

Key Stage 3

Curriculum Excellence

Design Technology



The curriculum enables children to...
acquire... Knowledge & Skills, which
secured through... Application
develops... Understanding
and allows them to seek... Meaning
and achieve... Personal growth

Contents:

- 1. KS3 Vision
- 2. Subject Vision
- 3. ARE Descriptor
- 4. Curriculum Skeleton/Long Term Plan/Assessment Overview
- 5. Medium Term Plans
- 6. Exemplification

CLF KS3 Curriculum Principles

- The curriculum enables children to acquire **knowledge and skills**, which are secured through **application** (over time and in different contexts) to develop **understanding** (change in long term memory) and allows children to seek **meaning** and achieve **personal growth**.
- Built-up from KS2 to secure a foundation for young people for life (... and KS4). **Based on Age Related Expectations and using DOYA.** (Not built down from KS4).
- Focused on the **progression of content and concepts** through the KS3 curriculum that accelerates progress within a **progressive and purposeful 3-19 CLF Curriculum**.
- The curriculum is our opportunity to inspire children to be successful individuals, historians, mathematicians, geographers, musicians, authors, artist, sportspeople, scientists, writers, innovators, dreamers, magicians, mothers, fathers, positive citizens.
- On a platform of standardisation the curriculum releases teachers to drive up learning and progress. **Standardised Age Related Expectations, curriculum and assessment** frees and empowers experts to collaborate, follow the learning and teach.
- The curriculum will be **curated by subject experts and teams from across the Trust** who are empowered to evolve the curriculum that will allow all children to thrive.
- The content of the curriculum is progressive and is based on **consolidating and revisiting** content over time to secure progress over time.
- The curriculum seeks **depth of study rather than breadth** to build understanding and to seek meaning; stretching and challenging children to think.
- The Age Related Expectations and exemplars are **widely published** to support child, parent, teacher, leader and other staff understanding of the expected standards and the content of the curriculum, **enabling wider ownership of the curriculum**
- Two key areas of assessment:
 - shared on-line MCQ assessments four times a year to assess knowledge/skills acquisition and elements of application and understanding. Immediate feedback from on-line supports understanding of gaps and re-teaching.
 - Teacher assessment of learning that uses standardised exemplar material to assess agreed subject written responses/assessments, supporting teachers to make a broad assessment of children's attainment against DOYA.
- Given the shared AREs and assessment cycle teachers are freed to **plan to meet need** and support all children to feel and be successful. Approaches to **pedagogy are based on cognitive science**:
 - Supporting children to experience **desirable difficulty** and grapple with learning in their proximal zone.
 - Explicitly secure knowledge and skills through application to build understanding and seek meaning
 - Specificity of feedback for impact and the developed and precise use of modelling, explanations and questioning to secure progress.
 - Emphasis on the development of reading (widely and often), oracy and quality of writing.

KS3 Design and Technology 16th July 2018

:

Cabot Learning Federation

KS3 Design Technology in the Cabot Learning Federation



This is the core content for the KS3 Design and Technology Curriculum. This is the minimum content that should be taught to year 7 and 8 students. The curriculum is broken down into 3 sub areas of Food, Textiles and Design & Technology. Within each sub area the assessed competencies centre around Designing, Making and Knowledge which will be formally assessed in point 2 & 4. Each student will **Explore** the curriculum as a 3-8-week rotational scheme, enabling a breadth of skills to be experienced **Creatively** in the whole of Key Stage 3. The modules will identify the AREs relevant to that area of study and will ensure all students can reach their potential through skills-based learning. Each academy has their own unique module to engage and **Challenge** the students, preparing them for the **Evolving** & **Diverse** life that lies before them. Students will focus on high quality solutions for **Global** and worldwide problems.



