St Nicholas Primary
Design and Technology Progression Grid

In DT, like all other subjects, we recognise the importance of the methods and practice of teaching we choose to use in enabling pupils to know more, understand more and remember more. In DT, the following approaches will be used and be evident in pupils' books, in order to ensure that the DT learning opportunities are as effective as possible and that pupils progress throughout the year and across year groups during their DT experiences in school.

Key Concepts within DT:

Master Practical Skills	**Design, Make Evaluate and Improve**	**Take Inspiration from Design and Designers Throughout History**
This concept involves developing the skills needed to make high quality products	This concept involves developing the process of design thinking and seeing design as a process	This concept involves appreciating the design process and designers that have influenced the products we use in everyday life.

National Curriculum Statements
Key stage One:

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].
When designing and making, pupils should be taught to:

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

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

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

National Curriculum Statements
Key Stage Two:

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, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

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
- 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
- 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.

Cooking and 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

The Key Stage One curriculum builds on the foundation work completed throughout Early Years. The following progression highlights 'expected' level for areas of the Design and Technology curriculum:

EYFS- Badgers				
Physical development	Physical development	Expressive Arts and Design	Expressive Arts and Design	Being Imaginative
Uses simple tools to effect changes to materials. Handles tools safely and with increasing control. (40-60m)	They handle equipment and tools effectively. (ELG)	Constructs with a purpose in mind, using a variety of resources. Uses simple tools and techniques competently and appropriately. Selects appropriate resources and adapts work where necessary. Selects tools and techniques needed to shape, assemble and join materials they are using. (40-60)	They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. (ELG)	Children 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 (ELG)
Projects: Food: Can you make gingerbread people? (All about me) Mechanisms: Can you make a pop up card? (People who help us? Textiles: Can you make animal finger puppets? Designer focus: Can you design your own vacuum cleaner like James Dyson.				

Year 1		
Key Concepts		Lessons/Activities
Master Practical Skills		**Textiles: Felt Hand Puppets** **Key Question: Can you make an animal hand puppet out of felt?** **Key Links: Where do I live / Animal finger puppets** **Mechanisms: Moving Pictures** **Key Question: Can you make a moving picture?** **Key Links: Mechanisms pop up cards** **Food Technology: Savoury Scones** **Key Question: Can you design and make your own savoury scones?** **Key Links: PSHE healthy bodies** **Designer Focus Task: Design an lamp** **Key Question: Can you design a lamp like Phillippe Stark** **Key Links: Designer James Dyson**
Food:	Cut peel or grate ingredients safely and hygienically. Measure or weight using measuring cups or electronic scales. Assemble or cook ingredients.	
Materials	Cut materials safely using scissors. Measure and mark out shapes using a ruler and pencil. Demonstrate a range of cutting and shaping techniques such as tearing, cutting, folding, fringing and curling. Demonstrate a range of joining techniques. Glue, tape, hinge, split pin	
Textiles	Shape textiles using a template Join textiles using running stitch Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing.)	
Mechanisms	Make simple mechanisms using paper and card. Use toys (Kinex/Lego/Mobilo) to create products using wheels, levers or winding mechanisms.	
Design, Make, Evaluate and Improve		
Design Products that have a clear purpose and an intended user. Make products, refining the design as work progresses Use software to design.		
Take inspiration from design/designers throughout history		
Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs Explore how products have been created.		

Year 2		
Key Concepts		Lessons/Activities
Master Practical Skills		**Mechanisms: Wheels and Avels** **Key Question: Can you design a London transport vehicle?** **Key Links: London** **Textiles: Felt Animal Masks** **Key Question: Can you design and make your own safari animal mask?** **Key Links: Safari** **Food: Fruit Salads** **Key Question: Can you make a desert Island fruit salad?** **Key Links: Pirates** **Designer Focus Task: Design an bed** **Key Question? Can you design a bed like Mark Newson.** **Key Links: Dyson and Stark**
Food:	Cut peel or grate ingredients safely and hygienically. Measure or weight using measuring cups or electronic scales. Assemble or cook ingredients.	
Materials	Cut materials safely using scissors. Measure and mark out shapes using a ruler and pencil to the nearest cm. Demonstrate a range of cutting and shaping techniques such as tearing, cutting, folding, fringing and curling. Demonstrate a range of joining techniques. Glue, tape, hinge, split pin	
Textiles	Shape textiles using a template Join textiles using running stitch Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing.)	
Construction	NA	
Mechanisms	Make simple mechanisms using paper and card. Use toys (Kinex/Lego/Mobilo) to create products using wheels, levers or winding mechanisms.	
Design, Make, Evaluate and Improve		
Design Products that have a clear purpose and an intended user. Make products, refining the design as work progresses Use software to design.		
Take inspiration from design/designers throughout history		
Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs Explore how products have been created.		

