

D & T Year 7 Term 1

	Mastery	Working beyond national standards	Working at national standards	Working below National Standards
Knowledge	<p>Materials You can identify the material MDF You can identify softwood. You can identify a hardwood. You know what the term MDF stands for and can identify its typical uses. You can also describe MDF's working properties.</p> <p>Tools You can correctly name 8 tools in the tool cupboard and explain their functions in detail.</p> <p>Electronic components and circuits. You can identify the piezo sounder, melody chip and battery clip. You can describe how the piezo sounder works and describe how a simple circuit works. You can develop your own working circuits using the melody IC.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail acting on the information provided.</p>	<p>Materials You can identify the material MDF. You can identify softwood. You can identify a hardwood. You know what the term MDF stands for and can identify its typical uses.</p> <p>Tools You can correctly name 8 tools in the tool cupboard.</p> <p>Electronic components and circuits. You can identify the piezo sounder, melody chip and battery clip. You can describe how the piezo sounder works and describe how a simple circuit works.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the material MDF. You can identify softwood. You can identify a hardwood. You know what the term MDF stands for.</p> <p>Tools You can correctly name 5 tools in the tool cupboard.</p> <p>Electronic components and circuits. You can identify the piezo sounder, melody chip and battery clip. You can describe how the piezo sounder works.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material MDF. You can identify softwood. You can identify a hardwood.</p> <p>Tools You can correctly name 3 tools in the tool cupboard</p> <p>Electronic components and circuits. You can identify the piezo sounder, melody chip and battery clip.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the coping saw with a high level of accuracy.</p> <p>Finishing skills You can produce a very high level of finish.</p> <p>Soldering You can solder to a very high level.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product. I can suggest ways my product may be commercially viable.</p>	<p>Cutting You can use the coping saw with a good degree of accuracy.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Soldering You can solder to a high level.</p> <p>Drawing You can draw in 2 D and use colour to show light, shade and texture of materials.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the coping saw with some degree of accuracy.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Soldering You can solder to a reasonable level.</p> <p>Drawing You can draw in 2D and use colour to improve the presentation of your work.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the coping saw and cut out a shape.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Soldering You can solder to produce a circuit.</p> <p>Drawing You can draw in 2D .</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea including details of all construction methods.</p> <p>Cutting I can apply my skill with the coping saw to produce a product that reflects my final drawing.</p> <p>Soldering I can produce a working circuit that works first time.</p> <p>ICT I can use my knowledge of electronics to produce a range of circuits on Croc Clips that include a switch, various inputs and a sound output and also takes into account a method to prevent incorrect polarity. I can use the 2D design software to produce a range of design ideas. I can use 2 D design to produce isometric design ideas.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting I can apply my skill with the coping saw to produce a product that resembles one of my design ideas.</p> <p>Soldering I can produce a working circuit that works first time.</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips that includes a switch and a sound output and also takes into account a method to prevent incorrect polarity. I can use the 2D design software to produce a range of design ideas.</p>	<p>Design ideas I can produce 4 design ideas</p> <p>Cutting I can apply my skill with the coping saw to produce a product that relates to my design ideas.</p> <p>Soldering I can produce a working circuit that has few dry soldered joints.</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips that includes a switch and a sound output. I can use the 2D design software to produce a design idea.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting I can apply my skill with the coping saw to produce a product.</p> <p>Soldering I can produce a working circuit</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips. I can use the 2D design software to produce a simple design idea.</p>

D & T Year 7 Term 2

	Mastery	Working beyond national standards	Working at national standards	Working below National Standards
Knowledge	<p>Materials You can identify the material Acrylic. You can name 4 thermoplastics. You can explain thoroughly what the typical properties of a thermoplastic are. You can describe 2 manufacturing processes for plastics. You can identify the material aluminium. You can explain thoroughly the properties of aluminium use subject specific terminology. You know the difference between a ferrous and non-ferrous metal and can name 4 examples.</p> <p>Tools & equipment You can correctly name 8 tools in the tool cupboard and explain their functions in detail. You can identify the line bender and the potential safety issues. You can explain in detail how the line bender works.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail acting on the information provided.</p>	<p>Materials You can identify the material Acrylic. You can name 3 thermoplastics. You can explain in detail what the typical properties of a thermoplastic are. You can describe a manufacturing process for plastics. You can identify the material aluminium. You can explain in detail the properties of aluminium. You know the difference between a ferrous and non-ferrous metal and can name 3 examples.</p> <p>Tools & equipment You can correctly name 8 tools in the tool cupboard. You can identify the line bender. You know how the line bender works and the potential safety issues.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the material Acrylic. You can name 2 thermoplastics. You can explain what the typical properties of a thermoplastic are. You can name a manufacturing process for plastic. You can identify the material aluminium. You can explain the basic properties of aluminium. You know the difference between a ferrous and non-ferrous metal and can name two examples.</p> <p>Tools & equipment You can correctly name 5 tools in the tool cupboard. You can identify the line bender and the potential safety issues.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material Acrylic. You can name a thermoplastic. You know what a thermoplastic does. You can name a manufacturing process for plastic. You can identify the material aluminium. You know the difference between a ferrous and non-ferrous metal.</p> <p>Tools & equipment You can correctly name 3 tools in the tool cupboard. You can identify the line bender and the potential safety issues.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the file to shape materials with a high level of accuracy.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Finishing skills You can produce a very high level of finish.</p> <p>Centre punch You can use the centre punch with a high level of accuracy.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product. I can suggest ways my product can be made commercially viable.</p>	<p>Cutting You can use the file to shape materials with a good degree of accuracy.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Centre punch You can use the centre punch with a good degree of accuracy.</p> <p>Drawing You can draw in 2 D and use colour to show light, shade and texture of materials.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the file to shape materials with some accuracy.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Centre punch You can use the centre punch with a degree of accuracy.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Drawing You can draw in 2D and use colour to improve the presentation of your work.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the file to shape materials.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Centre punch You can use the centre punch.</p> <p>Drawing You can draw in 2D .</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea including details of all construction methods.</p> <p>Cutting and shaping I can apply my skill with the file, drill and centre punch to produce a product that reflects my final drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas and can produce a detailed working drawing. I can use DTP software to produce a range of design images.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting and shaping I can apply my skill with the file, drill and centre punch to produce a product that resembles one of my design ideas.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images.</p>	<p>Design ideas I can produce 4 design ideas</p> <p>Cutting and shaping I can apply my skill with the file, drill and centre punch to produce a product that relates to my design ideas.</p> <p>ICT I can use the 2D design software to produce a design idea. I can use DTP software to produce 2 design images.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting and shaping I can apply my skill with the file, drill and centre punch to produce a product.</p> <p>ICT I can use the 2D design software to produce a simple design idea. I can use DTP software to produce a design image.</p>

