

Planning and implementing integrated STEM

Part 1: Initial planning

STEM in the Victorian Curriculum

- Science
- Design and Technologies
- Digital Technologies
- Mathematics

STEM in the Victorian Curriculum

- *Explicitly* teach **at least** two content areas of the relevant curriculum
- **AND** either:
 - Science inquiry process (SIS) **OR**
 - Design cycle process (CDS)

Planning STEM

1. Identify content in the Victorian Curriculum amenable to integration
2. Explicitly state the achievement standards, or parts, you wish students to meet from your STEM activity
3. Brainstorm learning activities to meet the achievement standards and map out a learning sequence
4. Identify task criteria and constraints
5. Plan assessment/evidence collection
6. Develop teaching and learning resources
7. Implement and reflect

Initial Planning

- Identify content descriptions from the learning areas that could be integrated
- Be clear about what you are planning to teach in this setting

Content Descriptions

- Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (**VCMMG165**) (level 4)
- Forces can be exerted by one object on another through direct contact or from a distance (**VCSSU064**) (level 3/4)

Achievement Standards

- *Students use scaled instruments to measure length, angle, area, mass, capacity and temperature of shapes and objects...*
- *They use contact and non-contact forces to describe interactions between objects*

Possible activities

- **Design and build a shelter**
- **Complete a ‘strongest bridge’ challenge**
- **Design a container to hold different substances or amounts**

Constraints

- Constraints on a task allow teachers to ensure students have the **opportunity to learn and show** the achievement standards identified
- They **define the learning** that will occur

Constraints

- Set a *minimum or maximum* bridge length, width, height and/or weight
- A testing regime for the bridge that investigates *the effects of pushing, pulling, placing vs dropping weights, etc.*

Alternate Content Description

- Investigate the suitability of materials, systems, components, tools and equipment for a range of purposes
(VCDSTC027)

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