

Year 10 Curriculum Plan – D&T

| | | |
|----------------|-----------------------------|---------------------------|
| YEAR 10 | SUBJECT D&T / PD | LEARNING PROGRAMME |
|----------------|-----------------------------|---------------------------|



| TOPIC | LEARNING OBJECTIVES | KEY VOCABULARY | LEARNING SEQUENCE | LINKED LEARNING | HOME LEARNING |
|-------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| 1. D&T in our world - Market Pull, Technology Push | Understand how people and manufacturing affect a products evolution. | <ul style="list-style-type: none"> • Packaging • Logo's • Market Pull • Technology push • Trends • Mood Board • Ergonomic | <p>1) Brainstorm / Mood Board.</p> <p>2). Logo Ideas for re-branding (In the style of...)</p> <p>3). Packaging Ideas</p> <p style="background-color: #e0e0ff;">Appropriate materials (SEE POWERPOINT FOR IDEAS)</p> <p style="background-color: #e0e0ff;">Product protection (inside packaging)</p> <p style="background-color: #e0e0ff;">Ergonomics (how easy it is to open, re-seal, hold, stack etc.)</p> <p>Extension task:</p> <p>Make a timeline of a products development over the years.</p> | Year 9 - Product Analysis | <p>Print 10 images of food products, with recognised brand names, that you get with your shopping.</p> <p>Revise for class test</p> |

| | | | | | |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------|
| <p>2. D&T in our world - Consumer Rights & Legislation</p> | <ul style="list-style-type: none"> ▪ Understand how D+T affects our world ▪ Be aware of Consumers rights & Legislation | <ul style="list-style-type: none"> • Counterfeit • Compensation • Consumer • Consumer rights • Faulty goods • Conformity with European standards • British Standard Kite Mark • Legislation | <ol style="list-style-type: none"> 1. Make notes on your allocated section. 2. Take notes from others in the class. 3. Answer the questions on the 'Think do..' task. <p>Extension Task: Read the different scenarios & write the answers to these in your sketchbook</p> | <p>Year 10 – Market Pull / Technology Push</p> | <p>Revise for class test</p> |
| <p>3. Designers Responsibilities (Introduction to LCA/Sustainability)</p> | <ul style="list-style-type: none"> • Understand why designers and Manufactures who design with plastics have responsibilities | <ul style="list-style-type: none"> ▪ Sustainability ▪ life cycle ▪ Finite resource ▪ Non-finite resources ▪ Global warming ▪ Ecological footprint ▪ Disposal of waste: landfill ▪ Resource recovery ▪ Energy recovery ▪ Incineration ▪ Biodegradable | <ol style="list-style-type: none"> 1. PowerPoint and discussion. 2. Complete the 'Big Picture' sheet. | <p>Y9 – Sustainability</p> | <p>Revise for class test</p> |

| | | | | | |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <p>4. Product Life Cycle and Sustainability</p> | <ul style="list-style-type: none"> Understand how people product use and products life cycle affect the environment | <ul style="list-style-type: none"> Carbon footprint Forest Stewardship Council Rethink Reuse Recycle Repair Reduce Refuse Fair Trade Life Cycle Analysis Biodegradable Plastic Built in obsolescence | <ol style="list-style-type: none"> Introduction and class discussion. Play the board game. Answer the GCSE questions <p>Extension Task: Click the link and read the blog.</p> | <p>Y9 – Sustainability</p> <p>Year 10 – Market Pull / Technology Push.</p> <p>Year 10 – Consumer rights & legislation</p> | <p>Complete the GCSE questions.</p> <p>Revise for class test</p> |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|

| | | | | | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <p>5. Renewable Energy</p> | <ul style="list-style-type: none"> Be able to name and understand the 6 different methods of producing renewable energy. | <ul style="list-style-type: none"> Biomass Tidal Geothermal Wind power Hydro electric Solar Wind up tec. Battery storage | <p>Look at and discuss the examples.</p> <ol style="list-style-type: none"> Follow the link to the eduqas Electronic Textbook Read the information in the table and then cut and paste the onto a Landscape A3 sheet (using 'snipping tool') Watch all the short video clips Download all the pdf's Cut and paste the RELEVANT information from the pdf's onto the A3 sheet including both images and text. (use 'snipping tool') <p>Extension Task: Use an online footprint calculator to work out your family's ecological footprint</p> | <p>Y9 – Sustainability Y10 - Sustainability</p> | <p>Complete the A3 revision sheet</p> <p>Revise for class test</p> <p>Extended Reading & Writing tasks</p> |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------|

