

Knowledge Tracker Y7, 8 & 9,10 & 11 D&T

CURRICULUM PLANNING – Year 7

LEARNING GOALS	Pupils gain an introduction to the subject of design and technology. Throughout the year they are introduced to different material combinations and begin to gain an understanding of the working properties of each material. The pupils are also introduced to the different tools and machinery located within the department and are taught the relevant H&S requirements for each machine and process. Throughout the year the pupils are taught how to use different hand tools and start to become proficient with the basic tools. The pupils are introduced to different design processes that can be used to develop a product and are taught how to analyse and evaluate their work.				
	Topics Crucial Knowledge & concepts & skills	Rationale for sequence of learning	Opportunities to recall & practice to develop fluency	Assessment to identify gaps and fluency	How does the curriculum address inclusivity? T Think about, disadvantaged, SEND
Terms 1	<p>Mirror Crucial Knowledge</p> <ul style="list-style-type: none"> • Introduction to materials in particular MDF and acrylic. • Introduction to design briefs • Introduction to specifications • Introduction to design idea development • Introduction to analysing projects using ACCESSFM • Introduction to evaluation • H&S in the workshop <p>Concepts</p> <ul style="list-style-type: none"> • The design process • The idea of designing for a client • Evaluating your work in order to improve it (iterative designing) <p>Skills</p> <ul style="list-style-type: none"> • Marking out materials • Using the coping saw • Using the glass paper • Using a pillar drill <p>Door sign Crucial knowledge</p> <ul style="list-style-type: none"> • Introduction to the families of plastics • Introduction to the properties of acrylic 	<p>Each project in Y7 is designed to give the pupils an introduction into basic practical skills helping them to develop their skills with the different hand tools.</p> <p>Each project allows the pupils to be introduced to the different machines in the workshop and ensures that they are familiar with the health and safety requirements.</p> <p>The pupils cover the different working properties of the materials used and learn how to analyse products, write specifications, draw design ideas in isometric both by hand and on a computer package.</p> <p>The pupils are also taught how to evaluate their work taking into account the different views of clients, users etc.</p>	<p>At the start of each lesson the pupils are given an opportunity to recall and recap on the work covered so far.</p> <p>At the end of each project the pupils reflect on what they have learnt and how they could improve their work</p> <p>Each homework gives the pupils the opportunity to recall what they have learnt on each particular project.</p> <p>End of term tests allow the pupils the opportunity to recall what they have learnt.</p> <p>Each project allows the pupils to practice the skills that they are developing throughout year 7.</p>	<p>Homework's are set every 5 weeks to recap on the learning of each project.</p> <p>A test is carried out at the end of each term to identify gaps in learning followed by plugging the gaps session to review areas of issue.</p> <p>Each project is marked using the WINS system where gaps are also identified and the pupils asked to act upon them.</p> <p>• Responsive AFL used in all lessons</p>	<p>Each pupil is given a project booklet that follows the scheme of work. Within the booklets are all the key worksheets as well as a key word list. The booklets aid students who require handouts, reduces the necessity to copy from the board, struggle with literacy, as well as keeping their folder work neater and in order.</p> <p>We have reintroduced the VCOP literacy strategy within DT. We have found this strategy to be very effective with aiding all students, especially those with literacy difficulties and EAL. VCOP mats are available and used in each workshop.</p> <p>Home learning activities are quiz based using Satchel 1. This has had a positive impact on those students who often struggle with organisation and engaging with home learning activities.</p> <p>After assessment the students work is WINS according to the school policy at this point the pupils are given individual feedback allowing the teacher to assess and identify particular weaknesses in the students work.</p> <p>The pupils are then given the opportunity to act on this feedback to</p>

