Design & Technology Curriculum

Greswold Primary School

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D&T Intent

Every child will use their imagination and creativity, combined with their initiative and the influence of their surrounding environment, to design and make a wide range of products within a whole host of contexts relating to cross-curricular learning, the wider school community and their local area.

Children will build and apply the knowledge and skills needed to design high quality products. They are given the opportunity to understand nutrition and learn how to cook. At Greswold we want children to develop their imagination, their critical thinking and their understanding of the world around them through their love of Design and Technology. We aim for our children to question and think innovatively about the world around them in order to design and develop their own products with a purpose in mind.

Design & Technology in the Early Years

Children use a variety of construction materials within their environment. They follow their interests and with support, plan, gather resources and then create their unique pieces on both a large and small scale. Children learn, through experimentation, how to manipulate a variety of joining equipment for example split pins, tape and glue. This also develops their fine motor skills and their ability to assess, evaluate and improve their own work and the work of others. Pupils are given the opportunity to use and develop skills of one-handed equipment such as saws, hammers and hand drills, under adult supervision and following the correct safety measures.

'The Greswold Designer'

Confidence in showcasing products they have designed and explain the process in detail.

The ability to demonstrate solve problems, resilience, innovation and reflective.

Be familiar with a range of materials, tools and how to work with these safely.

Apply and build upon skills from previous years.

Be able to respond to design briefs, including those created by themselves, to creatively and effectively design, make and evaluate a range of products.



The Greswold... Designer

D&T Long Term Plan

Year	Autumn Term	Spring Term	Summer Term
6	**All the Fun of the Fair** Mechanisms and Electrical Systems	**Pasta Sauces** Food and Nutrition	**Make Do and Mend** Textiles
5	**Controllable Vehicles** Mechanisms and Electrical Systems	**Victorian Inspired Toys** Mechanisms	**The Great Greswold Bake Off** Food and Nutrition Structures – packaging
4	**Light up the Sky(scraper)** Structures and Electrical Systems	**A Sweet Treat: Muffins** Food and Nutrition	**Money Pouches and Valuable Holders** Textiles
3	**Den Building** Structures	**Introduction to Seasonality: Pasta Salad** Food and Nutrition **Marble Run** Structures	**Storybooks** Mechanisms – Levers & Linkages
2	**Fire Vehicles** Mechanisms	**Winter Soup** Food and Nutrition	**African / Indian Animals** Textiles
1	**Moving Pictures** Mechanisms - Sliders	**Castles Drawbridges** Mechanisms – Winding	**Healthy Snacks** Food and Nutrition
EY	• Select and use resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them. • Use one-handed tools and equipment, for example, making snips in paper with scissors. • Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Explore different materials freely, in order to develop their ideas about how to use them and what to make. • Develop their own ideas and then decide which materials to use to express them. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.		

D&T Outcomes

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
• Explore how products have been created. • Children can use scissors and paper fasteners. • Experiment with levers and sliders to find different ways of making things move. • State the product they are making and its purpose. • Children can join materials together with glue, tape. • Children can fold, tear and cut paper. • Test out mechanism to see if it needs changing. • Discuss their own product identifying good points	• Explore how products have been created. • State the product they are making and its intended purpose. • Choose most effective way of joining two similar or different similar or different. • Talk about their own product in detail identifying good points	• Understand that products function in ways to give it purpose. • Adapt plans take to account for availability of resources. • Adapt plans take to account for availability of resources. • Identify ways to improve the finished product if learning was undertaken again.	• Explain basic principles of building construction. • Use prototypes to develop and refine ideas. • Be inspired by designers and architects. • Combine learning from different subjects to develop ideas further. • Change ideas to ensure product has function as well as appeal. • Change ideas to ensure product has function as well as appeal. • Build a free-standing structure. • Learn how to take calculated risks in designing stage. • Reference principles of constructions using finished product.	• Explain how products work by disassembling and analysing. • Diagnose faults in battery operated devices. • To identify elements of a product to be altered to improve its function. • Measure and mark out to the nearest mm. • Take risks to become resourceful, innovative, enterprising and capable citizens • Confidently draw on knowledge and skills from other subjects during the design process to help generate ideas. • Generate realistic ideas, focusing on the needs of the user. • To identify elements of a product to be altered to improve its function. • Measure and mark out to the nearest mm. • Identify patterns or trends of experiment outcomes to determine future improvements.	• Survey intended audience using precise questioning. • Take risks to become resourceful, innovative, enterprising and capable citizens • Confidently draw on knowledge and skills from other subjects during the design process to help generate ideas. • Identify ways to work more efficiently and precisely. • Generate realistic ideas, focusing on the needs of the user. • Apply a range of finishing techniques with accuracy which appeal to the preference of the audience. • Diagnose faults and identify elements of a product to be altered to improve its function. • Take risks to become resourceful, innovative, enterprising and capable citizens. • Use age related audience feedback to inform ways to develop products further.

D&T Progression

FKS	30-50 •To use one-handed tools and equipment, e.g. makes snips in paper with child scissors. •To understand that equipment and tools have to be used safely. •To show an interest in technological toys with knobs or pulleys, or real objects. •To show skill in making toys work by pressing parts or lifting flaps to achieve effects, such as sound, movements or new images. •To enjoy joining in with dancing and ring games. •To begin to move rhythmically. •To imitate movement in response to music. •To tap out simple repeated rhythms. •To develop preferences for forms of expression. •To use movement to express feelings. •To create movement in response to music. •To capture experiences and responses with a range of media, such as music, dance and paint and other materials or words.	40-60 •To use simple tools to effect changes to materials. •To handle tools, objects, construction and malleable materials safely and with increasing control. •To show understanding of the need for safety when tackling new challenges and consider and manage some risks. •To show understanding of how to transport and store equipment safely. •To practise some appropriate safety measures without direct supervision. •To explore what happens when they mix colours. •To experiment to create different textures. •To understand that different media can be combined to create new effects. •To manipulate materials to achieve a planned effect. •To construct with a purpose in mind, using a variety of resources. •To use simple tools and techniques competently and appropriately. •To select appropriate resources and adapt work where necessary. •To select tools and techniques needed to shape, assemble and join materials they are using. •To create simple representations of events, people and objects. •To choose particular colours to use for a purpose.	ELG •To handle equipment and tools effectively, including pencils for writing. •To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. •To use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Year 1	**Moving Rocket Pictures:** **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 **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 **Evaluate** • explore and evaluate a range of existing products • build structures, exploring how they can be made stronger, stiffer and more stable **Technical Knowledge** • explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.-	**Mechanisms Drawbridges:** **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 **Make** • select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] **Technical knowledge** • 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.	**Cooking and Nutrition Dips and Dippers:** **Cooking and Nutrition** • Use the basic principles of a healthy and varied diet to prepare dishes • Understand where food comes from. **Evaluate** • explore and evaluate a range of existing products **Make** • select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Year 2	**Mechanisms wheels and axles Fire Vehicle:** **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 **Evaluate** • explore and evaluate a range of existing products • explore and use mechanisms (wheels and axles) **Technical Knowledge** • explore and use mechanisms (wheels and axles)	**Winter Vegetable Soup** **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 **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. **Evaluate** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria **Cooking and Nutrition** • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.	**Textiles- It's a Puppet!** **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 **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 **Evaluate** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria

Year 3	**Den Building** **Design** • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces **Make** • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **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 **Technical Knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures	**Pasta Salad and Marble Run** **Cooking and Nutrition** • understand and apply the principles of a healthy and varied diet • prepare a variety of predominantly savoury dishes using a range of cooking techniques • understood seasonality, and know where and how a variety of ingredients are grown, caught and processed **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 **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 tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • 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 **Evaluate** • understand how key events and individuals in design and technology have helped shape the world	**Mechanisms levers and linkages (story book)** **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 **Technical Knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

Year 4	**Light up the Sky(scraper)** **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/ **Make/** • select/from/and/use/a/wider/range/of/tools and/equipment to/perform/practical/tasks [for example, cutting, shaping, joining and finishing], accurately **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 Skills** • apply their understanding of how to strengthen, stiffen/and/reinforce/more complex structures • understand/and/use/electrical/systems in/their products [for example, series circuits incorporating switches, bulbs, buzzers and/motors] =	**A sweet treat: Muffins!** **Cooking and Nutrition** • understand and apply the principles of a healthy and varied/diet • prepare/a/variety of predominantly savoury dishes using a range of cooking techniques • understood seasonality, and know where and how a variety of ingredients are grown, caught and processed/ **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 **Make/** • select/from/and/use/a/wider/range/of/tools and/equipment to/perform/practical/tasks [for example, cutting, shaping, joining and finishing], accurately • 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/ **Evaluate/** understand/how/key events and/individuals in/design/and/technology have/helped/shape/the world/	**Textiles: Valuable Holders** • use/research/and/develop/design/criteria/to/inform/the/design/of/innovative, functional, appealing products that are/fit for purpose, aimed/at a particular individual/ • generate, develop, model/and/communicate/their/ideas through/discussion, annotated sketches **Make/** • select/from/and/use/a/wider/range/of/tools practical/tasks [for example, cutting, shaping, joining and finishing], accurately • select/from/and/use/a/wider/range/of/materials and/components, including, textiles 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/