ARE Descriptors

Year 7					
KS2 Prior Learning	Knowledge and Skills	Understanding	Meaning		
What is the key knowledge, skills, understanding and meaning that children bring from the AREs in KS2 in this subject? The information below has been	What is the key knowledge and skills that we want to pass on to children as ARE in Year 7 that build up from KS2? To introduce:	What do we want children to build through the application of knowledge and skills, including key concepts and misconceptions? Students will:	What is the meaning that we want children to seek by age that supports their personal growth? • Students will be able to		
taken from the National Curriculum programme of study but is noncompulsory. Therefore, some students will arrive with varied DT experience. Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design	 A range of materials and equipment including wood, metal, plastics, textiles and ingredients; including properties and functions. Simple electronic systems including input, process and output. Basic methods of joining, fixing and combining materials and ingredients. Key terminology to communicate ideas and concepts Safe and hygienic working practices Users/client needs (target market) Product analysis Uses of ICT (including CAD/CAM) in technology 	 The basics properties or functions of a range of materials and ingredients The basic use and characteristics of a range of equipment/tools Simple electronic systems and components How we join and fix materials and combine ingredients. Key terminology and how to communicate ideas How we work safely and hygienically How user/client needs affect our design outcomes ACCESS FM 	 Students will be able to understand the importance of Design and Technology as a means of communication, health and personal growth. To understand the value of Design and Technology in a society of different cultures and professions. To recognise that Design and Technology helps us to understand and negotiate our emotions and place within our evolving technological world. To enable students to experience a range of skills in different materials areas to help them solve challenges in the real world. 		



Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

 apply their understanding of how to strengthen, stiffen and reinforce more complex structures

- Communication of design ideas
- Awareness of basic quality control
- Evaluation and feedback techniques
- A basic understanding of structures and mechanisms
- Students will:
- Follow a set of instructions to show the properties or functions of materials/ingredients
- Select the most appropriate equipment/tool for measuring, marking and weighing
- Apply simple electronic systems to create a basic circuit
- Demonstrate how to fix, join and combine materials and ingredients
- Use key terminology to communicate ideas effectively
- Demonstrate safe and hygienic working practices
- Develop their outcomes considering the user/client

- How different ICT packages can support the design and manufacture of products
- The importance of presenting concepts to meet the needs of the client
- The importance of quality control
- The importance of evaluation and feedback
- How to apply basic mathematical and scientific skills.
- How designs can be influenced by social, moral and environmental aspects

 To give young people an awareness of social, moral, global and environmental impact.

.



- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

- Analyse a range of products
- Demonstrate 2D and 3D design skills
- Use annotations to explain their design simply
- Use rendering to enhance design presentation
- Evaluate the quality of the outcomes
- Can reflect on positive and negative features of their products
- Select the correct unit of measurement
- State how their design could be affected by social, moral and environmental aspects



Year 8					
Year 7 Prior Learning	Knowledge and Skills	Understanding	Meaning		
What is the key knowledge, skills, understanding and meaning that children bring from the AREs in Year 7 in this subject?	What is the key knowledge and skills that we want to pass on to children as ARE in Year 8 that build up from Year 7? To embed: • A wider range of materials	What do we want children to build through the application of knowledge and skills, including key concepts and misconceptions? Students will:	What is the meaning that we want children to seek by age that supports their personal growth? • Students will be able to understand the importance		
See above	and equipment including wood, metal, plastics, textiles, electronics and ingredients; including properties and functions. • Knowledge of joining, fixing and combining materials and ingredients. • An extended use of key terminology to communicate ideas and concepts • Safe and hygienic working practices consistently • Users/client needs (target market) • Product analysis • Uses of ICT (including CAD/CAM) in technology • Communication of design ideas	 Properties or functions of a range of materials and ingredients Characteristics and use of a range of equipment/tools How we join and fix materials and combine ingredients accurately and more independently A wider range of key terminology and how to communicate ideas How and why need to work safely and hygienically consistently How user/client needs affects our design outcomes How to use ACCESS FM as a technique for development 	of Design and Technology as a means of communication, health and personal growth. • To understand the value of Design and Technology in a society of different cultures and professions. • To recognise that Design and Technology helps us to understand and negotiate our emotions and place within our evolving technological world. • To enable students to experience a range of skills in different materials areas to help them solve challenges in the real world.		



