Design and Technology Curriculum

Intent
At The Duston School, we believe that a comprehensive Design and Technology curriculum should be based on the knowledge that we want the children to learn. Our curriculum aims to inspire children to think about the important and integral role that design and the creation of designed products plays in our society. Wherever we look, evidence of design is all around us.

The curriculum fulfils the requirements of the National Curriculum for England. This course of study seeks to show how design and technology shapes the world around us. The curriculum is split into three different areas: 'cook', 'sew' and 'build'. It is designed so that each year group will complete a unit of work in these three different areas once a year.

Two different 'aspects' of design are interwoven into the three areas of study: the environment and sustainability, and enterprise and innovation. These 'aspects' acknowledge enduring and contemporary concerns of modern design. Each unit specifies the concepts and skills which the students are expected to learn over the course of a unit. These concepts and skills progress gradually throughout the course of the six years of study.

Our DT curriculum is divided into three different strands:

- Cook
- Sew
- Build

In '**cook**', pupils will learn to cook from recipes which gradually build basic culinary skills. Whilst studying these practical skills, they learn about concepts relating to food such as nutrition, seasonality, food production, transportation, and food from different cultures.

In '**sew**', pupils practise using fabric and thread to learn basic sewing techniques to create objects which demonstrate embroidery, appliqué, weaving and plaiting. Concepts such as the properties and creation of different fabrics, fast fashion, industrialisation, waste, recycling, and pollution are interwoven into these activities.

In '**build**', pupils learn about the creation of structures and mechanical and electrical devices to create products such as cars, moving cards, toys, and books. Through this, they learn about concepts such as force, motion, and the properties of materials.

The DT curriculum is sequenced to enable the students to become familiar with, understand and practise the process of design through:

- Research and investigation
- Design
- Making
- Using and evaluation

Implementation
At The Duston School, the Primary Knowledge Curriculum is used to plan progressive Design and Technology lessons and units of work. The sequence of lessons in the 'sew' and 'build' areas of study follow a structure to enable the students to become familiar with, understand and practise the process of design: research and investigate, design, make, use and evaluate. The planning for each unit of work specifies the product the children will make, the purpose and user of the product. The students' understanding of key skills and concepts builds from year to year, assessing and cementing prior learning.

Each unit has been devised to be delivered in a five-hour block, once each term, which is taught over a single day except 'cook' units which are taught over x2 2.5 hour sessions.

It should be noted that the curriculum does not include the study of digital programming and computer aided design as these elements of Design and Technology, as specified in the National Curriculum, are covered in the Computing curriculum.

In EYFS, every unit of work covers the Early Learning Goals (ELG's) within the Early Years Framework, with children having opportunities to return to skills in order to develop creative skills.

Curriculum Map, Key Knowledge Goals and Key Vocabulary Coverage:

Cook	
Sew	
Build	

	Curriculum Map and Key Knowledge Goals					
	EYFS					
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	All About Me **Sew** To have different sewing opportunities in the provision Understand that sewing can be used to join Understand that sewing can be used to make patterns	**Journeys** **Build** Make a boat that floats and another vehicle that moves with wheels Begin to understand that objects are made from different materials Know that a vehicle is something that transports people or things	**Space** **Build** Build a rocket using a range of media (junk modelling) Understand different joining techniques that are effective for purpose Begin to understand that materials are chosen for their purposes	**Growing and Changing** **Cook** Design and make a fruit kebab/salad Know that fruit gives us important nutrients that keep us healthy. Understand that different mixes of food make food more appetising	**Kings and Queens** **Build** Build a castle using a range of media (junk modelling) Understand different joining techniques that are effective for purpose Begin to understand that materials are chosen for their purposes	**Stories from the Past** **Cook** Design and decorate a gingerbread man Understand that design can make food more appetising
	Key Vocabulary: *Sew thread wool appearance join pattern colour fabric*	*Key Vocabulary:* *Float sink light heavy waterproof balance wheels axle vehicle move boat ship yacht car lorry van materials purpose transports*	*Key Vocabulary:* *Stick glue cut join tape shape build vehicle space rocket design materials purpose*	*Key Vocabulary:* *Fruit vitamins nutrients design build appetising chop cut kebab salad raw sweet sour*	*Key Vocabulary:* *Stick glue cut join tape shape build vehicle space rocket design materials purpose*	*Key Vocabulary:* *Design pattern choices appearance appetising taste decorate*

