Acid and Base Particle Models Worksheet

Scoring guide · one credit per question · review written work against each rubric

Acid and Base Particle Models

Question 1

Choice (2)

H_2O gains H^+ to form H_3O^+.

Question 2

NH_3 accepts a proton from H_2O and becomes NH_4^+. Accepting a proton is the role of a Brønsted–Lowry base.

Question 3

Choice (4)

Neutrality means equal hydronium and hydroxide concentrations.

Question 4

Acid X is stronger. A larger fraction of its acid particles transfer a proton to water.

Counting Ions in Water Models

Question 5

Choice (3)

R shows more OH^- than H_3O^+, which indicates a basic sample.

Question 6

P has 18 hydronium markers and R has 2. The volumes are equal, so the concentration ratio equals the count ratio, 18/2 = 9.

Question 7

Choice (3)

The modeled hydronium and hydroxide concentrations are equal.

Question 8

The count reflects how much hydronium is present. To infer strength, we also need information about the starting amount of acid or what fraction ionized. Different concentrations of strong and weak acids can produce the same hydronium concentration.