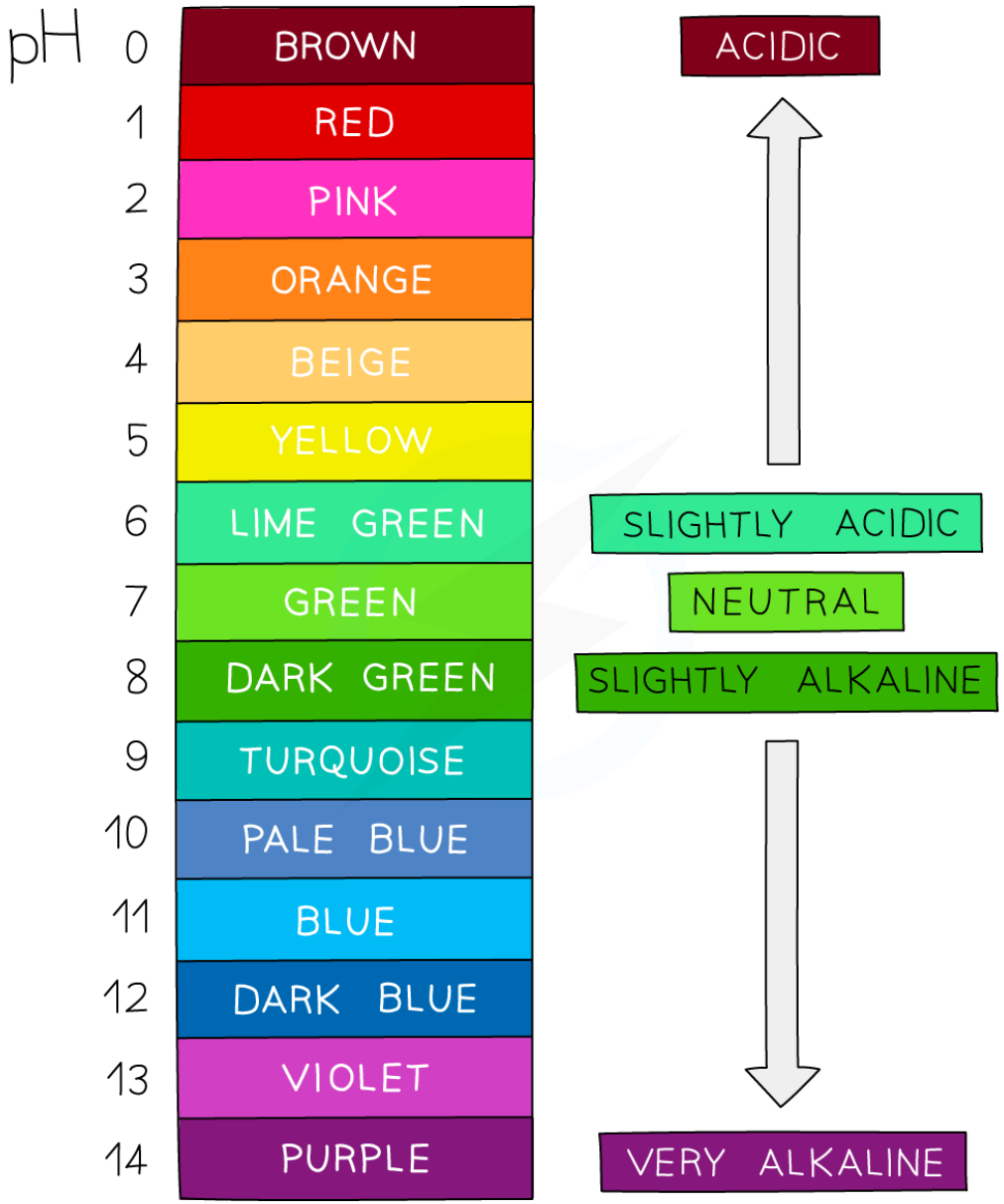
Which will have LOWER pH:

Vinegar (weak acid)

OR

HCl (strong acid)?

Recall: Lower pH = More Acidic



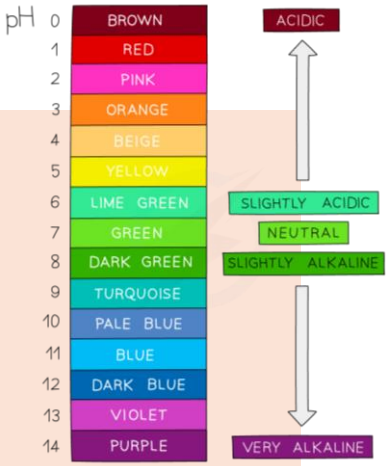
CONCEPT CHECK:

What does pH actually measure?