	Key Stage 1		
	Autumn	**Spring**	**Summer**
Year 1	**Cook** **Dips and Vegetables** Know that fruit and vegetables have important nutrients in them to keep us fit and healthy Understand that food can be sweet and savoury. Understand that we can eat some fruit and vegetables raw, without cooking them **Jam Tarts** Know that different foods can be cooked in different seasons. Know that jam tarts are made out of pastry. Know that fruit which grows in the summer can be preserved to use in the winter. Know that making jam is a way of preserving fruit to last until winter.	**Sew** **Animal Sock Puppets** Know that objects are made from different materials which are suitable for what we use them for. Understand that fabric is suitable for making clothes and puppets. Know that we can reuse materials for a new or reason or purpose. Know that designing means planning how something is going to look and work.	**Build** **Vehicles** Know that a vehicle is something that transports people or things from one place to another. Understand that lots of vehicles have wheels. Understand that an axle can join two wheels on a vehicle together. Understand that some vehicles move using wheels and axles. Understand that when we design a product we need to think about who will use it, what it is for, and what it will look like.
	Key Vocabulary: *Nutrients vegetable fruit sweet savoury raw recipe chop chopping board cook bake pastry recipe season preserve*	*Key Vocabulary:* *Materials suitable fabric recycle reuse waste design user function appearance feature properties*	*Key Vocabulary:* *Vehicle transport car, truck, lorry, bus purpose user wheel axle axle holder body chassis label diagram materials properties pollution design user function appearance label*
Year 2	**Cook** **Pizza** Know that pizza comes from Naples in Italy. Understand that pizza was a cheap food which was sold and eaten in the streets. Know that pizza is made from savoury dough which is kneaded and rolled flat before it is baked.	**Sew** **Pencil Cases** Sewing is a way to make objects from fabric. Clothes and pencil cases can be made from fabric Sewing is a way to join fabric together. A needle and thread are used to make stitches When designing a product we need to think about who will use it, its function and its appearance Running stitch can be used for joining two pieces of fabric together, creating a seam A feature stitch is a stitch which we can see and can be used to decorate something	**Build** **Moving Pictures** Understand how a lever and slider mechanism works. Understand that a lever is a mechanism which uses a bar and a pivot to move heavy loads. Know that a slider has a bar but does not use a pivot. Understand that designing means planning how something is going to look and work. Understand that when we design a product we need to think about who will use it, what it is for, and what it will look like.
	Key Vocabulary: *home-made processed savoury dough knead passata recipe slice chopping board spice ginger sweet transport dough cook bake raw recipe*	*Key Vocabulary:* *Design materials suitable properties sew fastening fabric needle thread stitch design running stitch seam feature stitch user function appearance*	*Key Vocabulary:* *Mechanism lever pivot or fulcrum bar force/effort load shaduf slider slot bridge motion linear motion oscillating motion materials properties design user function appearance mock up*
	Lower Key Stage 2		
	Autumn	**Spring**	**Summer**