Level for project MEP / EP / BEP / UP

Name:	Teacher:	DT Group: 7
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D & T Year 7 Term 3

	Mastery	Working beyond national standards	Working at national standards	Working below National Standards
Knowledge	<p>Materials You can identify the material Pine and explain in detail its working properties using subject specific terminology. You fully understand and can explain what the term Bio mimicry means. You can generate design solutions based on your own independent research. You can produce a mood board based around a given design brief and can annotate the board, then use the board to produce design ideas. You can thoroughly analyse a product using ACCESSFM and can explain why we use ACCESSFM to analyse products. You can identify the laser cutter and explain the health and safety issues associated with it. You can thoroughly explain what CAD/CAM is and can identify advantages and disadvantages of using CAD/CAM.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail acting on the information provided.</p>	<p>Materials You can identify the material Pine and explain in detail its working properties. You can explain the term Bio mimicry and can use this information to produce design ideas when given a specific design brief. You can produce a mood board based around a given design brief and can annotate the mood board. You can thoroughly analyse a series product using ACCESSFM. You can identify the laser cutter and explain the health and safety issues associated with it. You can explain in detail what CAD/CAM is used for.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the material Pine and explain its basic working properties. You can explain the term Bio mimicry and can use this information to produce design ideas. You can produce a mood board based around a given design brief. You can thoroughly analyse a product using ACCESSFM. You can identify the laser cutter and explain the health and safety issues associated with it. You can explain what CAD/CAM is.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material Pine. You can explain the term Bio mimicry. You understand what a mood is and what it is used for. You can analyse a product using ACCESSFM. You can identify the laser cutter and explain the health and safety issues associated with it. You understand the term CAD/CAM.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the file to shape materials with a high level of accuracy.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Finishing skills You can produce a very high level of finish.</p> <p>Assembly You can use the screwdriver And the bradawl with a high degree of skill.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work. You can use the CAD software to produce manufacturing drawings.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product. I can suggest ways my product can be made commercially viable.</p>	<p>Cutting You can use the file to shape materials with a good degree of accuracy.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Assembly You can use the screwdriver And the bradawl with a good degree of skill.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Drawing You can draw in 2D and use colour to show light, shade and texture of materials. You can produce a range of ideas using CAD software.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the file to shape materials with some accuracy.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Assembly You can use the screwdriver And the bradawl successfully.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Drawing You can draw in 2D and use colour to improve the presentation of your work. You can produce several ideas using CAD software.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the file to shape materials.</p> <p>Assembly You can use the screwdriver</p> <p>Drilling You can use the pillar drill safely.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Drawing You can draw in 2D. You can produce an idea using CAD software.</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea including details of all construction methods.</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver, countersink tool and glass paper to produce a product that reflects my final drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas and can produce a detailed working drawing. I can use DTP software to produce a range of design images.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver, countersink tool and glass paper to produce a product that resembles one of my design ideas.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images.</p>	<p>Design ideas I can produce 4 design ideas</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver, countersink tool and glass paper to produce a product that relates to my design ideas.</p> <p>ICT I can use the 2D design software to produce a design idea. I can use DTP software to produce 2 design images.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver, countersink tool and glass paper to produce a product.</p> <p>ICT I can use the 2D design software to produce a simple design idea. I can use DTP software to produce a design image.</p>

D & T Year 8 Term 1

	Mastery	Working beyond national standards	Working at national standards	Working below National Standards
Knowledge	<p>Materials You can identify the materials MDF, plywood & Acrylic. You can identify a specific softwood. You can identify a specific hardwood. You know the main properties of plywood Acrylic and its applications.</p> <p>Tools You can correctly name 12 tools in the tool cupboard and explain their functions in detail.</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, 08M2 PICAXE chip, DIL socket, Micro switch, SPST switch, resistors and piezo sounder. You can describe how the 08M2 circuit works and suggest ways of improving the circuit. You can write a computer program that involves two sub programs and includes a tune.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail acting on the information provided.</p>	<p>Materials You can identify the materials MDF, plywood & Acrylic. You can identify a specific softwood. You can identify a specific hardwood. You know the main properties of plywood and Acrylic and its applications.</p> <p>Tools You can correctly name 10 tools in the tool cupboard.</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, 08M2 PICAXE chip, DIL socket, Micro switch, SPST switch, resistors and piezo sounder. You can describe how the 08M2 circuit works and suggest ways of improving the circuit. You can write a computer program that involves a sub program.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the materials MDF, plywood & Acrylic. You can identify a specific softwood. You can identify a specific hardwood. You know the main properties of plywood.</p> <p>Tools You can correctly name 7 tools in the tool cupboard.</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, 08M2 PICAXE chip, DIL socket, Micro switch, SPST switch, resistors and piezo sounder. You can describe how the 08M2 circuit works. You can write a simple computer program.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material Plywood. You can identify a specific softwood. You can identify a specific hardwood.</p> <p>Tools You can correctly name 5 tools in the tool cupboard</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, 08M2 PICAXE chip, micro switch and slide switch. You can with help write a simple computer program.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the coping saw with a high level of accuracy. You can use the tenon saw with a high level of accuracy.</p> <p>Finishing skills You can produce a very high level of finish.</p> <p>Soldering You can solder to a very high level.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work. You can draw exploded drawings.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product. I can suggest ways my product can be made commercially viable.</p>	<p>Cutting You can use the coping saw with a good degree of accuracy. You can use the tenon saw with a good degree of accuracy.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Soldering You can solder to a high level.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the coping saw with some degree of accuracy. You can use the tenon saw with some degree of accuracy.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Soldering You can solder to a reasonable level.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the coping saw and cut out a shape. You can use the tenon saw correctly.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Soldering You can solder to produce a circuit.</p> <p>Drawing You can draw in 3D .</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea including details of all construction methods.</p> <p>Cutting I can apply my skill with the coping saw and tenon saw to produce a product that reflects my final drawing.</p> <p>Soldering I can produce a working circuit that works first time.</p> <p>ICT I can use my knowledge of electronics to produce a range of circuits on Croc Clips that include a switch, various inputs and a sound output and also takes into account a method to prevent incorrect polarity. I can include a PIC chip I can use the 2D design software to produce a range of design ideas and can produce a detailed working drawing.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting I can apply my skill with the coping saw and tenon saw to produce a product that resembles one of my design ideas.</p> <p>Soldering I can produce a working circuit that works first time.</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips that includes a switch and a sound output and also takes into account a method to prevent incorrect polarity. I can include a PIC chip. I can use the 2D design software to produce a range of design ideas.</p>	<p>Design ideas I can produce 4 design ideas</p> <p>Cutting I can apply my skill with the coping saw and tenon saw to produce a product that relates to my design ideas.</p> <p>Soldering I can produce a working circuit that has few dry soldered joints.</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips that includes a switch and a sound output and a PIC chip. I can use the 2D design software to produce a design idea.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting I can apply my skill with the coping saw and tenon saw to produce a product.</p> <p>Soldering I can produce a working circuit</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips. I can use the 2D design software to produce a simple design idea.</p>

