A co-curricular context-based enrichment program to enhance scientific skills development

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Example end of session quiz

Quiz questions relating to underlying concepts

1. Some foods and the conditions they are stored in are described below. Place them in the order that you think will they will degrade, starting with those that will degrade most quickly and finishing with those that will degrade most slowly. (Sections 1.1 and 1.2)

Ready meal stored in sealed packet in a fridge
Milk stored in a fridge
Ready meal stored in a freezer
Cooked meat stored at room temperature

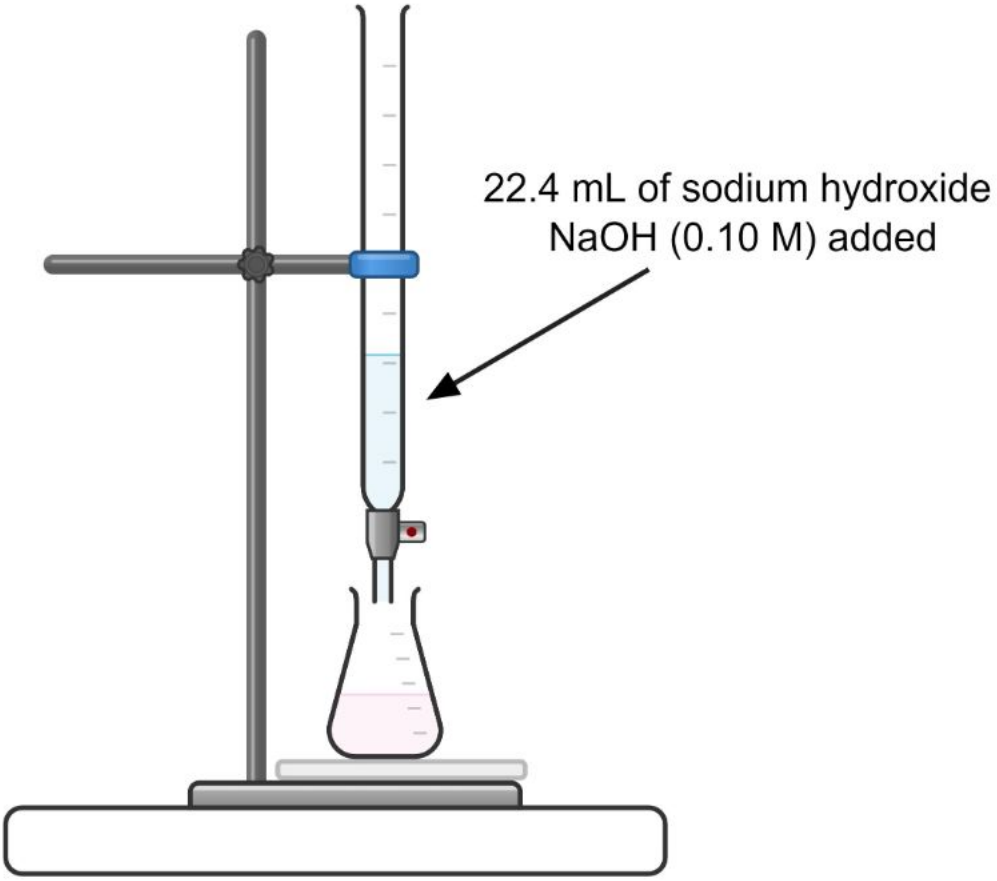
2. Scheme S1 is reproduced below. Match correctly how the concentrations of each of the substances sugar, ethanol, and ethanoic acid will change over the course of the reaction. (Section 1.3)

Scheme S1: The formation of ethanoic acid in Kombucha. The symbiotic culture of bacteria and yeast first ferments the sugar present to alcohol, which in turn is oxidised to form ethanoic acid

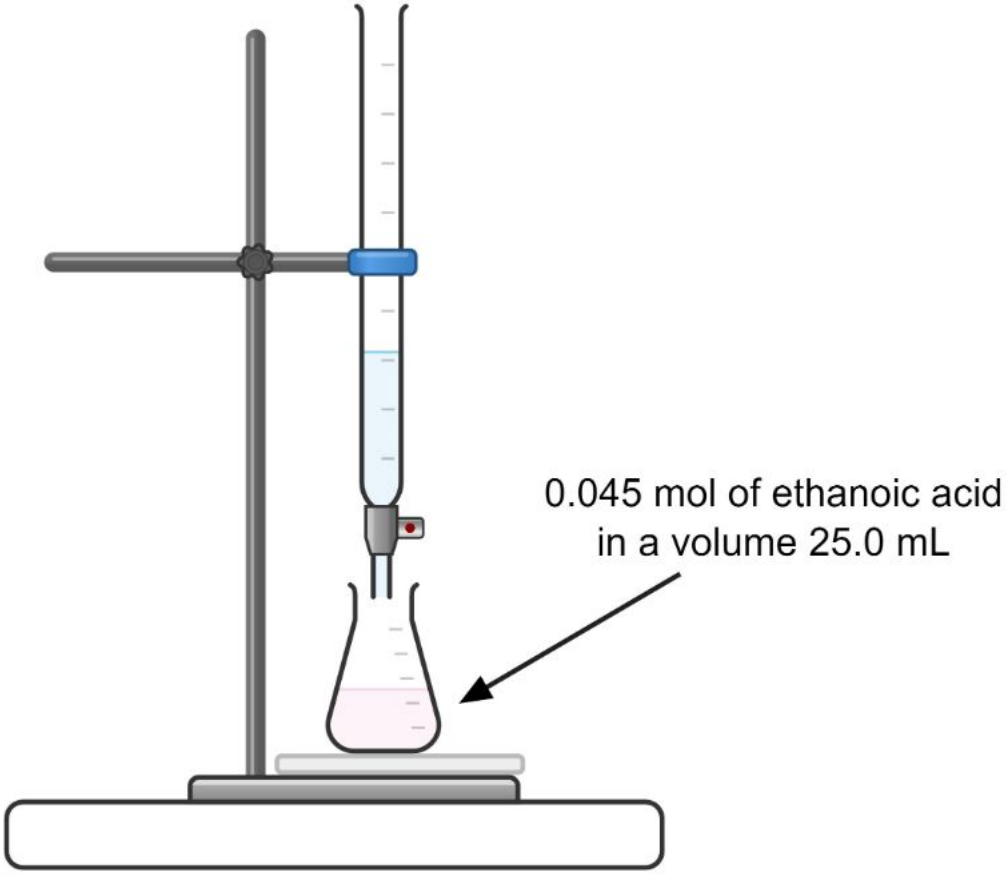
Concentration of ethanol	Choose...
Concentration of ethanoic acid	Choose... Increases over the course of the reaction Remains relatively unchanged over the course of the reaction Decreases over the course of reaction
Concentration of sugar	Choose...

Quiz questions relating to practice of calculations

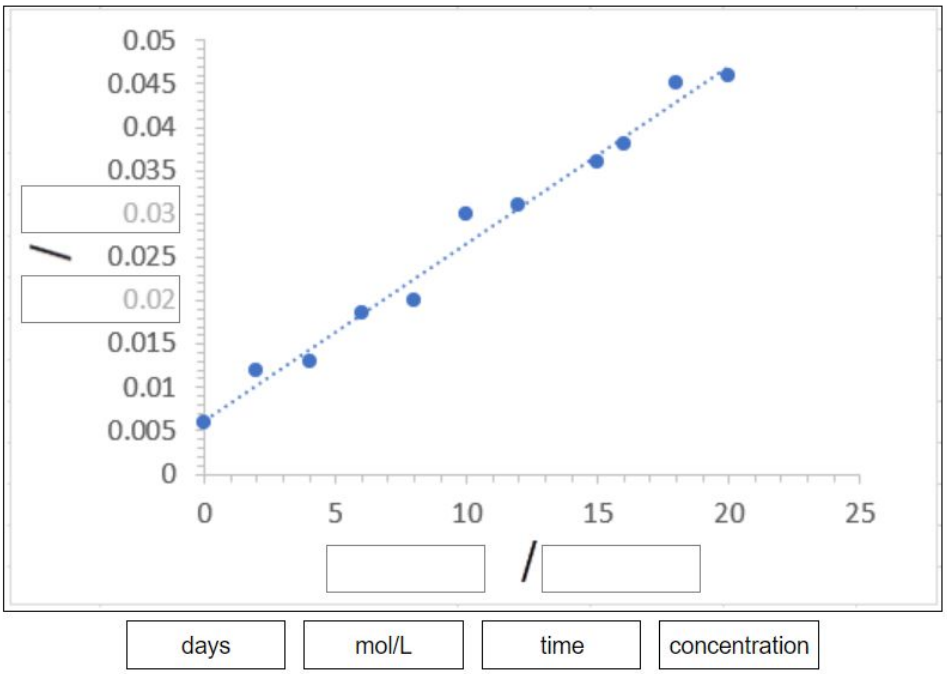
3. In a titration involving the addition of 0.10 M sodium hydroxide (NaOH), 22.4 mL of NaOH was required to reach the end point. How many moles of NaOH was added to reach the endpoint? (Section 1.5)



