St. John's Design and Technology Whole School Curriculum – 2023-2024

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Making playdough Printing	Junk model vehicles Christmas hat	Veggie superheroes Bake and decorate gingerbread men		Clay/playdough minibeasts	
Year 1	Food and Nutrition (Block C) How does food effect your senses?		Structures (Block B) How can you stop a tower from toppling over?		Mechanisms (Block A) How can you make a picture move?	
Year 2	Mechanism (Block C) Are bigger wheels always better?		Textiles (Block A) but also incorporate Block E from Year 1. Can you repurpose an item of clothing?		Food and Nutrition (Block E) How healthy is your food?	
Year 3		Food and Nutrition – (Block B) What do we mean by a balanced diet?		Structures Block F What makes a bridge strong?		Mechanisms (Block C) Linkages and Levers. How can you do a lot of work with a little effort?
Year 4	Textiles - Fastenings (Block C) How do you keep a tea towel from slipping off a hook?		Food and Nutrition (Block A) What's really in your food? Also include lessons from Block F			Electrical systems (Block E) How useful are switches?
Year 5	Food and Nutrition (Block D) What can you learn from diets from other cultures?			Structures (Block E) How are frames strengthened, reinforced and made rigid?		Systems (Block B) How can we keep ourselves safe on the road?
Year 6	Textiles (Y5 Block C) Which fabric is ideal for creating a functional and hardwearing lunch bag?		Food and Nutrition (Block C) Does food affect the way you feel?			Mechanisms (Block B) How do pulleys and gears let you see the world?

Design and Technology Domains:

Working as a Designer			
Design	**Make**	**Evaluate**	**Apply**
The art or process of deciding how something will look or work.	Create something by combining materials or putting parts together.	Form an opinion of the value or quality of something after careful thought.	Use something or make something work in a particular situation.

Design and Technology is divided up into the following core domains, all of which use the 'Working as a Designer Domains above:

- ✓ Food and Nutrition
- ✓ Textiles
- ✓ Structures
- ✓ Mechanisms
- ✓ Understanding materials (KS1)
- ✓ Systems/Electrical systems (KS2)

DT Curriculum Narrative

EYFS

Children at the expected level of development will:

- ✓ Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- ✓ Share their creations, explaining the process they have used.

Activities will be a mixture of adult- led focus tasks and independent learning within the provision.

Key Stage 1

Through a variety of creative and practical activities, pupils are 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 will 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

Key Stage 2

Through a variety of creative and practical activities, pupils will 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 will 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.

Knowledge Organiser

Subject:	Art and Design/Design and Technology
Year Group:	Reception

Prior/Background Knowledge:

Children should start school:

- With some experience of drawing and painting.
- With a developing pencil grip, gaining more control
- Use scissors with some control
- Recognising primary colours
- With experience of junk modelling, collage and manipulating playdough.

Expressive Arts and Design ELG

Children at the expected level of development will:

Creating with materials:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Share their creations, explaining the process they have used.

Autumn 1:

Pen portraits: This is done 3 times throughout the year to see progress in drawing. Encourage accuracy and pencil control. (position paper according to whether they are left or right handed)

Painting: Asses recognition of primary colours and holding a paintbrush correctly (the same way they would hold a pencil- Year 1 Art CUSP)

Printing: Using fruit and veg to print with linked to Handa's Surprise. (Naming veg and 5 sense CUSP)

David Hockney: Introduce and do work in his style.

Playdough recipe: Children will make playdough following a recipe- this recipe will be followed throughout the year with children becoming more independent. (Links to Year 1 DT CUSP Food and nutrition)

Senses: We learn about our senses as part of learning about ourselves. (Year 1 DT CUSP Food and nutrition)

Autumn 2:

Junk model vehicles: Scissors to cut down materials, Sellotape, masking tape and glue to join materials. (Year 1 DT mechanisms)

Paint junk model vehicles: Choosing colour for a purpose and beginning to use controlled brushstrokes (CUSP)

Christmas cards: Creating for a purpose, using scissors, controlled pen/paint strokes, pride in final piece.

Christmas hats: Printing with sponge shapes, designing and creating a pattern.

Spring 1:

Pen portraits: This is done 3 times throughout the year to see progress in drawing. Encourage accuracy and pencil control. (position paper according to whether they are left or right handed)

Veggie superheroes: Design and make own veggie superheroes to link with Supertato! Scissors skills, joining skills, pride in a final piece.

