

CHAPTER 6	Investigation 6.C: Differentiating between Weak and Strong Acids and Bases Answer Key	BLM 6.2.5A
ANSWER KEY		

### Answer to Analysis Question

- $\text{C}_{12}\text{H}_{22}\text{O}_{11}(\text{aq})$  (neutral molecular): No conductivity, pH 7, no change to litmus paper, no reaction with metal strips.

$\text{NaCl}(\text{aq})$  (neutral ionic): Strong conductivity, pH 7, no change to litmus paper, no reaction with metal strips.

0.10 mol/L  $\text{HCl}(\text{aq})$  (strong acid): Strong conductivity, pH approximately 2, turns blue litmus red, reacts vigorously with metal strips to produce hydrogen gas (bubbles).

0.10 mol/L  $\text{NaOH}(\text{aq})$  (strong base): Strong conductivity, pH approximately 13, turns red litmus blue, no reaction with metal strips.

0.10 mol/L  $\text{CH}_3\text{COOH}(\text{aq})$  (weak acid): weak conductivity, pH approximately 4.5, turns blue litmus red, reacts slowly with metal strips to produce hydrogen gas (bubbles).

0.10 mol/L  $\text{NH}_3(\text{aq})$  (weak base): weak conductivity, pH approximately 8.5, turns red litmus blue, no reaction with metal strips.

### Answer to Conclusion Question

- Strong acids: high conductivity, low pH, and vigorous reaction with magnesium or zinc.

Strong bases: high conductivity, high pH, and no reaction with magnesium or zinc.

Weak acids: low conductivity, pH slightly below 7, and slow reaction with magnesium or zinc.

Weak bases: low conductivity, pH slightly above 7, and no reaction with magnesium or zinc.

Neutral ionic solutions: high conductivity, pH of 7, and no reaction with magnesium or zinc.

Neutral molecular solutions: no conductivity, pH of 7, and no reaction with magnesium or zinc.