

# Subject: Design and Technology

These are the objectives a student on each Pathway needs to achieve by the end of year 9, to ensure they are making expected progress:

	Design process	Practical skills (make)	Evaluate	Knowledge
<b>Exceptional performance</b>	Students can generate original, detailed, independent designs and present using a wide range of varied, accurate recognised techniques, critically analysing and evaluating to improve designs. Can use 2 and 3D drawing, schematics and exploded views. Uses annotation to record predictions of possible problems and suggestions of how to overcome them. Responds to feedback on prototypes to improve a design. Selects and justifies materials costing, construction and sizes from a wide variety of research gathered. Identifies and understands client and user needs through the collection of primary and secondary data and how quality of manufacture can be improved.	Students select and use a wide range of appropriate tools skilfully and safely. Students can develop an accurate working flow chart with realistic timings and a full cutting parts lists from research and catalogues. Students can use appropriate and accurate marking out methods including measuring and use of reference points, lines and surfaces; use templates, jigs, and/or patterns; work within tolerances; understand efficient cutting and how to minimise waste. Students are aware of and use appropriate surface treatments and finishes for functional and aesthetic purposes depending on the product.	Evaluation is critical and the outcome relates in full to the specification. It suggests realistic details for improvement to the product.	Have a secure knowledge of specialist techniques and processes that can be used to shape, fabricate, construct and assemble a high-quality prototype including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used. Have a secure knowledge of factors such as environmental, social and economic challenges, to identify opportunities and constraints that influence the processes of designing and making.
<b>Pathway 1</b>	Students can generate original, detailed, independent designs and present using a range of varied techniques, analysing and evaluating to improve designs. Can use 2 and 3D drawing, schematics and some exploded views. Uses annotation to record possible problems and suggestions of how to overcome them. Students can generate models; test and evaluate them, record responses and generate a scale prototype. Can respond to feedback on prototypes to improve a design. Selects and justifies materials costing, construction and sizes from research gathered.	Students use a wide range of appropriate tools skilfully and safely. Students can develop working flow charts with realistic timings and cutting parts lists from research. Students can use appropriate marking out methods including measuring and use of reference points, lines and surfaces; use templates, jigs, and/or patterns; work within tolerances; understand efficient cutting and how to minimise waste. Students use appropriate surface treatments and finishes for functional and aesthetic purposes.	Evaluation is critical and the outcome relates to the specification. It suggests details for improvement to the product.	Have knowledge of specialist techniques and processes that can be used to shape, fabricate, construct and assemble a high-quality prototype including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used. Have knowledge of factors such as environmental, social and economic challenges, to identify opportunities and constraints that influence the processes of designing and making.
<b>Pathway 2</b>	Students can generate mostly original, detailed, independent designs and present using a range of varied techniques, analysing and evaluating to improve designs. Can use 2 and 3D drawing and some exploded views. Students can generate models; test and evaluate them, record responses and generate a prototype model. Can identify and understand client and user needs through the collection of primary and secondary data.	Students use appropriate tools skilfully and safely. Students can develop a working flow chart and cutting lists from research. Students can select and work with materials and components to produce a good quality prototype. Students work independently in the workshop and can use techniques and processes to shape, fabricate, construct and assemble a prototype.	Evaluation relates to the specification and it suggest details for improvement to the product.	Have knowledge of specialist techniques and processes that can be used to shape, fabricate, construct and assemble a good quality prototype including some of the following techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used. Have knowledge of factors such as environmental, social and economic challenges. Have knowledge of mechanical systems, electrical and electronic system and programmable components.
<b>Pathway 3</b>	Students generate detailed designs based upon a range of carefully selected research considering the target market. Student has considered different cultures when designing. Annotation describes possible materials, colour choices, practical aspects and links to the specification. Models are well manufactured, constructed and finished. Work is neat, organised planned and well-presented using aspects of CAD and health and safety.	Students use tools skilfully and safely. Students are aware of health and safety in the workshop and how to stay safe. Students can develop a basic flow chart and cutting list. Students can select and work with material and components to produce a prototype. Students can use marking out methods to work within tolerances. Students work independently in the workshop and can use techniques and	Students' evaluations are based on the opinions of others and link to the specification.	Know how biomimicry and the natural world is the inspiration for many designers and their work. Students are familiar with past and contemporary designers, engineers and technologists. Students know about different cultures providing an opportunity to understand a variety of values, needs and wants.

## KS3 Assessment – Year 9 Progress Grid

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processes to shape, fabricate, construct and assemble a prototype.

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