Marlcliffe Primary
Design Technology Progression Map

EYFS	Key Skills	EYFS ELG
	In FS2 • Understands that different media can be combined to create new effects *e.g. make a face/firework picture, birthday cakes design, design and make a pair of paper slippers* • Manipulates materials to achieve a planned effect *e.g. owls (clay)* • Constructs with a purpose in mind, using a variety of resources *e.g. construction blocks, ramp for Beebots, making a habitat for woodland animals* • Uses simple tools and techniques competently and appropriately *e.g. cutting safely when making fruit kebabs, jam sandwiches, fruit salads and creating iced biscuits. Hammer golf tees into pumpkins. Making pancakes* • Selects appropriate resources and adapts work where necessary e.*g. making slippers* • Selects tools and techniques needed to shape, assemble and join materials they are using *e.g. paper chains, moving part astronauts, moving rocket/car, making lanterns* • Return to and build upon previous learning e.*g. handprint baubles/calendars and wreaths* • Experience a range of technology *e.g. remote-control cars and Beebots* • Create collaboratively, sharing ideas, resources and skills e.*g. Paper Chains, Small world activities, Creating 100 Double Decker*	**Expressive Arts and Design** **ELG: Creating with Materials** Children at the expected level of development will: • Safely use and explore a variety of materials, tools, techniques, experimenting with colour, design, texture, form and function; • Share their creations, explaining the process they have used; • Make use of props and materials when role playing characters in narratives and stories. **Educational Programmes from Statutory Framework** **Expressive Arts and Design** The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe. **Physical Development** Repeated and varied opportunities to explore and play with small world activities, puzzles, arts and crafts and the practice of using small tools, with feedback and support from adults, allow children to develop proficiency, control and confidence.

	KS1	Middle Phase (Y3/4)	Upper Phase (Y5/6)
Cycle A Themes	***Autumn 1*** *– India (rickshaw with axle and wheels)* ***Autumn 2*** *– Real Life Superheroes (join textiles to make a superhero coat for a teddy, decorate with repeating patterns)* ***Summer 1*** *– Schools in the Past (twister toy with an axle)* ***Summer 2*** *– The Secret Garden (cook loaded potato skins)*	***Spring 1 – Explorers –*** *Design and make a wooden maze* ***Summer 1*** *– Field to Fork (Grow ingredients in Secret Garden and use to make a healthy meal – considering what makes a healthy diet)* ***Summer 2*** *– What did Romans do for us? Design and make a Roman catapult – to use in a re-enactment)*	***Spring 2 –*** *Seasonal cooking* ***Summer 1*** *– Working toys (using cams and cogs)*
Cycle B Themes	***Autumn 1*** *– Beside the Seaside (moving picture with a lever)* ***Autumn 2*** *– Pirates and the Sea (join textiles to make a pirate puppet and decorate with collage)* ***Spring 2*** *– Grand Designs (3D model of a bedroom)* ***Summer 1*** *– Made in Sheffield (moving picture with a slider)* ***Summer 2*** *–Blooms and Bees (cook a broth)*	***Spring 1*** *– Surviving Extreme Environments – sustainable cooking* ***Spring 2*** *–Around the World (design and make a buzzer maze)* ***Summer 2*** *– Coasts - Whitby (sew patchwork cushion using recycled fabrics which includes embellishments)*	***Autumn 2*** *– Groovy Greeks (design and make a wooden maze inspired by Theseus and the Minotaur. Focus on joining techniques. Robots to then be programmed to follow a maze)* ***Spring 1*** *– Sew a Mobile Phone Cases (functionality focus i.e. children to make them to a specific size and with a user in mind. Case to be embellished)* ***Summer 1*** *– Mayans (prepare a Mexican Chilli e.g. washing and preparing vegetables, chopping ingredients into appropriately sized pieces, opening tins carefully (i.e. kidney beans), sieving ingredients and measuring accurately. Children to follow a set recipe)* ***Summer 2*** *– Burglar Alarm (circuits)*