D & T Year 8 Term 2

	Mastery	Working beyond national standards	Working at national standards	Working below National Standards
Knowledge	<p>Materials You can identify the materials Acrylic, HIPs and MDF. You can name 4 thermoplastics. You can explain thoroughly what the typical properties of a thermoplastic are. You can describe 2 manufacturing processes for plastics including vacuum forming. You can identify the material Steel. You can explain thoroughly the properties of steel use subject specific terminology. You know the difference between a ferrous and non-ferrous metal and can name 4 examples.</p> <p>Mechanisms I can identify a simple gear wheel mechanism. I can identify a worm gear mechanism and can calculate gear ratios. I can identify a rack and pinion gear system and I can explain the likely uses for these mechanisms. I can use my knowledge of mechanisms to design my own working models.</p> <p>Tools & equipment You can correctly name 8 tools in the tool cupboard and explain their functions in detail. You can identify the Vacuum former and the potential safety issues. You can explain in detail how the Vacuum Former works.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail acting on the information provided.</p>	<p>Materials You can identify the materials HIPs and MDF. You can name 3 thermoplastics. You can explain in detail what the typical properties of a thermoplastic are. You can describe how to vacuum form HIPs. You can identify the material steel. You can explain in detail the properties of steel You know the difference between a ferrous and non-ferrous metal and can name 3 examples.</p> <p>Mechanisms I can identify a simple gear wheel mechanism. I can identify a worm gear mechanism and can calculate gear ratios. I can identify a rack and pinion gear system and I can explain the likely uses for these mechanisms.</p> <p>Tools & equipment You can correctly name 8 tools in the tool cupboard. You can identify the vacuum former. You know how the vacuum former works and the potential safety issues.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the material HIPs and MDF. You can name 2 thermoplastics. You know what a thermoplastic does. You can explain how to vacuum form HIPs. You can identify the material steel. You know the difference between a ferrous and non-ferrous metal.</p> <p>Mechanisms I can identify a simple gear wheel mechanism. I can identify a worm gear mechanism and can calculate some gear ratios.</p> <p>Tools & equipment You can correctly name 5 tools in the tool cupboard. You can identify the Vacuum former and the potential safety issues.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material HIPs and MDF. You can name a thermoplastic. You know what a thermoplastic does. You can name a manufacturing process for plastic. You can identify the material steel. You know the difference between a ferrous and non-ferrous metal.</p> <p>Mechanisms I can identify a simple gear wheel mechanism.</p> <p>Tools & equipment You can correctly name 3 tools in the tool cupboard. You can identify the vacuum former and the potential safety issues.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with a high level of accuracy.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can produce a very high level of finish.</p> <p>Marking out You can mark out the design accurately.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work.. You can produce exploded drawings.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product. I can suggest ways my product can be made commercially viable.</p>	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with a good degree of accuracy.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Marking out You can mark out the design accurately.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with some accuracy.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Marking out You can mark out the design to a degree of accuracy.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the junior hacksaw. You can use the file to shape materials.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Marking out You can mark out the design to some degree of accuracy.</p> <p>Drawing You can draw in 2D .</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea including details of all construction methods.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that reflects my final drawing. I can follow precisely a wiring plan and can assemble my product according to a CAD scale drawing and exploded diagram.</p> <p>ICT I can use the 2D design software to produce a range of design ideas and can produce a detailed working drawing. I can use DTP software to produce a range of design images.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that resembles one of my design ideas. I can follow precisely a wiring plan and can assemble my product according to a CAD scale drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images.</p>	<p>Design ideas I can produce 4 design ideas</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that relates to my design ideas. I can accurately follow a wiring plan and can assemble my product according to a CAD drawing.</p> <p>ICT I can use the 2D design software to produce a design idea. I can use DTP software to produce 2 design images.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product. I can follow a simple wiring plan.</p> <p>ICT I can use the 2D design software to produce a simple design idea. I can use DTP software to produce a design image.</p>