	<ul style="list-style-type: none"> • H&S when using the pillar drill • Using ACCESSFM to analyse similar products • How thermoplastics can be manipulated <p>Concepts</p> <ul style="list-style-type: none"> • The manipulation of thermoplastics • The difference between thermoplastics and thermosetting plastics • The working properties of acrylic • Designing for a client • The use of CAD to aid in the manufacture of a product <p>Skills</p> <ul style="list-style-type: none"> • Draw filing acrylic • Drilling acrylic • Using the pillar drill correctly and safely • Line-bending acrylic • Using wet & dry paper correctly <p>Aluminium Key Fob</p> <p>Crucial Knowledge</p> <ul style="list-style-type: none"> • Introduction to metals • Introduction to ferrous and non ferrous metals • Introduction to the basic properties of metals • Introduction to basic manufacturing methods associated with metals • Where do metals come from • The tools used to work with metals • H&S associated with working with metals <p>Concepts</p>				<p>close gaps in their knowledge and skills.</p> <p>During practical lessons the pupils are constantly given individual feedback from the teacher enabling them to act and adapt their work as it is being developed. This feedback is particularly effective with the disadvantage and SEND students as it gives them an instant feedback on their work and gives them time to adapt how they are progressing.</p>
--	---	--	--	--	--

	<ul style="list-style-type: none">• The manipulation of metals• The working properties of aluminium• Designing for a particular market <p>Key skills</p> <ul style="list-style-type: none">• Marking out metals• Filing metals to shape• Drilling metals• Using a punch to mark out a hole to be drilled				
--	--	--	--	--	--

CURRICULUM PLANNING – Year 8

LEARNING GOALS

Pupils gain a further insight into the subject of design and technology. Throughout the year they are introduced to different material combinations and begin to further explore and understand the working properties of each material. The pupils are also introduced to the different tools and machinery located within the department and are taught the relevant H&S requirements for each machine and process. Throughout the year the pupils are taught how to use different hand tools and start to become proficient with the basic tools. The pupils are introduced to different design processes that can be used to develop a product and are taught how to analyse and evaluate their work. The pupils are introduced to PIC's and taught to write simple programs. The pupils learn about mechanisms and use this knowledge to design and make a product. The pupils learn about the importance of the 6R's in designing. The pupils gain an insight into using the CAD/CAM machines to design and develop products for specific clients/users.

	Topics Crucial Knowledge & concepts & skills	Rationale for sequence of learning	Opportunities to recall & practice to develop fluency	Assessment to identify gaps and fluency	How does the curriculum address inclusivity? T Think about, disadvantaged, SEND
Terms 1	<p><u>Electronic Money Box</u> <u>Crucial Knowledge</u></p> <ul style="list-style-type: none"> How to analyse a task Analysing products using ACCESSFM An introduction to croc clips/ Yenka on how to model circuits Recap on how a PCB is made H&S when using the soldering equipment Understanding basic components and how they work. Understanding the term polarity when using electronic components Investigating the work of famous designers and deriving ideas from them Understanding how to program a simple circuit using PICAXE editor 6. Understanding how a 3D printer works How to evaluate projects in detail <p><u>Concepts</u></p> <ul style="list-style-type: none"> Using virtual modelling to simulate circuits How to use 3D printers to produce items Polarity in circuits 	<ul style="list-style-type: none"> Each project in Y8 is designed to develop the pupils practical skills building upon the work in Y7. Each project allows the pupils to be introduced to the different machines and develop their understanding from Y7 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 	<ul style="list-style-type: none"> At the start of each lesson the pupils are given an opportunity to recall and recap on the work covered so far. At the end of each project the pupils reflect on what they have learnt and how they could improve their work Each homework give the pupils the opportunity to recall what they have learnt on each particular project. End of term tests allow the pupils the opportunity to recall what they have learnt. Each project allows the pupils to practice the skills that they are developing throughout year 8. 	<p>Homework's are set every 5 weeks to recap on the learning of each project. A test is carried out at the end of each term to identify gaps in learning followed by plugging the gaps session to review areas of issue.</p> <p>Each project is marked using the WINS system where gaps are also identified and the pupils asked to act upon them.</p> <ul style="list-style-type: none"> Responsive AFL used in all lessons 	<p>Each pupil is given a project booklet that follows the scheme of work. Within the booklets are all the key worksheets as well as a key word list. The booklets aid students who require handouts, reduces the necessity to copy from the board, struggle with literacy, as well as keeping their folder work neater and in order.</p> <p>We have reintroduced the VCOP literacy strategy within DT. We have found this strategy to be very effective with aiding all students, especially those with literacy difficulties and EAL. VCOP mats are available and used in each workshop.</p> <p>Home learning activities are quiz based using Satchel 1. This has had a positive impact on those students who often struggle with organisation and engaging with home learning activities.</p> <p>After assessment the students work is WINS according to the school policy at this point the pupils are given individual feedback allowing the teacher to assess and identify particular weaknesses in the students work.</p>

