

Subject: Construction Tech Award		Year 10		Ability Mixed		
Term / Date(s)	Half-term 1	Half-term 2	Half-term 3	Half-term 4	Half-Term 5	Half-Term 6
<b>Topic</b>	Component 2 – Construction in practice Learning outcome 1 – H&S & risk	Component 2 – Construction in practice Learning outcome 2 – Practical	Component 2 – Construction in practice Learning outcome 2 – Practical	Component 3 – Construction & design	Component 3 – Construction & design	Component 3 – Construction & design
<b>Topic overview</b>	How to further categorize and level potential risks and suggest suitable control measures for a range of tooling and equipment specific to joinery.	How to accurately use a wide range of tools, machinery & information for the Pearson set assignment brief PSA (Nov).	How to accurately use a wide range of tools, machinery & information for the Pearson set assignment brief PSA.	How designs are influenced by client needs and external constraints when designing low rise buildings.	How to analyse the constraints on a design in order to produce a detailed client brief.	How to produce a final concept idea for an external appearance
<b>Pupils will learn...</b>	How to use and write an industry standard risk assessment in order to manage risk in the workshop.  How to accurately use a wide range of tools, machinery & information for specific carpentry and joinery tasks.	How to develop technical & practical skills further in order to produce a high-quality outcome with accuracy and skill.	How to develop technical & practical skills further in order to produce a high-quality outcome with accuracy and skill.	How buildings can be built using sustainable methods in order to design an environmentally friendly building.	How to use a wide range of graphic communication techniques to design a suitable building for a given client.	How to produce a final concept idea for an internal layout plan.
<b>Components</b>	Students will use acquired knowledge and observation and analysis skills to show their awareness of hazards and risk in an area. Students will be able to produce individual control measures to remove or minimise the risk. Students will create risk assessments based on the practical processes required to manufacture a range of timber frame joints. (Dovetail, mortise and tenon, dowel, lap, finger, mitre). To identify the purpose of tools and equipment and the uses of materials for carpentry and joinery To produce a range of practice joints taking tolerance and accuracy into account.	Students will demonstrate practical skills with tools and materials, and planning and time management skills to create a constructed outcome to the PSA. Students will create an industry standardised risk assessment based on the practical processes required in the PSA. Students will ensure the finished product is fully compliant with the specification and drawing provided in the PSA. Students will ensure that all dimensions of the product are within specified tolerances.	Students will demonstrate practical skills with tools and materials, and planning and time management skills to create a constructed outcome to the PSA. Students will ensure the finished product is fully compliant with the specification and drawing provided in the PSA. Students will ensure that all dimensions of the product are within specified tolerances.	Students to get an understanding of how urban areas are designed in order to realise its impacts on society.  Students will investigate the employment opportunities in the sector so that they have a wider understanding of how this can benefit society.  Students will need to consider the design requirements for the client's environmental and sustainable	Students will understand that a design brief must be fit for a specific client whilst satisfying planners and other agencies.  Students will demonstrate an understanding of how to produce a fully developed client profile which interprets the client's lifestyle requirements and building design.  Students will develop further understanding of how to produce detailed 3D isometric sketches ( <i>Building upon skills &amp; knowledge from Y9 HT2</i> ).  Students will develop further understanding of how to produce detailed 3D 1-point & 2-point sketches ( <i>Building upon skills &amp; knowledge from Y9 HT2</i> ).	Students apply further understanding of how to correctly annotate working drawings, sketches concept ideas. ( <i>Building upon skills &amp; knowledge from Y9 HT2&amp; Y10 HT5</i> )  Students will develop further understanding of how to produce detailed 3D isometric sketches ( <i>Building upon skills &amp; knowledge from Y9 HT2</i> ).  Students will develop further understanding of how to produce detailed 3D 1-point & 2-point sketches ( <i>Building upon skills &amp; knowledge from Y9 HT2</i> ).  Students will develop further understanding of how to produce detailed plan view layout plans ( <i>Building upon skills &amp; knowledge from Y9 HT2</i> ).

