



## Design and Technology - Phase One (KS3) Curriculum

### Overview:

At Trinity Academy Cathedral the Design and Technology (DT) curriculum equips students with an understanding of how everyday products are proposed, tested and manufactured. It aims to give students an insight into how products are designed and made to solve real and relevant problems within a variety of contexts, whilst considering their own needs and those of others. Our students are taught to think critically by evaluating the work of past and present designers from across the world and to consider how biomimicry can be used as a source of inspiration. Throughout the spirals curriculum students draw upon a range of knowledge acquired from a variety of disciplines such as mathematics, science, computing and art, to produce innovative outcomes suitable for a forward-thinking world.

The Design and Technology curriculum also aims to inspire a love of cooking whilst incorporating an understanding of nutrition. We provide all students with an opportunity to explore the origin of foods, the impact they have on the human body and the science of ingredients. We aim to provide a curriculum that is accessible to all students and will allow them to understand the importance of eating healthily and apply their knowledge of cooking to their own lives.

Across the different disciplines of Design and Technology we aim to promote our students moral, social and ethical awareness whilst respecting the view points of others. We aim to create a nurturing environment where students understand how to keep themselves and others safe in a practical environment.

### Content:

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Year 7</b>	<p><b>INTRODUCTION TO: COOKING AND NUTRITION - HEALTH AND HYGEINE PRACTICES</b></p> <p>The aim of this unit is to introduce year 7 students to basic hygiene practices that are considered essential to the preparation and cooking</p>	<p><b>INTRODUCTION TO: COOKING AND NUTRITION COMMODITIES AND SUSTAINABILITY</b></p> <p>The aim of this unit is to introduce students to the different elements surrounding sourcing of food. Students will have a clear understanding</p>	<p><b>INTRODUCTION TO: TEXTILES DESIGN - RESEARCH</b></p> <p>The aim of this unit is to introduce Year 7 students to the Design, Make and Evaluate model of manufacture. Students will have a clear understanding of how fabric is made,</p>	<p><b>INTRODUCTION TO: TEXTILES DESIGN – CREATIVE TECHNIQUES AND PRODUCTION</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and continue to experiment with techniques suitable for the design brief. Students</p>	<p><b>INTRODUCTION TO: PRODUCT DESIGN – HEALTH AND SAFETY IN THE WORKSHOP</b></p> <p>The aim of this unit is to introduce Year 7 students to realms of Product design. Students will have a clear understanding of product design and how the specialism fits into the</p>	<p><b>INTRODUCTION TO: PRODUCT DESIGN – DESIGN AND MANUFACTURE</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and apply this to a design brief. Students will understand how to design a product suitable for the design context and begin to</p>

