

Heavy Metal Contamination & Analysis

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 rural NSW community reports concerns about arsenic in groundwater and lead in older plumbing. The challenge is not only detecting these metals at low concentration, but understanding why even trace amounts can become dangerous once they enter bodies, food chains and water systems.

- The major heavy metal pollutants of concern in NSW water
- Why AAS is suitable for trace heavy-metal monitoring

2. Success Criteria

By the end, you should be able to:

- The major heavy metal pollutants of concern in NSW water
- Common contamination sources and health effects
- The main remediation strategies used to reduce heavy metal levels

3. Key Terms

Bioaccumulation

the build-up of a substance within a single organism over time

Biomagnification

the increase in concentration of a substance at successively higher trophic levels in a food chain

The challenge

not only detecting these metals at low concentration, but understanding why even trace amounts can become dangerous once

part of that statement

chemically unsafe or misleading?

Why AAS

suitable for trace heavy-metal monitoring

Heavy metal contamination

only a problem in industrial areas

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 major heavy metal pollutants of concern in NSW water". Use one specific example from the lesson.

BAND 3 **2 MARKS**

2. Apply this idea to a new example: "Common contamination sources and health effects". Show your reasoning clearly.

BAND 4 **3 MARKS**

3. Analyse why this idea matters for understanding Heavy Metal Contamination & Analysis: "The main remediation strategies used to reduce heavy metal levels".

BAND 5 **4 MARKS**

6. Extend: Apply the Idea

BAND 5/6

5 MARKS

A student gives a memorised answer about Heavy Metal Contamination & Analysis 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 Heavy Metal Contamination & Analysis?

- 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 Heavy Metal Contamination & Analysis?

- 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 major heavy metal pollutants of concern in NSW water

BAND 3

2 MARKS

SUCCESS CRITERION 2

Prove that you can: Common contamination sources and health effects

BAND 4

3 MARKS

SUCCESS CRITERION 3

Prove that you can: The main remediation strategies used to reduce heavy metal levels

BAND 5

4 MARKS

One thing I still need help with:
