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Knowledge Rich Curriculum Plan

Year 7 – Design

Unit: Bughouse



| Year 7Design  | Unit: BughouseThe 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… | ADT Interleaving Opportunities | Assessment  |
| Lesson: Marking out | Students will know the mechanical properties of a coping sawStudents will know that the mechanical properties of a coping saw are a thin blade, brittle and will snap under heat and tensionStudents will know the term marking outStudents will know that marking out refers to drawing lines and measurements on materialsStudents will know how to perform the marking out processStudents will know the tools used for marking out are a pencil, Tri square and a Steel rule | Mechanical properties: define the behaviour of materials under the action of external forces called loads.Tri Square: try square or try-square is a woodworking tool used for marking and checking 90° angles on pieces of wood.Steel rule: a rule manufactured from either spring or stainless steel that feature either metric or imperial (or both) scales along its length. | Students need to already know what a saw is and how it is usedStudents need to already know what a ruler is and how it is usedStudents need to already know what a pencil is and how it is used |  | How is accuracy important in the task we are completing?How can we ensure our work is measured correctly?Compare the use of a steel rule to a plastic ruler |
| Lesson: Theory - Timber | Students will know the basics of timberStudents will know how timber is converted from treesStudents will know the different stages of converting trees to timber | Timber: wood that has been processed into dimensional lumber, including beams and planks or boards, a stage in the process of wood production.Conversion: the process of changing or causing something to change from one form to another.  | Students need to already know the basics of woodStudents need to already some of the stages of timber conversionStudents need to already know how trees are grown | Food: reference processing food from its raw state to formed shape | Do you think the logging process is considered sustainable?How can the logging process affect the value of timber? |
| Lesson: Cutting process | Students will know how the piece of equipment known as the bench hook is usedStudents will know how to use a tenon saw to cut their materials into the correct measurements givenStudents will know how to use wood files to level and smooth their materials | Measurements: the size, length, or amount of something, as established by measuring.Bench Hook: a workbench appliance used in woodworking to hold a workpiece in place while crosscutting with a hand saw.Tenon Saw: a small saw with a strong brass or steel back for precise work. | Students need to already know what a saw is and how it is usedStudents need to already know how to hold materials steadily without it moving | Food: reference the importance of consistent technique (Claw and bridge method) when demonstrating the tools | How can the use of a Tenon saw differ to the use of other saws?How can we ensure accuracy when cutting? |
| Lesson: Theory - Biomimicry | Students will know about BiomimicryStudents will know that Biomimicry is the study of nature to inspire designStudents will understand how designers use BiomimicryStudents will know how to identify Biomimicry | Design: a plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.Biomimicry: the design and production of materials, structures, and systems that are modelled on biological entities and processes. | Students need to already know different types of natureStudents need to already know how different animals can inspire designsStudents need to already know how designers can be inspired by things |  | How can Biomimicry affect a designer’s choice?Can a designer use Biomimicry as a sole design inspiration? |
| Lesson: Half lap joint | Students will know how wooden materials are joined togetherStudents will know a wood joint is a type of cut used in timber material to help them join togetherStudents will know how a half lap joint is marked out on timberStudents will know how to cut out the half lap joint on timber | Wood joint: a part of woodworking that involves joining pieces of wood, engineered lumber, or synthetic substitutes, to produce more complex items.Half Lap joint: a joint between two timbers halved together so that a flush surface result. | Students need to already know how to read a steel rule for measurementsStudents need to already know how to use a tri square to draw straight linesStudents need to already know how to hold and cut with a saw |  | Compare the use of a half lap joint and the use of screws and nails. How can they differ?How does quality control play a part in the wood joint? |
| Lesson: Theory - Design ideas | Students will know how to create design ideasStudents will know how to use inspiration to design their ideasStudents will know how to annotate design ideas | Inspiration: the process of being mentally stimulated to do or feel something, especially to do something creative.Annotation: a note by way of explanation or comment added to a text or diagram. | Students need to already the basics of colourStudents need to already know how design styles can influence their workStudents need to already know how to design based upon inspiration | Art: reference annotating artist pages in sketchbook lessons | How can we use inspiration to gather design ideas?Why is it important to create development of our design ideas? |
| Lesson: Using hammers and pins | Students will know how to join together materials with hammers and pinsStudents will know the term pins refers to a small nail like tool used for small jobsStudents will know how to correctly hold a hammerStudents will know that a hammer is used to hit the pin into the piece of timber | Hammer: a tool with a heavy metal head mounted at right angles at the end of a handle, used for jobs such as breaking things and driving in nails. | Students need to already know some of the components used to fix together materialsStudents need to already know how the terms of hammer and nailsStudents need to already know glue is used to stick together materials |  | How can we ensure a safe working environment when using hammers?How can precision help when using pins? |
| Lesson: Using pillar drills | Students will know how a pillar drill is used to drill holes in materialsStudents will know how to safely use the pillar drillStudents will know how to fix together the birdhouse front and back | Safety: the condition of being protected from or unlikely to cause danger, risk, or injury.Pillar Drill: versatile machines that can be used on a wide range of materials where single hole drilling is required. | Students need to already know the term of drillStudents need to already know the health and safety of the workshopStudents need to already know how to use clamps to keep work together |  | Compare the use of a Pillar drill with a hand-held drill. Are there any similarities?How can we ensure a safe working environment when using the drills? |
| Lesson: Sanding and finishing | Students will know how to use sand paper and filesStudents will know sand paper is used to smooth materials and files are used to reduce the amount of materialStudents will know how to apply a finish to their materialStudents will know how finishes are used to finalise the product made | Finalise: complete or agree on a finished and definitive version of.Sandpaper: paper with sand or another abrasive stuck to it, used for smoothing or polishing woodwork or other surfaces.Finish: the process of embellishing and/or protecting the surface of a wooden material. | Students need to already know the term sand paperStudents need to already know the health and safety of the workshop |  |  |
| Final Assessment | Students will complete an assessment based on the highlighted intended knowledge within the map | N/A | All highlighted knowledge from the above map | Final summative assessment |