Year 3

Key Concepts		Lessons/Activities
Master Practical Skills		**Mechanisms: Roman Trebuchets** **Key Question: Can you make a trebuchet?** **Key Links: Romans** **Food: Italian Pizza** **Key Question: Can you make a pizza from scratch?** **Key Links: Italy (Geography)** **Textiles: Bean Bags** **Key Question: Can you make a bean bag with a plant design?** **Key Links: Plants** **Designer Focus Task: Design an poster** **Key Question? Can you design a poster like Morag Myerscough?** **Key Links: Dyson/ Stark and Newson**
Food:	Prepare ingredients hygienically using appropriate utensils. Knead and roll out dough. Cook the product in the oven, ensuring it is fully cooked. Serve food in an appealing way. Clean/wash up after themselves	
Materials	Measure and mark materials before cutting. Cut materials accurately, using appropriate tools. Score and fold paper/card accurately. Join a range of materials using a variety of methods, usually choosing the method most suited to the task. Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.	
Textiles	Begin to understand the need for a seam allowance • Cutting fabric accurately. Join textile with appropriate stitching neatly using running stitch/back stitch. • Creating designs on fabric using applique/pens/ paint.	
Construction	NA	
Mechanisms	Use scientific knowledge off the transference of forces to choose appropriate mechanisms for a product such as levers, winding mechanisms, pulleys and gears.)	
Design, Make, Evaluate and Improve		
Design with purpose by identifying opportunities to design Make products by working efficiently (such as by carefully selecting materials.) Refine work and techniques as work progresses, continually evaluating product design Use software to design and represent product designs.		
Take inspiration from design/designers throughout history		
Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Disassemble products to understand how they work.		

Fox Year A

Key Concepts		Key Concepts		Lessons/Activities
Master Practical Skills		**Master Practical Skills**		
Food:	Prepare ingredients hygienically using appropriate utensils. Knead and roll out dough. Cook the product in the oven, ensuring it is fully cooked. Serve food in an appealing way. Clean/wash up after themselves	**Food:**	Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms) Measure accurately and calculate ratios of ingredients to scale a recipe up or down. Demonstrate a range of baking and cooking techniques (e.g. frying, baking, proving, boiling) Create and refine recipes, including ingredients, methods, cooking times and temperatures.	**Food: Bread Rolls** **Key Question: Food: Can you bake bread rolls?** **Key Links: PSHE healthy eating** **Mechanisms: Water Wheel** **Key Question: Mechanisms: Can you make a water wheel?** **Key Question: River Nile** **Textiles: Pencil Case** **Key Question? Textiles: Can you make a pencil case?** **Key Links: Bean Bags** **Designer Focus Task: Design a piece of furniture** **Key Question? Designers: Can you design a piece of furniture in the style of Arne Jacobsen?** **Key Links: Dyson/Stark/Newson/Myerscough**
Materials	Measure and mark materials before cutting. Cut materials accurately, using appropriate tools. Score and fold paper/card accurately. Join a range of materials using a variety of methods, usually choosing the method most suited to the task. Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.	**Materials**	Measure and mark materials with increased accuracy, before cutting. Cut materials accurately, using appropriate tools. Join a range of materials using a variety of suitable methods. Test their product as they work, making informed adjustments and striving to address any anticipated problems. Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.	
Textiles	Understand the need for a seam allowance • Cutting fabric accurately. Join textile with appropriate stitching neatly using running stitch/back stitch. • Turning out so stitching is hidden. • Creating designs on fabric using applique/pens/ paint. • Incorporating a fastening component – button/zip/press stud.	**Textiles**	Create objects (such as a cushion) that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attached decoration.) Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for a cushion.)	
Construction / Electronics	Create a series and parallel circuits.			
Mechanisms	Use scientific knowledge off the transference of forces to choose appropriate mechanisms	**Mechanisms**	Convert Rotary motion to linear using cams. Use innovative combinations of electronics	

	for a product such as levers, winding mechanisms, pulleys and gears.)		(or computing) and Mechanisms in product design.	
Design, Make, Evaluate and Improve		**Design, Make, Evaluate and Improve**		
Design with purpose by identifying opportunities to design Make products by working efficiently (such as by carefully selecting materials.) Refine work and techniques as work progresses, continually evaluating product design Use software to design and represent product designs.		Design with the user in mind, motivated by the service a product will offer (rather than simply for profit.) Make products through stages of prototypes, making continual refinements Ensure products have a high quality finish, using art skills where appropriate. Use prototypes, cross sectional diagram and computer aided design to represent designs.		
Take inspiration from design/designers throughout history		**Take inspiration from design/designers throughout history**		
Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Disassemble products to understand how they work.		Combine elements of design from a range of inspirational designers throughout history giving reasons for choices. Create innovative designs that improve upon existing products Evaluate the design of products so as to suggest improvements to the user experiences.		

Fox Year B

Key Concepts		Key Concepts		Lessons/Activities
Master Practical Skills		**Master Practical Skills**		
Food:	Prepare ingredients hygienically using appropriate utensils. Knead and roll out dough. Cook the product in the oven, ensuring it is fully cooked. Serve food in an appealing way. Clean/wash up after themselves	**Food:**	Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms) Measure accurately and calculate ratios of ingredients to scale a recipe up or down. Demonstrate a range of baking and cooking techniques (e.g. frying, baking, proving, boiling) Create and refine recipes, including ingredients, methods, cooking times and temperatures.	**Textiles: Applique Flags** **Key Question: Can you design and make an applique flag using a range of techniques?** **Key links: Rainforest and Fir Trade** **Food: Rock Cakes** **Key Question: Food: Can you design and make a cookie/rock cake?** **Key Links: Extreme Earth** **Mechanisms: Cams Mechanism** **Key Question? Mechanisms: Cams project. Can you turn a rotary movement into a linear movement?** **Key Links: Mechanisms / Trebuchets.** **Designer Focus Task: Design a Bridge** **Key Question? Can you design a bridge inspired by Isambard Kingdom Brunel?** **Key links: Designers**
Materials	Measure and mark materials before cutting. Cut materials accurately, using appropriate tools. Score and fold paper/card accurately. Join a range of materials using a variety of methods, usually choosing the method most suited to the task. Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.	**Materials**	Measure and mark materials with increased accuracy, before cutting. Cut materials accurately, using appropriate tools. Join a range of materials using a variety of suitable methods. Test their product as they work, making informed adjustments and striving to address any anticipated problems. Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.	
Textiles	Understand the need for a seam allowance • Cutting fabric accurately. Join textile with appropriate stitching neatly using running stitch/back stitch. • Turning out so stitching is hidden. • Creating designs on fabric using applique/pens/ paint. • Incorporating a fastening component – button/zip/press stud.	**Textiles**	Create objects (such as a cushion) that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attached decoration.) Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for a cushion.)	
Construction / Electronics	Create a series and parallel circuits.			
Mechanisms	Use scientific knowledge off the transference of forces to choose appropriate mechanisms	**Mechanisms**	Convert Rotary motion to linear using cams. Use innovative combinations of electronics	

	for a product such as levers, winding mechanisms, pulleys and gears.)		(or computing) and Mechanisms in product design.	
Design, Make, Evaluate and Improve		**Design, Make, Evaluate and Improve**		
Design with purpose by identifying opportunities to design Make products by working efficiently (such as by carefully selecting materials.) Refine work and techniques as work progresses, continually evaluating product design Use software to design and represent product designs.		Design with the user in mind, motivated by the service a product will offer (rather than simply for profit.) Make products through stages of prototypes, making continual refinements Ensure products have a high quality finish, using art skills where appropriate. Use prototypes, cross sectional diagram and computer aided design to represent designs.		
Take inspiration from design/designers throughout history		**Take inspiration from design/designers throughout history**		
Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Disassemble products to understand how they work.		Combine elements of design from a range of inspirational designers throughout history giving reasons for choices. Create innovative designs that improve upon existing products Evaluate the design of products so as to suggest improvements to the user experiences.		

Owl Year A

Key Concepts		Lessons/Activities
Master Practical Skills		
Food	Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms) Measure accurately and calculate ratios of ingredients to scale a recipe up or down. Demonstrate a range of baking and cooking techniques (e.g. frying, baking, proving, boiling) Create and refine recipes, including ingredients, methods, cooking times and temperatures.	**Food: Spring Rolls** **Key Question? Food: Can you make Spring rolls?** **Key Links: China/previous food units** **Textiles: Decorative Cushions** **Key Question? Textiles: can you make a decorative cushion cover?** **Key Links: Pencil case/drawstring bag/juggles** **Mechanisms: Model Ski Lift** **Key Question: Mechanisms: Can you design and make a model ski lift / Cable Car to cross a gap between two desks?** **Key Links:** **Designer Focus Task: Design a shelter** **Key Question? Can you design a Zaha Hadid inspired shelter?** **Key Links: Designers**
Materials	Measure and mark materials with increased accuracy, before cutting. Cut materials accurately, using appropriate tools. Join a range of materials using a variety of suitable methods. Test their product as they work, making informed adjustments and striving to address any anticipated problems. Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.	
Textiles	Create objects (such as a cushion) that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attached decoration.) Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for a cushion.)	
Mechanisms	Convert Rotary motion to linear using cams. Use Linkages and levers. Use innovative combinations of electronics (or computing) and Mechanisms in product design.	
Design, Make, Evaluate and Improve		
Design with the user in mind, motivated by the service a product will offer (rather than simply for profit.) Make products through stages of prototypes, making continual refinements Ensure products have a high quality finish, using art skills where appropriate. Use prototypes, cross sectional diagram and computer aided design to represent designs.		
Take inspiration from design/designers throughout history		
Combine elements of design from a range of inspirational designers throughout history giving reasons for choices. Create innovative designs that improve upon existing products Evaluate the design of products so as to suggest improvements to the user experiences.		

Owl Year B

Key Concepts		Lessons/Activities
Master Practical Skills		
Food:	Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms) Measure accurately and calculate ratios of ingredients to scale a recipe up or down. Demonstrate a range of baking and cooking techniques (e.g. frying, baking, proving, boiling) Create and refine recipes, including ingredients, methods, cooking times and temperatures.	**Food: Pasta Salads** **Key Question: Can you design and make a pasta salad?** **Key Links: previous food units** **Mechanisms: Linkages and levers** **Key Question: Can you make a snapping monster out of card?** **Key Links: Scandinavia** **Textiles: Drawstring Bags** **Key Question: Textiles: Can you design and make a rainforest inspired drawstring bag?** **Designer Focus Task: Design an item of clothing** **Key Question: Can you design an item of clothing inspired by Vivienne Westwood.** **Key Links:**
Materials	Measure and mark materials with increased accuracy, before cutting. Cut materials accurately, using appropriate tools. Join a range of materials using a variety of suitable methods. Test their product as they work, making informed adjustments and striving to address any anticipated problems. Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.	
Textiles	Create objects (such as a cushion) that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attached decoration.) Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for a cushion.)	
Computing/Electronics	Write code to control and monitor models or products. Create circuits using electronics kits that employ a number of components (such as LEDS, resistors, transistors and chips.)	
Construction	Develop a range of skills to create products (such as drilling, cutting, screwing, nailing, filing and sanding.)	
Mechanisms	Convert Rotary motion to linear using cams. Use Linkages and levers. Use innovative combinations of electronics (or computing) and Mechanisms in product design.	
Design, Make, Evaluate and Improve		
Design with the user in mind, motivated by the service a product will offer (rather than simply for profit.) Make products through stages of prototypes, making continual refinements Ensure products have a high quality finish, using art skills where appropriate. Use prototypes, cross sectional diagram and computer aided design to represent designs.		
Take inspiration from design/designers throughout history		
Combine elements of design from a range of inspirational designers throughout history giving reasons for choices. Create innovative designs that improve upon existing products Evaluate the design of products so as to suggest improvements to the user experiences.		