	<ul style="list-style-type: none">• What a resistor is used for in an electronic circuit• The use of PIC ICs in a circuit• Programming electronic circuits• Populating PCB's• <p>Skills</p> <ul style="list-style-type: none">• Using the soldering iron correctly and safely• Using a file to shape plastic• Using a PCB drill accurately• Be able to program a PIC• How to analyse similar products effectively• How to use tools and machinery safely•	work in more detail from Y7, taking into account the different views of clients, users etc.			<p>The pupils are then given the opportunity to act on this feedback to close gaps in their knowledge and skills.</p> <p>During practical lessons the pupils are constantly given individual feedback from the teacher enabling them to act and adapt their work as it is being developed. This feedback is particularly effective with the disadvantage and SEND students as it gives them an instant feedback on their work and gives them time to adapt how they are progressing.</p>
--	--	---	--	--	---

CURRICULUM PLANNING – Year 9

LEARNING GOALS	<p>Pupils gain a further insight into the subject of design and technology. Throughout the year they are introduced to different material combinations and begin to further explore and understand the working properties of each material. The pupils are also introduced to the different tools and machinery located within the department and are taught the relevant H&S requirements for each machine and process. Throughout the year the pupils are taught how to use different hand tools and become proficient with the basic tools. The pupils are introduced to different design processes that can be used to develop a product and are taught how to analyse and evaluate their work in greater detail. The pupils develop their knowledge of PIC's and taught to write complex programs. The pupils learn about structures and use this knowledge to design and make a product. The pupils learn about the importance of the 6R's in designing. The pupils gain an insight into using the CAD/CAM machines to design and develop products for specific clients/users.</p>				
	Topics Crucial Knowledge & concepts & skills	Rationale for sequence of learning	Opportunities to recall & practice to develop fluency	Assessment to identify gaps and fluency	How does the curriculum address inclusivity? T Think about, disadvantaged, SEND
Terms 1&2	<p>MP3 Amplifier Crucial Knowledge</p> <ul style="list-style-type: none"> • How an amplifier works • Reading schematic diagrams • Understanding input, process and output in terms of electronic systems • How to analyse a task • Analysing products using ACCESSFM • Recap on how a PCB is made • H&S when using the soldering equipment • Understanding a range of components and how they work. • Understanding the term polarity when using electronic components • Investigating the work of famous designers and deriving ideas from them • Understanding how to program a complex circuit using PICAXE editor 6. • How to evaluate projects in detail <p>Concepts</p> <ul style="list-style-type: none"> • Using virtual modelling to simulate circuits • Polarity in circuits 	<ul style="list-style-type: none"> • Each project in Y9 is designed to develop the pupils practical skills building upon the work in Y7 & 8. Each project allows the pupils to become proficient with the different machines and develop their understanding from Y7 & 8 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 	<ul style="list-style-type: none"> • At the start of each lesson the pupils are given an opportunity to recall and recap on the work covered so far. • At the end of each project the pupils reflect on what they have learnt and how they could improve their work • Each homework give the pupils the opportunity to recall what they have learnt on each particular project. • End of term tests allow the pupils the opportunity to recall what they have learnt. • Each project allows the pupils to practice the skills that they are developing throughout year 9. 	<p>Homework's are set every 5 weeks to recap on the learning of each project. A test is carried out at the end of each term to identify gaps in learning followed by plugging the gaps session to review areas of issue. Each project is marked using the WINS system where gaps are also identified and the pupils asked to act upon them.</p> <ul style="list-style-type: none"> • Responsive AFL used in all lessons 	<p>Each pupil is given a project booklet that follows the scheme of work. Within the booklets are all the key worksheets as well as a key word list. The booklets aid students who require handouts, reduces the necessity to copy from the board, struggle with literacy, as well as keeping their folder work neater and in order.</p> <p>We have reintroduced the VCOP literacy strategy within DT. We have found this strategy to be very effective with aiding all students, especially those with literacy difficulties and EAL. VCOP mats are available and used in each workshop.</p> <p>Home learning activities are quiz based using Satchel 1. This has had a positive impact on those students who often struggle with organisation and engaging with home learning activities.</p> <p>After assessment the students work is WINS according to the school policy at this point the pupils are given individual feedback allowing the teacher to assess and identify particular weaknesses in the students work.</p>