Healthy eating: We discuss being healthy heroes and healthy eating (link to Year 1 DT Food and nutrition)

Superhero comic strip: Group work to design and make a superhero comic strip, cutting out characters and speech bubbles to add to a background.

Bake and decorate gingerbread men: Linked to our 'Runaway stories'. Following a recipe, thinking of the design of their man.

Spring 2:

Mother's Day cards: Creating for a purpose, using scissors, controlled pen/paint strokes, pride in final piece.

Easter cards: Creating for a purpose, using scissors, controlled pen/paint strokes, pride in final piece.

Van Gough: Introduce and do work in his style.

Summer 1

Eid cards: Creating for a purpose, using scissors, controlled pen/paint strokes, pride in final piece. (moveable)

Symmetrical butterflies: Choosing colour for a purpose and beginning to use controlled brushstrokes (CUSP)

Clay/playdough minibeast: Manipulating playdough to represent a minibeast. Adding materials for effect. (pipe cleaner antennae, googly eyes etc)

Pen portraits: This is done 3 times throughout the year to see progress in drawing. Encourage accuracy and pencil control. (position paper according to whether they are left or right handed)

Summer 2:

Monet: Introduce and do work in his style.

Father's Day cards: Creating for a purpose, using scissors, controlled pen/paint strokes, pride in final piece.

Under the sea collage: Create own underwater scene using collage materials and fabric to create 2D artwork (CUSP)

Throughout the Year:

- Construction area: indoor and outdoor- (identify different types of building blocks Year 1 DT CUSP- structures)
- Manipulate fabric and yarns by poking, pulling, threading and weaving (CUSP)
- Draw around a template (CUSP)
- Use scissors to cut along straight and curved lines and around shapes (Year 1 DT CUSP- mechanisms)
- Junk modelling: Joining materials with glue and Sellotape.

St John's DT Medium Term Planning (using CUSP resources)

Yr group, Unit Title	Substantive concept	Previous Learning	National Curriculum – Learning Questions	Tier 2 Vocabulary	Tier 3 Vocabulary
Year 1: Food and Nutrition – Block C How does food affect your senses?	Food and Nutrition	EYFS: Expressive Arts and Design • Exploring and Using Media and Materials • Being Imaginative Pupils will be able to: Name a range of vegetables Identify the five senses	Pupils will learn that eating is a sensory experience. They will learn about the nutritional value of vegetables and why colourful food can be better for you. They will use a range of culinary techniques to create and modify dishes that appeal to the senses. 1.Can identify the five senses Can identify key flavours and types of food that have particular tastes Can explain that vegetables contain vitamins and minerals that the body needs Can explain that cooking vegetables makes them less nutritious and eating raw vegetables is better for us Can use a knife safely and accurately with control Can use appropriate vocabulary to describe flavours and textures and explain preferences 2. Can recall key facts about the nutritional value of raw vegetables Can explain that if an unfamiliar food looks attractive, smells pleasant and has a pleasing texture, we are more likely to want to taste it Can use the techniques of grating and ribboning safely and with control Can use appropriate vocabulary to describe tastes and textures 3. Can use adventurous vocabulary to describe the aroma of herbs and spices Can explain how marinading and caramelisation affects the texture, appearance, taste and smell of food Can produce an accurate record of the processes involved Can state preferences with reasons and suggest ways their dish could be improved	Senses Vitamins Sensory	Ribboning Caramelise Marinade
Year 1: Structures – Block B How can you stop a tower from toppling over?	Structures	EYFS: Expressive Arts and Design • Exploring and Using Media and Materials • Being Imaginative Pupils will be able to: Use scissors	In this block, pupils will investigate what needs to be in place so that a structure can remain standing on its own. They will use a range of materials to explore and reason about why The Leaning Tower of Pisa some structures may fall. 1. Can explain that a tower with a wide base and solid foundation will be less likely to topple Can explain and demonstrate the meaning of balance	Tower Topple Lean	Foundation Balance Perpendicular

