Curriculum progression map

Design and Technology

D&T

VISION:	AIM:	RIGHTS RESPECTING SCHOOLS (RRS)	Behaviour charter
At Tillingbourne we want children to: 1. Love Learning 2. Find their strengths and talents 3. Achieve more than they thought possible	**Children are successful at Tillingbourne School because they are:** • Aspirational • Responsible • Resilient • Curious • Confident • Caring	**FOCUS RIGHTS** 1. The right to learn 2. The right to be heard 3. The right to be me	**All children must be:** Ready Respectful Safe

	EYFS and KS1	Year 3	Year 4	Year 5	Year 6
Areas of D&T					
Textiles	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].	To design and make a money container (purse/wallet) as a gift for a friend or relative.			To design and make a wearable step counter.
Structures			To design and make packaging for Christmas Biscuits using card nets. To design and make a programable driverless delivery pod.	Design and make a stable structure that will bridge a gap and that is able to support weight	
Mechanical Systems		To design and make a pop-up card	To design and make a programable driverless delivery pod.	Create a toy - creating a design for an automata toy based on a choice of cam to create a desired movement	
Electrical Systems			To design and make a programable driverless delivery pod.		To design and make a wearable step counter.

Research					
		Begin to understand a design cycle (research, skills, design, make, evaluate) with support. Begin to know the principles of DT (user purpose, functionality, design decisions, innovation and authenticity) focusing on design brief and criteria. Begin to understand the purpose of research (including looking a key events, people and real life examples) Share ideas through discussion	To know the design cycle (research, skills, design, make, evaluate). To know the principles of DT (user purpose, functionality, design decisions, innovation and authenticity) with a focus on purpose and functionality as well as the design brief and criteria. To know the purpose of research (including looking a key events, people and real life examples) and it will inform their design. Generate ideas using a mood board. Share and clarify ideas through discussion	To understand the design cycle (research, skills, design, make, evaluate). To understand the principles of DT (user purpose, functionality, design decisions, innovation and authenticity) with a focus on design decisions as well as the design brief and criteria. To understand the purpose of research (including looking a key events, people and real life examples) and it will inform their design. Generate innovative ideas using technology to research and create a mood board (using publisher or paint to meet a design criteria.	To understand the design cycle (research, skills, design, make, evaluate). To understand the principles of DT (user purpose, functionality, design decisions, innovation and authenticity) with a focus on innovation and authenticity as well as the design brief and criteria. To understand the purpose of research (including looking a key events, people and real life examples) and it will inform their design. Generate innovative ideas using technology to research and create a mood board (using publisher or paint to meet a design criteria.
Skills / Technical Knowledge					
Textiles To design and make a money container (purse/wallet) as a gift for a friend or relative. (Year 3) To design and make a wearable step counter. (Year 6)	Build structures, exploring how they can be made stronger, stiffer and more stable Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	A running stitch can be used to join two pieces of fabric together A template (or fabric pattern) is used to cut out the same shape multiple time. A cross-stitch is stronger than a running stitch because it works in different directions. Applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. When two edges of fabric have been joined together it is called a seam. It is important to leave space on the fabric for the seam (seam allowance). Some products are turned inside out after sewing so the stitching is hidden. Measure, mark out, cut, shape materials/components with some accuracy using their own templates. Assemble, join and combine materials and components with some accuracy, using different stitches – e.g. running stitch, blanket stitch, back stitch, over sew stitch.			To understand that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. To understand that back stitch is a strong stitch and also be used for decoration. To understand small, neat stitches which are pulled taut are important, including when creating seams. To understand that using a template helps to accurately mark out a design on fabric. Measure, mark out, cut materials and components to the nearest 1mm. Accurately assemble, join and combine materials and components, using a range of methods - e.g. running stitch, blanket stitch, back stitch, over sew stitch. Decorate their products with their logo using different stitches (often before joining components) e.g. stem stitch, satin stitch, chain stitch, lazy daisy stitch. Use a range of fastenings e.g. zip, Velcro, ties, toggle, clasp, press studs and buttons.