	<ul style="list-style-type: none">• What a resistor is used for in an electronic circuit• The use of PIC ICs in a circuit• Programming electronic circuits• Populating PCB's• Schematic diagrams• Input, process and output <p>Skills</p> <ul style="list-style-type: none">• Using the soldering iron correctly and safely• Using a file to shape plastic• Using a PCB drill accurately• Be able to program a PIC• How to analyse similar products effectively• How to use tools and machinery safely• Writing complex programs to download to a microcontroller	how to evaluate their work in more detail from Y7 & 8, taking into account the different views of clients, users etc.			<p>The pupils are then given the opportunity to act on this feedback to close gaps in their knowledge and skills.</p> <p>During practical lessons the pupils are constantly given individual feedback from the teacher enabling them to act and adapt their work as it is being developed. This feedback is particularly effective with the disadvantage and SEND students as it gives them an instant feedback on their work and gives them time to adapt how they are progressing.</p>
--	---	---	--	--	---

CURRICULUM PLANNING – Year 10 Product Design

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.

Topics Crucial Knowledge & concepts & skills	Rationale for sequence of learning	Opportunities to recall & practice to develop fluency	Assessment to identify gaps and fluency	How does the curriculum address inclusivity? T Think about, disadvantaged, SEND
<p>Tool Box Crucial Knowledge</p> <ul style="list-style-type: none"> • 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>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>At the start of each lesson, pupils are given an opportunity to recall and recap on work covered so far.</p> <ul style="list-style-type: none"> •At the end of each project, pupils reflect on what they have learnt and how they could improve their work. •Each homework allows pupils the opportunity to recall what they have learnt on each particular project. •End of term tests awards pupils the opportunity to recall what they have learnt. •Each project allows pupils to practice the skills that they are developing throughout year 10. 	<p>Homework tasks are set every 2 weeks to recap on the learning from each project and to also cover the course information requirements. A test is carried out at the end of each term to identify gaps in learning followed by plugging the gaps session to review areas of issue. Each project is marked using the WINS system where gaps are also identified and the pupils asked to act upon them.</p> <ul style="list-style-type: none"> •Responsive AFL used in all lessons. 	<p>Following assessment of student's work and in accordance with school policy, the WINS system is employed. Pupils are given individual feedback that relates to particular strengths and weaknesses in their work. Pupils are then awarded the opportunity to act on this feedback in order to close gaps in their knowledge, skills and understanding.</p> <p>During practical lessons, pupils are constantly given individual feedback from the teacher, enabling them to act and adapt their work as it is being developed. This feedback is particularly effective with disadvantaged and SEND students as it gives them instant feedback on their work and allows them the opportunity to adapt how they are progressing if and when necessary.</p>

Concepts

- 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.

Skills

- 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.

--

--

--

--

CURRICULUM PLANNING – Year 10 Electronics

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.