Year 3	**Sew** **Key Rings/Decorations** Understand that fabric is made from different materials and in different ways. Know that fabric can be made from natural or synthetic materials. Know that wool from sheep and cotton from plants are examples of natural materials. Know that felt is made by pressing materials together. Know that running stitch and backstitch can be used for joining two pieces of fabric together. Know that backstitch is stronger than running stitch.	**Build** **Pop-up Books** To understand how a linkage mechanism works. Know that levers can be joined together to form linkages. Understand that linkages are used to change direction of motion. Know that linkages have fixed and moving pivots. When designing a product we need to think about who will use it, its function and aesthetic appeal.	**Cook** **Bread and Butter** Understand that wheat makes flour which can be made into bread. Understand that cows make milk which can be made into butter. Know that cows are milked by farmers to provide us with milk which is a dairy product. Understand that milk can be made into cream, butter, cheese and Yoghurt.
	Key Vocabulary: *Needle thread sew fabric stitch natural synthetic weaving felt user purpose/function aesthetic seam running stitch backstitch*	*Key Vocabulary:* *Linkage fixed pivot moving pivot Reverse parallel rotation prototype design materials stiff user purpose/function aesthetic bridge*	*Key Vocabulary:* *Bread wheat grain flour yeast wholemeal churn yoghurt rise knead bake dairy milk cream butter*
Year 4	**Sew** **Cushions** Understand that appliqué is a sewing technique used for decoration. Know that appliqué is a technique where pictures or patterns made from fabric are sewn onto a background. Understand that appliqué is a very old sewing technique and was used by the ancient Egyptians. Understand how to create an appliqué design.	**Build** **Moving Miniature Playgrounds** Understand how a gear mechanism works. Understand that gears are wheels with teeth which interlock. Understand that a drive gear transfers motion to a driven gear. Understand that when designing a product, we need to think carefully about the materials we will use.	**Cook** **Ratatouille and Couscous** Understand that vegetables, which come from plants, are an important part of a healthy diet. Know that the vegetables that we eat come from different parts of a plant. Know that ratatouille is a French dish made from stewed vegetables. **Apple Crumble** Understand that apples are grown in Great Britain and can be used to make desserts such as crumble. Know that apples can be part of a healthy diet. Understand that there are lots of different varieties of apple which are grown in Britain and which ripen at different times of the year.
	Key Vocabulary: *Needle thread sew fabric stitch Decoration appliqué*	*Key Vocabulary:* *Mechanism component wheel axle gear teeth interlock drive gear driven dear motion transfer gearing up gearing down sprocket design materials stiff/stable vertical horizontal electrical circuit bulb, buzzer, wires, battery user purpose/function aesthetic exploded diagram*	*Key Vocabulary:* *France ratatouille stew vegetable root stem leaf fruit seed flower couscous apple crumble dessert variety orchard*
	Upper Key Stage 2		
	Autumn	**Spring**	**Summer**

