Introduction

CURRICULUM GRID

Technologies Content Descriptors
Years 5-6
◆ = addresses Content Descriptor
◖ = partially addresses Content Descriptor

Technologies Content Descriptors — Years 5-6		Activity 1: Performing a Three Point Turn	Activity 2: Written Instructions For a Three Point Turn	Activity 3: Reversing the Robot	Activity 4: Light the Way	Activity 5: Traffic Lights and Automated Navigation	Activity 6: Reversing Beeps	Activity 7: Keyless Starting of a Car	Activity 8: Cruise Control	Activity 9: Roaming Robots	Activity 10: Final Project – Designing a Driverless, Automated, Wheeled Robot	Activity 11: Final Project – Building and Programming a Driverless, Automated, Wheeled Robot	Activity 12: Final Project – Reviewing, Revising and Presenting Your Driverless, Automated, Wheeled Robot
Digital Technologies													
Knowledge and Understanding													
Digital Systems													
ACTDIK014	Examine the main components of common digital systems and how they may connect together to form networks to transmit data	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Processes and production skills													
Creating digital solutions by:													
Investigating and defining													
ACTDIP017	Define problems in terms of data and functional requirements drawing on previously solved problems	◖	◖	◖	◖	◖	◖	◖	◖	◖	◖	◖	◖
Generating and designing													
ACTDIP019	Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Producing and implementing													
ACTDIP020	Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input	◆	◆	◆	◆	◆	◆	◆	◖	◆	◆	◆	◆
Evaluating													
ACTDIP021	Explain how student solutions and existing information systems are sustainable and meet current and future local community needs	◖	◖	◖	◖	◖	◖	◖	◖	◖	◖	◖	◖
Collaborating and managing													
ACTDIP022	Plan, create and communicate ideas and information, including collaboratively online, applying agreed ethical, social and technical protocols	◖	◖	◖	◖	◖	◖	◖	◖	◖	◆	◆	◆
Design and Technologies													
Knowledge and Understanding													
Technologies and society													
ACTDEK019	Examine how people in design and technologies occupations address competing considerations, including sustainability in the design of products, services, and environments for current and future use	◆	◆	◆	◆	◆	◆	◖	◖	◖	◆	◆	◆
Technologies contexts													
Engineering principles and systems													
ACTDEK020	Investigate how electrical energy can control movement, sound or light in a designed product or system	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

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Engineering principles and systems												
ACTDEK023 — Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use	◆	◆	◑	◑	◆	◑	◆	◑	◑	◆	◆	◆
Processes and production skills												
Investigating and defining												
ACTDEP024 — Critique needs or opportunities for designing, and investigate materials, components, tools, equipment and processes to achieve intended designed solutions	◑	◑	◑	◑	◑	◑	◑	◑	◑	◆	◆	◆
Generating and designing												
ACTDEP025 — Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques	◑	◑	◑	◑	◑	◑	◑	◑	◑	◆	◆	◆
Producing and implementing												
ACTDEP026 — Select appropriate materials, components, tools, equipment and techniques and apply safe procedures to make designed solutions	◑	◑	◑	◑	◑	◑	◑	◑	◑	◑	◑	◑
Evaluating												
ACTDEP027 — Negotiate criteria for success that include sustainability to evaluate design ideas, processes and solutions	◑	◑	◑	◑	◑	◑	◑	◑	◑	◆	◆	◆
Collaborating and managing												
ACTDEP028 — Develop project plans that include consideration of resources when making designed solutions individually and collaboratively	◑	◑	◑	◑	◑	◑	◑	◑	◑	◆	◆	◆

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Technologies Content Descriptors **Years 7-8** ◗ = addresses Content Descriptor ◐ = partially addresses Content Descriptor	Activity 1: Performing a Three Point Turn	Activity 2: Written Instructions For a Three Point Turn	Activity 3: Reversing the Robot	Activity 4: Light the Way	Activity 5: Traffic Lights and Automated Navigation	Activity 6: Reversing Beeps	Activity 7: Keyless Starting of a Car	Activity 8: Cruise Control	Activity 9: Roaming Robots	Activity 10: Final Project – Designing a Driverless, Automated, Wheeled Robot	Activity 11: Final Project – Building and Programming a Driverless, Automated, Wheeled Robot	Activity 12: Final Project – Reviewing, Revising and Presenting Your Driverless, Automated, Wheeled Robot
Digital Technologies												
Processes and production skills												
Investigating and defining												
ACTDIP027 Define and decompose real-world problems taking into account functional requirements and economic, environmental, social, technical and usability constraints	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Investigating and defining												
ACTDIP029 Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors	●	●	●	●	●	●	●	●	●	●	●	●
Producing and implementing												
ACTDIP030 Implement and modify programs with user interfaces involving branching, iteration and functions in a general-purpose programming language	●	●	●	●	●	●	●	●	●	●	●	●
Evaluating												
ACTDIP031 Evaluate how student solutions and existing information systems meet needs, are innovative, and take account of future risks and sustainability	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Collaborating and managing												
ACTDIP032 Plan and manage projects that create and communicate ideas and information collaboratively online, taking safety and social contexts into account	◐	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●
Design and Technologies												
Knowledge and Understanding												
Technologies contexts												
Engineering principles and systems												
ACTDEK031 Analyse how motion, force and energy are used to manipulate and control electromechanical systems when designing simple, engineered solutions	●	●	●	●	●	●	●	●	●	●	●	●
Materials and technologies specialisation												
ACTDEK034 Analyse ways to produce designed solutions through selecting and combining characteristics and properties of materials, systems, components, tools and equipment	●	●	◐	◐	●	◐	◐	◐	●	●	●	●
Processes and production skills												
Investigating and defining												
ACTDEP035 Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas	◐	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●