| | | | | | |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>6. Material Classification / Scales of Production / Material Properties / Manufacturing Systems</p> | <ul style="list-style-type: none"> ▪ Be able to name specific materials and know how they are classified ▪ Understand that different materials have specific properties and how these can be utilised. ▪ Be aware of the different scales of production and be able to identify where a product fits into this system. ▪ Understand how a product can be produced on a global scale | <ul style="list-style-type: none"> • Deciduous • Coniferous • Hardwood • Softwood • Ferrous • Non-ferrous • Alloy • Thermo plastics • Thermo setting • MDF • Plywood • Chipboard • Smart Materials • Shape memory alloy • Thermochromic liquid crystals • Phosphorescent pigment • Polymorph • Malleability • Hardness • Toughness • Strength • Tension • Compression • Plasticity • Durability • One off production • Batch Production • Mass Production • Anthropometrics • Ergonomics | <ol style="list-style-type: none"> 1. Revision of the basic material classifications 2. Class test on the basic material classifications 3. Class discussion on 'Material Properties' 4. Complete the handout on 'Material Properties' 5. Introduction to 'Scales of Production' 6. Complete the keyword sheet on the 'Scale of Production) 7. Research and answer questions on 'Manufacturing Systems' 8. Sculpture for the garden using materials with malleability. <p>Extension Task: A3 sheets on Material Properties and Manufacturing Systems</p> | <p>Year 7 Material Classification</p> <p>Year 9 – Product Analysis including Scales of Production</p> <p>Year 10 – Market Pull / Technology Push</p> <p>Year 10 – Designers Responsibilities</p> <p>Year 10 – Product Life Cycle and Sustainability</p> | |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

| | | | | | |
|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <p>7. Plastic Manufacturing</p> | <ul style="list-style-type: none"> Be able to identify where plastic manufacturing techniques have been used in everyday products. | <ul style="list-style-type: none"> Extrusion Injection Moulding Blow Moulding Vacuum forming Line Bending Rotational Moulding | <ol style="list-style-type: none"> Introduction, video clip and Focus Educational Software Complete the A3 revision sheet <p>Extension Task: GCSE questions</p> | <p>Year 7 - Material Classification Y9 – Sustainability Y10 – Sustainability Y10 – Material Properties Y10 – Scale of Production</p> | |
| <p>8. SMART Materials & composites</p> | <ul style="list-style-type: none"> You should be able to name the 6 different smart materials and understand their uses. Be able to identify composite materials Be able to understand and use key words in context. | <ul style="list-style-type: none"> Shape memory alloy Thermochromic liquid crystals Phosphorescent pigment Polymorph Biometrics Photochromic Kevlar | <p>Introduction and recap on Smart materials / composites and their uses</p> <p>Produce a Mood board of everyday products that incorporate Smart materials.</p> <p>Extension Task:</p> <p>Find all the materials mentioned on the electronic textbook.</p> <p>Complete the test on BBC bitesize.</p> | <p>Year 7 - Material Classification Year 10 - Material Classification Year 10 – Market Pull / Technology Push</p> | <p>Extended Reading & Writing tasks</p> |

| | | | | | |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <p>9. Papers and Boards inc. 2d CAD & Iterations</p> | <ul style="list-style-type: none"> ▪ Be able to name paper and boards and know how they are measured and recycled ▪ Use the 'Iterative Design' process ▪ Use previous learning in the design of a phone stand | <ul style="list-style-type: none"> • Layout paper • Tracing paper • Cartridge paper • Coloured paper • Grid paper • Board • Corrugated card • Mounting board • Laminating • Grams per square meter | <p>Make a mood board relating to cardboard furniture.</p> <p>Use your mood board to produce 2-3 new ideas.</p> <p>Choose an idea and develop it using the Iterative process.</p> <p>Work your way through the 2D design tutorials.</p> <p>Model your idea on Tinker CAD</p> <p>Draw your profile on 2D Design</p> <p>Model and develop your idea</p> | <p>Year 7 - Material Classification Year 10 - Material Classification</p> | <p>Extended Reading & Writing tasks</p> |
| <p>10. Perfume / Aftershave POS stand & free gift - CAD/CAM</p> | <ul style="list-style-type: none"> ▪ Understand why prototypes are important in the design process - ▪ Be able to come up with original ideas quickly - ▪ Understand how and why a Specification should guide your design - | <ul style="list-style-type: none"> ▪ CAD - Computer-aided design ▪ CAM - Computer-aided manufacture ▪ CNC - Computer Numerically Controlled ▪ Prototype | <p><u>Investigation, initial idea & Specification:</u></p> <p>1.1. Mood board of existing ideas</p> <p>1.2. 10 ideas in 10 mins - sketch and draw over the pictures on the mood board</p> | <p>Y7 - Production & Specification. Y7 - 2D design. Y8 - GPS. Y9 - Earbud wrap. Y10 - Phone holder.</p> <p>Linked to all practical experience to date.</p> | <p>Extended Reading & Writing tasks</p> |