Design	• Use mock-ups e.g. trial models to try out their ideas. *(Real Life Superheroes and Pirates and the Sea – experiment with stitches)* • Propose more than one idea for their product. *(Schools in the Past – different designs for the sides of the twister toy)* • Use ICT to communicate ideas. *(Real Life Superheroes – repeating pattern design)* • Use drawings to record ideas as they are developed. *(India – rickshaw; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom design)* • Add notes to drawings to help explanations. *(India – rickshaw; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom design)* • Design functional products based on a criterion. *(India – rickshaw; Real Life Superheroes – textile coat for a teddy; Schools in the Past – twister toy; The Secret Garden – potato skins; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom model; Made in Sheffield – moving picture; Blooms and Bees - broth)*	• Propose realistic suggestions and discuss how they can achieve their chosen design ideas. *(Roman catapult, patchwork cushion, wooden maze)* • Design products that have a clear purpose and an intended user. *(Roman catapult, patchwork cushion, wooden maze)* • Plan a sequence of actions to make a product. *(Roman catapult, patchwork cushion, wooden maze)* • Decide upon tools and materials. *(Roman catapult, patchwork cushion, maze)* • Record the plan by drawing using annotated sketches. *(Roman catapult, patchwork cushion, maze)* • Use prototypes to develop and share ideas. *(Roman catapult)* • Consider aesthetic qualities of materials chosen. *(Patchwork cushion)* • Use computer aided design where appropriate.	• Record ideas using annotated diagrams/sketches. (*Phone cases, cams toy)* • Use models, kits and drawings to help formulate design ideas. • Sketch and model alternative ideas. Decide which design idea to develop. (*Phone cases)* • Be enterprising when considering a product to design. • Research and develop a design criterion with a specific user in mind. (*Phone cases)* • Consider functionality and ensure an idea/product is fit for purpose. (*Phone cases)* • Plan the sequence of work. Devise step by step plans which can be read/followed by someone else. (*Mobile phone cases)* • Use exploded diagrams and cross-sectional diagrams to communicate ideas. • Use computer aided design where appropriate.
Make	• Explain what they are making. • Cut and shape materials safely. *(India and Schools in the Past – shorten axles; Real Life Superheroes and Pirates and the Sea – cut fabric; Grand Designs – model furniture).* • Discuss their work as it progresses. *ongoing* • Explain which materials they are using and why. *(India – rickshaw; Real Life Superheroes – textile coat for a teddy; Schools in the Past – twister toy; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom model; Made in Sheffield – moving picture)* • Select from a range of small tools/equipment needed to work the materials.	• Demonstrate a range of cutting, shaping and finishing techniques. *(Roman catapult, patchwork cushion, wooden maze)* • Select appropriate techniques for different parts of the process. *(Roman catapult, patchwork cushion, maze)* • Select from a range of tools. *(Roman catapult, wooden maze)* • Use tools with accuracy. *(Roman catapult, wooden maze)* • Select materials according to their functional properties. *(Roman catapult, maze)* • Prepare pattern pieces as templates for their design. *Patchwork Cushion*	• Select from a wide range of tools. • Use tools safely and with precision. *(Phone cases)* • Select from and use a wide range of materials. • Make prototypes/mock-ups. (*Phone cases)* • Use researched information to inform decisions. *(Phone cases)* • Produce detailed lists of ingredients /components/ materials and tools. • Refine their product – review, rework and improve. (*Phone cases)*

	(India – rickshaw; Real Life Superheroes – textile coat for a teddy; Schools in the Past – twister toy; The Secret Garden – potato skins; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom model; Made in Sheffield – moving picture; Blooms and Bees - broth) • Perform practical tasks e.g. cutting, shaping, joining and finishing. *(India – rickshaw; Real Life Superheroes – textile coat for a teddy; Schools in the Past – twister toy; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom model; Made in Sheffield – moving picture)*		
Evaluate	• Explore existing products and investigate how they have been created (including teacher-made examples) *(India – vehicles; Schools in the Past – old-fashioned toys; Beside the Seaside – objects with pivots; Pirates and the Sea – puppets; Grand Designs – model rooms; Blooms and Bees – soup tasting)* • Decide how existing products do/do not achieve their purpose. *(India – vehicles; Schools in the Past – old-fashioned toys; Beside the Seaside – objects with pivots; Pirates and the Sea and the Sea– puppets; Grand Designs – model rooms; Blooms and Bees – soup tasting)* • Suggest improvements to an existing design. *(India – vehicles; Schools in the Past – old-fashioned toys; Beside the Seaside – objects with pivots; Pirates and the Sea – puppets; Grand Designs – model rooms; Blooms and Bees – soup tasting)* • Discuss how closely their finished product meets their own design criteria *(India – rickshaw; Real