D & T Year 8 Term 3

	Mastery	Working beyond national standards	Working at national standard	Working below National Standards
Knowledge	<p>Materials You can identify the material Pine and explain in detail its working properties using subject specific terminology. You fully understand and can explain what the term Bio mimicry means. You can generate design solutions based on your own independent research. You can identify Acrylic and explain its working properties. You can explain 3 methods of shaping and forming acrylic. You can produce a mood board based around a given design brief and can annotate the board, then use the board to produce design ideas. You can thoroughly analyse a product using ACCESSFM and can explain why we use ACCESSFM to analyse products. You can identify the laser cutter and explain the health and safety issues associated with it. You can thoroughly explain what CAD/CAM is and can identify advantages and disadvantages of using CAD/CAM.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail acting on the information provided.</p>	<p>Materials You can identify the material Pine and explain in detail its working properties. You can identify Acrylic and explain its working properties. You can explain 2 methods of shaping and forming acrylic. You can explain the term Bio mimicry and can use this information to produce design ideas when given a specific design brief. You can produce a mood board based around a given design brief and can annotate the mood board. You can thoroughly analyse a series product using ACCESSFM. You can identify the laser cutter and explain the health and safety issues associated with it. You can explain in detail what CAD/CAM is used for.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the material Pine and explain its basic working properties. You can identify Acrylic and explain its working properties. You can explain the term Bio mimicry and can use this information to produce design ideas. You can produce a mood board based around a given design brief. You can thoroughly analyse a product using ACCESSFM. You can identify the laser cutter and explain the health and safety issues associated with it. You can explain what CAD/CAM is.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material Pine. You can identify Acrylic. You can explain the term Bio mimicry. You understand what a mood is and what it is used for. You can analyse a product using ACCESSFM. You can identify the laser cutter and explain the health and safety issues associated with it. You understand the term CAD/CAM.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the file to shape materials with a high level of accuracy. You can demonstrate how to draw file acyclic and how to polish the material.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Finishing skills You can produce a very high level of finish.</p> <p>Assembly You can use the screwdriver And the bradawl with a high degree of skill.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work. You can use the CAD software to produce manufacturing drawings.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product. I can suggest ways my product can be made commercially viable.</p>	<p>Cutting You can use the file to shape materials with a good degree of accuracy. You can demonstrate how to draw file acyclic and how to polish the material.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Assembly You can use the screwdriver And the bradawl with a good degree of skill.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Drawing You can draw in 3 D and use colour to show light, shade and texture of materials.</p> <p>You can produce a range of ideas using CAD software.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the file to shape materials with some accuracy. You can demonstrate how to draw file acyclic.</p> <p>Drilling You can use the pillar drill safely.</p> <p>Assembly You can use the screwdriver And the bradawl successfully.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Drawing You can draw in 2D and use colour to improve the presentation of your work. You can produce several ideas using CAD software.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the file to shape materials.</p> <p>Assembly You can use the screwdriver</p> <p>Drilling You can use the pillar drill safely.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Drawing You can draw in 2D. You can produce an idea using CAD software.</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea including details of all construction methods.</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver, countersink tool and glass paper to produce a product that reflects my final drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas and can produce a detailed working drawing. I can use DTP software to produce a range of design images.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver, countersink tool and glass paper to produce a product that resembles one of my design ideas.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images.</p>	<p>Design ideas I can produce 4 design ideas</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver countersink tool and glass paper to produce a product that relates to my design ideas.</p> <p>ICT I can use the 2D design software to produce a design idea. I can use DTP software to produce 2 design images.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting and shaping I can apply my skill with the file, drill, bradawl, screwdriver, countersink tool and glass paper to produce a product.</p> <p>ICT I can use the 2D design software to produce a simple design idea. I can use DTP software to produce a design image.</p>

D & T Year 9 Term 1

	Mastery	Working beyond National Standards	Working at National Standards	Working below National Standards
Knowledge	<p>Materials You can identify the materials MDF, plywood, HIPs & Acrylic. You can identify 2 specific softwoods. You can identify 4 specific hardwoods. You know the main properties of plywood, Acrylic & HIPs and their applications. You can confidently select an appropriate material based on its working properties for a specific task.</p> <p>Tools You can correctly name 20 tools in the tool cupboard.</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, IC chip, OP AMP chip, DIL socket, Micro switch, SPST switch, resistors, LED and piezo sounder. You can describe how the amplifier circuit works and suggest ways of improving the circuit. You can write a computer program that involves 2 sub programs. You can use a drawing package to interact with the laser cutter.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail. You can suggest ways your final project can be made commercially viable.</p>	<p>Materials You can identify the materials MDF, plywood, HIPs & Acrylic. You can identify a specific softwood. You can identify a specific hardwood. You know the main properties of plywood, Acrylic & HIPs and their applications.</p> <p>Tools You can correctly name 15 tools in the tool cupboard.</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, IC chip, OP AMP chip, DIL socket, Micro switch, SPST switch, resistors, LED and piezo sounder. You can describe how the amplifier circuit works and suggest ways of improving the circuit. You can write a computer program that involves a sub program. You can use a drawing package to interact with the laser cutter.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the materials MDF, plywood, pine, Acrylic & HIPs. You can identify a specific softwood. You can identify a specific hardwood. You know the main properties of plywood. You know the main properties of HIPs.</p> <p>Tools You can correctly name 10 tools in the tool cupboard.</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, IC chip, the OP AMP, download socket, LED's, DIL socket, Micro switch, SPST switch, resistors and piezo sounder. You can describe how the amplifier circuit works. You can write a simple computer program.</p> <p>You can set up a drawing to use on the laser cutter.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material Plywood, MDF and HIPs. You can identify a specific softwood. You can identify a specific hardwood. You know the main properties of a softwood and a thermoplastic.</p> <p>Tools You can correctly name 7 tools in the tool cupboard</p> <p>Electronic components and circuits. You can identify the piezo sounder, battery clip, IC chip, micro switch, slide switch, OP AMP & LED. You can with help write a simple computer program.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting and drilling You can use the coping saw with a very good degree of accuracy. You can use the tenon saw with a very good degree of accuracy. You can use the file to shape materials with a high degree of accuracy. You can drill a PCB with a high degree of accuracy.</p> <p>Finishing skills You can produce an excellent level of finish.</p> <p>Soldering You can solder to a very high level.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials. You can draw in 2 pt perspective.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product including commercial considerations.</p>	<p>Cutting and drilling You can use the coping saw with a good degree of accuracy. You can use the tenon saw with a good degree of accuracy. You can use the file to shape materials with a high degree of accuracy. You can drill a PCB with a high degree of accuracy.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Soldering You can solder to a high level.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting and drilling You can use the coping saw with some degree of accuracy. You can use the tenon saw with some degree of accuracy. You can use the file to shape materials with some degree of accuracy. You can drill the PCB with some accuracy.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Soldering You can solder to a reasonable level.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting and drilling You can use the coping saw and cut out a shape. You can use the tenon saw correctly. You can use the file to shape materials. You can use the PCB drills to prepare a PCB for soldering.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Soldering You can solder to produce a circuit.</p> <p>Drawing You can draw in 3D .</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting I can apply my skill with the coping saw, file and tenon saw to produce a product that mirrors one of my design ideas.</p> <p>Soldering I can produce a working circuit that works first time and can use a multi meter to solve issues.</p> <p>ICT I can use my knowledge of electronics to produce a working circuit on Croc Clips that includes a switch and a sound output and also takes into account a method to prevent incorrect polarity. I can include a PIC chip and write a program with two sub programs included. I can use the 2D design software to produce a range of design ideas. I can model ideas in 3D and can examine the use of different proportions and material combinations.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea.</p> <p>Cutting I can apply my skill with the coping saw, file and tenon saw to produce a product that resembles one of my design ideas.</p> <p>Soldering I can produce a working circuit that works first time.</p> <p>ICT I can use my knowledge of electronics to produce a working circuit on Croc Clips that includes a switch and a sound output and also takes into account a method to prevent incorrect polarity. I can include a PIC chip and write a program with two sub programs included. I can use the 2D design software to produce a range of design ideas.</p>	<p>Design ideas I can produce 4 design ideas</p> <p>Cutting I can apply my skill with the coping saw, file and tenon saw to produce a product that relates to my design ideas.</p> <p>Soldering I can produce a working circuit that has few dry soldered joints.</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips that includes a switch and a sound output and a PIC chip. I can write a program to make the circuit work. I can use the 2D design software to produce a design idea.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting I can apply my skill with the coping saw, file and tenon saw to produce a product.</p> <p>Soldering I can produce a working circuit</p> <p>ICT I can use my knowledge of electronics to produce a simple working circuit on Croc Clips. I can use the 2D design software to produce a simple design idea.</p>

