**Technology**

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| **Year (s) 3/4** | **Situation/Big Question: To Grow or not to Grow. What helps? Can we set up a system that will grow a plant over winter using hydroponics?** | **Duration 3-4 weeks** |
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| **Key Competencies:** (Highlight one focus key competency) | **Values** (Highlight one focus value) |
| Thinking; Using Language, symbols and text, Managing self; Relating to others; Participating and Contributing | Excellence; Innovation; Inquiry and Curiosity; Equity; Community and Participation; Ecological sustainability; Integrity; Respect |

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| **Level: 1** | **Achievement Objectives – Technological Practice**  |
| **Planning for Practice (PP)** Describe the outcome they are developing and identify the attributes it should have, taking account of the need or opportunity and the resources available. **Brief Development (BD)** Outline a general plan to support the development of an outcome, identifying appropriate steps and resources.**Outcome development and evaluation (ODE)** Investigate a context to communicate potential outcomes. Evaluate these against attributes; select and develop an outcome in keeping with the identified attributes. |
| **Achievement Objectives – Technological Knowledge**  |
|  **Technological modelling (TM)**Understand that functional models are used to represent reality and test design concepts and that prototypes are used to test Technological Outcomes**Technological products (TP)** Understand that technological products are made from materials that have performance properties.**Technological systems (TS)**Understand that technological systems have inputs, controlled transformations, and outputs. |
| **Achievement Objectives – Nature of Technology**  |
| **Characteristics of technology (CT)**Understand that technology is purposeful intervention through design**Characteristics of technological outcomes (CTO)** Understand that Technological Outcomes are products or systems developed by people and have a physical nature and a functional nature |

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| Tech cycle Y10.gif | **Teaching and Learning Experiences**(bullet point list of experiences) | **Learning Outcomes**(Assessment Focus) |
| **Intro to systems***Session 1 (30 mins)*What are systems? Record ideas, questionsLook at photos – toaster, washing machineFunny photos – jobs in town (see powerpoint)Videos - [crème egg smash](http://www.youtube.com/watch?v=MAW-cHu5Yp8) and [Rube Goldberg](http://www.youtube.com/watch?v=0uDDEEHDf1Y) machineExplore misconceptions - natural, social, organizational, technological – (see powerpoint) activityKey ideas about systems I want children to understandThere is an input, transformation and output*Session 2(40 mins)*Input and output activityThere is a human input and then the system operates and produces an output. These inputs might include raw materials, information and energy.Card sortLook at these systems and identify what the input and output is. (see powerpoint)Transformation activity During the process inputs are transformed in a controlled fashion. Systems will control and transform energy, information and materials.Pick a simple system and draw a picture of what is happening inside it. What is the transformation?*Session 3 (40 mins)***Intro to hydroponics ( Issue, brief and Research)****Issue** – We haven’t got a lot of spare garden and soil space at school. How could we grow plants all year around without using a garden? Brainstorm ideasShow photos of hydroponic set upsWhat is happening? How does it work? Where is the soil? How are they growing? Any other questions children want to ask?**Brief** – set up a simple (passive) hydroponic system to grow a plantSpecifications – develop these with the children 3-4 specific things that our system should have.**Research**- looking at photos/books/websites [http://love2learnnz.wikispaces.com/Hydroponics+in+the+Classroom](http://love2learnnz.wikispaces.com/Hydroponics%2Bin%2Bthe%2BClassroom) Visit hydroponic green houses –Saddleview nurseries*Session 4(30 mins)*Re-cap issue, brief, specifications **Planning/concept** – sketch a plan for your system – label the materials needed. (show the you tube vid and bottle diagram) Session 5 *(40 mins)***Development**Make the hydroponic system and plant lettuce or herbOngoing testing/caring/observation/recording growthSession 6 (30mins)**Evaluation**Based on the brief and specifications children will evaluate their system, outcomes etc. Comments will be posted on techspot blog page | **TP****TK****NoT** |
| **Key Resources**[**http://www.hydroponics101.com/sw63175.php**](http://www.hydroponics101.com/sw63175.php)[**http://www.youtube.com/watch?v=MAW-cHu5Yp8**](http://www.youtube.com/watch?v=MAW-cHu5Yp8)[**http://www.youtube.com/watch?v=0uDDEEHDf1Y**](http://www.youtube.com/watch?v=0uDDEEHDf1Y) |
| **Thinking Strategy/Tool** |
| **E-Learning Tools**WebsitesPowerpoints |
| **Te Reo/Tikanga** |
| **Community Links**Visiting hydroponic nursery |