**Long Term Curriculum Planning**:

**Subject:** …Design and Technology………………………………………….

**Mastery**

A Chamberlayne Designer in Year [?]is somebody who…

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| **7** | Can identify and use safely the tools and equipment in the workshop, understand what tool is suited to which manufacturing process. |
| **8** | Can use engineering drawings to product accurate models; understand how products can be viewed from different angles and how this can help make products. |
| **9** | Can identify different design movements and produce personalised products; understand how different people have different needs in terms of product design. |
| **10** | Can investigate fully an engineered product. Understand how and why a commercial product is manufactured |
| **11** | Can identify the factors that influence the design of a new product. Understand how internal and external factors influence the design of products. |

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| **7** | **1** | Maze | Measuring | Workshop safety |
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| **2** | Money Box | Equipment identification | Accurate cutting |
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| **3** | 2D/3D Drawing | Understand the different types of drawing used to describe the features of a product | Isometric drawingPerspective drawingOrthographic drawing |
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| **8** | **1** | Super Hero Character | Engineering drawing | Accurate drawing |
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| **2** | Mechanical Toy | Engineering components | Making moving toys |
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| **3** | 2D/3D Drawing | Using different types of drawing to show detailed features of how a product is assembled  | Exploded diagramsOrthographic drawingOblique drawing |
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| **9** | **1** | Clock | Design Movements/Iconic Designs | Incorporating components |
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| **2** | Picture Frame/Storage Container | Identifying a client need | Creating a personalised product |
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| **3** | 2D/3D Drawing | Using different types of drawing to promote and construct a product. | Flow chart diagramsGantt chartsAssembly sequences |
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| **10** | **1** | Technical Specification Criteria for an Engineered Product | investigate an appropriate engineered product and identify, outline and explain:* why it is shaped as it is
* what its function is – whether it works
* what would make users choose the product and why
* the technical attributes that the product has that make it fit for purpose.
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|  | Materials Used in an Engineered Product | produce a written report that contains the following information:* A brief description of two components in the product
* The name, properties and qualities of the materials the two components are made from
* Environmental impact details for the materials used, including extraction/processing and disposal after their useful lifespan

Alternative materials that could be used |  |
| **2** | Manufacturing Processes for an Engineered Product | produce a written report detailing the production processes used to manufacture the product’s components. The report should include the following information: * A description of the processes used
* Why these processes were selected, with reference to the manufacturing needs of the product
* The relative impact on the environment of the processes used, including energy, resources, waste production and pollution

A summary that weighs up the advantages and disadvantages of each process, based on the information provided in the earlier sections of the report |  |
|  | Quality Issues for an Engineered Product | Using your product as an example, produce a written report that includes information on:* when, where and how Quality Control checks are carried out and why these checks can help to improve the Quality of your engineered product
* why and how a specific Quality Assurance system should be used during the manufacture of your engineered product and how the Quality Control checks form part of this system
* whether the Quality Assurance system for your engineered product is fit for purpose

a summary that considers the strengths and weaknesses of the Quality Control checks and Quality Assurance system for your engineered product, based on the information provided in the earlier sections of the report. |  |
| **3** | The Design Process | Know about the factors that influence the design of a new product |  |
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| **11** | **1** | From Design to Product Design Specification | Be able to develop a Product Design Specification from a customer brief |  |
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| **2** | Developing Design Solutions | Be able to prepare design proposals and design solutions that meet the requirements of a Product Design Specification |  |
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| **3** | Preparation for final KS4 examination |  |  |
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