Life Superheroes – textile coat for a teddy; Schools in the Past – twister toy; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom model; Blooms and Bees – broth)*	*Covered in all units* • Before designing a product, investigate similar products; use these as a starting point for their own design. (*Roman catapult, patchwork cushion, maze)* • Decide which design idea to develop. (*Roman catapult, patchwork cushion, maze)* • Identify the strengths and weaknesses of their design ideas in relation to purpose and needs of the user. (*Roman catapult, patchwork cushion, maze)* • Discuss how well the finished product meets the user's design criteria. (*Roman catapult, patchwork cushion, maze)* • Consider and explain how the finished product could be improved. (*Roman catapult, patchwork cushion, maze)* • Investigate key events and individuals in design and technology (past and present). (*Roman catapult, patchwork cushion, maze)*	• Research and evaluate existing products. *Phone cases* • When evaluating, consider - user, purpose and functionality. *(Phone cases)* • Consider and explain how a finished product could be improved related to design criteria. *(Cams, phone cases)* • Identify the strengths and weaknesses of their own design ideas – consider the views of others. • Refine work/ideas continually. • Consider the aesthetic qualities of a design. • Discuss how well the finished product meets the design criteria (having tested/discussed outcomes with the user). • Report using correct technical vocabulary. • Investigate key events and individuals that have influenced/shaped design and technology (throughout the World). *(Phone cases)*
Technical Knowledge **Construction**	• Show how to stiffen and strengthen some materials. *(India – rickshaw; Schools in the Past – twister toy; Beside the Seaside – moving seaside picture; Grand Designs – bedroom model; Made in Sheffield – moving picture)* • Use recycled materials within products. *(India – rickshaw; Grand Designs – bedroom model)* • Know some different ways of making things move in a 2-D plane e.g. paper clips, hole punches and split pins. *(Beside the Seaside – moving seaside picture with a lever; Made in Sheffield – moving picture with a slider)* • Use tools with increasing independence. *(India – rickshaw; Real Life Superheroes – textile coat for a teddy; Schools in the Past – twister toy; Beside the Seaside – moving seaside picture; Pirates and the Sea – textile puppet; Grand Designs – bedroom model; Made in Sheffield – moving picture)* • Start to use technical vocabulary. *(India – axle, chassis; Real Life Superheroes – stitch, thread, needle; Schools in the Past – axle; Beside the Seaside – lever, pivot; Pirates and the Sea – stitch, thread, needle; Grand Designs – 3D, net; Made in Sheffield – slider)* • Cut out shapes which have been created by drawing round a template. *(Real Life Superheroes – textile coat for a teddy; Pirates and the Sea – textile puppet)* • Attach wheels to a chassis using an axle. *(India – rickshaw; Schools in the Past – twister toy)* • Join materials in a variety of ways. Know how to make a simple structure more stable. *Beside the Seaside – moving seaside picture; Grand Designs – bedroom model; Made in Sheffield – moving picture)* • Decorate using a variety of techniques. *(India – pencil crayon Indian patterns on rickshaw; Real Life Superheroes – fabric pen repeating patterns on textile coat for a teddy; Pirates and the Sea – felt collage on textile puppet; Grand Designs – mixed media bedroom model including wallpaper made using computer program)*	• Use an increasingly appropriate technical vocabulary for tools, materials and their properties. • Prototype a product. (*Roman catapults*) • Strengthen frames with diagonal struts or brackets. *(Roman catapults)* • Measure and mark wood (with support). *(Roman catapults)* • Use ICT to control products. • Use gears, pulleys or simple mechanisms. *(Roman catapults)* • Understand how to add stability to a product *(Roman catapults)*	• Use the correct vocabulary appropriate to the project. • Use mechanical systems such as cams, pulleys and gears. *(Moving toys)* • Program, monitor and control using ICT. • Independently measure, mark and cut wood accurately (to the nearest cm). • Build frameworks to support mechanisms. • Stiffen and reinforce complex structures. • Use the correct vocabulary appropriate to the project. • Join materials using appropriate methods. • Make decisions about the size of material needed. • Understand and use electrical systems in products e.g. series circuits, switches and motors • Add bulbs and buzzers to designs. • Arrange electrical components to allow for movement of parts.