D & T Year 9 Term 2				
	Mastery	Working beyond national standards	Working at National Standards	Working below National Standards
Knowledge	<p>Materials You can identify the materials HIPs, Acrylic, MDF, steel and Plywood. You can name 5 thermoplastics. And describe their working properties. You can explain in detail what the typical properties of a thermoplastic are. You can thoroughly explain the properties of plywood and its main applications. You can explain in detail the properties of steel. You know the difference between a ferrous and non-ferrous metal and can name 5 examples. You understand what finish each material requires and its application in different situations.</p> <p>CAD/CAM You understand the term CAD/CAM and are aware of the uses of the laser cutter, CNC router and the 3D printer. You can identify and explain areas where CAD/CAM might be useful. You can develop designs to be used in the 3D printer.</p> <p>Mechanisms and Structures You can identify a simple cantilever system. You can calculate forces in a system. You can identify a simple point load and a uniform load. You can identify a pneumatic system and suggest where to use one.</p> <p>Tools & equipment You can correctly name 15 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the materials HIPs, Acrylic, MDF, steel and Plywood. You can name 5 thermoplastics.</p> <p>You can explain in detail what the typical properties of a thermoplastic are. You can thoroughly explain the properties of plywood and its main applications. You can explain in detail the properties of steel. You know the difference between a ferrous and non-ferrous metal and can name 3 examples. You understand what finish each material requires and its application in different situations.</p> <p>CAD/CAM You understand the term CAD/CAM and are aware of the uses of the laser cutter, CNC router and the 3D printer. You can identify and explain areas where CAD/CAM might be useful.</p> <p>Mechanisms and Structures You can identify a simple cantilever system. You can calculate forces in a system. You can identify a pneumatic system and suggest where to use one.</p> <p>Tools & equipment You can correctly name 15 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the material HIPs, Acrylic, plywood and MDF. You can name a 3 thermoplastics. You know what a thermoplastic does. You can explain the main properties of plywood. You can identify the material steel. You know the difference between a ferrous and non-ferrous metal. You understand the difference between the finishes for different materials and can apply them.</p> <p>CAD/CAM You understand the term CAD/CAM and are aware of the uses of the laser cutter, CNC router and the 3D printer. You can suggest areas where CAD/CAM might be useful.</p> <p>Mechanisms and Structures You can identify a simple cantilever system. You can calculate forces in a system. You can identify a pneumatic system and suggest where to use one.</p> <p>Tools & equipment You can correctly name 10 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material HIPs, Acrylic, Plywood & MDF. You can name 2 thermoplastics. You know what a thermoplastic does. You can name a manufacturing process for plastic. You can identify the material steel. You know the difference between a ferrous and non-ferrous metal. You understand that different materials require different finishes.</p> <p>CAD/CAM You understand the term CAD/CAM and are aware of the uses of the laser cutter, CNC router and the 3D printer.</p> <p>Mechanisms and Structures You can identify a simple cantilever. You can identify a pneumatic system</p> <p>Tools & equipment You can correctly name 5 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with a high degree of accuracy. You can cut materials with a high degree of accuracy using the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can produce an excellent level of finish.</p> <p>Marking out You can mark out the design accurately.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials. You can produce a very complex working drawing. You can produce exploded drawings.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product including commercial considerations.</p>	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with a good degree of accuracy. You can cut materials with a good degree of accuracy using the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Marking out You can mark out the design accurately.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials. You can produce a very complex working drawing.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with some accuracy. You can cut materials with some accuracy using the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Marking out You can mark out the design to a degree of accuracy.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work. You can produce a complex working drawing.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the junior hacksaw. You can use the file to shape materials. You can use the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Marking out You can mark out the design to some degree of accuracy.</p> <p>Drawing You can draw in 2D. You can produce a simple working drawing.</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea taking into account the materials properties.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that mirrors one of my design ideas. I can assemble my product according to a CAD scale drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images. I can produce 3D designs and can look at proportions and material combinations.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea taking into account the materials properties.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that resembles one of my design ideas. I can assemble my product according to a CAD scale drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images.</p>	<p>Design ideas I can produce 4 design ideas that can be developed to produce a working prototype.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that relates to my design ideas. I can assemble my product according to a CAD drawing.</p> <p>ICT I can use the 2D design software to produce a design idea. I can use DTP software to produce 2 design images.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product. I can follow a simple CAD drawing.</p> <p>ICT I can use the 2D design software to produce a simple design idea. I can use DTP software to produce a design image.</p>

