

## Linking Junior Cycle Engineering with Level 2 Learning Programmes

	Elements of the Priority Learning Unit	Level 2 Learning Outcomes	Curriculum Specification for Junior Cycle: Suggested Links to Learning Outcomes
Communication and literacy	Speaking appropriately for a variety of purposes	<p>1.1 - Listen to obtain information relating to more than one option</p> <p>1.2 - Ask questions to obtain information, <i>e.g. Ask questions relating to material choice for a project</i></p> <p>1.3 - Follow a series of spoken instructions under supervision, <i>e.g. A skills demonstration from a teacher or peer</i></p> <p>1.5 - Participate in practical, formal and informal communications, <i>e.g. Show a practical skill by demonstrating the skill to another person such as a teacher or peer</i></p>	<p>1.13 use appropriate technical language and notations</p> <p>1.2 demonstrate a range of manufacturing processes</p>
	Using non-verbal behaviour to get the message across	<p>1.8 - Use appropriate non-verbal behaviour in communicating a simple idea, <i>e.g. Use drawings or a model to communicate a project idea</i></p> <p>1.9 - Relay a response or request non-verbally</p>	<p>2.11 present ideas through modelling and prototyping, using appropriate media</p> <p>2.12 communicate their design decisions using suitable media</p> <p>3.10 represent key information using appropriate media</p>
	Using expressive arts to communicate	<p>1.22 - Participate in a performance or a presentation, <i>e.g. Capture the processing of designing and making a component</i></p> <p>1.24 - Produce a piece of work for display, <i>e.g. Display a project manufactured at an awards night</i></p>	<p>2.11 present ideas through modelling and prototyping, using appropriate media</p> <p>2.8 manufacture a product from a working drawing</p>
	Using suitable technologies for a range of purposes	<p>1.27 - Identify three everyday uses of technology, <i>e.g. Technology in the classroom, home and industry such as power tools or control software</i></p> <p>1.28 - Use technology requiring not more than three functions, for personal, for home, and educational/ workplace use</p> <p>1.29 - Use technology to communicate in an activity with others, <i>e.g. Research various materials/finishes on the internet in order to select a suitable finish for a project.</i></p>	<p>3.4 explore the application of systems in an engineering setting such as the classroom, home and industry</p> <p>3.6 configure and program basic mechatronic systems using appropriate software</p> <p>3.7 design a basic mechatronic system either individually or collaboratively</p>

		<p>1.30 - Use a new piece of ICT equipment, <i>e.g. Use a programming tool to control a microcontroller</i></p> <p>1.31 - Turn a personal computer on and off safely</p> <p>1.32 - Identify the information symbols on a desktop</p> <p>1.33 - Use frequently used keys appropriately, <i>e.g. Identify and use basic commands in a programming software to control electronic hardware</i></p> <p>1.34 - Use a software package, involving opening a package, entering and manipulating text/image/data, save to file, print and exit safely</p> <p>1.35 - Access a range of websites on the internet</p>	
Numeracy	Developing an awareness of number	<p>2.8 - Recognise numbers up to 100 in N</p> <p>2.9 - Recognise place value in relation to units, tens and hundreds, <i>e.g. Measure and cut material having listened to instructions from a teacher</i></p> <p>2.10 - Add two-digit whole numbers that total less than 100 in the context of an everyday situations</p> <p>2.11 - Subtract two-digit whole numbers in the context of an everyday situation</p>	<p>1.9 apply suitable manufacturing processes to engineer a product</p> <p>1.10 demonstrate high-quality work, to include accuracy and surface finish</p> <p>1.12 interpret working drawings</p>
	Developing an awareness of length and distance	<p>2.23 - Use appropriate vocabulary to describe the units in length and distance</p> <p>2.24 - Identify the units of length and distance on a ruler, metre stick and measuring tape, <i>e.g. Use a rule /tri square/callipers to measure and mark distances accurately on material</i></p> <p>2.25 - Use a rule to draw and measure different lengths of lines</p>	<p>1.8 identify appropriate tools and equipment specific to a task</p> <p>1.10 demonstrate high-quality work, to include accuracy and surface finish</p> <p>1.12 interpret working drawings</p>

