**SCIENCE PLANNING TEMPLATE – Part 1: Learning outcomes plan**

|  |  |  |
| --- | --- | --- |
| **Main idea:** | **Science strand:** | **Level:** **Year:** |
| **Overarching learning outcomes:** *
*
 |
| **Conceptual learning outcomes**  | **Procedural learning outcomes**  | **Nature of science outcomes**  | **Technical learning outcomes**  |
| Students will understand that:*
*
 | Students will be able to:*
*
 | Students will understand and appreciate that:*
 | Students will be able to:*
*
 |
| **Assessment:***
 |

[See completed example of Part 1](#PART1)

[See background information on the science planning template](#background)

**SCIENCE PLANNING TEMPLATE – Part 2: Lesson plan**

|  |  |
| --- | --- |
| **Main idea:**  |  |

| **Subtasks** | **Resources/focal artefacts** | **Planned interactions** | **Key student outcomes** |
| --- | --- | --- | --- |
| **Meso tasks** | **Micro tasks** |
| **Day 1**  | 1.1  | *
 | *
 | *
 |
| 1.2  | *
*
 | *
*
 | *
*
 |
| 1.3  | *
*
 | *
*
 | *
*
 |
| **Day 2**  | 2.1  | *
*
 | *
*
 | *
*
 |
| 2.2  | *
*
 | *
*
 | *
*
 |
| 2.3  | *
*
 | *
*
 | *
*
 |
| **Day 3**  | 3.1  | *
*
 | *
*
 | *
*
 |
| 3.2  | *
*
 | *
*
 | *
*
 |
| 3.3  | *
*
 | *
*
 | *
*
 |
| **Day 4**  | 4.1  | *
*
 | *
*
 | *
*
 |
| 4.2  | *
*
 | *
*
 | *
*
 |
| 4.3  | *
*
 | *
*
 | *
*
 |
| **Day 5**  | 5.1  | *
*
 | *
*
 | *
*
 |
| 5.2  | *
*
 | *
*
 | *
*
 |
| 5.3  | *
*
 | *
*
 | *
*
 |

**SCIENCE PLANNING TEMPLATE – Part 1: Learning outcomes plan**

|  |  |  |
| --- | --- | --- |
| **Main idea:***The big science idea for students to understand, for example:* * Sound is comprised of waves.
* Fossils provide clues to the past.
* Moulds are a type of fungus and are living.
 | **Science strand:***
 | **Level:** **Year:** |
| **Overarching learning outcomes:** *Derived from and relating to the main idea, teased out in more detail. They show science as a holistic practice where ideas and skills come together so that the main idea can be understood. These are usually broad statements covering scientific knowledge, practice and nature of science outcomes. Here are two examples:* In building understandings about sound, students will integrate: * understandings that properties of sound relate to the manner in which sound waves travel through a substance (scientific knowledge)
* an investigation into how musical instruments generate sound waves (scientific practice)
* understandings that scientific knowledge can be used to help people (nature of science).

In building understandings about adaptation, students will integrate: * understandings about how the features of an animal living on the rocky shore have allowed it to adapt to its particular habitat (scientific knowledge)
* an investigation of how a local ecosystem fosters the interdependence of living organisms, including humans, and their relationship with their physical environment (scientific practice)
* understanding that the nature of experimentation can include making predictions, observing, recording results and drawing conclusions (nature of science).
 |
| **Conceptual learning outcomes**  | **Procedural learning outcomes**  | **Nature of science outcomes**  | **Technical learning outcomes**  |
| *Focused on knowledge and understanding of relevant scientific concepts and procedures, for example:* Students will understand that: * mould colonies reproduce and grow where the conditions meet their needs
* beach ecosystems are a balance of living and nonliving elements, that interact with each other
* sound travels as a wave, producing vibrations.
 | *Focused on strategic application of procedures and processes, such as used in science investigations, for example:* Students will be able to: * classify living things
* generate and identify questions that are suitable for an investigation
* confidently make predictions about direction of movement
* carry out a procedure by following a sequence of simple steps
* record results appropriately.
 | *Related to what counts as evidence and methods appropriate for communication of scientific ideas, for example:* Students will understand and appreciate that scientists: * make categories so they can understand what they see
* make predictions then test them
* use observation and describe what they see
* change their ideas over time as they find and make sense of new fossil discoveries.
 | *Related to practical techniques and equipment use, for example:* Students will be able to: * label observational drawings
* label test equipment
* develop technical skills for cutting, threading, knotting
* connect components of a circuit to make a working circuit.
 |
| **Assessment:***For example:* Poster, investigation report, before and after views, Short test |

**Background information o****n the science planning template**

Teaching science to primary school students is not simple. Teachers need to be able to take science concepts and present them in ways that enable students to learn.

The two-part science planning template can help teachers move from simply planning activities for students to do, to planning what and how students will learn through a coherent series of lessons.

This is not to suggest that planning should set the day in stone. The wonderful thing about planning is that once you’ve done it, you can make all kinds of changes and adjustments and not lose the plot. Or, if you do it’s on purpose. (Earl, 2003)

**The planning template**

The science planning template was devised by teachers and researchers involved in the InSiTE project (Cowie, Moreland, Jones & Otrel-Cass, 2008). The project explored teaching and learning in science and technology in primary classrooms.

There are two parts to the planner:

* [Part 1](#PART1) is the focusing inquiry and outlines the scope of what is important to learn.
* [Part 2](#PART2) is the teaching inquiry helps teachers plan the pedagogical approaches and strategies that will help students learn the ideas and skills specified in Part 1. Completing Part 2 focuses the teacher on planning learning opportunities aimed at achieving the outcomes they have prioritised. There are spaces to record a sequence of subtasks that contribute towards achieving the main task, resources required for each subtask, the interaction focus for each subtask and possible student outcomes and responses.

**More information and references**

For best results, you may need to use the Google Chrome browser when following the links below on the Teaching & Learning Research Initiative (TLRI) website.

For a more comprehensive understanding of both parts of the planning template, see [The Classroom InSiTE Project: Understanding classroom interactions to enhance teaching and learning in science and technology in Years 1–8](http://www.tlri.org.nz/tlri-research/research-completed/school-sector/classroom-insite-project-understanding-classroom) and click on the ‘Insite Planning’ link at the bottom of the page.

Cowie, B., Moreland, J., Jones, A., & Otrel-Cass, K. (2008). *The classroom InSiTE project: Understanding classroom interactions to enhance teaching and learning in science and technology in Years 1–8*. Wellington: Teaching and Learning Research Initiative.

<http://www.tlri.org.nz/sites/default/files/projects/9215_finalreport_0.pdf> (1.45 MB)

Earl, L.M. (2003). *Assessment as learning: Using classroom assessment to maximize student learning*. Thousand Oaks, CA: Corwin Press.

Moreland, J., Cowie, B., Otrel-Cass, K., & Jones, A. (2010). *Planning for learning: Building knowledge for teaching primary science and technology.* Wellington: Teaching and Learning Research Initiative. <http://www.tlri.org.nz/sites/default/files/projects/InsitePlanning.pdf>
(555 KB)