

Land · supported focus

International Baccalaureate · IB Diploma · Environmental Systems and Societies · HL

Scope and prerequisites

Supported HL focus. First assessment 2026; current SL/HL brief acquired. Remaining guide, assessment and practical requirements retain their recorded holds.

Prerequisites: read the stated quantities and units, use arithmetic and the model conditions below. Each lesson develops its own method before independent transfer.

These are original or explicitly fictional teaching examples, not actual measurements or completed assessed learner investigations.

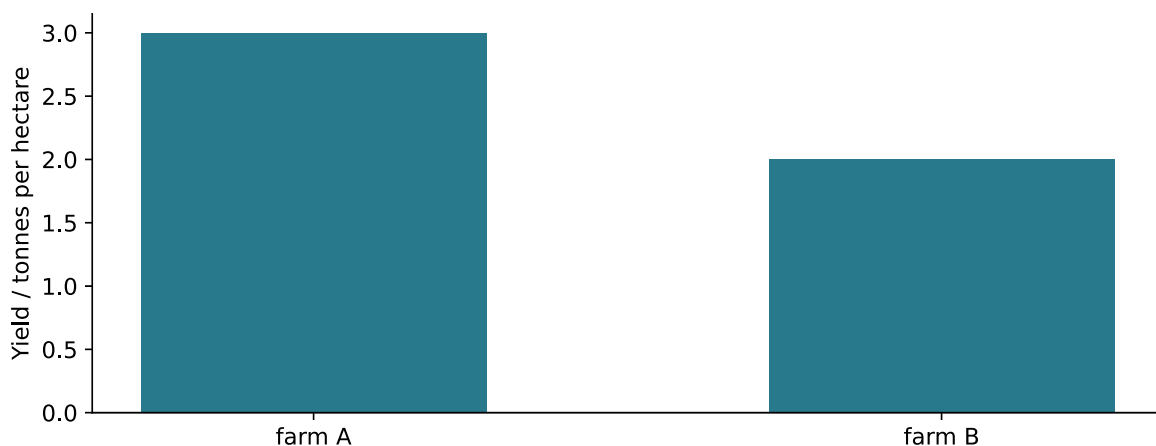
Land, food and resource decisions

■ What would explain this observation?

- A farm can increase yield while increasing soil loss or water demand. Food-system evaluation requires more than tonnes harvested.
- Start with a prediction. State the quantities or features you would compare, then decide what evidence could distinguish two explanations.

■ Build the model

- Soil supports nutrient cycling, water storage and organisms. **Erosion** removes soil; nutrient depletion changes fertility. **Resource** use involves extraction, production, distribution and waste.
- erosion: Removal and transport of soil or rock; resource: A material or service used to meet needs.



■ Choose evidence that can test it

- Distinguish total yield from yield per area and energy input. Sustainable management must consider regeneration rates and impacts beyond the farm boundary. Different stakeholders may rank food security, biodiversity and income differently.
 - Compare management options using a stated functional unit and the same timescale. Use approved secondary datasets or non-destructive soil observations. Explain trade-offs instead of claiming a method has no disadvantages.
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■ Work from known quantities

- State the known values and their units. Choose the relation because its assumptions fit this case, then rearrange before substitution.
- Known: farm A harvests 18 tonnes from 6 hectares. Yield per area = $18/6 = 3$ tonnes per hectare. Farm B harvests 20 tonnes from 10 hectares, so its yield is 2 tonnes per hectare despite a larger total harvest.

Example:

A farm harvests 28 tonnes from 7 hectares. Find yield per hectare. Use the same sequence: known quantities → model → relation → substitution → unit and interpretation.

■ Check the conclusion and its limits

- A high yield is not proof of long-term soil health. Renewable resources can be depleted when use exceeds regeneration.
- Return to the original observation. Explain what the result supports, which conditions it assumes, and one way to test a competing explanation.

Warn:

A renewable resource cannot be depleted. This claim is false: A high yield is not proof of long-term soil health. Renewable resources can be depleted when use exceeds regeneration.

Key:

Land, food and resource decisions: Distinguish total yield from yield per area and energy input. Sustainable management must consider regeneration rates and impacts beyond the farm boundary. Different stakeholders may rank food security, biodiversity and income differently.