 Quality control Evaluation and feedback techniques To introduce: The use of specifications The use of quality control within an industrial context Industrial practices for manufacturing/origin of ingredients Physical properties of smart materials Structures and mechanisms To demonstrate:	 A developed use of ICT How to effectively use feedback The application of quality control The importance of evaluating against a specification How to apply a range of mathematical and scientific skills. Why designs are influenced by social, moral and 	To give young people an awareness of social, moral, global and environmental impact.
 Mathematical and scientific principals Knowledge of social, moral and environmental aspects of design Students will: Show more independence whilst following instructions 	environmental aspects	



Demonstrate selecting	
appropriate	
materials/ingredients based	
on their characteristics	
Select and use the most	
appropriate equipment/tool	
for measuring, marking and	
weighing accurately	
Demonstrate how to fix,	
join and combine materials	
and ingredients with more	
accuracy	
Use a wider range of key	
terminology to	
communicate ideas	
effectively	
Demonstrate safe and	
hygienic working practices	
Focus their outcomes	
considering the user/client	
Analyse a range of products	
and give your justifications	
Demonstrate 2D and 3D	
design skills in a more	
creative way	
Use annotations to explain	
their design with more	
detail	
Use rendering to enhance	
design presentation	



 Evaluate the quality of the outcomes Can reflect on positive and negative features of their products and suggest improvements 	
 Select the correct unit of measurement based on prior understanding Demonstrate through design work social, moral and environmental aspect 	

10

Curriculum and Assessment Skeleton

Year 7				
ARE Point	1	2	3	4
Unit Title		Design and Technology core principles (Term 3)		Design and Technology core principles (Term 3)
MCQ		 10 questions based on: Health and Safety Dimensioning Maths Key vocabulary Definitions/spelling Sustainability 		20 questions based on:
DOYA		Teacher assessment of class work and home learning.		Teacher assessment of class work and home learning.

Year 8				
ARE Point	1	2	3	4
Unit Title		Design and Technology core principles (Term 3)		Design and Technology core principles (Term 3)
MCQ		10 questions based on:		20 questions based on: Health and Safety Dimensioning Maths Key vocabulary Definitions/spelling Sustainability
DOYA		Teacher assessment of class work and home learning.		Teacher assessment of class work and home learning.



Medium Term Plan

Subject : Design and Technology Year 7	Unit Title: What makes	an effective design?	ARE Point:	
Key Essentials: Design, make and evalu	ate.	WHY are children LEARNING this?	,	
Content: Students will explore and experiment with a techniques and processes. Throughout the year, students will experient		 Students will be able to understand Technology as a means of communi personal growth. 		
 Health and Safety (Introduction to t machinery) 	he workshop, basic tools and	To understand the value of Design a different cultures and professions.		
 Measuring and numeracy (simple measurements, jigs,/templates, methods) Key vocabulary and literacy (Introduction to vocabulary in technology) 		 To recognise that Design and Technology helps us to understand and negotiate our emotions and place within our evolving technological world. 		
 Designing (For Me) Analysis (ACCESSFM to describe/exp Manufacturing (appropriate tools for the following) 	•	To enable students to experience a materials areas to help them solve of	_	
Use of tools and equipmentEvaluating	,	 To give young people an awareness environmental impact. 	of social, moral, global and	
Concepts:		HOW will ORACY, READING and WRITIN	NG be developed?	
Students will become familiar with all aspects of the design cycle through a range of materials. E.g. wood, plastic, paper and board.		English: Opportunities for extended writing evaluations, justifying their decisions orally		
Toursian laws and March 18 19 19 19	and the said and the state	Maths: Measuring, ratio, scale, angles and t	echnical drawing.	
Terminology and Vocabulary (subject specific and academic): Design, analyse, make, evaluate, manufacture, properties, functions, aesthetics, specifications, safety, customer, cost, environment, materials.		Science: Investigating material properties a	nd functions.	