	<p>of food. Students will have a clear understanding of how to keep themselves and others safe within a cooking environment and be able to apply their knowledge of hygiene practices learnt in previous lessons. Students will begin their cooking journey by understanding how to use a knife safely to chop and prepare raw fruit and vegetables, then move onto combining these skills as the unit progresses to make savoury accompaniments.</p>	<p>of seasonality, the impact of importing and exporting foods, whilst discussing moral and ethical concerns surrounding special diets, and environment. Students will build on the knowledge of hygiene and food preparation acquired in the first term to produce 3 further accompaniment-based dishes using basic commodities.</p>	<p>exploring the scientific properties of natural, manmade and regenerated fibres. Students will also develop an understanding of how to approach a design brief and explore the work of past and present designers that could inspire an innovative solution to the design problem. Students will begin to explore textiles techniques suitable for the design brief.</p>	<p>will understand how to design a product suitable for the design context and begin to manufacture this. All prior knowledge of the brief, materials, designer influence and constructing a product will be essential in creating a successful prototype. Throughout the manufacture process students will draw upon knowledge of tone, the colour wheel and safety rules from Art and other design and technology disciplines.</p>	<p>world. Students will develop an understanding of health and safety rules within a workshop whilst being introduced to hand tools and techniques. Students will draw upon measuring skills from mathematics to create a suitable Pacman prototype that showcases their knowledge of hand tools, machinery and finishes.</p>	<p>manufacture this. Students will explore the properties of Softwoods, and how this relates to their design solution. <b>Students will develop an understanding of how movement can be added in a product.</b> All prior knowledge of health and safety, hand tools, machinery, finishes and designing will be essential to constructing a successful prototype. At the end of the Unit students will critique their products and compare them against the design brief.</p>
<p>Year 8</p>	<p><b>DEVELOPMENT OF: TEXTILES DESIGN - RESEARCH AND TECHNIQUES</b></p> <p>The aim of this unit is to build upon knowledge acquired in Year 8 and to develop students understanding of the specialism. Students will continue to follow the Design, Make and Evaluate model of manufacture. Students will also develop a clearer understanding of how to approach a design brief and explore the work of past and present designers that could inspire an innovative</p>	<p><b>DEVELOPMENT OF: TEXTILES DESIGN – CREATIVE TECHNIQUES AND PRODUCTION</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and continue to experiment with techniques suitable for the design brief. Students will understand how to design a product suitable for the design context and begin to manufacture this. All prior knowledge of the brief, materials, use of CAD, designer influence and constructing a</p>	<p><b>DEVELOPMENT OF: COOKING AND NUTRITION - INDUSTRIAL HEALTH AND HYGEINE PRACTICES</b></p> <p>The aim of this unit is to give Year 8 students an opportunity to draw upon prior knowledge of hygiene and apply this to industrial practices that are considered essential to the preparation and cooking of food in a business setting. Students will explore the concept of HACCP and the different categories of</p>	<p><b>DEVELOPMENT OF: COOKING AND NUTRITION – THE EATWELL GUIDE</b></p> <p>The aim of this unit gives students in depth knowledge of all areas of the Eatwell Guide, exploring nutrition and the effect these nutrients have of on the body. Students will begin to link examples of foods within each food group learnt in year 7 to the function each nutrient has in the body. Students will understand the difference between starch and sugar carbohydrates, LBV and HBV proteins, Saturated and Unsaturated fats</p>	<p><b>INTRODUCTION TO: PRODUCT DESIGN – HEALTH AND SAFETY IN THE WORKSHOP</b></p> <p>The aim of this unit is to introduce Year 7 students to realms of Product design. Students will have a clear understanding of product design and how the specialism fits into the world. Students will develop an understanding of health and safety rules within a workshop whilst being introduced to hand tools and techniques. Students will draw upon measuring skills from mathematics to create a suitable Pacman</p>	<p><b>INTRODUCTION TO: PRODUCT DESIGN – DESIGN AND MANUFACTURE</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and apply this to a design brief. Students will understand how to design a product suitable for the design context and begin to manufacture this. Students will explore the properties of Softwoods, and how this relates to their design solution. <b>Students will develop an understanding of how movement can be added in a product.</b> All prior knowledge of health and safety, hand tools,</p>