		2.26 - Estimate the length of common objects	
	Using a calculator	2.28 - Find digits 0-9 and the decimal point and necessary operations buttons (+, -, ÷, =)  2.29 - Use a calculator to solve simple maths problems, <i>e.g. Use a calculator to add or subtract measurements on material required</i>	1.12 interpret working drawings
	Developing Spatial Awareness	2.32 - Use appropriate vocabulary to describe direction, <i>e.g. Demonstrate appropriate body stance when filing/sawing or describing chuck rotation direction on a drill</i>  2.36 - Use the body or body parts to move in a given direction, <i>e.g. Move feed lever in correct direction to engage the drill bit in a work piece.</i>	1.13 use appropriate technical language and notations  1.2 demonstrate a range of manufacturing processes
	Developing an awareness of time	2.52 - Solve problems to work out the passage of time, <i>e.g. Write a workplan for the steps involved in a practical task, including estimated time required for each step</i>	2.10 incorporate basic project management techniques
Personal care	Developing good daily personal care	3.1 - Identify essential daily personal care practices, <i>e.g. Demonstrate hand washing techniques after carrying out a manual task or participate in sweeping/cleaning up at end of a practical lesson</i>  3.2 - Describe the most important ways of keeping the body clean  3.6 - Give two or three reasons to care for personal belongings, <i>e.g. List reasons for keeping tools/equipment in good working order</i>  3.7 - Identify appropriate clothing for a range of routine activities at home, at work and in the community, <i>e.g. Use PPE and appropriate clothing when using electrical equipment like a drill</i>	1.3 recognise and adhere to health and safety standards

	Knowing how to stay safe	<p>3.27 - Identify key safety risks in the workplace/home /community, <i>e.g. Identify safety risks associated with tools/machinery</i></p> <p>3.28 - Recognise when personal safety is threatened, <i>e.g. Identify poor safety practice.</i></p> <p>3.29 - Name daily practices that promote personal safety, <i>e.g. Name important safety practices in the Engineering classroom</i></p> <p>3.30 - Describe appropriate response when a risk is identified, <i>e.g. Describe what to do if a risk is identified in the Engineering room</i></p>	<p>1.3 recognise and adhere to health and safety standards</p> <p>1.2 demonstrate a range of manufacturing processes</p>
	Making personal decisions	<p>3.44 - Identify the choices and consequences involved in an imminent short-term decision, <i>e.g. changing size of one piece based off a miscalculation on another</i></p> <p>3.45 - Explore the consequences of decisions made, both while implementing and on conclusion, <i>e.g. Plan out the key stages required for completing a practical task based on experience</i></p>	<p>2.9 modify an existing product/design</p> <p>2.10 incorporate basic project management techniques</p>
Living in the community	Developing good relationships	<p>4.4 - Recognise/list ways in which they would like to be treated, <i>e.g. Appropriate work practices when working with others on a task</i></p> <p>4.6 - Participate co-operatively in a group situation, <i>e.g. A group task such as a group problem solving task</i></p>	<p>3.7 design a basic mechatronic system either individually or collaboratively</p>
	Using local facilities	<p>4.17 - Participate in a school-based community project and record their participation, <i>e.g. Explore the impact technology has in the world around us through a design and make task</i></p>	<p>2.9 modify an existing product/design</p> <p>2.12 communicate their design decisions using suitable media</p>
	Seeking help and advice	<p>4.19 - Describe the school's procedure for reporting an incident, <i>e.g. Describe what should be done if a student has an accident when using a tool/machine</i></p>	<p>1.3 recognise and adhere to health and safety standards</p> <p>1.5 research applications of existing and emerging technological developments</p>