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Generating and designing												
ACTDEP036 — Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques	◐	◐	◐	◐	◐	◐	◐	◐	◐	◆	◆	◆
Producing and implementing												
ACTDEP037 — Select and justify choices of materials, components, tools, equipment and techniques to effectively and safely make designed solutions	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Evaluating												
ACTDEP038 — Independently develop criteria for success to evaluate design ideas, processes and solutions and their sustainability	◐	◐	◐	◐	◐	◐	◐	◐	◐	◆	◆	◆
Collaborating and managing												
ACTDEP039 — Use project management processes when working individually and collaboratively to coordinate production of designed solutions	◐	◐	◐	◐	◐	◐	◐	◐	◐	◆	◆	◆

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Technologies Content Descriptors **Years 9-10** ◆ = addresses Content Descriptor ◗ = partially addresses Content Descriptor	Activity 1: Performing a Three Point Turn	Activity 2: Written Instructions For a Three Point Turn	Activity 3: Reversing the Robot	Activity 4: Light the Way	Activity 5: Traffic Lights and Automated Navigation	Activity 6: Reversing Beeps	Activity 7: Keyless Starting of a Car	Activity 8: Cruise Control	Activity 9: Roaming Robots	Activity 10: Final Project – Designing a Driverless, Automated, Wheeled Robot	Activity 11: Final Project – Building and Programming a Driverless, Automated, Wheeled Robot	Activity 12: Final Project – Reviewing, Revising and Presenting Your Driverless, Automated, Wheeled Robot
Digital Technologies												
Knowledge and Understanding												
Digital Systems												
ACTDIK034 — Investigate the role of hardware and software in managing, controlling and securing the movement of and access to data in networked digital systems	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Processes and production skills												
Creating digital solutions by:												
Investigating and defining												
ACTDIP038 — Define and decompose real-world problems precisely, taking into account functional and non-functional requirements	◗	◗	◗	◗	◗	◗	◗	◗	◗	◗	◗	◗
Generating and designing												
ACTDIP040 — Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through tracing and test cases	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Producing and implementing												
ACTDIP041 — Implement modular programs, applying selected algorithms and data structures including using an object-oriented programming language	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Collaborating and managing												
ACTDIP044 — Plan and manage projects using an iterative and collaborative approach, identifying risks and considering safety and sustainability	◗	◗	◗	◗	◗	◗	◗	◗	◗	◆	◆	◆
Design and Technologies												
Knowledge and Understanding												
Technologies and society												
ACTDEK041 — Explain how products, services and environments evolve with consideration of preferred futures and the impact of emerging technologies on design decisions	◗	◗	◗	◗	◗	◗	◗	◗	◗	◗	◗	◗
Technologies contexts												
Engineering principles and systems												
ACTDEK043 — Investigate and make judgments on how the characteristics and properties of materials are combined with force, motion and energy to create engineered solutions	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

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Materials and technologies specialisation													
ACTDEK046	Investigate and make judgments on how the characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions	●	●	◐	◐	●	◐	●	◐	◐	●	●	●
ACTDEK047	Investigate and make judgments, within a range of technologies specialisations, on how technologies can be combined to create designed solutions	●	●	◐	◐	●	◐	●	◐	◐	●	●	●
Processes and production skills													
Investigating and defining													
ACTDEP048	Critique needs or opportunities to develop design briefs and investigate and select an increasingly sophisticated range of materials, systems, components, tools and equipment to develop design ideas	◐	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●
Generating and designing													
ACTDEP049	Develop, modify and communicate design ideas by applying design thinking, creativity, innovation and enterprise skills of increasing sophistication	◐	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●
Producing and implementing													
ACTDEP050	Work flexibly to effectively and safely test, select, justify and use appropriate technologies and processes to make designed solutions	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Evaluating													
ACTDEP051	Evaluate design ideas, processes and solutions against comprehensive criteria for success recognising the need for sustainability	◐	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●
Collaborating and managing													
ACTDEP052	Develop project plans using digital technologies to plan and manage projects individually and collaboratively taking into consideration time, cost, risk and production processes	◐	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●