Our intent – Design and Technology

Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, student design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Students learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.

Curriculum Implementation and Impact - DT

During KS3 students engage in projects designed to prepare them for the GCSE Design Technology Product Design Controlled Assessment and examination. A wide variety of different Design Technology focus areas are learned including:

- Graphical Communication
- Material Technology
- Computer Aided Design & Manufacture
- Industrial Manufacturing
- Nutrition & Food

Design Technology prepares students to participate confidently and successfully in an increasingly technological world. Students gain awareness of and learn from wider influences including historical, social, cultural, environmental and economic factors. Students will get the opportunity to work creatively when designing and making and apply technical and practical expertise.

Year 7	Year 8
• Food • Game controller design • Introduction to the workshop • Pencil case • Graphics • 2D Design Tools (CAD)	• Solidworks (CAD) • Problem solving • Food • Functionality • Marketing the band • Design challenge

Students Year 7

NS Pathway Descriptors

Pathway		Pathway 3	Pathway 4	Pathway 5	Pathway 6	Pathway 7	Pathway 8	Pathway 9
Yr 7 Grade		Foundation	Foundation +	Standard	Extended	Advanced	Advanced +	Exceptional
Investigating	Research and Interpretation	I have analysed the design brief and gaged what I have to do.	I have identified a **user** and **their needs, wants and likes.**	I have conducted **relevant research** from sources such as the internet, blogs, books and magazines.	I have applied my research to my project and made design decisions.	I have considered the **users** views about **aesthetics** within my analysis.	I have explained how the **form and function** of familiar products have been developed over time. I have described **technical issues** that may occur when manufacturing the product.	I have responded **creatively** to the brief, **exploring** and testing my design thinking. I have referred to **new technologies and art movements.**
	Product Analysis	I have **labelled** different features of a product.	I have **identified** what is **good and bad** about a product.	I have **compared different** products.	I have given **reasons** why products are similar or different.	I have **applied all areas of ACCESS FMM** when analysing products, providing **detailed** reasons.	I have analysed products in **detail** to establish how it might affect the **user's life, preferences and values.**	I have analysed **how products work** using descriptive technical language.
	Specification	I have identified an appropriate **user**.	I have identified **key areas** such as **function, materials, size,** and **aesthetics** that my product should meet.	I have used all the **ACCESSFMM** points when specification writing.	I have written **more than one** specification point for each area using the acronym ACCESSFMM. 1.1,1.2 etc.	I have explained and **justified** most of my specification points.	I have explained and **justified** all of my specification points in **detail**, writing in full sentences.	I have developed **consistently detailed** specification points, with outstanding spelling and grammar.
Designing	Influences	I know the difference between an art movement and designer.	I know at least **two** different art movements.	I have **identified** different designers/art movements.	I have explained how I have **considered** the work of designers/ artists and movements, in my own design work.	I have identified **successful concepts** in art movements/ designers work and **explained in detail** how I have used this in my own work.	I have described how designers/art movements have **influenced current products.**	I have **explained** how the designers/art movements have **influenced** my design decisions.
	Ideas and Annotation	I have used some **pictures/words/models** to communicate my designs ideas.	I have **identified features** of my ideas and suggested ways in which I can **improve my work.**	I have generated a **range of creative ideas** for my product **through sketching/words/modelling** and applied my research.	I have related the project **restrictions** to **my ideas.** I have **identified** the best aspects of my design(s) and given **reasons** for design choices.	I have explained my design choices and given **detailed** reasons relating to the **user and function.**	I have applied key criteria from the **design brief** OR **specification and** shown clear design thinking, by referring to **materials and techniques** when assessing my designs.	I have explored my design ideas and explained how it could be **manufactured.** I have identified **possible issues** with my work and come up with viable solutions. I have explained how **aesthetics, materials, techniques and cost** might influence my design.
Planning	Step by step	I have discussed what I need to do next.	I have planned what I need to do next and recorded **health and safety precautions.**	I have planned what to do **based** on **experience** of working with materials and components, thinking about the **order** of work.	I have planned what to do **based** on my **experience** of working with materials and components, thinking about the **order** of work and **how long** it will take me.	I have produced a **step-by-step plan** showing I can select and work **safely** with a range **of tools and equipment**.	I have produced a detailed **step-by-step plan** showing I can select and work **safely** with a range **of tools and equipment**, and suggest how I might **modify** my approach if needed.	I have planned what **alternative** methods of making could be used if required.
	Final design	I can recognise isometric sketching.	I have produced a reasonable isometric sketch *E.g. A cube.*	I have produced a **generally accurate** sketch in an **isomeric view/orthographic view.**	I have **experimented** with **isometric or orthographic sketching** and have drawn a range of shapes.	I have presented an **accurate** isometric or orthographic final design drawing.	I have presented an accurate final design drawing in isometric or orthographic which include added **detail** E.g. Dimensions, labelling, informs making. *(i.e. Someone else could make it using my plans.)*	I have presented planning drawings which explore the **components** I will use.
	Flow Chart	I have produced a flow chart.	I have applied **some** symbols correctly in a flow chart.	I have produced a **simple** flow chart.	I have produced a **simple** flow chart. *(Correctly sequenced.)*	I have applied appropriate **decision** commands throughout my flowchart.	I have drawn a detailed flowchart and have demonstrated a **clear** understanding of feedback loops.	I have identified **hazard points** in my flow chart and shown a **sound understanding of inputs/outputs.**
Making	Practical	I have identified different tools and equipment.	I have selected and used **appropriate** tools, equipment, components and techniques when making a product.	I have selected and used **appropriate** tools, equipment, components and techniques **and can explain** my choices to make a **functional** product.	I have **applied** my knowledge and understanding of materials and components, and worked with a fair degree of **accuracy.**	I have produced a product paying attention to **quality of finish** and to **function**.	I have worked with a range of tools, materials, equipment, components and processes with **reasonable precision.**	I have worked with a range of tools, materials, equipment, components and processes and show an **understanding** of their **characteristics** to produce a **quality** product.
	Evidence	I understand when something goes **wrong** with my work.	I have applied my knowledge and understanding of the **nature** of materials to cut, shape and join them with some **accuracy, justifying my choices verbally.**	I have identified what is working well and what could be **improved** to overcome **technical problems**.	I have **checked my** work as it develops and **solved** technical problems.	I have **evidenced** how I have **modified my work** during production with some guidance from my teacher.	I have **checked my work as it develops** and solved technical problems **independently.**	I have checked and recorded developments to my work and **solved technical problems independently.**
Evaluating	Evaluation	I have identified what is **good and bad** about my product.	I have identified what worked well in my product and **suggested areas** that could be improved in the future.	I have **reflected** on my designs, testing and evaluating them as appropriate. I have also reflected upon my work using my specification or design brief.	I have **reflected** on my designs, **tested and evaluated** them. I have shown I understand its **functionality** and analysed it using my specification or design brief.	I have tested my product taking on board **third party** feedback to effectively evaluate my final product.	I have evaluated my product in **detail** and used more than two methods of testing.	I have evaluated my product (against my **specification or design brief**, thoroughly) as it is being used, and **identified a range of improvements**.

