

# Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency

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

Australia uses 54% of its total land mass for grazing livestock. Yet cattle convert only a tiny fraction of the energy in grass into beef. Understanding why — and calculating exactly how much energy is lost at each step — is the key to explaining why food chains are short, why apex predators are rare, and why land use matters for biodiversity.

- Key facts and terms for Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency
- How the main ideas in Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency connect

## 2. Success Criteria

By the end, you should be able to:

- Key facts and terms for Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency
- Where this lesson fits in Module 4
- How the main ideas in Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency connect

## 3. Key Terms

### Key idea

The central concept from Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency.

### Evidence

Information, observations or calculations used to support an answer.

### Explain

Give a reasoned answer that links cause and effect.

### Apply

Use a learned idea in a new example, problem or scenario.

## 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. Q1. A steer consumes approximately 10,000 kJ of energy stored in grass each day. A student claims the steer will therefore gain 10,000 kJ of body mass energy per day. Is this claim correct? If not, where does the "missing" energy go?

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

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2. Q2. Could a food chain realistically have 15 trophic levels? Why do natural food chains typically stop at 4 or 5 levels? Use your intuition about energy — not vocabulary you have memorised.

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

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## 6. Extend: Apply the Idea

BAND 5/6

5 MARKS

**A student gives a memorised answer about Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency 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 Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency?

- 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 Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency?

- 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: Key facts and terms for Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency**

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

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### SUCCESS CRITERION 2

**Prove that you can: Where this lesson fits in Module 4**

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

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### SUCCESS CRITERION 3

**Prove that you can: How the main ideas in Trophic Levels and Energy Transfer — The 10% Rule and Trophic Efficiency connect**

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

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

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