Year 5	**Build** **Cams Toys** Understand how a cams mechanism works. Understand that a cams mechanism transfers rotary motion to linear motion. Know that the different parts of a cams mechanism are a cam, a follower, a slider and a camshaft. Understand that cams mechanisms were used by Ismail al-Jazari in the Islamic Golden Age. Understand that different shaped cams cause the follower to move up and down in a different way.	**Cook** **Pitta Bread** Understand that wheat can be used to make many different types of bread. Know that there are many different types of bread, which are usually made from wheat. Know that wheat is processed to make flour. Understand that bread can be made using yeast which makes it rise. **Honey Cake** Understand how bees make honey. Know that bees make honey for themselves to eat. Know that humans can eat honey which is left over. Know that honey cake is popular in countries such as Egypt, Turkey, and Saudi Arabia.	**Sew** **Bags** Understand that appliqué and embroidery are different sewing techniques which can be used to decorate fabric. Understand that embroidery is a technique where pictures or patterns are made by stitches on Fabric. Know that backstitch can be used for joining two pieces of fabric together to make a seam or a hem. Know that overcast stitch (or whipstitch) can be used for Appliqué. Know that different stitches can be used for embroidery eg. backstitch, running stitch and cross stitch.
	Key Vocabulary: *Mechanism component cam follower slider camshaft motion rotary motion linear motion structure materials cross-sectional diagram cam profile eccentric cam slider follower camshaft rotary linear user purpose/function aesthetic pivot*	*Key Vocabulary:* *Pitta flatbread wheat grain yeast leavened/unleavened bake recipe sweet sugar honey harvest beekeeper hive bake recipe*	*Key Vocabulary:* *Decoration appliqué embroidery fabric materials properties leather canvas cotton plait cord natural synthetic woven fray hem seam backstitch overcast stitch (or whipstitch) user purpose/function aesthetic*
Year 6	**Build** **Water Wall** Understand how an Archimedes' screw and a pulley works. Understand that an Archimedes' screw transports water uphill. Understand that a pulley helps to lift loads more easily. Understand that creating a prototype can be part of the design process. Understand engineers can make environmentally friendly designs.	**Cook** **Mezze** Understand that a mezze is a selection of small savoury dishes which are shared. Know that a mezze is cooked in countries such as Greece, Bulgaria, Turkey, Iran and Iraq. Understand that a mezze is an example of a balanced meal. **Build** **Electrical Toys** **To understand how to create a design** Understand that designing means planning and drawing what a product will look like and how it will work. Understand that when designing a product, we need to think carefully about the materials we will use. When designing a product, we need to think about who will use it, its function and aesthetic appeal.	**Sew** **Upcycling Fashion** Understand what is meant by 'fast fashion'. Understand that upcycling means using an old, disused item to make a new one. Know that some clothes manufacturers/designers try to use methods which are environmentally friendly and do not create pollution. Understand different sewing processes for making clothes: seams, hems and decoration.
	Key Vocabulary: *Mechanism component Archimedes' screw pulley wheel axle load effort groove prototype engineer environment manual user purpose/function aesthetic materials*	*Key Vocabulary:* *Mezze savoury recipe tzatziki baba ghanoush tabbouleh kofta seasoning electrical circuit component parts bulb, battery, switch design materials stiff/stable user purpose/function aesthetic*	*Key Vocabulary:* *Upcycle recycle waste pollution 'fast fashion' globalisation fray sustainable hem seam decoration appliqué embroidery pattern piece pinning backstitch overcast stitch (or whipstitch) user purpose/function aesthetic*

Impact

The impact of the Design and Technology curriculum will lead to progress across key stages relative to a child's individual starting point. Our Design and Technology curriculum will enable children to be enthusiastic learners, evidenced in a range of ways, including pupil voice, product research, final pieces and evaluations. Success is celebrated by displaying work.

Children will leave the Primary Phase equipped with a range of skills to enable them to succeed in their secondary education and be innovative and resourceful members of society. We will evaluate the impact of our Design and Technology curriculum through recording the children's voice, monitoring the work that they produce and assessing that the end of key stage expectations, outlined in the National Curriculum for Design and Technology, are achieved.

Values

Children demonstrate the Primary Phase values of Care, Challenge and Succeed through their DT learning.

Care:

Children demonstrate care in their DT lessons by respecting school equipment and following safety strategies to keep themselves and others safe and when appreciating the finished products that they and their peers produce. Cultural diversity in included in the curriculum to ensure that it mirrors the community of our school. Year 1 make a range of dips which includes tzatziki, Year 1 make pizza, Year 4 make ratatouille and couscous, Year 5 make pitta bread and Year 6 make mezze.

Challenge:

Children are taught to learn challenging new knowledge, concepts and skills throughout the DT curriculum. Higher order vocabulary is learnt in DT lessons and children are encouraged to use these news words in context when discussing new DT learning. DT skills are taught in small steps and children have opportunities to use knives safely and sew using different stiches. Children build on these skills as they progress through the curriculum. They also learn about significant people who have, themselves, faced challenge and overcome these to share their designs with the wider world e.g. William Morris who rebelled against mechanism.

Succeed:

Children have opportunities to succeed in all their DT learning. Scaffolds are put into place to support less confident designers and encouragement ensures that all children produce finished products within DT units. All children's finished products are appreciated and shared in a supportive way within the class and their 'Best Work' is displayed with pride within the classroom and in shared areas of the school.