		Use buttons and Velcro as fastenings. Decorate fabrics with attached items - e.g. buttons, beads, sequins, braids, ribbons.			
Mechanical / Electrical Systems To design and make a pop-up card (Year 3) To design and make a programable driverless delivery pod. (Year 4) Create a toy - creating a design for an automata toy based on a choice of cam to create a desired movement (Year 5) To design and make a wearable step counter. (Year 6) To design and make a shelter with an electrical light (Year 6)		To distinguish between loose and fix pivots To know that mechanisms control movement To understand that mechanisms that can be used to change one kind of motion into another To understand how to use sliders, pivots and folds to create paper-based mechanisms Make mechanisms and/or structures using sliders, pivots and folds to produce movement	To understand for a wheel to move it must be attached to a rotating axle An axle moves within an axle holder which is fixed to the vehicle Assemble, join and combine materials to make simple axles Learn about how a program can control a product To program a computer to control a product Use a simple circuit in a product To understand electrical circuits/programable devices can be incorporated into products	To understand that the mechanism in an automata uses a system of cams To understand that mechanical systems have a input, process and an output To understand that different shaped cams produce different outputs To know that an automata is a hand powered mechanical toy Understand that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles. Measure, mark and check the accuracy of the materials e.g. cardboard and dowel. Measuring, marking and cutting components accurately using a ruler, scissors and saw. Assemble components accurately to make a stable frame using triangles to reinforce joints. Select appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set	Learn about how a program can control a product To understand electrical circuits/programable devices can be incorporated into products To program a computer to control a product To know how to create a circuit. Incorporate a circuit into a product Make a working electrical circuit and switch.
Structures To design and make packaging for Christmas Biscuits using card nets. (Year 4) To design and make a programable driverless delivery pod. (Year 4) Design and make a stable structure that will bridge a gap and that is able to support weight (Year 5) To design and make a shelter with an electrical light (Year 6)			To investigate how materials can be joined in different ways Assemble, join & combine paper to strengthen structures – e.g. folding and shaping, corrugating, ribbing, laminating. To assemble, join and combine materials to make strong and stable structures Structures with a square or rectangular base are strong and stable. Develop knowledge of nets to create shell structures. Assemble nets to create shell structures. To reinforce joints to make a structure strong and stable	To understand some different ways to reinforce structures To understand how triangles can be used to reinforce bridges To know that properties are words that describe the form and function of materials To understand why material selection is important based on their properties To understand the material (functional and aesthetic) properties of wood To understand the difference between arch, beam, truss and suspension bridges To understand how to carry and use a saw safely Making a range of different shaped beam bridges	To know that a 'free-standing' structure is one which can stand on its own. Build on prior knowledge of net structures and broadening knowledge of frame structures. Creating a range of different shaped frame structures. Selecting appropriate materials to build a strong structure and for the cladding. Reinforce corners to strengthen a structure. Build frame structures designed to support weight. Design a stable structure that is able to support weight.

				Using triangles to create truss bridges that span a given distance and supports a load Building a wooden bridge structure Independently measuring and marking wood accurately Selecting appropriate tools and equipment for particular tasks Explaining why selecting appropriating materials is an important part of the design process	
Design					
	Design purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	Use annotated sketches to design final product and be able to explain how it meets the design criteria. Use pattern pieces to make a prototype. To select tools and equipment suitable for the task. To select materials and components suitable for the task.	Understand that we are creating a prototype. To select tools and equipment suitable for the task. To select materials and components suitable for the task. Use annotated sketches including cross-sectional diagrams to design final product and be able to explain how it meets the design criteria.	Use diagrams to design final product and be able to explain how it meets the design criteria. Discuss the use of prototypes To select tools and equipment suitable for the task. To select materials and components suitable for the task. Write a simple order of the stages of making. To know that a cross-sectional diagram shows the inner workings of a product Use cross-sectional diagrams to design final product and be able to explain how it meets the design criteria.	Generate, develop, model and communication own ideas through and annotated sketches. Use exploded diagrams (shelters) to design final product and be able to explain how it meets the design criteria. Use annotated sketches to design final product and be able to explain how it meets the design criteria. Discuss the use of prototypes To select tools and equipment suitable for the task. To select materials and components suitable for the task. Write a simple order of the stages of making.
Make					
	Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	Follow instructions to apply new skills learnt. To use suitable tools and equipment for the task. Follow procedures for safety and hygiene Follow design criteria to create product Use their design to make the product. With support measure, mark out, cut and shape materials and components with some accuracy assemble, join and	Apply skills learnt previously. To use suitable tools and equipment for the task. Follow procedures for safety and hygiene Follow design criteria to create product Use their design to make the product. To measure, mark out, cut and shape materials and components with accuracy assemble, join and combine materials and components with some accuracy	Apply skills learnt previously. To use suitable tools and equipment for the task. Follow procedures for safety and hygiene Follow design criteria to create product Use their design to make the product. To measure, mark out, cut and shape materials and components with accuracy assemble, join and combine materials and components with some accuracy	Apply skills learnt previously. To use suitable tools and equipment for the task. Follow procedures for safety and hygiene Follow design criteria to create product Use their design to make the product. To measure, mark out, cut and shape materials and components with accuracy assemble, join and combine materials and components with some accuracy

		combine materials and components with some accuracy With support apply a range of finishing techniques with some accuracy With support consider the functionally (aesthetics) as making the product.	To apply a range of finishing techniques with some accuracy To consider the functionally (aesthetics) as making the product.	To apply a range of finishing techniques with some accuracy To consider the functionally (aesthetics) as making the product. To use suitable tools and equipment for the task.	To apply a range of finishing techniques with some accuracy To consider the functionally (aesthetics) as making the product. To use suitable tools and equipment for the task.
Evaluate					
	Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria	Investigate and evaluate a range of products relevant to their project Test and evaluate their own products against design criteria and the intended user and purpose Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work	Investigate and evaluate a range of products relevant to their project Test and evaluate their own products against design criteria and the intended user and purpose Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work	Investigate and evaluate a range of products relevant to their project Test and evaluate their own products against design criteria and the intended user and purpose Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work considering the views of others.	Investigate and evaluate a range of products relevant to their project Test and evaluate their own products against design criteria and the intended user and purpose Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work considering the views of others.