		4.22 - Visit a local community organisation and ask for advice, <i>e.g. Visit an engineering/manufacturing company and ask for advice on sourcing a material or designing a product</i>	1.6 engage with the various engineering disciplines by relating them to everyday application
	Making consumer choices	4.26 - Identify labels on packages, clothes etc, <i>e.g. Recognise safety signage in the workshop such as common PPE signage</i>  4.27 - Recognise the most important signs and symbols on labels, <i>e.g. Recognise important symbols/graphics on hazardous liquids such as oil/polish</i>	1.3 recognise and adhere to health and safety standards
Preparing for work	Being able to set goals for learning	5.1 - Set learning goals, <i>e.g. Set out a work plan for making a project</i>  5.2 - Create a learning plan which includes the necessary steps and timeframe to complete it. Link the plan to an IEP  5.3 - Implement the plan, <i>e.g. Keep to timeframes in a workplan.</i>  5.4 - Express opinions on how performance could be improved, <i>e.g. Evaluate a piece of work that they have completed and explain what aspects they did well and what they could improve on.</i>	1.1 understand the concepts and approaches that are required when solving an engineering problem  2.1 understand the key stages of the engineering design process  2.9 modify an existing product/design  2.10 incorporate basic project management techniques
	Finding out about work	5.6 - List three local employment opportunities  5.7 - Describe one way in which people get a job or course of their choice, <i>e.g. Research online or ask advice from a career guidance teacher how a person can become involved in an engineering related career</i>  5.8 - List possible jobs that they are interested in and find information on the requirements for the jobs  5.9 - Visit a local employer and review the visit, <i>e.g. Visit a local engineering/manufacturing company and</i>	1.5 research applications of existing and emerging technological developments

	<i>compile a report on interesting aspects of the visit</i>	
Preparing for a work- related activity	5.16 - Keep a record of tasks completed in a journal, <i>e.g. A list of work to complete as a practical artefact is worked on</i>	2.10 incorporate basic project management techniques
Developing an awareness of health and safety using equipment	<p>5.17 - Give examples of safe practices in three distinct workplaces, <i>e.g. Give examples of safety precautions that would need to be followed by a welder, steel fitter, mechanic etc.</i></p> <p>5.18 - Use all tools and equipment correctly and safely in a range of practical classes</p> <p>5.19 - Describe and use electrical equipment correctly and safely in a range of practical classes</p> <p>5.20 - Store all tools, materials and equipment safely</p> <p>5.21 - List the different procedures for self-protection at work</p> <p>5.22 - Identify the fire exits in a School</p> <p>5.23 - Follow the instructions for a fire drill</p>	<p>1.2 demonstrate a range of manufacturing processes</p> <p>1.3 recognise and adhere to health and safety standards</p> <p>1.8 identify appropriate tools and equipment specific to a task</p> <p>1.9 apply suitable manufacturing processes to engineer a product</p>
Taking part in a work- related activity	<p>Gather background information to help plan and participate in the activity, <i>e.g. Name materials, tools and equipment needed to complete a set task</i></p> <p>Sequence a number of steps to be taken to successfully complete the activity</p> <p>Assume a role in the activity and identify tasks linked with the role</p> <p>Use key words associated with the activity correctly, <i>e.g. Close machine guards, name and wear appropriate PPE.</i></p> <p>Identify safety procedures and/or permissions required for the activity</p>	<p>1.4 understand the properties associated with a range of engineered materials</p> <p>1.9 apply suitable manufacturing processes to engineer a product</p> <p>2.10 incorporate basic project management techniques</p> <p>3.7 design a basic mechatronic system either individually or collaboratively</p> <p>1.13 use appropriate technical language and notations</p> <p>1.3 recognise and adhere to health and safety standards</p> <p>1.8 identify appropriate tools and equipment specific to a task</p>

		<p>Learn how to use tools or equipment associated with the activity safely and correctly</p> <p>Participate in the activity</p> <p>Review the activity to evaluate its success</p>	<p>1.9 apply suitable manufacturing processes to engineer a product</p> <p>1.2 demonstrate a range of manufacturing processes</p> <p>2.8 manufacture a product from a working drawing</p> <p>2.9 modify an existing product/design</p> <p>3.8 build and test a basic mechatronic system with specific inputs or outputs</p>
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\* Links are described as 'possible' as teachers/subject departments are best placed to make the relevant direct links to the L2LP Learning Outcomes which they deem appropriate to their students.