

Technology Plan

Unit title: Robotics	KLAs: Technology	Year level: 5, 6, 7	Duration: 9 weeks
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Roles of the Life Long Learner	
In this unit students will be a:	
<ul style="list-style-type: none"> Designer and Creator when they build a robot that is capable of following a set of commands. 	<ul style="list-style-type: none"> Complex Thinker when they integrate the various systems and programming knowledge that they've learnt to carry out a challenge.

Purpose / Context for Learning	School / Cross-curriculum priorities (e.g. Literacy, Numeracy, ICT, GAT, First Steps, You Can Do It, Values, Partnerships, etc)	Culminating Activity
<p>During this unit students will be using the Lego Robotics system NXT to create a Domabot robot and solve problems with their robot. There will be a variety of challenges as well as focused teaching lessons on what a robot is and how we use robots.</p> <p>The students will learn how to use programming language while programming their Domabot to perform set tasks.</p>	<p>ICT Cross Curriculum Priorities</p> <p>Cr. 5.1 Students develop simple plans to create imaginative responses.</p> <p>Com. 5.1 Students collaborate and communicate ideas, understandings, information and responses.</p> <p>Com. 5.6 Students reflect on their use of ICTs and analyse and identify ways to improve the effectiveness of their collaboration and communication.</p> <p>Op. 5.1 Students experiment with operational processes and use the basic capabilities of a range of ICT devices.</p> <p>Op. 5.3 Students make selections from common input, output and storage devices.</p> <p>Op. 5.5 Students describe common ICT devices and operational processes using ICT-specific terminology.</p> <p>Cr. 7.1 Students develop plans and proposals, considering common ICT design features.</p> <p>Com. 7.1 Students collaborate, develop, organise and present new ideas.</p> <p>Com. 7.6 Students reflect on their use of ICTs and consider feedback to improve collaboration and refine and communicate meaning.</p> <p>Op. 7.1 Students develop operational skills and begin to use the extended functionality of a range of ICT devices.</p> <p>Op. 7.3 Students describe various ICT devices and processes using ICT-specific terminology.</p> <p>Op. 7.5 Students develop strategies for learning new ICT operations and consider different ways to perform tasks.</p> <p>Op. 7.8 Students reflect on, analyse and evaluate their operational skills to meet the requirements of system resources, processes and conventions.</p> <p>Numeracy: data gathering, graphing, interpolation, extrapolation, decimal numbers and fractions, averaging of data, speed and velocity of a moving body</p> <p>There will be multiple opportunities to simplify tasks for struggling students and extension opportunities for gifted and talented students.</p>	<p>Students will demonstrate their programming knowledge by programming a robot to push cups out of a 2m x 2m square without knocking down the tall towers that were also within the square.</p>

Learning Sequence

Year Level: 5, 6, 7

Term:

ESSENTIAL LEARNINGS:

WOWS

Tech. WOW 5.2 Generate design ideas that match requirements

Tech. WOW 5.4 Select resources, techniques and tools to make products

Tech. WOW 5.5 Plan production procedures by identifying and sequencing steps

Tech. WOW 5.6 Make products to match design ideas by manipulating and processing resources

Tech. WOW 5.8 Evaluate products and processes to identify strengths, limitations, effectiveness and improvements

Tech. WOW 5.10 Reflect on learning to identify new understandings and future applications.

Tech. WOW 7.2 Generate and evaluate design ideas and determine suitability based on purpose, specifications and constraints

Tech. WOW 7.3 Communicate the details of designs showing relative proportion, using labelled drawings, models and/or plans

Tech. WOW 7.4 Select resources, techniques and tools to make products that meet specifications

Tech. WOW 7.6 Make products to meet specifications by manipulating and processing resources

Tech. WOW 7.8 Evaluate the suitability of products and processes for the purpose and context, and recommend improvements

Tech. WOW 7.10 Reflect on learning, apply new understandings and identify future applications

KUS

KU:THE 5.1 Different ideas for designs and products are developed to meet needs and wants of people, their communities and environments

KU:IMS 5.1 Resources have particular characteristics that make them more suitable for a specific purpose and context

KU:IMS 5.2 Techniques and tools are selected to appropriately manipulate characteristics of resources to meet design ideas

KU:THE 7.1 Design and development of products are influenced by societies' changing needs and wants, and include artefacts, systems, environments and services

KU:IMS 7.1 Resources are selected according to their characteristics, to match requirements of design challenges and suit the user

KU:IMS 7.2 Techniques and tools are selected to manipulate or process resources to enhance the quality of products and to match design ideas, standards and specifications