Students Grid: Year 8

NS Pathway Descriptors

Pathway		Pathway 3	Pathway 4	Pathway 5	Pathway 6	Pathway 7	Pathway 8	Pathway 9
Yr 8		Foundation	Foundation +	Standard	Extended	Advanced	Advanced +	Exceptional
Investigating	Research and interpretation	I have identified a **user** and **their needs, wants and likes.**	I have conducted **relevant research** from sources such as the internet, blogs, books and magazines.	I have applied my research to my project and made design decisions.	I have considered the **users** views about **aesthetics** within my analysis.	I have explained how the **form and function** of familiar products have been developed over time. I have described **technical issues** that may occur when manufacturing the product.	I have responded **creatively** to the brief, **exploring** and testing my design thinking. I have referred to **new technologies and art movements.**	I have **explained** how **cultures and society** are reflected in familiar products when developing and communicating my ideas.
	Product Analysis	I have **identified** what is **good and bad** about a product.	I have **compared different** products.	I have given **reasons** why products are similar or different.	I have **applied all areas of ACCESS FMM** when analysing products, providing **detailed** reasons.	I have analysed products in **detail** to establish how it might affect the **user's life, preferences and values.**	I have analysed **how products work** using descriptive technical language.	I have **critically analysed** a wide range of products using descriptive technical language.
	Specification	I have identified **key areas** such as **function, materials, size,** and **aesthetics** that my product should meet.	I have used all the **ACCESSFMM** headings when specification writing.	I have written **more than one** specification point for each area using the acronym ACCESSFMM. 1.1,1.2 etc.	I have explained and **justified** most of my specification points.	I have explained and **justify** all of my specification points in **detail**, writing in full sentences.	I have developed **consistently detailed** specification points, with outstanding spelling and grammar.	I have written a **detailed specification exploring more than one** point for each heading, using **outstanding spelling** and **grammar**. I have **prioritised** my points.
Designing	Influences	I know at least **two** different art movements.	I have **identified** different designers/art movements.	I have explained how I have **considered** the work of designers/ artists and movements, in my own design work.	I have identified **successful concepts** in art movements/ designers work and **explained in detail** how I have used this in my own work.	I have described how designers/art movements have **influenced current products.**	I have **explained** how the designers/art movements have **influenced** my design decisions.	I have **explained** and **given reasons** why designers/art movements have impacted on my design decisions.
	Ideas and Annotation	I have **identified features** of my ideas and suggested ways in which I can **improve my work.**	I have generated a **range of creative ideas** for my product **through sketching/words/modelling** and applied my research.	I have related the project **restrictions** to **my ideas.** I have **identified** the best aspects of my design(s) and given **reasons** for design choices.	I have explained my design choices and given **detailed** reasons relating to the **user and function.**	I have applied key criteria from the **design brief** OR **specification and** shown clear design thinking, by referring to **materials and techniques** when assessing my designs.	I have explored my design ideas and explained how it could be **manufactured.** I have identified **possible issues** with my work and come up with viable solutions. I have explained how **aesthetics, materials, techniques and cost** might influence my design.	I have explored my design ideas and explained how it could be **manufactured in school and industry.** I have **identified** possible issues with my work and come up with **a viable solution** based on research *(current trends, patterns and solutions).* I have explained and given reasons how **aesthetics, materials, techniques, environment and cost** might influence my designs.
