

# Spectroscopic Analysis — UV-Vis & AAS

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

After concerns about ageing pipes and trace metals in urban water supplies, chemists need methods that can do more than say "something is present". They need methods that can identify a substance by its light interactions and quantify it at very low concentration, quickly enough to protect public health.

- The principle of UV-Vis spectroscopy and Beer-Lambert law
- Why coloured species absorb particular wavelengths of light

## 2. Success Criteria

By the end, you should be able to:

- The principle of UV-Vis spectroscopy and Beer-Lambert law
- How calibration curves are used to find unknown concentration
- The principle, uses, advantages and limitations of AAS

## 3. Key Terms

**but**

actually misleading or wrong?

**How calibration curves**

used to find unknown concentration

**Vis or AAS**

more suitable for a given analytical task

**the sample**

introduced into a flame or graphite furnace where it is atomised

**Vis spectroscopy**

built on a simple idea with powerful consequences: if a substance absorbs light at a particular wavelength, the amount o

**light**

passed through a solution and the instrument measures how much of that light is absorbed

## 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: "The principle of UV-Vis spectroscopy and Beer-Lambert law". Use one specific example from the lesson.

**BAND 3** **2 MARKS**

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2. Apply this idea to a new example: "How calibration curves are used to find unknown concentration". Show your reasoning clearly.

**BAND 4** **3 MARKS**

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3. Analyse why this idea matters for understanding Spectroscopic Analysis — UV-Vis & AAS: "The principle, uses, advantages and limitations of AAS".

**BAND 5** **4 MARKS**

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## 6. Extend: Apply the Idea

BAND 5/6

5 MARKS

**A student gives a memorised answer about Spectroscopic Analysis — UV-Vis & AAS 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.

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## 7. Multiple Choice

1. What is the best first step when answering a question about Spectroscopic Analysis — UV-Vis & AAS?

- 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 Spectroscopic Analysis — UV-Vis & AAS?

- 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: The principle of UV-Vis spectroscopy and Beer-Lambert law**

**BAND 3** **2 MARKS**

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### SUCCESS CRITERION 2

**Prove that you can: How calibration curves are used to find unknown concentration**

**BAND 4** **3 MARKS**

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### SUCCESS CRITERION 3

**Prove that you can: The principle, uses, advantages and limitations of AAS**

**BAND 5** **4 MARKS**

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**One thing I still need help with:**

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