		Identify different types of building blocks	Can use their understanding of balance to choose how to place blocks when building a tower Can explain the most effective shapes and positions to use to build a stable tower Can identify ways to improve the stability of their tower 2. Can manipulate, fold and cut cardboard accurately Can follow the model provided to make their own examples of different joins Can make decisions about the effectiveness of each join and explain their reasoning Can label types of join correctly 3. Can apply knowledge of what makes a structure stable to their own design apply what they have learnt about joining materials effectively to create a stable structure Can identify methods and materials they have used that have been effective Can explain how their tower could be made more stable such as by widening the base, securing the joins or adjusting the position of the sections of the tower		
Year 1: Mechanisms – Block A How can you make a picture move?	Mechanisms	EYFS: Expressive Arts and Design • Exploring and Using Media and Materials • Being Imaginative Pupils will be able to: Manipulate fabric and yarns by poking, pulling, threading and weaving Draw around a template Use scissors to cut along straight and curved lines and around shapes	In this block, pupils will investigate how sliders work. They will design and make their own card slider product. 1. Can explain what a slider is Can explain the way a slider moves and the direction it moves in Can demonstrate a push and a pull force Can use a template to cut strips of paper accurately and safely Can use the 'up and under' weaving method accurately and consistently Can identify what they have done well and how their work could be improved Can make a record of what they have learnt and the techniques they have used, with simple sentences and drawings 2. Can explain what rigid means Can explain how to make paper more rigid and why it is important for the slider to be made rigid Can explain what a bridge is and its purpose Can follow a series of modelled steps to construct simple slider mechanisms Can use appropriate vocabulary to describe the movement of the slider	Slider Slot Bridge	Push Pull Rigid

			Can suggest ways in which the movement might be improved Can create a design based on a theme, for a specific person or purpose, that incorporates a movable image 3. Can select a suitable mechanism for a specific design and explain reasoning Can use simple tools and techniques to construct a novelty toy or greetings card and mechanism Can identify limitations of techniques or materials and make design adjustments as needed talk about the strengths and areas for improvement in their work Can suggest ways in which their completed product could be improved (structurally or decoratively)		

Yr group, Unit Title	Substantive concept	Previous Learning	National Curriculum – Learning Questions	Tier 2 Vocabulary	Tier 3 Vocabulary
Year 2: Food and Nutrition – Block E How healthy is your food?	Food and Nutrition	Pupils will be able to: Use a knife safely and accurately with control Explain that vegetables contain vitamins and minerals that the body needs Use appropriate vocabulary to describe flavours and textures and explain preferences Use the techniques of grating and ribboning safely and with control	Pupils will learn how foods that are pre-made and processed can often be unhealthy. This block lets pupils practise skills and make food that will help improve their energy, mood and future health. Can identify some examples of types of food that are processed or ultra-processed. Can explain why ultraprocessed food is unhealthy. Can name some key nutrients found in healthy food. Can use the bridge and claw techniques to cut and chop food safely. 2.Can use appropriate vocabulary to describe flavours and textures. Can make suggestions about how flavours and textures could be improved Can identify potato products that have undergone several processes Can identify healthy ways of preparing potatoes Can use a grater and peeler safely and with accuracy Can make predictions about how appearance and texture of food will change as a result of cooking Can describe flavours and textures, state preferences and suggest improvements 3.Can explain what fibre is and identify types of food that contain it Can explain why calcium and protein is important Can use knife skills with accuracy Can use the correct terminology	Ingredients Fibre Protein	Processed Vitamins Starch

			when describing methods, stating preferences and making suggestions for changes		
Year 2: Textiles – Block A How can you repurpose an item of clothing?	Textiles	Pupils will be able to: Identify parts of a needle and explain the meaning of words such as yarn and thread Thread a needle independently Use a running stitch to attach pieces of fabric	In this block, pupils will learn how to use a template to create a simple patchwork by repurposing clothing to create something practical and useful. They will develop their skills using a needle and thread to create small, even stitches. 1.Can use appropriate vocabulary to describe the properties of fabrics Can sort fabrics according to set criteria and explain their reasoning Can explain what a patchwork is and why some geometric shapes are better to use than others Can use a template to draw and cut shapes accurately Can arrange samples of fabric and paper to create a pleasing design, explaining their choices Can identify areas for improvement in their work 2. Can thread a needle independently Can use a template to cut shapes accurately from fabric Can explain what appliqué and overstitching means Can use an overstitch to attach shapes to join two pieces of fabric securely and neatly Can suggest ways in which their work could be improved 3. Can fold and attach fabric to a card template accurately Can join fabric shapes neatly and securely by overstitching Can follow a process to create a patchwork of fabric shapes Can identify ways in which their work could be improved and suggest possible uses for their patchwork samples	Patchwork Overstitch Repurpose	Template Applique Quilt
Year 2: Mechanisms – Block C Are bigger wheels always better?	Mechanisms	Pupils will be able to: Use modelling materials and equipment safely Use rulers and scissors accurately Name types of transport	In this block, pupils will learn how wheels and axles work together. They will build simple wheel mechanisms. They will explore how the size of the wheel and position of the axles affects the movement of simple vehicles. 1.Can explain the meaning of key vocabulary Can find differences and similarities between different wheeled objects Can explain the difference between a fixed and rotating axle Can make a simple model to demonstrate a fixed and rotating axle 2. Can explain how changing the position and alignment of axles affects the movement of a vehicle Can identify the advantages and disadvantages of using multiple axles, large wheels or small wheels	Wheel Axis Axis holder Chassis	Rotate Position Centre

