

# Environmental Diseases — Smoking, UV Exposure, Asbestos and Lifestyle Factors

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

Every cigarette delivers over 70 known carcinogens directly to lung tissue. Every unprotected hour in the Australian sun accumulates UV-induced DNA damage in skin cells. Every asbestos fibre inhaled can remain lodged in the pleural lining for decades. Environmental diseases are non-infectious but not unpredictable — their mechanisms are well understood at the molecular level.

- How tobacco smoke causes lung cancer, cardiovascular disease, and COPD at the molecular level
- Why dose-response relationships explain why more exposure = higher risk

## 2. Success Criteria

By the end, you should be able to:

- How tobacco smoke causes lung cancer, cardiovascular disease, and COPD at the molecular level
- How UV radiation causes melanoma and other skin cancers via thymine dimer formation
- How asbestos fibres cause mesothelioma and why the latency period is so long

## 3. Key Terms

### Environmental diseases

non-infectious but not unpredictable — their mechanisms are well understood at the molecular level

### All carcinogens

mutagens, but not all mutagens are carcinogens (some mutations do not lead to cancer)

### What epigenetics

and how environmental exposures alter gene expression without changing DNA sequence

### explain why environmental diseases

preventable, predictable at population level, but variable at individual level

### which

present from conception), environmental diseases require an external agent — a carcinogen, a physical mutagen, a toxic f

### This

why tobacco-related lung cancer rates fell dramatically in countries that implemented smoking bans and anti-smoking camp

## 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: "How tobacco smoke causes lung cancer, cardiovascular disease, and COPD at the molecular level". Use one specific example from the lesson.

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

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2. Apply this idea to a new example: "How UV radiation causes melanoma and other skin cancers via thymine dimer formation". Show your reasoning clearly.

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

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3. Analyse why this idea matters for understanding Environmental Diseases — Smoking, UV Exposure, Asbestos and Lifestyle Factors: "How asbestos fibres cause mesothelioma and why the latency period is so long".

**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 Environmental Diseases — Smoking, UV Exposure, Asbestos and Lifestyle Factors 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 Environmental Diseases — Smoking, UV Exposure, Asbestos and Lifestyle Factors?

- 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 Environmental Diseases — Smoking, UV Exposure, Asbestos and Lifestyle Factors?

- 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: How tobacco smoke causes lung cancer, cardiovascular disease, and COPD at the molecular level**

**BAND 3**   **2 MARKS**

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### SUCCESS CRITERION 2

**Prove that you can: How UV radiation causes melanoma and other skin cancers via thymine dimer formation**

**BAND 4**   **3 MARKS**

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### SUCCESS CRITERION 3

**Prove that you can: How asbestos fibres cause mesothelioma and why the latency period is so long**

**BAND 5**   **4 MARKS**

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

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