CHEMISTRY YEAR 12 - MODULE 8 - LESSON 1

Acid-Base Titrations & Indicators

Use this worksheet after reading the lesson to practise the key ideas and prove you can meet the success criteria.

Name _____

Date _____

Class _____

1. Key Ideas

A patient says an antacid tablet “works really well”, but a chemist needs more than a feeling. If a tablet claims to neutralise excess stomach acid, how can we measure its real acid-neutralising capacity with enough precision to trust the label?

- What a titration measures and why it is used for unknown concentrations
- Why mole relationships sit underneath every titration calculation

2. Success Criteria

By the end, you should be able to:

- What a titration measures and why it is used for unknown concentrations
- The meaning of endpoint, equivalence point, concordant titres and back titration
- The colour-change ranges of common acid-base indicators

3. Key Terms

known concentration
added carefully from a burette to a measured volume of an

remaining excess acid
then titrated with a standard sodium hydroxide solution

equivalence point
the point where stoichiometrically equivalent amounts of acid and base have reacted

endpoint
when the indicator changes colour

How much base
actually in this dose?” The tablet reacts with acid, indicators change colour, and a titre value appears on the burette

measures and why it
used for unknown concentrations

4. Activity: Build the Lesson Map

Use the lesson to complete the table. Keep answers brief but specific.

Prompt	Your answer
Main concept	
Important example	
Common mistake to avoid	
How this links to the next lesson	

5. Short Answer Questions

1. Explain this lesson goal in your own words: "What a titration measures and why it is used for unknown concentrations". Use one specific example from the lesson.

BAND 3 2 MARKS

2. Apply this idea to a new example: "The meaning of endpoint, equivalence point, concordant titres and back titration". Show your reasoning clearly.

BAND 4 3 MARKS

3. Analyse why this idea matters for understanding Acid-Base Titrations & Indicators: "The colour-change ranges of common acid-base indicators".

BAND 5 4 MARKS

6. Extend: Apply the Idea

BAND 5/6 5 MARKS

A student gives a memorised answer about Acid-Base Titrations & Indicators but does not use evidence or reasoning.

Improve the answer by writing a stronger response that uses accurate terminology, a relevant example and a clear explanation.

7. Multiple Choice

1. What is the best first step when answering a question about Acid-Base Titrations & Indicators?

☐ A. Identify the key concept being tested

☐ B. Write every fact from memory

☐ C. Ignore the command word

☐ D. Skip examples and evidence

2. Which answer would show stronger understanding of Acid-Base Titrations & Indicators?

☐ A. An answer with accurate terms and reasoning

☐ B. A copied definition only

☐ C. A single-word response

☐ D. An answer with no example

3. What should you do if a question asks you to explain?

☐ A. Link the idea to a reason or cause

☐ B. List unrelated facts

☐ C. Only draw a diagram

☐ D. Write the shortest possible answer

8. Success Criteria Proof

Finish with evidence that you can do each success criterion.

SUCCESS CRITERION 1

Prove that you can: What a titration measures and why it is used for unknown concentrations

BAND 3 2 MARKS

SUCCESS CRITERION 2

Prove that you can: The meaning of endpoint, equivalence point, concordant titres and back titration

BAND 4 3 MARKS

SUCCESS CRITERION 3

Prove that you can: The colour-change ranges of common acid-base indicators

BAND 5 4 MARKS

One thing I still need help with: