Decomposing an applied technology problem

Key knowledge | Free preview

Learning target: Understand abstraction, decomposition, pattern recognition and algorithms as tools for investigating mathematics.

Computational thinking turns a contextual question into a reproducible mathematical process. Identify the essential quantities, break the problem into smaller tasks and choose an algorithm with explicit inputs and outputs. Check the result against the original situation. Numerical work still requires reasoning about the domain, accuracy and meaning of the calculated answer.

Try the mathematics

Task 1. A pump has modelled inflow $R(t)=t\,e^{(-t)}$ litres/minute for $0\leq t\leq 4$. Plan a technology investigation of the largest inflow rate and the total added volume. Identify the subproblems and their outputs.

Continue with the full worksheet

The complete resource has 2 focused task sets and substantive worked solutions. Use an exercise book or print the A4 worksheet. This preview shows the first task without its full solution.

Find this resource: https://resources.aspiretopowerlearning.com.au/vce/skills/aspire-mm-u34-o3-kk-01/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 3; Key knowledge; bullet 1; p. 104.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o3-kk-01. This is an internal identifier, not an official VCAA code.

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