	ICT: Use of ICT in Technology. Humanities: Environmental issues.
Extended Response (writing, performance or product):	WHAT will PROGRESS look like in this unit?
Design, make, evaluate.	Outcomes demonstrating skills and techniques learnt throughout the module. Students gain a basic understanding of materials, practical skills and an
	ability to analyse and evaluate their work.

Subject: Food Technology Year 7 Unit Title: What skills of	do I need to follow a healthy lifestyle? ARE Point:		
Key Essentials: Make, evaluate and analyse.	WHY are children LEARNING this?		
Content:			
Students will explore and experiment with a range of different materials, techniques and processes.	 Students will be able to understand the importance of Design and Technology as a means of communication, health & safety and personal growth. 		
Throughout the year, students will experience and explore:			
 Health and Safety (introduction to safety and hygiene) Measuring, weighing and numeracy (using kitchen equipment to weigh and measure) Key vocabulary and literacy (introduction to key terminology) 	 To understand the value of hygiene, health and promote a sense of wellbeing To be aware of the nutritional needs for themselves. 		
 The Eatwell Guide (introduction to the Eatwell plate and its sections) Product analysis (taste testing and drawing conclusions) Manufacturing (cutting safely, using the hob, grill and oven safely, 	To enable students to experience a range of skills and techniques using a range of ingredients		
 combining a range of ingredients.) Use of basic tools and equipment (introduction to a range of basic utensils and equipment) 	To enable students to understand and follow verbal and written instructions To develop time management skills		
	To develop time management skills		



 Evaluating (evaluating the success of practical and suggesting improvements) Introduced to a range of ingredients Methods of combining ingredients 	
Concepts: Students will become familiar with working safely and hygienically within a kitchen environment. Understanding the importance of food in relation to health. Students will develop independent learning skills as well as learning within groups effectively. Investigating the characteristics of different ingredients.	HOW will ORACY, READING and WRITING be developed? English: Opportunities for extended writing within Product Analysis, evaluations, justifying their decisions orally and through annotation. Maths: Measuring (ml), ratio, weighing (grams), temperatures, times. Science: Investigating properties and functions of ingredients. Humanities: Social food choices.
Terminology and Vocabulary (subject specific and academic): Analyse, make, evaluate, manufacture, properties, functions, aesthetics, Health & safety, customer, cost, environment, materials, nutrition, hygiene. Extended Response (writing, performance or product):	WHAT will PROGRESS look like in this unit? Outcomes demonstrating skills and techniques learnt throughout the module. Students gain a basic understanding of a range of Ingredients, practical skills and an ability to analyse and evaluate their work.
Analyse, make, evaluate.	



Medium Term Plan

Subject: Textiles Year 7	Unit Title: What is the b	est material for making my product?	ARE Point:
Content: Students will explore and experiment with a range of different materials, techniques and processes. Throughout the year, students will experience and explore: • Health and Safety (Introduction basic textile tools and machinery) • Measuring and numeracy (using/ making patterns) • Key vocabulary and literacy (introduction to key terminology) • Designing (For Me) • Analysis (ACCESSFM to describe/explain) • Manufacturing (introduction different types of stitches, tacking applique, simple seams and seam allowance, using sewing machine safely) • Use of tools and equipment (using pins and needles correctly, how to use the sewing machine safely, using fabric scissors and the iron) • Evaluating		 WHY are children LEARNING this? Students will be able to understand the importance of Design and Technology as a means of communication, health & safety and personal growth. To understand the value of Design and Technology in a society of different cultures and professions. To recognise that Design and Technology helps us to understand and negotiate our emotions and place within our evolving technological world. To enable students to experience a range of skills in different materials areas to help them solve challenges in the real world. To give young people an awareness of social, moral, global and environmental impact. 	
Concepts: Students will become familiar with all aspects of the design cycle through a range of materials. E.g. Felt & Cotton. Learning to successfully combine materials e.g Applique, basic seam. Learning how to embellish and enhance textile outcomes. Understanding the function of a sewing machine.		HOW will ORACY, READING and WRITING be English: Opportunities for extended writing within evaluations, justifying their decisions orally and to Maths: Measuring, scale, ratio (e.g. pattern temporary) Science: Investigating material properties and fundamental	n Product Analysis, hrough annotation. plates and cutting).