D & T Year 9 Term 3				
	Mastery	Working beyond national standards	Working at National Standards	Working below National Standards
Knowledge	<p>Materials You can identify the materials HIPs, Acrylic, MDF, steel and Plywood. You can name 5 thermoplastics. You can name 2 softwoods. You can name 5 hardwoods. You can name 5 non ferrous metals. You can name 3 alloys. You can explain in detail what the typical properties of a thermoplastic are. You can thoroughly explain the properties of plywood and its main applications. You can explain in detail the properties of steel. You know the difference between a ferrous and non-ferrous metal and can name 5 examples. You understand what finish each material requires and its application in different situations.</p> <p>CAD/CAM You understand the term CAD/CAM and know how to use the laser cutter, CNC router and the 3D printer. You can identify and explain areas where CAD/CAM might be useful.</p> <p>Mechanisms and Structures You can identify a simple cantilever system. You can calculate forces in a system. You can identify a simple point load and a uniform load . You can calculate stress and strain in a system. You can identify a pneumatic system and suggest where to use one.</p> <p>Tools & equipment You can correctly name 15 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues You can identify the 3D printer and CNC router and know the associated risks with these machines. You can set up these machines ready to cut materials.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the materials HIPs, Acrylic, MDF, steel and Plywood. You can name 5 thermoplastics. You can name 2 softwoods. You can name 5 hardwoods. You can name 5 non ferrous metals. You can name 3 alloys. You can explain in detail what the typical properties of a thermoplastic are. You can thoroughly explain the properties of plywood and its main applications. You can explain in detail the properties of steel. You know the difference between a ferrous and non-ferrous metal and can name 3 examples. You understand what finish each material requires and its application in different situations.</p> <p>CAD/CAM You understand the term CAD/CAM and are aware of the uses of the laser cutter, CNC router and the 3D printer. You can identify and explain areas where CAD/CAM might be useful.</p> <p>Mechanisms and Structures You can identify a simple cantilever system. You can calculate forces in a system. You can identify a pneumatic system and suggest where to use one.</p> <p>Tools & equipment You can correctly name 15 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues You can identify the 3D printer and CNC router and know the associated risks with these machines. You can set up these machines ready to cut materials.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs and describe them in detail.</p>	<p>Materials You can identify the material HIPs, Acrylic, plywood and MDF. You can name a 3 thermoplastics. You can name 2 softwoods. You can name 3 hardwoods. You can name 3 non ferrous metals. You can name 2 alloys. You know what a thermoplastic does. You can explain the main properties of plywood. You can identify the material steel. You know the difference between a ferrous and non-ferrous metal. You understand the difference between the finishes for different materials and can apply them.</p> <p>CAD/CAM You understand the term CAD/CAM and are aware of the uses of the laser cutter, CNC router and the 3D printer. You can suggest areas where CAD/CAM might be useful.</p> <p>Mechanisms and Structures You can identify a simple cantilever system. You can calculate forces in a system. You can identify a pneumatic system and suggest where to use one. You understand the terms stress and strain.</p> <p>Tools & equipment You can correctly name 10 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues. You can identify the 3D printer and CNC router and know the associated risks with these machines.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client and can identify client needs.</p>	<p>Materials You can identify the material HIPs, Acrylic, Plywood & MDF. You can name 2 thermoplastics. You can name 2 softwoods. You can name 2 hardwoods. You can name 3 non ferrous metals. You can name an alloy. You know what a thermoplastic does. You can name a manufacturing process for plastic. You can identify the material steel. You know the difference between a ferrous and non-ferrous metal. You understand that different materials require different finishes.</p> <p>CAD/CAM You understand the term CAD/CAM and are aware of the uses of the laser cutter, CNC router and the 3D printer.</p> <p>Mechanisms and Structures You can identify a simple cantilever. You can identify a pneumatic system You understand the terms stress and strain.</p> <p>Tools & equipment You can correctly name 5 tools in the tool cupboard. You can identify the Pyrography Kit and the potential safety issues You can identify the 3D printer and CNC router.</p> <p>Safety You can identify potential safety issues within the workshop.</p> <p>Client You understand the term client.</p>
Skills	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with a high degree of accuracy. You can cut materials with a high degree of accuracy using the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can produce an excellent level of finish.</p> <p>Marking out You can mark out the design accurately.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials. You can produce a very complex working drawing.. You can produce exploded drawings.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product including commercial considerations.</p>	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with a good degree of accuracy. You can cut materials with a good degree of accuracy using the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can produce a very good level of finish.</p> <p>Marking out You can mark out the design accurately.</p> <p>Drawing You can draw in 3D and use colour to show light, shade and texture of materials. You can produce a very complex working drawing.</p> <p>Evaluation I can evaluate my work taking other people's views into account and suggesting ways I could improve my final product.</p>	<p>Cutting You can use the junior hacksaw to shape materials. You can use the file to shape materials with some accuracy. You can cut materials with some accuracy using the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Marking out You can mark out the design to a degree of accuracy.</p> <p>Finishing skills You can produce a reasonable level of finish.</p> <p>Drawing You can draw in 3D and use colour to improve the presentation of your work. You can produce a complex working drawing.</p> <p>Evaluation I can evaluate my work taking other people's views into account.</p>	<p>Cutting You can use the junior hacksaw. You can use the file to shape materials. You can use the tenon saw.</p> <p>Drilling You can use the pillar drill safely. You can use a jig.</p> <p>Finishing skills You can use the glass paper and file to produce a finish on your project.</p> <p>Marking out You can mark out the design to some degree of accuracy.</p> <p>Drawing You can draw in 2D . You can produce a simple working drawing.</p> <p>Evaluation I can evaluate my work.</p>
Application	<p>Design ideas I can produce at least 4 ideas and can develop a final idea taking into account the materials properties.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that mirrors one of my design ideas. I can assemble my product according to a CAD scale drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images. I can produce 3D designs and can look at proportions and material combinations.</p>	<p>Design ideas I can produce at least 4 ideas and can develop a final idea taking into account the materials properties.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that resembles one of my design ideas. I can assemble my product according to a CAD scale drawing.</p> <p>ICT I can use the 2D design software to produce a range of design ideas. I can use DTP software to produce variety a design images.</p>	<p>Design ideas I can produce 4 design ideas that can be developed to produce a working prototype.</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product that relates to my design ideas. I can assemble my product according to a CAD drawing.</p> <p>ICT I can use the 2D design software to produce a design idea. I can use DTP software to produce 2 design images.</p>	<p>Design ideas I can produce a range of ideas</p> <p>Cutting , shaping and assembly I can apply my skill with the file, drill and saw to produce a product. I can follow a simple CAD drawing.</p> <p>ICT I can use the 2D design software to produce a simple design idea. I can use DTP software to produce a design image.</p>