| | | | | | |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--|
| | <ul style="list-style-type: none"> ▪ Be able to complete Design Iterations independently - ▪ Use CAD to model all aspects of a design idea - ▪ Confidently select tools and equipment to manufacture your idea - ▪ Be able to critically analyse and evaluate your project / idea - | <ul style="list-style-type: none"> ▪ HIPS ▪ Vinyl ▪ Acrylic ▪ Styrofoam ▪ PLA ▪ Specification - Form, Function, Client Requirements, Sustainability, Standard Components, Materials, Manufacturing, Health & Safety. ▪ Iteration ▪ 2D Design ▪ Tinker CAD | <p>1.3. Specification (use A3 template)</p> <p><u>Iteration of ideas:</u></p> <p>2.1. At least 2 full iterations developing your chosen idea</p> <p>2.2. Front and side view of your idea with sizes drawn on 2D Design</p> <p>2.3. A 3D Tinker cad image of your idea</p> <p><u>Make and photograph your idea:</u></p> <p>3.1. Select tools and equipment and manufacture your idea</p> <p>3.2. Photograph different views of your final product.</p> <p><u>Analyse & Evaluate</u></p> <p>4.0. Compare your final idea against your Specification, 2D Design image and Tinker cad image</p> | <p>This project is preparation for the Controlled Assessment.</p> | |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--|

| | | | | | |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>11. Controlled Assessment - Analysis & investigation.</p> | <ul style="list-style-type: none"> ▪ Identify and investigate design possibilities ▪ The design context must be analysed critically. ▪ There will be a number of possible design tasks identified. ▪ Detailed and relevant research will be evident ▪ Consider the needs and wants of users ▪ Analysis of existing products ▪ Research into past / present professionals ▪ Opportunities are carefully considered before final brief. ▪ Understand the task and the needs and wants of users. ▪ A clearly defined design brief is evident. ▪ A detailed specification is generated to drive designing. ▪ Measurable criteria included. | <ul style="list-style-type: none"> ▪ The key words for this section of the Controlled Assessment could be any or all of the previous key words listed, depending on the pupil's personal project selection. | <p>LEARNING SEQUENCE <u>MUST be pupil led.</u></p> <ul style="list-style-type: none"> ▪ Who, what, why, where, when & how? ▪ 20 ideas in 20 mins. ▪ Client interview ▪ Questionnaire ▪ Photos of the problem ▪ Mood Board ▪ Product Analysis ▪ Materials Research ▪ The work of past and present designers ▪ A Summary sheet of the research & Analysis ▪ A clear and detailed 'Design Brief' ▪ A 'Specification' with measurable outcomes | <p>KS3/Y10 - Ideas & Presentation Y9 – Product Analysis Y9 - Earbud wrap. Y10 - Market Pull/Technology Push Y10 – Perfume / Aftershave POS stand and free gift.</p> | <p>Revise Exam Question for the week.</p> <p>The level of control for Controlled Assessment tasks allows for them to be completed at home.</p> |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|

| | | | | | |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--|
| | <ul style="list-style-type: none"> The specification is used throughout the designing process. | | | | |
| 11. Revision for Y10 Mock Exam | <ul style="list-style-type: none"> Consolidate all previous learning and be able to relate it to GCSE exam style questions | <ul style="list-style-type: none"> All of the above | <ul style="list-style-type: none"> Use the Knowledge Organisers to help answer the revision questions on the A3 revision sheets. Use the A3 revision sheets and the QR revision codes to help answer and check the Exemplar GCSE paper. | <ul style="list-style-type: none"> All of the above | |