Terminology and Vocabulary (subject specific and academic): D esign, analyse, make, evaluate, manufacture, properties, functions, aesthetics, specifications, safety, customer, cost, environment, materials, embellish, sewing machine, hand stitching, needles, pins.	ICT: Use of ICT in Technology (eg Moodboards) Humanities: Environmental issues (reducing waste).
Extended Response (writing, performance or product):	WHAT will PROGRESS look like in this unit?
Design, Make, Evaluate and Analyse.	Outcomes demonstrating skills and techniques learnt throughout the module.
	Students gain a basic understanding of materials, practical skills and an ability to analyse and evaluate their work.



Medium Term Plan



HOW will ORACY, READING and WRITING be developed? English: Opportunities for extended writing within Product Analysis, evaluations, justifying their decisions orally and through annotation. Maths: Measuring (ml), ratio, weighing (grams), temperatures, times, nutritional analysis. Science: Investigating properties and functions of ingredients. Functions of nutrients in relation to the body. Implications of different diets. Humanities: Social & cultural food choices.
WHAT will PROGRESS look like in this unit? Outcomes demonstrating skills and techniques learnt throughout the module. Students gain a deeper understanding of a range of Ingredients including



Subject: Textiles Year 8 Unit Title: How do		Quality control to produce a	ARE Point:
successful product?			
Key Essentials: Design, Make & Evaluate		WHY are children LEARNING this?	
Content: Students will explore and experiment with a ratechniques and processes.	ange of different materials,	 Students will be able to understand the Technology as a means of communicati personal growth. 	
 Health and Safety (reinforcement of seed Measuring and numeracy (marking and Measuring and numeracy (extended of Designing (designing for a client or tare) Designing (designing for a client or tare) Analysis (Use ACCESS FM to justify/eve) Manufacturing (including a range of extended fastening, using the sewing machines and seam allowances) Use of tools and equipment (e.g. stenders, batik, dyes) Evaluating Fastenings (e.g. zips/buttons/ cords) Construction Quality Control (focus on success criterachieve a good level of finishing) Awareness of Moral, social, environmenders, the R's. 	afety rules) Id cutting out patterns) I vocabulary) Iget market) aluate) Imbellishments and a Impore independently, seams Icils, craft knives, irons/heat Independent and QC when making to	 To understand the value of Design and different cultures and professions. To recognise that Design and Technologiand negotiate our emotions and place of technological world. To enable students to experience a rangematerials areas to help them solve chalmaterials areas to help them solve chalmaterials impact. To give young people an awareness of environmental impact. To have an understanding of the use of Textiles industry. To be able to respond and work within brief. 	gy helps us to understand within our evolving ge of skills in different lenges in the real world. social, moral, global and Smart Materials in the
Concepts: Students will be able to use the de outcome using a range of materials. E.g. Felt & Learning to successfully combine materials e.g. Learning how to embellish and enhance textile	& Cotton. g. Applique, seams.	HOW will ORACY, READING and WRITING English: Opportunities for extended writing wit evaluations, justifying their decisions orally and	hin Product Analysis,



Students will be able to demonstrate the use of a sewing machine. Students will be able to respond to and work within the constraints of a design brief.	Maths: Measuring, scale, ratio (e.g. pattern templates and cutting). Science: Investigating material properties and functions.
	ICT: Use of ICT in Technology (eg Moodboards)
Terminology and Vocabulary (subject specific and academic): Design, analyse, make, evaluate, manufacture, properties, functions, aesthetics, specifications, safety, customer, cost, environment, materials, embellish, sewing machine, hand stitching, needles, pins, zip, Velcro, pocket, elastic.	Humanities: Environmental issues (reducing waste, recycling).
Extended Response (writing, performance or product): Design, Make, Evaluate and Analyse.	WHAT will PROGRESS look like in this unit? Outcomes demonstrating skills and techniques learnt throughout the module. Students gain a basic understanding of materials, practical skills and an ability to analyse and evaluate their work.