<b>Golden Knowledge</b>	To understand Health and safety, risk assessments and control measures. Be able to identify hazards and put in control measures to decrease the risks involved. Understand important legislation such as COSHH, PUWER, working at height. To be able to review own strengths and weaknesses for successful future develop	Develop and apply knowledge of workshop health and safety: Tools, machinery, risk assessments and using equipment safely. Develop knowledge of practical techniques so that they can use them to prepare, cut and finish demonstrating a range of skills (comb, bridle, mitre, dowel, mortice and tenon and dovetail joints), by practicing these techniques students will increase in confidence and the ability to successfully carry out a range of practical skills for their assessed component 2.	Develop ability to detail all aspects of a risk assessment fully drawing on all previous information and knowledge. Interpret given construction drawings to create an accurate outcome in response to a brief. Understand tolerance and how to check this against a given product.	Develop ability to research around a given problem and client brief. Understand factors affecting building planning and permissions. Be able to consider local surrounding when researching the needs of a building site. Develop a knowledge of site preparation in readiness for building.	Students will be able to apply simple drawing techniques including floor plans, site plans and elevations. How designs can influence consumer choice.	Students will understand how to successfully apply a range of drawing techniques including: Site plans, elevations, 1- point perspective and 2-point perspective.
<b>What pupils should already know (prior learning components)</b>	Students should know how to use general workshop tools safely and accurately so that they can cut out new timber joints. <i>(Building upon subject knowledge and practical skills from Year 9 HT3)</i> . Students should be able to identify hazards in a workshop so they can work safely. <i>(Building upon subject knowledge and practical skills from KS3)</i> . Students should understand the function of a specification and be able to write and use on. <i>(Building upon subject knowledge and practical skills from KS3)</i> . Students should know the importance of producing high quality products for clients, users and customers	Students should know how to measure, mark out and cut a range of timber joints accurately and safely. <i>(Building upon subject knowledge and practical skills from Year 10 HT1)</i> .  Students should be able to write a detailed risk assessment in order to keep themselves and others safe in the workshop. <i>(Building upon subject knowledge and practical skills from KS3 and Year 10 HT1)</i> .	Students should know how to measure, mark out and cut a range of timber joints accurately and safely. <i>(Building upon subject knowledge and practical skills from Year 10 HT1)</i> .  Students should be able to write a detailed risk assessment in order to keep themselves and others safe in the workshop. <i>(Building upon subject knowledge and practical skills from KS3 and Year 10 HT1)</i> .	Students will design and model an attractive, aesthetically pleasing building that would be pleasant for a specific client to live in. <i>(Building upon subject knowledge and practical skills from Year 9 HT2)</i> .  Students will be able to evaluate against the specification and identify ways of improving them so that an evaluation and modification can be written. <i>(Built upon the basics from HT2 Yr8 &amp; HT1+ HT2 Y9)</i> .  About the importance of design and how it can influence consumer choice. <i>(Building upon subject knowledge and practical skills from Year 9 HT1)</i>	Students will understand how to produce a working drawing to meet the design brief; ensuring students can evaluative techniques to identify the most successful design idea. <i>(Built upon the basics from KS3)</i>  Students will be able to evaluate against the specification and identify ways of improving them so that an evaluation and modification can be written. <i>(Built upon the basics from HT2 Yr8 &amp; HT1+ HT2 Y9)</i> .  Students will understand how to draw using isometric 1-point and 2-point design styles. <i>(Building upon skills &amp; knowledge from Y9 HT2)</i> .  About the importance of design and how it can influence consumer choice. <i>(Building upon subject knowledge and practical skills from Year 9 HT1)</i>	Students will have an understanding of graphical techniques with a good level of accuracy.  Students have a good understanding of the design requirements.
<b>Transferrable knowledge (skills)</b>	How to select and use workshop tools in order to produce a high-quality outcome. How to work safely in the workshop to produce a high-quality outcome. Understanding the working properties of materials will help students make informed decisions when selecting materials for future projects.	Students develop organisational, design and practical skills, showing they can produce and work from high quality working drawings. <i>(Building upon subject knowledge and practical skills from KS3)</i> . How to select and use workshop tools in order to produce a high-quality outcome. How to work safely in the workshop to produce a high-quality outcome.	How to select and use workshop tools in order to produce a high-quality outcome. How to work safely in the workshop to produce a high-quality outcome. Understanding the working properties of materials will help students make informed decisions when selecting materials for future projects.	How to generate, annotate and communicate design ideas. How to use CAD packages in order to produce high quality working drawings.  How to evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups.	How to estimate the costs of materials.  How to measure and mark out: interpretation of construction drawings.  How to generate, annotate and communicate design ideas. How to use CAD packages in order to produce high quality working drawings.	How to estimate the costs of materials.  How to measure and mark out: interpretation of construction drawings.  How to generate, annotate and communicate design ideas. How to use CAD packages in order to produce high quality working drawings.