			Can explain how the smoothness of movement is affected by axles not being mounted centrally onto wheels Can draw conclusions about the most effective positioning of axles Can record findings and conclusions accurately using appropriate vocabulary 3. Can apply knowledge about the positioning of wheels and axles to a vehicle design Can make informed decisions about size of wheels to use and can explain reasoning Can cut, measure and join accurately Can identify strengths and weaknesses in a design and the constructed model Can suggest ways to improve a model vehicle's construction and performance		

Yr group, Unit Title	Substantive concept	Previous Learning	National Curriculum – Learning Questions	Tier 2 Vocabulary	Tier 3 Vocabulary
Year 3: Food and Nutrition – Block B What do we mean by a balanced diet?	Food and Nutrition	Pupils will be able to: Use knife skills with increasing confidence and accuracy Identify examples of processed food Identify some key nutrients found in fresh food Know the importance of fibre and carbohydrates in a balanced diet	In this block, pupils will consider what a balanced diet is. They will make three products that are often bought pre-made or highly processed. 1.Can identify some key nutrients Can distinguish between healthy and unhealthy foods Can identify some foods that should be eaten in moderation Can name different methods of preserving fruit Can use a knife safely and with increasing accuracy Can suggest ways in which a recipe could be adapted: - by changing the fruit used - by adding spices - by adding flavour to the yoghurt - by changing the seeds 2.Can explain what a kernel is, where it comes from and how it reacts to heat Can show an understanding of moderation by adding small amounts of salt or sugar to popcorn flavourings Can show creativity in their exploration of ingredients and flavour combinations Can apply their knowledge of sweet, salty, spicy and sour flavours Can suggest ways in which flavours can be adapted 3.Can explain that potatoes provide carbohydrates and that this nutrient is essential for energy	Seasonal Balance Preserve	Stew Pressure Seasoning

			Can explain that a balanced diet means eating some food in moderation Can use knife skills with increasing accuracy Can demonstrate the claw and bridge techniques Can select and use seasoning to enhance flavour and can explain reasons for choices Can explain how homemade chips differ from those bought premade		
Year 3:	Structures	Pupils will be able to: Build structures using a range of different materials Make a structure in accordance with a set of criteria Recognise that a cylindrical pillar is stronger than a rectangular one	In this block, pupils will investigate how the shape and features of a bridge can affect how strong it is. They will also identify types of bridges and the structural changes that engineers and architects make to increase the stability of structures. 1.Can identify the key features of a bridge and explain their purpose Can identify differences and similarities between bridges Can explain what a bascule and suspension bridge is Can identify features that are used to give a bridge strength and stability Can use specified materials to build a simple bridge structure, showing an understanding that using weights as a counterbalance gives the bridge added stability 2. Can identify ways in which a paper bridge can be supported, using arches, piers or counterweights Can suggests ways in which their design could be improved, and their structure strengthened Can identify strengths and weaknesses in their completed bridge and suggest which features have affected the strength of their bridge 3. Can apply prior learning to solve a specific design problem Can make reasonable decisions about which features to include and give reasons for choices Can use construction materials to make three dimensional shapes with secure joins Can generate ideas about how to modify a design to increase the strength and stability of a free-standing structure Can identify strengths and weaknesses in their completed bridge and make suggestions for improvements	Gap Deck Pier	Suspension Arch Bascule
Year 3: Mechanisms – Block C How	Mechanisms	Pupils will be able to: Identify simple mechanisms and their uses	In this block, pupils will investigate various linkages and levers to design and make their own linkages and levers product. Pupils will select and use a variety of modelling materials to create their final outcomes.	Lever Linkage Mechanism	Force Load Effort