4. In a titration the end point resulted in determining the number of moles of ethanoic acid to be 0.045 mol in 25.0 mL. What is the concentration of ethanoic acid? (Section 1.5)

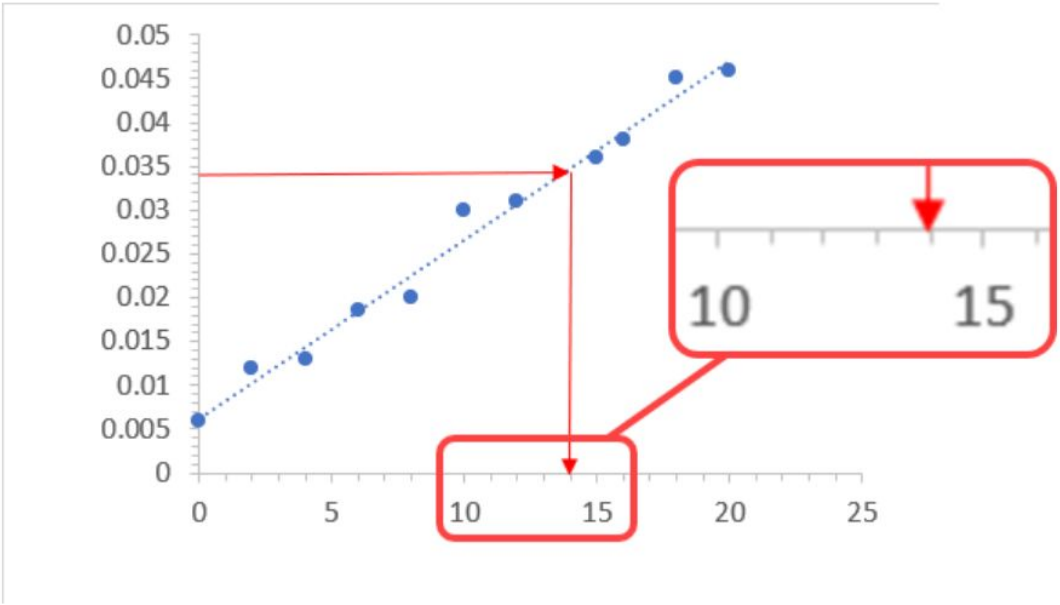


5. A calibration plot is shown below where the independent variable is time (units days) and the dependent variable is concentration (units mol/ L). Label the axes of the graph correctly by dragging the text into the appropriate drop boxes. (Section 3.3)



days | mol/L | time | concentration

6. The image shows a calibration plot with the time in days corresponding to the concentration found on the y-axis. The y-axis is expanded in the inset. To the nearest day, what is the time in days marked by the arrow? (Section 3.3)



Quiz questions relating to own experiment and analysis of results

7. In your experiment, you were tasked with accurately finding the end-point volume of the titration. Use this quiz question to enter your value in millilitres (mL) added from the burette.

8. In your experiment, you added a volume of 0.10 M NaOH to a solution containing 30.0 mL of your analyte. Using your end-point volume, and the balanced equation, enter the concentration (mol/L of ethanoic acid in your sample (See Section 1.5).

9. You were provided with a calibration curve and tasked with plotting the curve and determining the slope of the line using MS Excel. Use this quiz question to enter in the slope of the line of the calibration curve. (Section 3.3)

10. In Activity 3 you were tasked with using your calibration curve (equation of the line) and your experimental data (concentration of ethanoic acid) to determine the age of your tea sample. Use this quiz question to enter in the age of the tea sample in days (use one decimal place). (Section 5)