

Foundation • supported focus

International Baccalaureate • IB Diploma • Environmental Systems and Societies • SL

Scope and prerequisites

Supported SL 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.

Environmental systems, feedback and perspectives

■ What would explain this observation?

- A lake can respond to the same nutrient input differently depending on its current state. Environmental outcomes depend on **stocks**, **flows** and feedback.
 - Start with a prediction. State the quantities or features you would compare, then decide what evidence could distinguish two explanations.
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■ Build the model

- A system model has a boundary, stores and flows. Negative feedback counteracts change; positive feedback amplifies it. An environmental perspective shapes what people value and which management outcomes they prioritize.
- stock : An amount held within a system; flow : Transfer of an amount per unit time.



■ Choose evidence that can test it

- Separate physical evidence from value judgements. A stock is an amount at a time; a flow is an amount per time. Sustainability decisions require ecological, social and economic evidence and a stated scale.
 - Draw the system boundary before calculating a budget. Identify inflows, outflows and possible unmeasured terms. Compare stakeholder claims using the same evidence, then explain where values lead to different choices.
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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: a reservoir begins with 800 units, receives 120 and loses 90 during a week. Change in storage = inflow-outflow = $120-90 = 30$. Final storage = $800+30 = 830$ units. The model assumes no omitted flow.

Example:

A stock starts at 600, receives 80 and loses 110. Find final stock. Use the same sequence: known quantities → model → relation → substitution → unit and interpretation.

■ Check the conclusion and its limits

- A balance that closes mathematically can still omit a real process if terms were estimated to fit. Positive feedback does not mean a socially desirable result.
- Return to the original observation. Explain what the result supports, which conditions it assumes, and one way to test a competing explanation.

Warn:

Positive feedback always produces a socially beneficial outcome. This claim is false: A balance that closes mathematically can still omit a real process if terms were estimated to fit. Positive feedback does not mean a socially desirable result.

Key:

Environmental systems, feedback and perspectives: Separate physical evidence from value judgements. A stock is an amount at a time; a flow is an amount per time. Sustainability decisions require ecological, social and economic evidence and a stated scale.