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**Commented [RH2]:** Again, check that the why is clear and explicit. Check all components.

	Students can identify essential hand tools and can safely operate larger equipment.	Understanding the working properties of materials will help students make informed decisions when selecting materials for future projects. Students can identify essential hand tools and can safely operate larger equipment. <i>(Building upon subject knowledge and practical skills from Year 10 HT1).</i>	Students can identify essential hand tools and can safely operate larger equipment. <i>(Building upon subject knowledge and practical skills from Year 10 HT1 + HT2)</i>	Students develop organisational, design and practical skills, showing they can produce and work from high quality working drawings. <i>(Building upon subject knowledge and practical skills from KS3).</i>		
<b>Key vocabulary pupil will know and learn</b>	Setting-out tools including: tri-square, sliding bevel, carpenter's pencil, marking/mortice gauges, combination square, tape measure & spirit level. Hand tools and equipment including: mallet, chisels (bevelled and mortise), universal saw, nail punch, claw hammer, nail pincers, screwdrivers (slotted, pozi drive, Phillips), bradawl, cordless drill, drill types and sizes.	Preparing and setting up the work area: Marking out and cutting joints (bridle joint, mitre joint, half lap joint, housing joint, tee halving joint, dovetail joint, mortise and tenon joint). Assembly of joint, measuring, marking out and constructing a timber frame using a setting-out rod. Cutting joints to make a timber frame: gluing up a timber frame using sash cramps/G clamps on a level surface, checking frame is square (check diagonals). Safe use of chisels, saws, cordless drills. Using dust-minimisation techniques.	Marking out and cutting joints (bridle joint, mitre joint, half lap joint, housing joint, tee halving joint, dovetail joint, mortise and tenon joint). Assembly of joint, measuring, marking out and constructing a timber frame using a setting-out rod. Cutting joints to make a timber frame: gluing up a timber frame using sash cramps/G clamps on a level surface, checking frame is square (check diagonals). Safe use of chisels, saws, cordless drills.	House footprints, Traditional framed structures, Building regulations, accessibility requirements, planning objections, flood risks, local climates, budgets, specifications, end users, clients, orientation, renewable energy, carbon foot print, maintenance, thermal efficiency and sustainability.	Accurate, analyse, appropriate, design brief, communicate, compare, comparison, competent, consideration, creative, demonstrate, detailed, extensive, generic, perceptive, range, secure, simplistic, suitable & unsupported.	Developed, sketches, layout plans, orientation, isometric, orthographic, dimensioning, perspective, client, plan orientation, side orientation, front orientation.
<b>Assessment activities</b>	Practical outcome assessed. Verbal feedback used as formative assessment throughout the project.	Practical outcome assessed. Verbal feedback used as formative assessment throughout the project.	This assessment must be formally supervised (8 hours) Moderated January and marks sent off to Pearson. A Sample of 10 required.	36 GLH 2 hours monitored prep time to make notes with access to the internet. This must be monitored	36 GLH 2 hours monitored prep time to make notes with access to the internet. This must be monitored	6 hours to complete the project in examination conditions in line with Pearson.
<b>Resources available</b>	This unit requires a fully equipped carpentry and joinery workshop, with tools and materials of a nature and standard typical of a real, industrial work environment, together with personal protective equipment (PPE) applicable to the production of the practical task.	This unit requires a fully equipped carpentry and joinery workshop, with tools and materials of a nature and standard typical of a real, industrial work environment, together with personal protective equipment (PPE) applicable to the production of the practical task.	This unit requires tools and materials of a nature and standard typical of a real, industrial work environment, together with personal protective equipment (PPE) applicable to the production of the practical task.	Drawing boards, A3 paper, technical drawing equipment, google sketch-up, Techsoft-2D design.	Drawing boards, A3 paper, technical drawing equipment, google sketch-up, Techsoft-2D design.	Drawing boards, A3 paper, technical drawing equipment.