can you do a lot of work with little effort?			1.Can identify the parts of a lever and explain how a lever works and how it provides a mechanical advantage Can identify different classes of lever and apply this knowledge to simple mechanisms Can construct simple mechanisms and explain the effects of making adaptations such as lengthening the lever or using a smaller elastic band 2. Can explain the connection between levers and linkages Can describe the difference between the input force and movement and output force and movement Can begin to identify different types of movement created by linkages Can design a simple toy that uses a linkage mechanism, explaining how it will work and reasons for selecting a specific linkage 3. Can select a linkage system to create a desired movement Can select and create a design that complements the type of movement created Can use modelling skills to construct a simple linkage mechanism Can explain how their system works, the changes in movement and force achieved, and make suggestions for improvements		

Yr group, Unit Title	**Substantive concept**	**Previous Learning**	**National Curriculum – Learning Questions**	**Tier 2 Vocabulary**	**Tier 3 Vocabulary**
Year 4: Textiles – Block C How do you keep a tea towel from slipping off a hook?	Textiles - Fastenings	Pupils will be able to: Use running stitch to attach fabrics Describe the properties of materials Use scissors to cut accurately	In this block, pupils will learn how to sew a button onto fabric. They will identify the different functions of fastenings and reflect on the advantages or disadvantages of using certain fasteners. They will also create a solution to the problem of a towel slipping off a hook. 1.Can name a range of fasteners and their component parts Can identify the advantages and disadvantages of using each type of fastener Can explain how and why different fasteners are suitable for different purposes Can record and present findings in a coherent way 2. Can use a range of sewing techniques accurately and effectively Can explain the techniques they have used	**Shank** **Burr** **Hook and Hoop**	**Buckle** **Fastener** **Raw Edges**

			Can identify where they have been successful and suggest improvements 3. Can use running stitch accurately to attach pieces of fabric securely Can recall and refer to prior learning when making a design decision Can apply skills and techniques effectively Can explain a process and identify strengths and areas for development in their own work		
Year 4: Food and Nutrition (Block A) What's really in your food. Also include lessons from Block F	Food and Nutrition	Pupils will be able to: Identify some of the nutrients in a range of foods Dice, slice, chop and grate vegetables Explain the benefits of fresh food, compared to processed food	In this unit, pupils will explore the difference between freshly made food and mass-produced food. The unit will focus on common foods that are part of a healthy diet but are often bought premade and can contribute to poor physical and mental health. 1.Can identify and compare ingredients found in mass-produced pizzas and homemade pizzas Can show an understanding of the link between highly processed food and poor health Can copy a modelled process or technique such as kneading, rolling and stretching Can define the terms: • kneading • gluten • processed • ingredients • bread Can suggest ways in which a recipe could be adapted or improved 2. Can describe the difference in flavour and texture between massproduced and homemade bread Can show an understanding of the terms: • fermentation • proving Can follow a series of steps in a process to make bread Can use appropriate vocabulary to describe how bread dough changes as it is kneaded, proved and cooked Can describe the taste and textures of their bread and identify things they would do differently next time 3. Can identify the differences in ingredients between tinned and fresh soup Can explain why tinned soup is less healthy than fresh Can explain why eating large quantities of sugar is unhealthy Can grate and cook vegetables safely Can explain the purpose of adding sugar to fresh soup and why a potato is needed Can explain how to adjust the taste or texture of the fresh soup Can use appropriate vocabulary to describe textures and tastes	Ingredients Processed Bread	Gluten Kneed Ferment

Year 4: Electrical Systems – Block E How useful are switches?	Electrical systems	Pupils will be able to: Name sources of electrical energy: batteries, mains power, rechargeable batteries Identify common appliances that use electricity Name the basic components of an electrical circuit: bulb, battery, motor, buzzer	In this block, pupils will learn how different types of switches work within electrical circuits and how these can be used to perform a function in a product. 1. Can identify different types of switches Can give examples of appliances that have switches Can explain how a switch works Can explain why switches are necessary Can build a simple circuit with a switch Can make an accurate record of key concepts, using sentences and diagrams 2. Can explain the purpose and function of a range of switches Can identify why certain types of switches are used in specific appliances Can identify appliances that use switches for efficiency, those that have switches for safety reasons, and those that have switches to perform functions other than purely turning an appliance on or off Can draw a simple circuit for an appliance such as a torch Can explain, using annotated drawings, the function of different switches on a particular appliance 3. Can identify which toys and games use electricity and which do not Can identify different ways in which an electrical current is broken in different games and toys explain how a simple electrical game works Can explain how insulating material is used to break a circuit in a game Can create their own game based on the model provided Can make annotated drawings of their game, and explain how their game works and how it acts as a switch	Switch Circuit Component Current	Interruption Unbroken Conductor Multi-purpose