→ pH measures the concentration of H^+ ions in solution

→ Lower pH = more H^+ ions = more acidic

STRENGTH VS. CONCENTRATION



VINEGAR

- ~0.83 M **(fairly concentrated)**
- Strength: WEAK (only 1-2% dissociates)

- H^+ produced:

$$0.83\ M \times 0.01 = \sim 0.008\ M\ H^+$$

$$pH \approx 2.4$$

DILUTE HCl

- 0.001 M **(very dilute)**
- Strength: STRONG (100% dissociates)

- H^+ produced:

$$0.001\ M \times 1.0 = 0.001\ M\ H^+$$

$$pH \approx 3.0$$

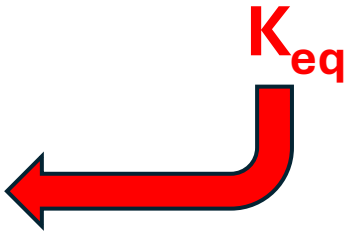
KEY TAKEAWAY

Which matters more for pH: strength OR concentration?

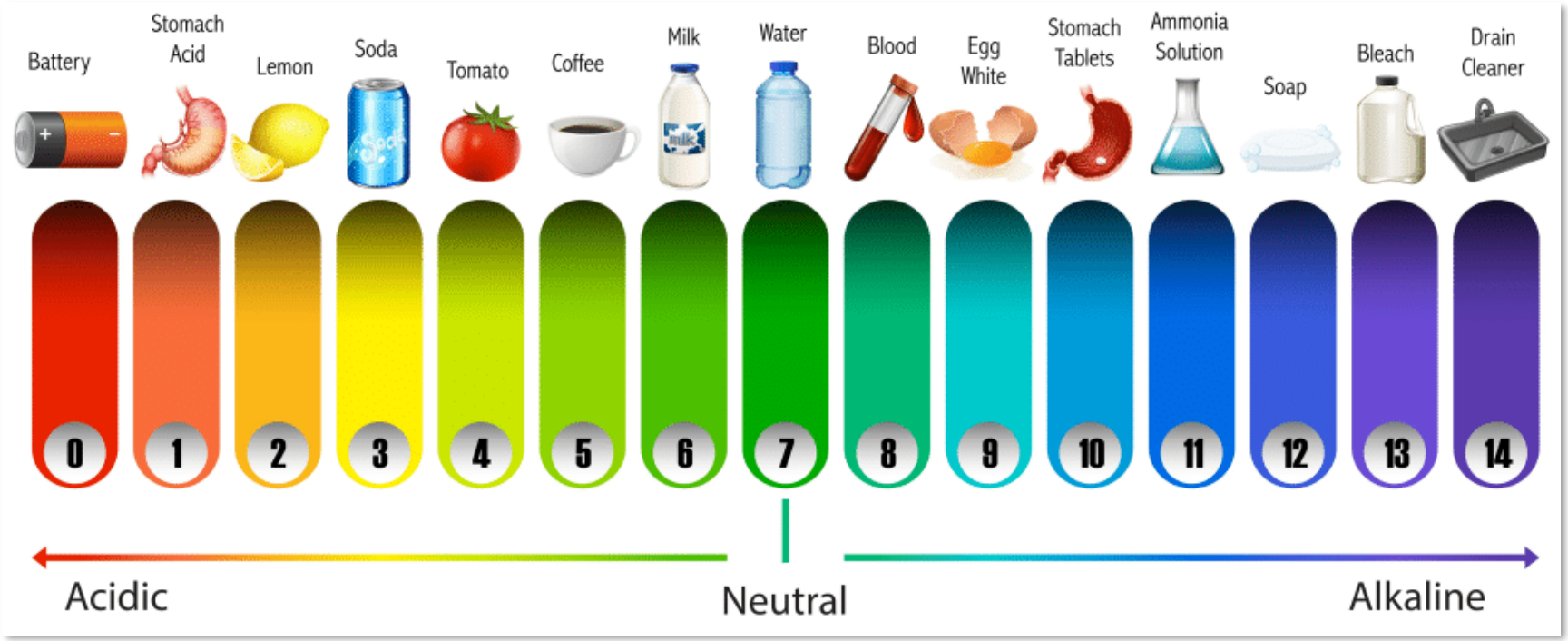
****BOTH matter!****

→ pH depends on actual $[H^+]$ produced

→ $[H^+]$ = concentration × degree of dissociation



Even though HCl is stronger (dissociates more), the vinegar produces MORE H^+ ions because it's much more concentrated!



Real-Life Examples