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**Knowledge Rich Curriculum Plan**

Year 8 – Design

Unit: Picture frame



| **Year 8**  **Design** | **Y8 Picture Frame**  **The purpose of our curriculum is to inspire our students to think creatively about solving problems, rather than dwelling on solutions. They will experience a wide range of technologies that will give them the knowledge and skills, to make better decisions to design and make products that will improve people’s lives. Regardless of ability or endpoint, our aim is to equip our students with the knowledge of ever developing technologies that can be applied to their chosen pathways both in and outside of the Academy.** |  |  |  |
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| **Lesson/Learning Sequence** | **Intended Knowledge:**  *Students will know that…* | **Tiered Vocabulary** | **Prior Knowledge:**  *In order to know this students, need to already know that…* | **Assessment** |
| **Lesson:**  **Photo frame marking out** | * Students will know how a tri square and steel rule are used as part of the marking out process * Students will know that a steel rule is different to a standard ruler * Students will know that a tri square will be used to draw lines perpendicular to the edge of their material | Tri square – Woodworking tool used for marking and checking 90-degree angles  Steel Rule – A rule manufactured from steel featuring metric and imperial measurements | * ***Students need to already know what a right angle is.*** * ***Students need to already know what is meant by the term marking out: The application of scribing a line along a straight edge*** * ***Students need to already know how to convert cm into mm.*** | How are the Steel Rule and Tri Square similar?  What are the benefits of marking out your work before cutting?  What might happen if you don’t mark your work out before cutting? |
| **Lesson:**  **Theory - Hardwoods, Softwoods and Manufactured board** | * Students will know the 3 main types of timber * Students will know the three main types of timber are: Hardwoods, Softwoods and Manufactured boards * Students will know how to conduct research into these three categories of materials | Hardwood – The wood from a broad leaved tree  Softwood – The wood from a coniferous tree  Manufactured Board – A range of sheet materials produced by pressing and bonding wood particles together | * ***Students need to already know the material of wood*** * ***Students need to already know the basics of softwood and hardwood timber*** * ***Students need to already know how to identify the different types of woods*** | Compare Hardwood and Manufactured boards regarding aesthetics?  How does the knowledge of in today's lesson apply to the practical work.  How is the use of softwood suitable for our picture frame? |
| **Lesson:**  **Photo frame joint cutting lesson** | * Students will know that a tenon saw is used to cut straight lines through thick material. * Students will know that a bench hook is used to secure material during the cutting process * Students know how to accurately cut within a tolerance | Tenon Saw – A small saw with a strong back for precise work  Bench hook – A hook like device to prevent objects slipping towards the rear of the bench  Accuracy – Quality of state of being correct or precise | * ***Students need to already know basic safety using hand tools.*** * ***Students need to already know how to hold the saw correctly and use a particular technique (stance, grip, eye line)*** * ***Students will already know the definition of tolerance (allowable amount of variation within a specified quality) and how to work within one.*** | How does quality control tie in with what we have learned before?  In what way is tolerance related to quality control? |
| **Lesson:**  **Theory - Design styles** | * Students will know different types of design styles used to help inspire designers * Students will know the design styles discussed are De Stijl, Pop Art, Memphis and Gothic * Students will know De Stijl uses primary colours and black outlines in their designs * Students will know Pop Art is most linked to Andy Warhol and uses bright, unusual colours in their design * Students will know Memphis uses wacky designs and ideas to make the client think * Students will know Gothic is linked to patterns and symbols | Pop art – Art based on modern and popular culture and the mass media  Memphis – A design styles for its bright, neon and primary colours  Gothic – A design style characterised by its pointed arches, stained glass and spires | * ***Students need to already know the term primary colours*** * ***Students need to already know how designers work*** * ***Students need to already be aware of different design styles*** | Compare De Stijl and Memphis with regards to shapes and design?  How have the use of primary colours been used in De Stilj? |
| **Lesson:**  **Photo frame filing/sanding initial cuts** | * Students will have an initial understanding of quality assurance * Students will know that quality assurance will consist of constant checks to their material to ensure quality and precision * Students will know how to use quality control checks to ensure accuracy in their work. | Quality Assurance – Continual checking of accuracy during production  Precision – The need to be accurate within a small tolerance | * ***Students need to already know what is meant by the term quality control: system of maintaining standards in manufactured products by testing a sample of the output against the specification*** * ***Students need to already know how to check their materials for quality assurance.*** | How does the use of sanding help with quality control?  Compare the terms quality and precision when we are manufacturing |