Yr group, Unit Title	Substantive concept	Previous Learning	National Curriculum – Learning Questions	Tier 2 Vocabulary	Tier 3 Vocabulary
Year 5: Food and Nutrition (Block D)	Food and Nutrition	Pupils will be able to: Use a range of techniques to prepare and cook vegetables with accuracy and confidence	In this block, pupils will look to different countries to see what can be learnt from different cultures. The recipes chosen showcase how certain foods can contribute to good health and wellbeing. Pupils will also learn how modern British food represents an eclectic mix of cultures.	Culture Migration Spices	Medicinal Fragrant Stir-fry

What can you learn from diets from other cultures?		Recognise that good nutrition keeps the body healthy, provides energy and helps the body to repair Identify some advantages and disadvantages of eating pre-prepared food Use appropriate vocabulary to explain processes and describe aromas, flavours and textures	1.Can explain how diets need to change in line with changes in lifestyles Can explain why we need fewer carbohydrates and more vegetables in our diet Can identify core flavours of sweet, sour, salty and spicey and know some ingredients that provide these flavours Can form a wrapper to encase a prepared filling Can use knife skills with accuracy Can suggest alternative ingredients that could be used to adapt or change a recipe 2. Can explain why eating a range of vegetables is good for them Can explain why cooking vegetables for a short period of time is healthier than cooking them for a long time Can identify vegetables that have medicinal qualities Can use knife skills safely and with accuracy Can follow the method involved in stir-frying Can explain preferences about flavours and textures and make suggestions for improvements 3. Can name a range of spices and identify some of their medicinal qualities and health benefits Can select and mix spices to add flavour to vegetables Can describe the textures and flavours of food and suggest ways in which a recipe could be improved or adapted Can state preferences about their food and give reasons why they like or dislike specific flavours		
Year 5: Structures (Block E) How are frames strengthened, reinforced and made rigid?	Structures	Pupils will be able to: Identify shapes suitable for adding strength to a structure identify some methods used to provide structural stability	In this unit, pupils will look at a range of ways that frames are reinforced to make them stable. They will identify joins and supports and create a model shelter based on what they have learnt 1.Can identify ways in which framed structures have been reinforced and use technical vocabulary to describe these methods Can use modelling materials confidently to create examples of secure joins Can judge the success of their joins and give reasons why some methods are less effective than others 2. Can use carpentry equipment appropriately, safely and with accuracy and control Can cut four pieces of wood to a specified length to form a frame	Frame I-beam Struts	Brace Mitre Gussetts

			Can identify the most suitable shapes used in construction for reinforcement and strength Can construct a frame using triangles acting as gussets and braces Can explain what they have done verbally and in writing using technical vocabulary 3. Can apply prior learning to a different context Can demonstrate accurate carpentry skills Can identify the methods used to reinforce joins of a structure, using the correct technical vocabulary Can identify weaknesses and strengths of a structure and suggest modifications		
Year 5: Systems (Block B) How can we keep ourselves safe on the road?	Systems	Pupils will be able to: Describe the properties of materials Identify and attach fastenings Understand and use simple algorithms Design and debug simple programs	In this block, pupils will draw on the knowledge they have learnt so far to design and make a road safety belt. Pupils will write a simple program for a micro:bit and evaluate their outcome against the design brief. 1.Can identify specific properties of materials and describe them using appropriate technical language Can develop a design to a specific brief, giving and responding to feedback 2. Can accurately measure and cut fabric using a paper template Can use basic stitching confidently to join pieces of fabric Can select and attach an appropriate fastening for a purpose 3. Can use their knowledge of computing to control a product they have designed Can present a design prototype, explaining how it works and how it fulfils a brief	Properties Fastener Algorithm	Fluorescent Reflective Attachment point Debug Programming

