

Smart Greenhouse

Problem/Challenge

How can we grow food all year around in Tasmania without using more energy than transporting it?

Brief

In different engineering teams, each team is addressing the problem from a particular perspective.

Software/electronic engineering are responsible for sensors: watering systems, temperature controls, nutrient levels. Environmental engineering for soil, planting:

choice, numbers, density, companion and pest control. Civil engineering for design, scale drawings, costing and construction. Then, as a whole group they come up with the 'perfect greenhouse' by putting all the ideas together.

School Overview

South Hobart Primary School is located in South Hobart, a suburb in Tasmania's capital city. The school caters for students in Years K–6 from the surrounding community. South Hobart Primary School currently has 378 students.

AUSTRALIAN CURRICULUM

Science

Science Understanding

- » Living things and their adaptations to their environment ([ACSSU043](#))

Science as a Human Endeavour

- » Science explains historical phenomenon and cultural contributions ([ACSHE081](#))
- » Science is used to solve problems and inform personal and community decisions ([ACSHE083](#))

Science Inquiry Skills

- » Questions and predictions ([AC SIS231](#))
- » Plan an investigation ([AC SIS086](#))
- » Variables, fair tests, measuring and recording data ([AC SIS087](#))
- » Data representation ([AC SIS090](#))
- » Comparing data with predictions ([AC SIS218](#))
- » Reflecting on the investigation ([AC SIS091](#))
- » Communicate scientific ideas and information ([AC SIS093](#))

Design and Technologies

Technologies and society

- » Design and technologies occupations and sustainability considerations ([ACTDEK019](#))

Engineering principles and systems

- » Electrical energy in controlling, movement, light and sound ([ACTDEK020](#))

Materials and technologies specialisations

- » Characteristics and properties of materials, systems, components, tools and equipment ([ACTDEK023](#))

Design Process

- » Investigating and defining ([ACTDEP024](#))
- » Generating and designing ([ACTDEP025](#))
- » Producing and implementing ([ACTDEP026](#))
- » Evaluating ([ACTDEP027](#))
- » Collaborating and managing ([ACTDEP028](#))

Digital Technologies

- » Digital systems and transmission of data ([ACTDIK014](#))
- » Define problems in terms of data and functional requirements ([ACTDIP017](#))
- » Design and modify algorithms and programs ([ACTDIP019](#))
- » Implement digital solutions as simple visual programs involving iteration ([ACTDIP020](#))

Mathematics

Number and Algebra

- » Solve problems involving purchases ([ACMNA080](#))
- » Problem solving ([ACMNA291](#))
- » Financial plans ([ACMNA106](#))

Measurement and Geometry

- » Units of measurement ([ACMMGI08](#))
- » Perimeter and area of rectangles ([ACMMGI09](#))
- » 3D objects ([ACMMGI11](#))
- » Enlargement of 2D shapes ([ACMMGI15](#))
- » Estimating and measuring angles ([ACMMGI12](#))

Statistics and Probability

- » Data collection ([ACMSPI18](#))
- » Data representation ([ACMSPI19](#))
- » Describe and interpret data ([ACMSPI20](#))