KS4 CURRICULUM Year 10 / Product Design.

<p>LEARNING GOALS</p>	<p>Building upon prior learning undertaken throughout Key Stage 3, pupils are awarded the opportunity to further develop the knowledge, understanding and skills required to carry out the iterative design process of exploring, creating and evaluating. The three projects serve to address the key principle topics; core technical, specialist technical and designing and making. The core technical principles that are addressed include: new and emerging technologies, development in new materials, materials and their working properties. In terms of specialist technical principles, students develop an in depth knowledge and understanding of issues relating to the appropriate selection of materials, specialist techniques and processes, using and working with materials and ecological and social concerns. Designing and making principles serve to allow students to understand that D&T activities take place within a wide range of contexts. These are undertaken through topics including: investigation, primary and secondary research, examining the work of others, appropriate design strategies, effective communication of design ideas and the use of specialist tools and equipment.</p>	
	<p>Topics Crucial Knowledge & concepts & skills</p>	<p>Rationale for sequence of learning</p>
<p>Term 1</p>	<p><u>Tool Box</u> <u>Crucial Knowledge</u> How the iterative design process works. Potential workshop health and safety issues. Technology in manufacturing. Production systems. Product sustainability & social issues. Properties and uses of natural timber and manmade boards. New and emerging technologies. How to draw design ideas in isometric and two point perspective. How to render design drawings. How to produce a 3rd angle drawing. How to accurately mark out wood How to accurate and safely cut wood joints. Safe and accurate use of workshop tools and machinery. How to prepare materials (wood). How to add a surface finish (wood). How to accurately assemble a wooden product. How to write a detailed evaluation using ACCESS FM.</p> <p><u>Concepts</u> Design strategies. Specialist techniques and processes. Specialist tools and equipment. Material management. Communication of design ideas. Using and working with materials. Materials and their working properties. Surface treatments and finishes.</p> <p><u>Skills</u> Three-dimensional sketching and rendering. Effective and safe methods of cutting timber. Producing working drawings. Using CAD software. Accurate marking out of materials using appropriate tools. Safe and accurate drilling. Safe and accurate use of a mortising machine. Safe and accurate use of a router. Cutting a tenon joint. Sanding wood. Assembling a product. Effective use of PVA. Applying a surface finish.</p>	<p>Projects undertaken in Year 10 are designed to further develop and expand upon skills, knowledge and understanding experienced at KS3. Working through each project allows pupils to become proficient with a broad range of relevant tools, equipment and machinery, with an underlying focus on appropriate health and safety requirements at every stage. Pupils cover the different working properties of the materials used and learn how to analyse products in more depth, construct detailed specifications and draw design ideas in isometric and two-point perspective both by hand and by employing CAD software. Pupils are also taught how to evaluate their work in more detail from KS 3, taking into account the different views of clients, users etc.</p>

<p>Term 2</p>	<p><u>Desk Tidy</u> <u>Crucial Knowledge</u> Potential workshop health and safety issues. How to write a design brief and specification based on the needs of the client. ACCESS FM Appropriate drawing techniques. Material properties and uses. How to select appropriate tools and equipment. How to accurately mark out materials (metals and woods). Safe and accurate use of workshop tools and machinery. How to prepare materials (metals and woods). Finishing material techniques (metals and woods). Product assembly. Writing a detailed evaluation. Use of CAD/CAM to produce a product base.</p> <p><u>Concepts</u> Investigation, primary and secondary research. Product analysis. Materials and their working properties. Using and working with materials. Communication of design ideas. Specialist tools and equipment. Specialist techniques and processes.</p> <p><u>Skills</u> Ability to undertake comprehensive research. Effective application of ACCESS FM. Accurate marking out. Accurate use of centre punch. Safe and accurate of appropriate files and wet and dry paper. Safe and accurate use of pillar and battery operated drills with machine vice. Producing a quality finish. Accurately drill and tap brass rod. Draw out base design using Techsoft 2D Design.</p> <p><u>Modelling</u> <u>Crucial Knowledge</u> Investigatory techniques. How to sketch initial design ideas The relevance of modelling in iterative design process. Calculating scale. Methods of joining modelling materials.</p> <p><u>Concepts</u> Modelling to realise design ideas Initial sketches. Material management.</p> <p><u>Key skills</u> Drawing initial ideas. Being able to investigate a set problem. Safe scoring, cutting and joining methods. Ability to construct quality scale models that can be used to influence the design process.</p>	<p>Projects undertaken in Year 10 are designed to further develop and expand upon skills, knowledge and understanding experienced at KS3. Working through each project allows pupils to become proficient with a broad range of relevant tools, equipment and machinery, with an underlying focus on appropriate health and safety requirements at every stage. Pupils cover the different working properties of the materials used and learn how to analyse products in more depth, construct detailed specifications and draw design ideas in isometric and two-point perspective both by hand and by employing CAD software. Pupils are also taught how to evaluate their work in more detail from KS 3, taking into account the different views of clients, users etc.</p>
<p>Term 3</p>	<p><u>Investigating the work of past and present designers & companies.</u> <u>Crucial Knowledge</u> Triangulating research sources Understanding the different design styles prevalent throughout the ages. The key features of each design era. Identifying and analysing the work of famous designers. Identifying and analysing the work of famous companies.</p> <p><u>Concepts</u> How the work of others can influence the design process. Investigating how different companies approach developing their design solutions and how this can help with your own method.</p> <p><u>Key skills</u> Investigative techniques. Drawing conclusions from evidence found.</p>	<p>Projects undertaken in Year 10 are designed to further develop and expand upon knowledge, understanding and skills experienced at KS3. Working through each project allows pupils to become proficient with a broad range of relevant tools, equipment and machinery, with an underlying focus on appropriate health and safety requirements at every stage. Pupils cover the different working properties of the materials used and learn how to analyse products in more depth, construct detailed specifications and draw design ideas in isometric and two-point perspective both by hand and by employing CAD software. Pupils are also taught how to evaluate their work in more detail from KS 3, taking into account the different views of clients, users etc.</p>