Yr group, Unit Title	**Substantive concept**	**Previous Learning**	**National Curriculum – Learning Questions**	**Tier 2 Vocabulary**	**Tier 3 Vocabulary**
Year 6: Textiles (Y5 CUSP unit, Block C) Which fabric is ideal for creating a functional and hardwearing lunch bag?	Textiles	Pupils will be able to: Use a range of stitches to join fabric Make simple fastenings Explain the concept of wax resist Identify properties of everyday materials	In this block, pupils will consider the durability of fabrics. They will design and make a functional and hardwearing lunch bag. They will create fair tests to investigate the properties of a range of fabrics and consider insulation and waterproofing. 1.Can use technical vocabulary to describe the properties of fabrics Can explain how properties determine uses Can decide on criteria for sorting fabrics Can plan and carry out a fair test and record findings in detail	Durability Repurpose Functional	Beeswax Swatch Insulate

			2.Can identify the properties that make certain materials suitable for the storage of food Can identify how properties of a fabric have changed Can make accurate notes of observations and justify conclusions drawn 3. Can give reasons why some clothing items are more suitable than others Can cut and sew accurately, following a series of steps Can make independent decisions about details and embellishments Can identify strengths and areas for development in their work		
Year 6: Food and Nutrition (Block C) Does food affect the way you feel?	Food and Nutrition	Pupils will be able to: Explain what humans need to stay healthy Identify the main food groups Hold and use utensils correctly	Pupils will learn how to cook foods that are often pre-made and processed. They will learn and apply techniques to make dishes designed to help improve energy levels, mood and future health. 1. Can explain the necessity of carbohydrates and the difference between simple and complex carbohydrates Can use the claw method to dice vegetables safely and efficiently Can recognise when pasta is cooked according to personal preferences Can make suggestions for improvements and select seasoning to adjust flavour 2. Can identify foods that are used for their remedial qualities Can dice, peel, chop and grate vegetables safely and accurately Can use relevant vocabulary to describe flavours and make suggestions about how flavours can be adjusted 3.Can show precision and creativity in their arrangement of food on a plate Can cut, peel, grate and dice vegetables accurately and safely Can explain the choices they have made, evaluate their success and suggest improvements	Carbohydrates Staple Nutrient	Saute Translucent Dice
Year 6: Mechanisms (Block B) How do pulleys and gears let you see the world?	Mechanisms	Pupils will be able to: Explain what a gear is and how it works Identify different types of gears and their applications Explore how direction and speed of movement is changed by using a system of gears and / or pulleys Construct a simple pulley system to lift a load	In this block, pupils will investigate how pulleys and gears work and design and make their own gears product. Pupils will select and use a variety of modelling materials to create final outcomes. 1.Can name types of pulleys and describe the difference between fixed, movable and compound pulleys Can identify everyday uses of pulleys, such as lifting heavy loads	Pulley Moveable pulley Fixed pulley	Block and tackle Rack and pinion Driver gear Driven gear

			Can make accurate measurements of force and use these results to conclude that compound pulleys require the least amount of effort to lift a load Can make links between the amount of string that needs to be pulled with the height that a weight is lifted Can draw conclusions from experimentation and explain results 2. Can use the correct technical vocabulary to identify types of gears: spur, worm, driver, driven and idler Can recall, from prior learning, how a simple gear train works Can explain how the size of gear wheel used affects the speed in which it makes one complete rotation Can explain how speed of rotation can be stepped up or stepped down Can identify that adjacent gears rotate in opposite directions Can identify the movements involved in a rack and pinion system Can apply knowledge of gears to design and construct a Ferris wheel model Can use simple tools and modelling materials safely and with accuracy Can identify ways in which the aesthetics, stability or functionality of a structure can be improved.		