Topics Crucial Knowledge & concepts & skills	Rationale for sequence of learning	Opportunities to recall & practice to develop fluency	Assessment to identify gaps and fluency	How does the curriculum address inclusivity? T Think about, disadvantaged, SEND
<p><u>PIC Game</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 	<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</p>	<ul style="list-style-type: none"> • At the start of each lesson the pupils are given an opportunity to recall and recap on the work covered so far. • At the end of each project the pupils reflect on what they have learnt and how they could improve their work • Each homework give the pupils the opportunity to recall what they have learnt on each particular project. • End of term tests allow the pupils the opportunity to recall what they have learnt. <p>Each project allows the pupils to practice the skills that they are developing throughout year 10.</p>	<p>Homework's are set every 2 weeks to recap on the learning of each project/element and to also cover the course information requirements. A test is carried out at the end of each term to identify gaps in learning followed by plugging the gaps session to review areas of issue. Each project is marked using the WINS system where gaps are also identified and the pupils asked to act upon them. Responsive AFL used in all lessons</p>	<p>After assessment the students work is WINS according to the school policy at this point the pupils are given individual feedback allowing the teacher to assess and identify particular weaknesses in the pupils' work. The pupils are then given the opportunity to act on this feedback to close gaps in their knowledge and skills. During practical lessons the pupils are constantly given individual feedback from the teacher enabling them to act and adapt their work as it is being developed. This feedback is particularly effective with the disadvantage and SEND students as it gives them an instant feedback on their work and gives them time to adapt how they are progressing.</p>

- Comparing real world circuits to virtual circuits
- PIC programming
- Properties of materials
- Writing electronic specifications

Skills

- 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

different views of clients, users etc.

--

--

--

CURRICULUM PLANNING – Year 11

LEARNING GOALS

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. At Y11 the pupils embark on the NEA aspect of the course and through this work they will 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.

	Topics Crucial Knowledge & concepts & skills	Rationale for sequence of learning	Opportunities to recall & practice to develop fluency	Assessment to identify gaps and fluency	How does the curriculum address inclusivity? T Think about, disadvantaged, SEND
Terms 1 & 2	<p><u>NEA</u> <u>Crucial Knowledge</u></p> <ul style="list-style-type: none"> • 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 	<p>The NEA is a portfolio of design work based on the student solving a specific problem set by AQA. The students follow the design strategy taught at both KS3 & 4 to arrive at a final solution that can be assessed. The theoretical element of the course follows the set list of topics provided by AQA</p>	<ul style="list-style-type: none"> • At the start of each lesson the pupils are given an opportunity to recall and recap on the work covered so far. • At the end of each project the pupils reflect on what they have learnt and how they could improve their work • Each homework give the pupils the opportunity to recall what they have learnt on each particular project. <p>End of term tests allow the pupils the opportunity to recall what they have learnt</p>	<p>Homework's are set every 2 weeks to recap on the learning of each project/element and to also cover the course information requirements. A test is carried out at the end of each term to identify gaps in learning followed by plugging the gaps session to review areas of issue.</p> <p>Each element of the project is marked using the WINS system where gaps are also identified and the pupils asked to act upon them.</p> <p>Responsive AFL used in all lessons</p>	<p>After assessment the students work is WINS according to the school policy at this point the pupils are given individual feedback allowing the teacher to assess and identify particular weaknesses in the pupils' work. The pupils are then given the opportunity to act on this feedback to close gaps in their knowledge and skills.</p> <p>During practical lessons the pupils are constantly given individual feedback from the teacher enabling them to act and adapt their work as it is being developed. This feedback is particularly effective with the disadvantage and SEND students as it gives them an instant feedback on their work and gives them time to adapt how they are progressing.</p>

- How to effectively model a product.
- How to accurately assemble a wooden product.
- How to write a detailed evaluation using ACCESS FM.

Concepts

- 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.
- Modelling ideas for development

Skills

- 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
- Soldering components
- Using the laser cutter
- Using the 3D printer
- Sanding wood.
- Assembling a product.
- Effective use of PVA.
- Applying a surface finish.
- Modelling