KS4 CURRICULUM Year 10 electronics

LEARNING GOALS	<p>GCSE Design and Technology will prepare students to participate confidently and successfully in an increasingly technological world. Students will gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors. Students will get the opportunity to work creatively when designing and making and apply technical and practical expertise.</p> <p>Our GCSE allows students to study core technical and designing and making principles, including a broad range of design processes, materials techniques and equipment. They will also have the opportunity to study specialist technical principles in greater depth.</p>	
	Topics Crucial Knowledge & concepts & skills	Rationale for sequence of learning
Term 1	<p><u>PIC Alarm</u> <u>Crucial Knowledge</u></p> <ul style="list-style-type: none"> Essential H&S for electronics Polarity on components Theory behind soldering Resistor used as a current limiter Properties of essential components How a multimeter works Modelling circuits using croc clips How to write an electronic specification Modelling using YENKA Product sustainability and social issues Properties of components in systems How to write complex programs Technology in manufacturing Production systems Product sustainability & social issues Products in society Powering systems Properties of materials Paper board and timber <p><u>Concepts</u></p> <ul style="list-style-type: none"> Testing projects virtually Comparing real world circuits to virtual circuits PIC programming Properties of materials Writing electronic specifications <p><u>Skills</u></p> <ul style="list-style-type: none"> Soldering Insulating components Drilling accurately using the PCB drill Marking out materials ready to be worked on Drilling HIPs Cutting pine joints; shoulder joint Using nails as clamps Assembling projects square Writing PIC programs 	<p>Each project in Y10 is designed to develop the pupils practical skills building upon the work in KS 3. Each project allows the pupils to become proficient with the different machines and develop their understanding from KS 3 in the workshop and ensures that they are familiar with the health and safety requirements. The pupils cover the different working properties of the materials used and learn how to analyse products in more depth, write specifications that are more detailed, draw design ideas in isometric both by hand and on a computer package. The pupils are also taught how to evaluate their work in more detail from KS 3 taking into account the different views of clients, users etc.</p>

<p>Term 2</p>	<p>FM Radio</p> <p><u>Crucial Knowledge</u></p> <ul style="list-style-type: none"> Component identification Industrial PCB's 3D design The work of others ACCESSFM Producing working drawings Exploded drawing techniques CAD/CAM Biomimicry in design <p><u>Concepts</u></p> <ul style="list-style-type: none"> Production of industrial PCB's How the work of others can influence design ideas Using mood-boards to assist with design and help to avoid design fixation <p><u>Skills</u></p> <ul style="list-style-type: none"> Following instructions Populating an industrial PCB Soldering neatly Using CAD/CAM Countersinking materials correctly Testing a product effectively <p><u>Modelling</u></p> <p><u>Crucial Knowledge</u></p> <ul style="list-style-type: none"> Investigatory techniques How to sketch initial design ideas The relevance of modelling How the laser cutter works <p><u>Concepts</u></p> <ul style="list-style-type: none"> Modelling to realise design ideas Initial sketches <p><u>Key skills</u></p> <ul style="list-style-type: none"> Drawing initial ideas Being able to investigate a set problem Being able to construct high quality miniature models that can be used to influence the design process 	<p>Each project in Y10 is designed to develop the pupils practical skills building upon the work in KS 3. Each project allows the pupils to become proficient with the different machines and develop their understanding from KS 3 in the workshop and ensures that they are familiar with the health and safety requirements. The pupils cover the different working properties of the materials used and learn how to analyse products in more depth, write specifications that are more detailed, draw design ideas in isometric both by hand and on a computer package. The pupils are also taught how to evaluate their work in more detail from KS 3 taking into account the different views of clients, users etc.</p>
<p>Term 3</p>	<p><u>Investigating the work of famous designers & companies</u></p> <p><u>Crucial Knowledge</u></p> <ul style="list-style-type: none"> Triangulating research sources Understanding the different design styles prevalent throughout the ages The main features of each design era Identifying and analysing the work of famous designers Identifying and analysing the work of famous companies <p><u>Concepts</u></p> <ul style="list-style-type: none"> How the work of others can influence your own designs How looking at how different companies approach design solutions can help with your own approach <p><u>Key skills</u></p> <ul style="list-style-type: none"> Investigative techniques Drawing conclusions from evidence found 	<p>Each project in Y10 is designed to develop the pupils practical skills building upon the work in KS 3. Each project allows the pupils to become proficient with the different machines and develop their understanding from KS 3 in the workshop and ensures that they are familiar with the health and safety requirements. The pupils cover the different working properties of the materials used and learn how to analyse products in more depth, write specifications that are more detailed, draw design ideas in isometric both by hand and on a computer package. The pupils are also taught how to evaluate their work in more detail from KS 3 taking into account the different views of clients, users etc.</p>

