

## DESIGN & TECHNOLOGY CURRICULUM OVERVIEW

\*\*PLEASE NOTE NOT ALL DT STAFF WILL TEACH THE CONTENT IN THIS PARTICULAR ORDER DUE TO RESOURCING AND ROOMINGS

|        | SPINNER                                                                                                                                                                                                                                                                                                                                                                                 | PHONE HOLDER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | GRAPHICS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FOOD                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| YEAR 7 | Students will learn how to design and make a spinning toy for a client of their choice. They will study ergonomics and how to ensure their product is suited and 'fits' the end user. They will use basic hand tools such as coping saws, files, surforms and sandpaper. They will also explore using basic CAD programmes to add vinyl decoration and use varnish as a surface finish. | Students will develop their understanding of 2D Design (CAD) and also be taught how to operate the laser cutter (CAM). They will explore different methods and functions of the phone holder and how to adapt these to meet the needs of the client. They will also use the line bender, to form their product.                                                                                                                                                                                                                    | In this subject area, students learn how to use basic graphical techniques such as rendering, shading, perspective drawing and also typography. They will learn how to add tone and develop their abilities to make designs look more realistic.                                                                                                                                                                                                                                                                         | In a food environment, students learn how to prepare food hygienically and safely. Basic knife skills are taught and students learn about their senses and how to use them when sensory testing. A range of commodities are prepared and cooked and throughout all the lessons, Year 7 learn about what a balanced diet is, including nutrients, nutritional labelling and The Eat well Guide. |
|        | METAL BRACKET                                                                                                                                                                                                                                                                                                                                                                           | WOODEN BOX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | JITTERBUG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FOOD                                                                                                                                                                                                                                                                                                                                                                                           |
| YEAR 8 | Students develop how to use metalwork tools and equipment such as scrolls, metal punches and powder coating using our purpose built brazing room. They learn how to use rivets, ball-peen hammers and engineering vices to produce a hanging basket bracket/wall plaque hanger. In addition, they can use CAD/CAM and hand tools to design and make a mounting board out of timber.     | Students design and make a wooden lap jointed box, tailored to suit a specific client and purpose. We encourage students to think about dimension and scale, and we give students a certain length of timber for them to be able to calculate the size needed. This encourages them to be independent and challenges their abilities to measure and cut to length, as well as marking and cutting lap joint. Students also use the table router to route grooves for a base and lid, and to finish they use CAD to add decoration. | In this project, students develop their skills using hand tools to create a 'mould' out of foam before using the vacuum former to 'form' this mould. They then study and carry out some basic soldering skills using a motor, switch etc. They use industry style jigs for accuracy and to ensure their work is done in a timely manner. They also learn about CAMS, and how eccentric motions work. They study motions, movements and this is project s very much linked to the outside world and commercial viability. | In the food lessons in Year 8, students explore the factors which affect our food choices, prepare and cook a range of commodities, using a variety of electrical equipment and understand specific dietary needs with some sensory testing.                                                                                                                                                   |

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|        | CLOCK                                                                                                                                                                                                                                                                                                                                                      | METAL FIGURE                                                                                                                                                                                                                                                                                                       | MECHANICAL TOY                                                                                                                                                                                                                                                                                      | FOOD                                                                                                                                                                                                                   |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| YEAR 9 | In this project, students design and make a wall mounted clock using a pre-built mechanism. They develop skills in measuring and working to scale. They use a combination of modern technologies and traditional techniques to manufacture this product. Some students use this opportunity to use biomimicry/cultural influences as part of their design. | With this project, students use the brazing hearth and engineering tools to form a 'metal figure' using steel rods and brazing. They also use hand tools to make a 'scene' in which the figure is mounted. Some examples are fishermen, sporting events and music. Students also have the opportunity to dip-coat. | In this topic, students learn about gearing, ratios, mechanisms, levels, pulleys and cams. They also learn about motions, and using this combined knowledge, design and build a working mechanical toy. They explore using jigs, CAD/CAM and traditional wood jointing to build/construct this toy. | In these lessons, students look at careers opportunities in the food industry; prepare and cook a range of commodities; carry out a sensory analysis of cakes for specific dietary needs and learn about bread making. |

|                                   | AUTUMN 1                                                                                                                                                                                                                                                                               | AUTUMN 2                                                                                                                                                                                                                      | SPRING 1                                                                                                                                                                                         | SPRING 2                                                                                                            | SUMMER 1                                                                                                                                                                                                     | SUMMER 2                                                                                                                                                                                                                     |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| YEAR 10<br>DESIGN &<br>TECHNOLOGY | <p>Examples of new and emerging technologies, design strategies, communication of design ideas, energy generation and storage.</p> <p>Practical activities in preparation for the NEA—in particular jointing methods and use of machinery to carry out 'mock' jointing techniques.</p> | <p>Specialist techniques, processes of manufacture, material management including tolerances and allowances. Surface treatments and finishes.</p> <p>Focused practical tasks to coincide is a pewter casted spinning toy.</p> | <p>Exploring the work of others, primary and secondary research and the importance of it. #</p> <p>Link to practice NEA and the environment and economic challenges design has in the world.</p> | <p>Development of ideas, sketching, modelling and prototype development. Selection of materials and components.</p> | <p>Specialist tools and equipment, such as the laser cutter, vinyl cutter, 3D printer and vacuum former.</p> <p>Techniques and processes such as the use of jogs to help design and make a plywood lamp.</p> | <p>Scales of production, such as mass, continuous, one off and batch. Commercial processes – (trip to Jaguar Land Rover may come here)</p> <p>Begin NEA contexts that are sent from AQA .</p> <p>Revision for mock exams</p> |

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|                                                | AUTUMN 1                                                                                           | AUTUMN 2                                                   | SPRING 1                                                | SPRING 2                 | SUMMER 1                 | SUMMER 2   |
|------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------------------------------------------------------|--------------------------|--------------------------|------------|
| <b>YEAR 11<br/>DESIGN &amp;<br/>TECHNOLOGY</b> | <b>NEA – CONTROLLED AS-<br/>SESSMENT 50% DESIGN<br/>AND MAKE PROJECT –<br/>Research and design</b> | <b>NEA – CONTROLLED<br/>ASSESSMENT Design<br/>and make</b> | <b>NEA –CONTROLLED AS-<br/>SESSMENT Design and make</b> | <b>Exam Revision 50%</b> | <b>Exam Revision 50%</b> | <b>N/A</b> |