	<p>solution to the design problem. Students will take inspiration from bugs and beetles to create an innovative design. Students will explore the textiles technique of repeat pattern making and understand how CAD can be used to make eye catching designs that are suitable for the design brief.</p>	<p>product will be essential in creating a successful prototype. Throughout the manufacture process students will draw upon knowledge of tone, the colour wheel and safety rules from Art and other design and technology disciplines.</p>	<p>contaminants. Students will have a clearer understanding of how to keep themselves and others safe within a cooking environment and be able to apply their knowledge of hygiene practices learnt in previous lessons. Students will continue to develop their weighing and measuring, chopping, kneading, shaping skills learnt in year 7 to build their repertoire of dishes.</p>	<p>whilst discussing the importance of calcium, hydration, vitamins and minerals. Students will continue to develop their weighing and measuring, chopping, kneading, shaping skills learnt in year 7 to build their repertoire of dishes that link specifically to each section of the Eatwell guide.</p>	<p>prototype that showcases their knowledge of hand tools, machinery and finishes.</p>	<p>machinery, finishes and designing will be essential to constructing a successful prototype. At the end of the Unit students will critique their products and compare them against the design brief.</p>
<p><b>Year 9</b></p>	<p><b>ADVANCED APPLICATION OF: COOKING AND NUTRITION - INDUSTRIAL FOOD SAFETY</b></p> <p>The aim of this unit is to give Year 9 students an opportunity to draw upon prior knowledge of hygiene continue to apply this to industrial practices that are considered essential to the preparation and cooking of food in a business setting. Students will explore the concept of causes of ill health and understand how to identify causes of food spoilage. Students will explore the role of the EHO and the</p>	<p><b>ADVANCED APPLICATION OF: COOKING AND NUTRITION - UNDERSTANDING FOOD SCIENCE</b></p> <p>The aim of this unit is to develops students understanding of the ingredients themselves and how these are used within cookery. This series of lessons explores the science behind basic commodities (ingredients). Students will understand why and how flour can be used in a recipe to add structure, the different types of raising agents</p>	<p><b>ADVANCED APPLICATION OF: TEXTILES RESEARCH AND ELECTRONICS</b></p> <p>The aim of this unit is to build upon knowledge acquired in Year 7 and 8 and to develop students understanding of the specialism. Students will continue to follow the Design, Make and Evaluate model of manufacture. Students will gain an insight into how biomimicry is used to inspire the production and development of smart materials. Students will explore how smart materials</p>	<p><b>ADVANCED APPLICATION OF: TEXTILES RESEARCH AND ELECTRONICS</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and continue to experiment with techniques suitable for the design specification. Students will understand how to design a product suitable for the design context and begin to manufacture this. All prior knowledge of the brief, smart materials, use of e textiles components to embed light, designer influence and constructing a product will be essential</p>	<p><b>INTRODUCTION TO: PRODUCT DESIGN – HEALTH AND SAFETY IN THE WORKSHOP</b></p> <p>The aim of this unit is to introduce Year 7 students to realms of Product design. Students will have a clear understanding of product design and how the specialism fits into the world. Students will develop an understanding of health and safety rules within a workshop whilst being introduced to hand tools and techniques. Students will draw upon measuring skills from mathematics to create a suitable Pacman prototype that showcases</p>	<p><b>INTRODUCTION TO: PRODUCT DESIGN – DESIGN AND MANUFACTURE</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and apply this to a design brief. Students will understand how to design a product suitable for the design context and begin to manufacture this. Students will explore the properties of Softwoods, and how this relates to their design solution. <b>Students will develop an understanding of how movement can be added in a product.</b> All prior knowledge of health and safety, hand tools, machinery, finishes and</p>