| **Lesson:**  **Theory - Design ideas** | * Students will know how to create design ideas * Students will know how to use inspiration to design their ideas * Students will know how to annotate design ideas | Annotate – add notes to an image to give an explanation | * ***Students need to already the basics of colour*** * ***Students need to already know how design styles can influence their work*** * ***Students need to already know how to design based upon inspiration*** | How can we use multiple ideas to help us generate one?  How could you as a designer use inspiration to help generate ideas? |
| **Lesson:**  **Photo frame joint cutting lesson continued** | * Students will know that wood joints are used to form a secure bond of two parts. * Students will know why a half lap joint is the appropriate joint to join their picture frame. * Students will know that a variety of tools are used when manufacturing a wood joint (tenon saw, marking gauge, steel rule, try square, bench hook, hammer) * Students will know how accuracy and tolerance are used when marking out a wood joint. | Bond – unify to objects using adhesive to create one solid piece  Tolerance – an additional number to which you can work within either side of an exact measurement | * ***Students need to already know what is meant by the term wood joint: securing two pieces of material by shaping each end generally form a male/female parts*** * ***Students need to already know the basic principles of wood joints. (cuts, gluing, pinning)*** | Compare the differences between a steel rule and a plastic ruler  How could this wood joint be affective in the manufacture of your frame? |
| **Lesson:**  **Drilling frame** | * Students will know how to mark out the frame for drilling * Students will know how the use of machines can aid them during manufacture. * Students will know why a pillar drill is the best tool for this application (accuracy, consistent/repeat positioning) | Aid – offer assistance/support throughout a given process  Manufacture – the process of producing a product following a set of instructions | * ***Students will need to know what is meant by the term scribe: mark with a pointed instrument*** * ***Students need to know the basic safety principles when using a workshop machine*** | How can we ensure accuracy when during the pillar drill?  What are the benefits of using a pillar drill over a hand drill |
| **Lesson:**  **Making a stand for the frame** | * Students will know why a chisel is used to remove material in place of other tools (better finish, more accurate, quicker) * Students will know the applications of a chisel outside of the school workshop (hanging doors, creating rebates in windows) | Application – the act of putting something to use | * ***Students need to know the basic principles of removing material (small manageable amounts to avoid splitting)*** * ***Students need to understand the safety rules associated with using sharp workshop tools*** * ***Students need to be able to select appropriate tools to complete the task (mallet over hammer)*** | How can we improve our design with additional features? |
| **Lesson:**  **Assembling the frame** | * Students will know how to assemble their products using dowel * Students will understand how a stock form is used in manufacture (stock forms are pre-made mouldings of sizes of material available to speed up the manufacturing process) * Students will understand how to use hand held drills when manufacturing (safety principles, application and alternatives) | Assemble – bringing a series of components together to make a finished product  Components – a series of smaller parts that make a product  Stock form – a standardise size and shape of material that is readily available of the shelf | * ***Students will need to know how to be safe when using hand tools*** * ***Students will need to know what is meant by the term stock: a standard form of material to keep a supply*** | How does accuracy play a role in the assembly of our frame?  What types of quality control can we use during the manufacture of our frame? |
| **Lesson:**  **Finishing the frame** | * Students will understand what is meant by the term 'shop bought finish': Completion of a product to a standard suitable for resale. * Students will know how to finish their product using a blend of machine and hand processes: disk sander, file, hand sanding oil/waxing. | Finishes – a range of oil and water based substances applied to (wood) to enhance the appearance and longevity of the material | * ***Students need to already know the health and safety surrounding machine use.*** * ***Students need to know what PPE (personal protective equipment) will be required (Goggles)*** * ***Students need to already know the term wastage: excess material that is no longer required*** | How can different finishes affect the overall aesthetics of our design? |
| **Lesson:**  **MCQ Assessment** | All identified knowledge from the map | **All vocabulary from the map** | ***All prior knowledge from the map*** |  |