Technical Knowledge **Textile construction**	• Use prepared templates to shape textiles. *(Real Life Superheroes – textile coat for a teddy; Pirates and the Sea – textile puppet)* • Join materials using a running stitch. *(Real Life Superheroes – textile coat for a teddy; Pirates and the Sea – textile puppet)* • Colour and decorate textiles e.g. adding sequins. *(Real Life Superheroes – fabric pen repeating patterns on textile coat for a teddy; Pirates and the Sea – felt collage on textile puppet)*	*All covered in patchwork cushion unit* • Thread a needle independently. • Cut pattern pieces accurately. • Select from a range of fabrics. • Explore running stitch, cross stitch and back stitch. • Understand seam allowance. • Construct products inside out to hide workings.	*All covered in phone cases unit* • Create 3-D textile products using pattern pieces. • Understand pattern layout with textiles. • Create and attach appliques. • Sew on buttons and make loops. • Sew multiple layers of fabric together. • Explore over stich/whip stitch and blanket stitch • Use a combination of stitches , explaining the purpose of those selected.

Technical Knowledge **Cooking and Nutrition**	• Cut and chop a range of ingredients. *(The Secret Garden – potato skins; Blooms and Bees – broth)* • Know about the need for a variety of foods in a healthy diet. *(Blooms and Bees – broth)* • Begin to understand where food comes from. *(The Secret Garden – potatoes)* • Work safely and hygienically. *(The Secret Garden – potato skins; Blooms and Bees – broth; pitta pizzas in English)* • Use a knife with increasing control. *(The Secret Garden – chopping potatoes; Blooms and Bees – chopping vegetables)* • Know about the *Eatwell Plate* and begin to organise foods into groups. *(Blooms and Bees – in particular, lentils as protein)* • Measure/weigh ingredients with adult support. *(The Secret Garden – potato skins; Blooms and Bees – broth)* • Follow a simple recipe. *(The Secret Garden – potato skins; Blooms and Bees – broth; pitta pizzas in English)* • Assemble and cook ingredients. *(The Secret Garden – potato skins; Blooms and Bees – broth; pitta pizzas in English)*	*Covered in Field to Fork unit and in surviving Extreme Environments* • Follow simple recipes with increasing independence. • Join and combine a range of ingredients using utensils. • Weigh ingredients accurately with some support. • Identify the purpose of each ingredient in a recipe: flour, egg, fat, sugar. • Understand the food groups on the *Eatwell Plate* and the principals of a healthy diet. • Cut, peel, grate, chop a range of ingredients. • Refine knife skills to manage size of dice/slice. • Understand seasoning and adjust seasoning according to taste. • Know where and how ingredients are reared and caught. • Understand seasonality of British foods.	*Covered in Mayans (Chili) unit and in Trade and Economics (Noodle and rice)* • Join and combine a widening range of ingredients, including those that have varied cooking times. • Select and prepare foods for a particular purpose. • Prepare and cook a variety of dishes (mostly savoury), using a range of cooking techniques. • Prepare multiple components to make a meal. • Use individual ingredients in a range of different ways. • Follow increasingly complex recipes. • Choose ingredients to support healthy eating choices when designing their food products. • Understand seasonality of British foods (and how to adjust recipes accordingly). • Know where and how ingredients are grown, reared, caught and processed.