Design and Technology Progression Map – Progress measures for working at the 'Expected' Level

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	• Use pictures to convey what they want to make/design. • Select appropriate materials for their designs e.g. round shape for wheels. • Use pictures to ensure model looks realistic. • Work together to design and build models, using a variety of materials.	• Use pictures and words to convey what they want to design/make. • Explore ideas by rearranging materials. • Select pictures to help develop ideas. • Use mock-ups e.g. recycled material trial models to try out their ideas.	• Propose more than one idea for their product. Use ICT to communicate ideas. • • Use drawings to record ideas as they are developed. • Add notes to drawings to help explanations.	• Develop more than one design or adaptation of an initial design. • Plan a sequence of actions to make a product. • Think ahead about the order of their work and decide upon tools and materials. • Propose realistic suggestions as to how they can achieve their design ideas.	• Record the plan by drawing using annotated sketches. • Use prototypes to develop and share ideas. • Consider aesthetic qualities of materials chosen. • Use CAD where appropriate.	• Record ideas using annotated diagrams. • Use models, kits and drawings to help formulate design ideas. • Sketch and model alternative ideas. • Decide which design idea to develop.	• Plan the sequence of work. • Devise step by step plans which can be read/followed by someone else. • Use exploded diagrams and cross-sectional diagrams to communicate ideas.
Make	• Select appropriate materials. Explore different joining techniques Learn to safely use a variety of different tools. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes,	• Select materials from a limited range. • Explain what they are making. • Name the tools they are using.	• Discuss their work as it progresses. • Select and name the tools needed to work the materials. • Explain which materials they are using and why.	• Select from a range of tools for cutting, shaping, joining and finishing. • Use tools with accuracy. • Select from materials according to their functional properties. • Use appropriate finishing techniques.	• Prepare pattern pieces as templates for their design. • Select from techniques for different parts of the process. Create 3d Combine fabrics to create more useful properties Make quality products.	• Develop one idea in depth. • Select from and use a wide range of tools. • Cut accurately and safely to a marked line. • Select from and use a wide range of materials.	• Make prototypes. • Use researched information to inform decisions. • Produce detailed lists of ingredients / components / materials and tools. • Refine their product – review and rework/improve.

	scissors, knives, forks and spoons.						
Evaluate	• Talk about their finished product and say how it works and begin to explain their design process. Return to and build on their previous learning, refining ideas and developing their ability to represent them.	• Explore existing products and investigate how they have been made (including teacher-made examples). • Talk about their design as they develop and identify good and bad points. • Say what they like and do not like about items they have made and attempt to say why.	• Decide how existing products do/do not achieve their purpose. • Discuss how closely their finished product meets their own design criteria.	• Investigate similar products to the one to be made to give starting points for a design. • Research needs of user. • Decide which design idea to develop. • Consider and explain how the finished product could be improved. • Discuss how well the finished product meets the user's design criteria. • Investigate key events and individuals in design and technology.	• Draw/sketch existing products in order to analyse and understand how products are made. • Identify the strengths and weaknesses of their design ideas in relation to purpose/user. • Consider and explain how the finished product could be improved. • Investigate key events and individuals in design and technology.	• Research and evaluate existing products. • Consider user and purpose. • Consider and explain how the finished product could be improved related to design criteria. • Investigate key events and individuals in design and technology.	• Identify the strengths and weaknesses of their design ideas. • Report using correct technical vocabulary. • Discuss how well the finished product meets the design criteria having tested on/discussed outcomes with the user. • Understand how key people have influenced design in a variety of contexts. • Investigate key events and individuals in design and technology.
Cooking and Nutrition	• Learn to identify healthy and unhealthy foods. • Learn the importance of hand-washing before making or eating food. • Learn how to safely use kitchen utensils.	• Group familiar food products e.g. fruit and vegetables. • Cut and chop a range of ingredients. • Work safely and hygienically.	• Cut, peel, grate, chop a range of ingredients. • Work safely and hygienically. • Know about the *Eatwell Plate.* • Understand where food comes from.	• Follow instructions/recipes. Develop sensory vocabulary/ knowledge using smell, taste, texture and appearance of a range of foods (predominantly savoury) • Join and combine a range of ingredients.	• Make healthy eating choices – use the *Eatwell plate.* • Understand seasonality. • Know where and how ingredients are reared and caught. • Prepare and cook using different cooking techniques.	• Join and combine a widening range of ingredients. Prepare food products taking into account the properties of ingredients and sensory characteristics. Weigh and measure using scales.	• Understand and apply the principles of a healthy and varied diet. • Choose ingredients to support healthy eating choices when designing their food products.

		• Know about the need for a variety of foods in a diet.		• Begin to understand the food groups on the *Eatwell Plate*. Explore the seasonality of fruit and vegetables. Develop understanding of how meat/ fish are reared/ caught.		• Select and prepare foods for a particular purpose. • Know where and how ingredients are grown and processed.	• Prepare and cook a variety of mostly savoury dishes using a range of cooking techniques.