Subject: Design and Technology Year 8	Unit Title: What do I need to consider when designing for a target market?		ARE Point:
Key Essentials: Design, make and evaluate.		WHY are children LEARNING this?	
Content:			
Students will explore and experiment with techniques and processes.	a range of different materials,	 Students will be able to understand the Technology as a means of communication personal growth. 	
Health and Safety (reinforcement or Measuring and numeracy (enforcement)	f tools and machinery safety)	 To understand the value of Design and different cultures and professions. Stud identify and target a specific client. 	•
 Measuring and numeracy (enforcent Key vocabulary and literacy (a wide original terminology) Designing (designing for a client or total content or total co	r range and reinforcement of	 To recognise that Design and Technolog and negotiate our emotions and place v technological world. 	
Analysis (Use ACCESS FM to justify/e)	evaluate)		
 Manufacturing (high level of manufacturing skills. More industrial based manufacture) 		 To enable students to experience a range of skills in different materials areas, including CAD/CAM, to help them solve 	
Use of tools and equipment		challenges in the real world.	
EvaluatingManufacturing aidsCAD/CAM		 Inspire young people to develop solutio social, moral, global and environmental 	



2D/3D drawing techniques	
 Awareness of Moral, social, environmental, sustainable in Technology e.g. the R's. 	
Concepts:	HOW will ORACY, READING and WRITING be developed?
Students will become familiar with all aspects of the design cycle through a range of materials. E.g. wood, plastic, paper & board, metal.	English: Opportunities for extended writing within Product Analysis, evaluations, justifying their decisions orally and through annotation. Writing a specifications. Justification of decisions.
Terminology and Vocabulary (subject specific and academic):	- Maths: Measuring, ratio, scale, angles and technical drawing, CAD/CAM.
Design, analyse, make, evaluate, manufacture, properties & classification of materials, functions, aesthetics, specifications, safety, target market, cost, environment.	Science: Investigating material properties, classifications and functions.
	ICT: Use of ICT in Technology, CAD/CAM.
	Humanities: Environmental issues.
Extended Response (writing, performance or product):	WHAT will PROGRESS look like in this unit?
Design, make, evaluate.	Outcomes demonstrating skills and techniques learnt throughout the module.



Students demonstrate a good understanding of materials, practical skills
and an ability to critically analyse and evaluate their work.



DOYA Exemplification

What will this look like for different subjects? Even if this cannot be gained in the amount needed by the end of Term 6, the curators should be able to gather some examples from their own classes for some of the curriculum. I think this will need to be an electronically shared document which only the curators can edit but all teachers can access. The curators can then build this over time. This means, they will need some time in Term 1 and throughout the year to build this up. Teachers can use it together at FNN 2 and FNN 6 ready for assessing. The exemplars need to be for each of these criteria and acknowledge that there might be different routes to all of them. Annotation of the examples will make this clear (in the manner of exam board exemplification). Year 6 exemplars will be useful – SW is supporting with this. All exemplification will be used for training at all levels – teachers assessing their students, SLT understanding of what they should see in classrooms, books etc.

- Deepening (D): describes a child who has reached the year group expectation and is now taking this deeper into more abstract work. These children are following their passion within a broad curriculum that inspires the full range of attainment and interest.
- On track/Working at current age related expectation (O): describes a child who is working at the age related expectation and fulfils all the descriptors.
- Yet to be on track (Y): describes a child who shows some working at age related expectations by fulfilling some of the descriptors, but is not yet on track to achieve all of them.
- At an earlier stage in their learning journey (A): describes a child who working at a level below the age related expectation, typically around a year behind.