

Foundation Combined — only core Foundation content included.

Q1. Explain why food chains rarely contain more than five trophic levels.

[3 marks]

Q2. Explain why eating a plant-based diet requires less land than eating a meat-based diet. Use your knowledge of energy transfer in food chains.

[4 marks]

Total: 7 marks

Q1 (3 marks)

Explain why food chains rarely contain more than five trophic levels.

- Energy is lost at each trophic level through respiration (heat), movement and waste [1]
- Only approximately 10% of energy transfers from one level to the next [1]
- After 5 levels, so little energy remains that a further level cannot be supported [1]

Q2 (4 marks)

Explain why eating a plant-based diet requires less land than eating a meat-based diet. Us...

- Plants are producers — first trophic level [1]
- Eating plants directly provides the most efficient energy transfer to humans [1]
- Eating meat adds an extra trophic level — ~90% energy lost at each step [1]
- Far more plant material required to produce 1 kg of meat than 1 kg of plant food → more land needed [1]