	<p>consequences businesses face when an inspection is not successful. We want our students to understand the difference between high risk and low risk foods and the steps needed to ensure these ingredients are stored correctly to avoid ill health. The rationale of this unit is to give our students a thorough understanding why storing, preparing, and handling food safely is essential for both domestic and industrial production.</p>	<p>and how these work, the function of eggs (coagulation) and how enzymatic browning can be prevented. The knowledge surrounding the functions of ingredients will be applied to different recipes where students can see the science of ingredients happening. For example, students will understand the importance of using mechanical action to add air into a mixture to make it rise.</p>	<p>respond to an external stimulus and in turn become more valuable to the user. Students will Apply their knowledge of how to approach a design specification and explore the work of past and present designers that could inspire an innovative solution to the design problem. Students will take inspiration from fruit to create an innovative design product that includes an electronic circuit. Students will revisit basic stitches and how these are used to attach components to a working e textiles circuit.</p>	<p>in creating a successful prototype. Throughout the manufacture process students will draw upon knowledge of tone, the colour wheel and safety rules from Art and other design and technology disciplines as well as how to create a successful circuit from science.</p>	<p>their knowledge of hand tools, machinery and finishes.</p>	<p>designing will be essential to constructing a successful prototype. At the end of the Unit students will critique their products and compare them against the design brief.</p>
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<p style="text-align: center;"><b>9CAPA Bespoke 1 year pathway</b></p>	<p style="text-align: center;"><b>INTRODUCTION TO: COOKING AND NUTRITION - HEALTH AND HYGEINE PRACTICES</b></p> <p>The aim of this bespoke unit is to introduce Year 9 CAPA to hygiene practices that are considered essential to the preparation and cooking of food in both a classroom and industrial setting. Students will have a clear understanding of how to keep themselves and others safe within a cooking environment and be able to apply their knowledge of hygiene practices learnt in previous lessons. Students will begin their cooking journey by understanding how to use a knife safely to chop and prepare vegetables, then move onto combining these skills as the unit progresses to make savoury accompaniments.</p>	<p style="text-align: center;"><b>INTRODUCTION TO: COOKING AND NUTRITION COMMODITIES AND SUSTAINABILITY</b></p> <p>The aim of this bespoke unit is to introduce students to the different elements surrounding sourcing of food. Students will have a clear understanding of seasonality, the impact of importing and exporting foods, whilst discussing moral and ethical concerns surrounding special diets, and environment. Students will build on the knowledge of hygiene and food preparation acquired in the first term to produce 3 further accompaniment-based dishes using basic commodities. Students will complete the unit by drawing upon knowledge of hygiene practices and exploring the role of the EHO.</p>	<p style="text-align: center;"><b>DEVELOPMENT OF: TEXTILES DESIGN - RESEARCH AND TECHNIQUES</b></p> <p>The aim of this unit is to introduce 9CAPA students to the specialism of Design. Students will follow the Design, Make and Evaluate model of manufacture. Students will also develop an understanding of how to approach a design brief and explore the work of past and present designers that could inspire an innovative solution to the design problem. Students will take inspiration from bugs and beetles to create an innovative design. Students will explore the textiles technique of repeat pattern making and understand how CAD can be used to make eye catching designs that are suitable for the design brief.</p>	<p style="text-align: center;"><b>DEVELOPMENT OF: TEXTILES DESIGN – CREATIVE TECHNIQUES AND PRODUCTION</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and continue to experiment with techniques suitable for the design brief. Students will understand how to design a product suitable for the design context and begin to manufacture this. All prior knowledge of the brief, materials, use of CAD, designer influence and constructing a product will be essential in creating a successful prototype. Throughout the manufacture process students will draw upon knowledge of tone, the colour wheel and safety rules from Art and other design and technology disciplines.</p>	<p style="text-align: center;"><b>INTRODUCTION TO: PRODUCT DESIGN – HEALTH AND SAFETY IN THE WORKSHOP</b></p> <p>The aim of this unit is to introduce Year 7 students to realms of Product design. Students will have a clear understanding of product design and how the specialism fits into the world. Students will develop an understanding of health and safety rules within a workshop whilst being introduced to hand tools and techniques. Students will draw upon measuring skills from mathematics to create a suitable Pacman prototype that showcases their knowledge of hand tools, machinery and finishes.</p>	<p style="text-align: center;"><b>INTRODUCTION TO: PRODUCT DESIGN – DESIGN AND MANUFACTURE</b></p> <p>The aim of this Unit is to build on the knowledge acquired in the previous term and apply this to a design brief. Students will understand how to design a product suitable for the design context and begin to manufacture this. Students will explore the properties of Softwoods, and how this relates to their design solution. <b>Students will develop an understanding of how movement can be added in a product.</b> All prior knowledge of health and safety, hand tools, machinery, finishes and designing will be essential to constructing a successful prototype. At the end of the Unit students will critique their products and compare them against the design brief.</p>
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**Please note:**

The sequence of topics each may differ due to the way the Design and Technology curriculum is organised. Some group will start with cooking and nutrition, some will start with product design. Students will be taught the whole curriculum within each Year group. As Product Design is a new specialism for the 2021

– 2022 academic year all year groups will complete the same scheme of learning. CAPA students only have 1 year of DT in Year 9 and therefore have a bespoke pathway to encompass the essential elements of the curriculum.

**Who to contact about Phase One** – Design Technology:

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