Planning	Step by step	I have planned what I need to do next and recorded **health and safety precautions.**	I have planned what to do **based** on **experience** of working with materials and components, thinking about the **order** of work.	I have planned what to do **based** on my **experience** of working with materials and components, thinking about the **order** of work and **how long** it will take me.	I have produced a **step-by-step plan** showing I can select and work **safely** with a range **of tools and equipment**.	I have produced a detailed **step-by-step plan** showing I can select and work **safely** with a range **of tools and equipment**, and suggest how I might **modify** my approach if needed.	I have planned what **alternative** methods of making could be used if required.	I have planned a **variety of different alternative** methods of making that could be used if required to manufacture my product.
	Final Design	I have produced a reasonable isometric sketch *E.g. A cube.*	I have produced a **generally accurate** sketch in an **isomeric view/orthographic view.**	I have **experimented** with **isometric or orthographic sketching** and have drawn a range of shapes.	I have presented an **accurate** isometric or orthographic final design drawing.	I have presented an accurate final design drawing in isometric or orthographic which include added **detail** E.g. Dimensions, labelling, informs making. *(i.e. Someone else could make it using my plans.)*	I have presented planning drawings which explore the **components** I will use.	I have presented an **accurate** planning drawing which explores all the components needed for a **third party** to be able to **manufacture** it.
	Flow Chart	I have applied **some** symbols correctly in a flow chart.	I have produced a **simple** flow chart.	I have produced a **simple** flow chart. *(Correctly sequenced.)*	I have applied appropriate **decision** commands throughout my flowchart.	I have drawn a detailed flowchart and have demonstrated a **clear** understanding of feedback loops.	I have identified **hazard points** in my flow chart and shown a **sound understanding of inputs/outputs.**	I have produced a **detailed** flowchart demonstrating a clear **understanding of all the symbols** and identified hazard points.
Making	Practical	I have selected and used **appropriate** tools, equipment, components and techniques when making a product.	I have selected and used **appropriate** tools, equipment, components and techniques **and can explain** my choices to make a **functional** product.	I have **applied** my knowledge and understanding of materials and components, and worked with fair degree of **accuracy.**	I have produced a product paying attention to **quality of finish** and to **function**.	I have worked with a range of tools, materials, equipment, components and processes with **reasonable precision.**	I have worked with a range of tools, materials, equipment, components and processes and show **understanding** of their **characteristics** to produce a **quality** product.	I have worked with a wide range of tools, materials, equipment, components and processes with accuracy and shown a clear **understanding of** their **characteristics** to produce a **high quality** product.
	Evidence	I have applied my knowledge and understanding of the **nature** of materials to cut, shape and join them with some **accuracy, justifying my choices verbally.**	I have identified what is working well and what could be **improved** to overcome **technical problems**.	I have **checked my** work as it develops and **solved** technical problems.	I have **evidenced** how I have **modified my work** during production with some guidance from my teacher.	I have **checked my work as it develops** and solved technical problems **independently.**	I have checked and recorded developments to my work and **solved technical problems independently.**	I have checked and recorded in **detail** developments to my work and solved technical problems independently. I have **modified** my approach during production giving **reasons.**
Evaluating	Evaluation	I have identified what worked well in my product and **suggested areas** that could be improved in the future.	I have **reflected** on my designs, testing and evaluating them as appropriate. I have also reflected upon my work using my specification or design brief.	I have **reflected** on my designs, **tested and evaluated** them. I have shown I understand its **functionality** and analysed it using my specification or design brief.	I have tested my product taking on board **third party** feedback to effectively evaluate my final product.	I have evaluated my product in **detail** and used more than two methods of testing.	I have evaluated my product (against my **specification or design brief**, thoroughly) as it is being used, and **identified a range of improvements**.	I have **evaluated** my product (against my specification, thoroughly) and by using a range of **different methods** (referring to the design brief) and identified ways of improving my product in **detail.**