Year 5	**Controllable Vehicle** **Design** • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **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** • 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 • 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]	**Victorian Inspired Moving Toys** **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 **Make** • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **Technical Knowledge** • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	**Bake-Off** **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 (to sell at summer fayre) **Make** • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **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 **Cooking & Nutrition** • understand and apply the principles of a healthy and varied diet • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Year 6	**All the Fun of the Fair** **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 **Make** • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately **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 • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	**Pasta Sauces** **Cooking and Nutrition** • understand and apply the principles of a healthy and varied diet • prepare a variety of predominantly savoury dishes using a range of cooking techniques • understood seasonality, and know where and how a variety of ingredients are grown, caught and processed **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 **Make** • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • 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 **Evaluate** understand how key events and individuals in design and technology have helped shape the world	**Make Do and Mend** • generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **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 **Evaluate** explore and evaluate a range of existing products **Cooking & Nutrition** • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

D&T Vocabulary

Theme	Mechanisms and Moving Components	Constructions and Structures	Electrical Systems and Controls	Textiles	Cooking and Nutrition
Year 1	**Moving Pictures** Mechanism, Wheel, slider, lever, pivot, slot, card, masking tape, split pin, join, pull, push, up, down, straight, curve, forwards, backwards, design, make, evaluate, purpose, ideas, design criteria, product, function **Castles (winding)** wind, handle, winding, unwind, turn, rotate, twist, handle, axle, reel, mechanism, movement, string, thread, attach, join, fix, build, make, design, test, strong, stable				**Dips** fruit, vegetables, chopping board, knife, peeler, slicing, peeling, cutting, squeezing, healthy diet, ingredients, tasting, arranging,
Year 2	**Vehicles (GFoL fire vehicles)** Mechanism, vehicle,wheel, axle,axle holder, chassis, body, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism			**Animal puppets** fabric, template, pattern pieces, mark out, decorate suitable quality centimetre/metre needle pin stitch thread wool / cotton/ felt	**Winter soup** knife, peeler, grater, chopping board, slicing, peeling, cutting, healthy diet, ingredients, tasting, recipe, measure
Year 3	**Story books – Levers and linkages** Mechanism Fixed pivot, Loose pivot Lever, storyboard	**Den Building** frame, stiffen reinforce, triangulation stability, temporary permeant, specification shelter, preserve **Marble Run** angle, assemble, attachment, base, brace, channel, column, construct, curve, design,			**Pasta salad** nutrition, nutritional balanced diet, energy carbohydrates grams/kilograms millilitre/litre temperature, celsius hygiene, utensils texture, appearance

Theme	Mechanisms and Moving Components	Constructions and Structures	Electrical Systems and Controls	Textiles	Cooking and Nutrition
		evaluate, frame, friction, gradient, improve, join, marble, measure, modify, motion, prototype, reinforce, ramp, rolling, slope, stable, steep, strength, structure, test, track, tube, weight, wide, zigzag			preference, edible reared, grown processed, seasonal varied diet
Year 4		**Light up the Sky(scrapers)** Gravity, Architect Foundations , Structures Frame, Stiffen Stability , Reinforce Combine, Construct	**Light up the Sky (scrapers)** Circuit, Fault Connection, Toggle Switch, Conductor, Battery Battery Holder, Light Bulb Bulb Holder	**Valuable Holders** fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance, Back stich, Running stitch, tacking, loom, annotated sketch, aesthetics,	**Cooking for an audience – Muffins** yeast, dough bran, seasonality source, intolerance allergy, varied gluten, nutrition
Year 5	**Cam Mechanisms** Cam, Linear Motion, Rotary Motion, Cam Follower Pear shaped cam Snail cam Off-centre/eccentric cam Peg cam Ellipse cam Reciprocating motion Oscillating motion Friction wheel Crank handle, Axle Housing framework		**Controllable vehicles** pulley, drive belt, rotation, transmit, axle, motor circuit, switch, circuit diagram mechanical system, electrical system, input, process, output		**The Great Gresswold Bake Off** yeast, dough bran, seasonality source, intolerance allergy, varied gluten, nutrition kneed, prove
Year 6	**All the Fun of the Fair** Pulley, Drive belt Gear, Rotation, Spindle Driver, Follower Ratio, Transmit Motor, Exploded diagrams Cam, crank, Housing Motion, Oscillating			**Make Do and Mend** Textile, fabric, reuse, recycle, stitch, needle, cross stitch, running stitch	**Pasta Sauces** Adapt, healthy, seasonality, staple, chef, Michelin Star, utensil