Desirable features

High-quality performance is evidenced by:

- a workable experimental design that includes a testable and plausible hypothesis and appropriate controls, and that delineates equipment, method and data collection procedures.
- deep knowledge and understanding of concepts in the natural and physical sciences.
- successful application of mathematical techniques and procedures.

Acceptable performance (successful task completion) is evidenced by:

- an experimental design that includes an hypothesis and suggests equipment and procedures.
- knowledge of concepts in mathematics and the natural and physical sciences.
- identification of scientific development(s) linked to the space program.

YEARS 4–6

TASK alternative

7

Found in Space

New Basics referents

Life pathways and social futures

- Learning about and preparing for new worlds of work
- Collaborating with peers and others

Multiliteracies and communications media

- Blending new and traditional communications media
- Mastering literacy and numeracy

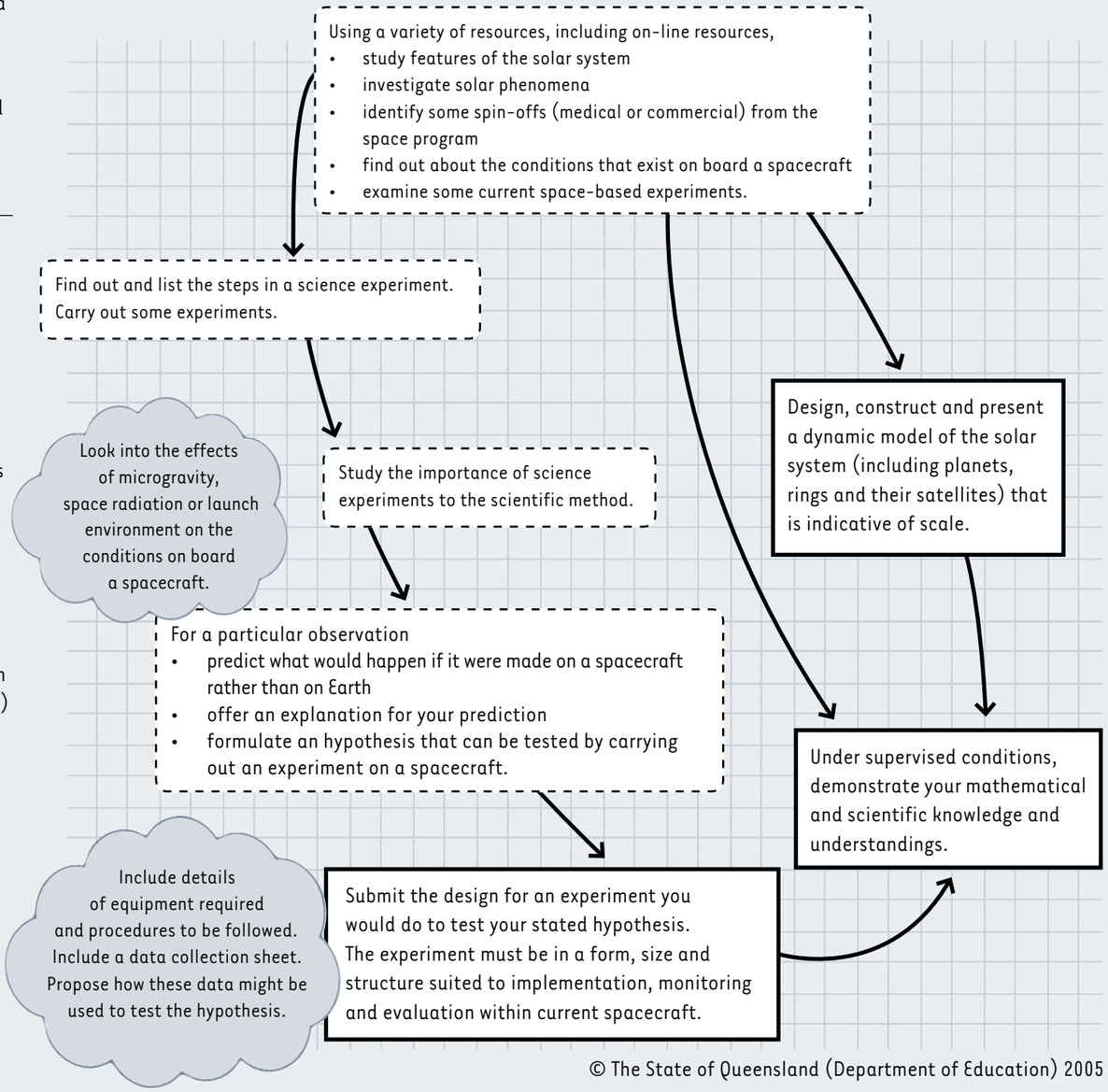
Environments and technologies

- Developing a scientific understanding of the world
- Working with design and engineering technologies

Targeted repertoires of practice

- Approximating and estimating
- Choosing and utilising the appropriate measuring instrument to perform a given task
- Demonstrating knowledge and understanding of scientific concepts (gravity, weightlessness, celestial bodies in orbit, human physiology, properties of matter)
- Designing and conducting scientific investigations
- Devising hypotheses
- Interacting with digital data and texts
- Interrelating the ideas/issues/impacts of space travel with life on Earth
- Observing systematically
- Performing calculations involving ratio, proportion and power-of-ten notation (place value to millions)
- Scale drawing and modelling

Students will engage with the exploration of space and with the techniques and procedures of the mathematical and physical sciences. They will produce a model of the solar system, investigate the impact of space travel on life on Earth, and produce a coherent design for an experiment to be performed on a spacecraft.



Ideas, hints and comments

- The model of the solar system could be a human tableau or a computer simulation.
- Suggested sites for on-line resources:
  - visit the Stars Academy at www.starsacademy.com
  - go on a virtual tour of the solar system at www.spacekids.com
  - visit the learning centre of the Planetary Society at http://planetary.org
  - track the Stardust spacecraft's mission at http://stardust.jpl.nasa.gov
  - find out more about NASA at http://www.nasa.gov
- To keep up to date with the latest launches, visit http://spaceflightnow.com/news
- Teachers will need to walk students through the steps involved in a scientific investigation.
- To assist students in their space experiment design visit http://sspp.gsfc.nasa.gov/satchel/index.html
- Features of the solar system that should be studied are planets, planetary motion, satellites, asteroids, comets and meteors.

Task parameters

- Task intensity: high
- Students are to work in small groups to develop the dynamic model of the solar system and the design for an experiment, however, the test is to be undertaken individually.
- Available grades: 5