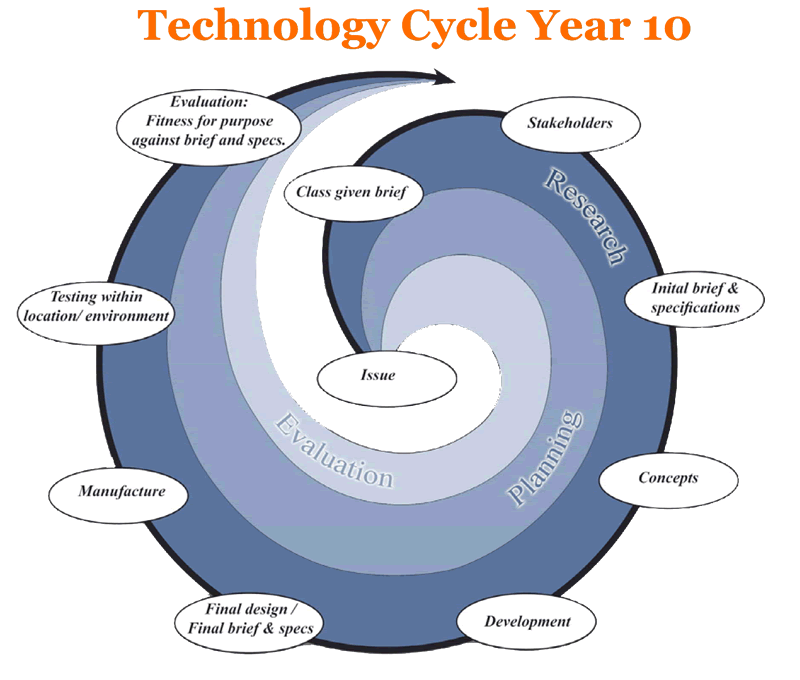
**Technology – Lighting up the Night**

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| **Year (s)** 3/4 | **Situation/Big Question: Can we create a simple electronic circuit (system) that we can use as a night light? Is an electronic circuit a system?** | | **Duration**  2-3 weeks |
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| **Key Competencies:** | | **Values:** | |
| 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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|  | **Teaching and Learning Experiences**  (bullet point list of experiences) | **Learning Outcomes**  (Assessment Focus) |
| Introduction  Revision and recap on previous learning about systems.   * What is a system? * Why do we have/need systems? * What types of systems are there? E.g. natural, technological etc. * What is an input, output and transformation? * Do we have any questions about systems? * Re-read Sneetches and use the resource from Paul to guide discussion around systems.   Research –  Exploring electronic systems.   * What are they? * When do we use them? * Look at a torch – take apart and discuss the components – inputs, outputs etc * Hands on with brainbox creating a simple system. * What are the components? Bulb, wire, switch and battery. * Make a simple light circuit with bulbs and batteries.   Discuss the inputs, outputs and controlled transformations.  Brief and Specifications   * Discuss what lighting children use at night? * Link in with sustainability and using less electricity. * How do you make a simple electronic circuit? * Develop a brief together as a class. * Develop specifications as a class.   Planning –   * children to come up with design ideas/concepts. * Question – what are night lights? Why do we need them? What components are in them, what materials? * Look at some examples both commercial and some others made by older students. * Use play dough to make a model and use coloured pegs to mark where LED’s are going * Draw the birds eye view and side view * Annotate on the plan so that we know what colours children want   Developing a model -   * Children make a model out of clay * Use vacuum former to make the nightlight * Trace and cut a base using corflute * Paint their nightlights with quality paints (dulux) * Stations set up in class for this. Need 1 adult per station * Children assemble as much of their circuit as they can – split pins and solder the battery casing on. * Adults may need to help with some soldering   Final Stages –   * Apply second coat of paint and then add vivid details * Cut out battery slot on base corflute and mark where circuit is going * Drill holes for LED lights – children should be able to do with adult support * Assembly – adult and child work together using glue gun. Children can put in LED’s and keep checking that that circuit is working     Evaluation –   * Evaluate their night light against specifications * Can children explain the system they have created with reference to input, output and transformation? * Evaluation sheet – children to put the photos of the different stages and describe what happens at each stage. | **Students will:**  **TP**  communicate the outcome to be produced  **TK**  • identify the components of a technological system and how they are connected  • identify the input/s and output/s of particular technological systems  • Identify that a system transforms an input to an output.  **NoT**  identify technological outcomes in a group of technological and non- technological objects and systems |
| **Key Resources**  Angela Miller – lecturer at University of Otago College of Education was able to support me in my teaching and own professional understanding for this unit.  Brain box – 9 kits borrowed from UOCE  Circuits |
| **Thinking Strategy/Tool** |
| **E-Learning Tools**  Class wiki with circuit links <http://love2learnnz.wikispaces.com/inquiry2013> |
| **Te Reo/Tikanga** |
| **Community Links** |