

Foundation · supported focus

Supported focus · SL

Supported scope

- Supported SL focus. First assessment 2026; current SL/HL brief acquired. Remaining guide, assessment and practical requirements retain their recorded holds.
- State model conditions and distinguish fictional data from measurements.

Ess Systems · 1.1

Reasoning

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.

Ess Systems · 2.1

Reasoning

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.

Ess Systems · 3.1

Reasoning

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.

Ess Systems · 4.1

Reasoning

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. $\text{Change in storage} = \text{inflow} - \text{outflow} = 120 - 90 = 30$. $\text{Final storage} = 800 + 30 = 830$ units. The model assumes no omitted flow.

Ess Systems · 4.2

Reasoning

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

Ess Systems · 5.1

Reasoning

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.

Ess Systems · 5.2

Reasoning

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.

Ess Systems · 5.3

Reasoning

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.

Ess Systems · diagram



- Original teaching diagram: Environmental systems, feedback and perspectives
- Use the labels and the stated model together.

Ess Systems · original transfer

Your turn

A fictional reservoir starts at 500, receives 90 and ends at 550. Evaporation is 20. Infer other outflow and give an alternative explanation if measurements are uncertain.

Ess Systems · transfer reasoning

Method and interpretation

Total outflow 40, other outflow 20. The balance assumes complete flows; errors or omitted inflows change the inference. Distinguish stocks from rates.

Check yourself

- Explain stock using the stated model.
- Explain flow using the stated model.
- Change one value in the original transfer; explain which assumption still matters.