Stamford Green Primary School and Nursery

Design and Technology Compendium

"Creativity is allowing yourself to make mistakes. Design is knowing which ones to keep."

Anon

What is the vision for Design Technology at Stamford Green?

It is our vision that our children:

- See themselves as engineers, cooks, designers and creators
- Learn how to use a wide range of materials and tools correctly and safely that are able to use independently when making their ideas
- Develop the skills when creating designs for their ideas and know how to make their designs into prototypes and final products
- Learn how to be reflective and evaluative – using these skills to develop ideas further
- Understand what makes a healthy diet and develop a range of techniques to cook their own meals

Our Design Technology curriculum is brought to life by our seven commitments:

HAPPINESS
Our Design Technology (DT) lessons will engage, excite and motivate the children and as a result, they will have positive attitudes to their learning. They will see themselves as engineers and creators and will enjoy the designing and making process of a product. The children will enjoy learning how to use a range of tools and materials to enable them to create their product. Children will enjoy how, once they are proficient with a particular skill e.g. cutting, strengthening, they are free to use when designing creatively.
INSPIRING
Children will feel inspired in DT lessons as they know that they will learn how to use tools and develop skills to create their own ideas. Children will feel inspired through our enquiry question approach as they seek to answer the question, through using their ideas. As the children learn the skills in Design Technology, such as cutting, joining, strengthening and designing (for example), they will feel motivated when making their own designs. Children will feel inspired by learning how to use a range of cooking techniques, in each year group, that they will be able to use beyond the classroom. Through the planned approach to developing evaluative skills, children will understand how to take on board feedback and evaluations and use this with developing products further.
LEARNING
Our enquiry questions give the children the context for learning a wide range of designing, making and evaluative skills. Throughout the term, children will learn how to develop their skills and master a particular technique (such as sewing, woodwork, using cams, for example) before utilising these skills in their designs. They will also learn how to use a range of tools correctly and safely. Children will progressively learn how to be creative in the designing stage, keeping in mind the purpose and design brief at all times. As they progress through the school, they will learn about refining designs and creating prototypes before making their final product. Finally, children will learn how to evaluate purposefully, with the design brief in mind. In every year group, children will learn how to develop their cooking skills and will design, make and evaluate a food product. Children will learn and use technical vocabulary correctly, enabling them to talk like an engineer.
TOGETHERNESS
As the children develop their engineering and culinary skills, they will show togetherness, working together to hone a technique. Children will help each other as they improve their technical skills e.g. holding materials together as they are either cut, joined or strengthened. Children will work

together as they learn how to evaluate. Children will learn to recognise that evaluations are not a criticism of their work and can be used to develop products and ideas further. Children will learn how to effectively evaluate each other's designs and products.
VALUES
The school's twenty two values will be exemplified in DT lessons as we see children demonstrating self-belief effort and independence. There will be times when designs do not go to plan and the children will learn the value of resilience, patience and perseverance, enabling them to keep going and not give up. Children will work together showing co-operation, sharing and manners. Throughout the whole DT process, children will demonstrate reflectiveness as they continually evaluate and refine their ideas.
AMBITION
We are ambitious for our children through the exciting and engaging enquiry questions, which whilst having a particular technical focus, are also open enough to allow children to think creatively and originally. We want the children to see themselves as engineers and creators, who have a range of technical and practical skills that they can apply and solve problems. We ensure that the children will learn how to use a range of tools, safely and correctly. In addition, we are also ambitious for our staff too and ensure that there is regular commitment to develop teachers' continuing professional development and learning in this area of the curriculum.
ACHIEVEMENT
Our approach to teaching DT ensures that children will learn the whole process of designing, making and evaluating. They will develop evaluative skills, considering the design brief, drawing on strengths and things to improve. As they create their own finished products of their designs, children will have a sense of achievement. Children will know how to use a range of tools correctly and safely and will be able to apply this knowledge outside of the classroom, e.g. helping at home in the kitchen.

Aims for National Curriculum

The National Curriculum for geography aims to ensure that all pupils:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasing technological world
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high quality prototypes and products for a wide range of users
- Critique, evaluate and test their ideas and products and the work of other
- Understand and apply the principles of nutrition and learn how to cook

By the end of Year 6 at Stamford Green, our children will…

Behaviours	The children will see themselves as engineers, as creators and as cooks. They will have positive learning behaviours to this area of the curriculum and will use a wide range of technical vocabulary, correctly and in context.
Attitudes	Children will demonstrate positive attitude in DT lessons. They will show resilience and self-belief when designing and creating and will demonstrate co-operation when working with their peers. Children will develop a positive attitude to evaluation, seeing it not as a criticism but as an opportunity to develop ideas further.
Skills	The curriculum enables the children to have a developed, wide range of engineering and culinary skills. They will learn how to use a range of tools and materials correctly and safely. Each term, the children will learn how to create designs, make a product and evaluate. This approach will ensure that by the time children leave us in Year 6, they have developed these skills to an accomplished standard.
Knowledge	Our children will have a detailed knowledge and understanding of how to design and evaluate their ideas. They will draw on their knowledge of existing products when creating ideas and will know how to plan with a particular focus

	in mind. When evaluating, children will know how to draw on the design brief and will know how to reflect, making suggestions about further improvements. They will understand about the importance of healthy eating and will create products drawing on this knowledge.
Experiences	Our DT curriculum ensures that throughout the school, children will have a range of experiences. In every year group, they will learn how to cook and prepare food. They will learn how to make structures, use textiles, create electrical systems, for example.
Technology	Children will have created a range of technological products throughout their time at the school. They will use technology to support in the planning process, enabling the children to research their ideas. Technology will also be used when evaluating, allowing the children to gauge feedback and develop their ideas further. Children will understand what computer aided design is and how digital technology can be used
Sustained	The children will have developed a range of technical skills that they are able to apply independently, outside of the classroom. Children will use these skills and knowledge as a basis for their further study at secondary school as well as every day life.

British Values and Spiritual, Moral, Social and Cultural Learning in Design Technology

British Values: Our DT curriculum allows the children to be provided with rich opportunities to demonstrate their British Values. Collaboration within the classroom encourages the children to show mutual respect to others by listening to their ideas and working together to achieve their end goal. Children understand the importance of safety rules when using tools and are expected to take responsibility for all of the equipment they use. The children are encouraged to make decisions about their own design choices, styles and media choices. Children are given opportunities to critique each other's work in a positive and constructive manner whilst showing respect for the opinions and beliefs of their peers which may differ from their own.

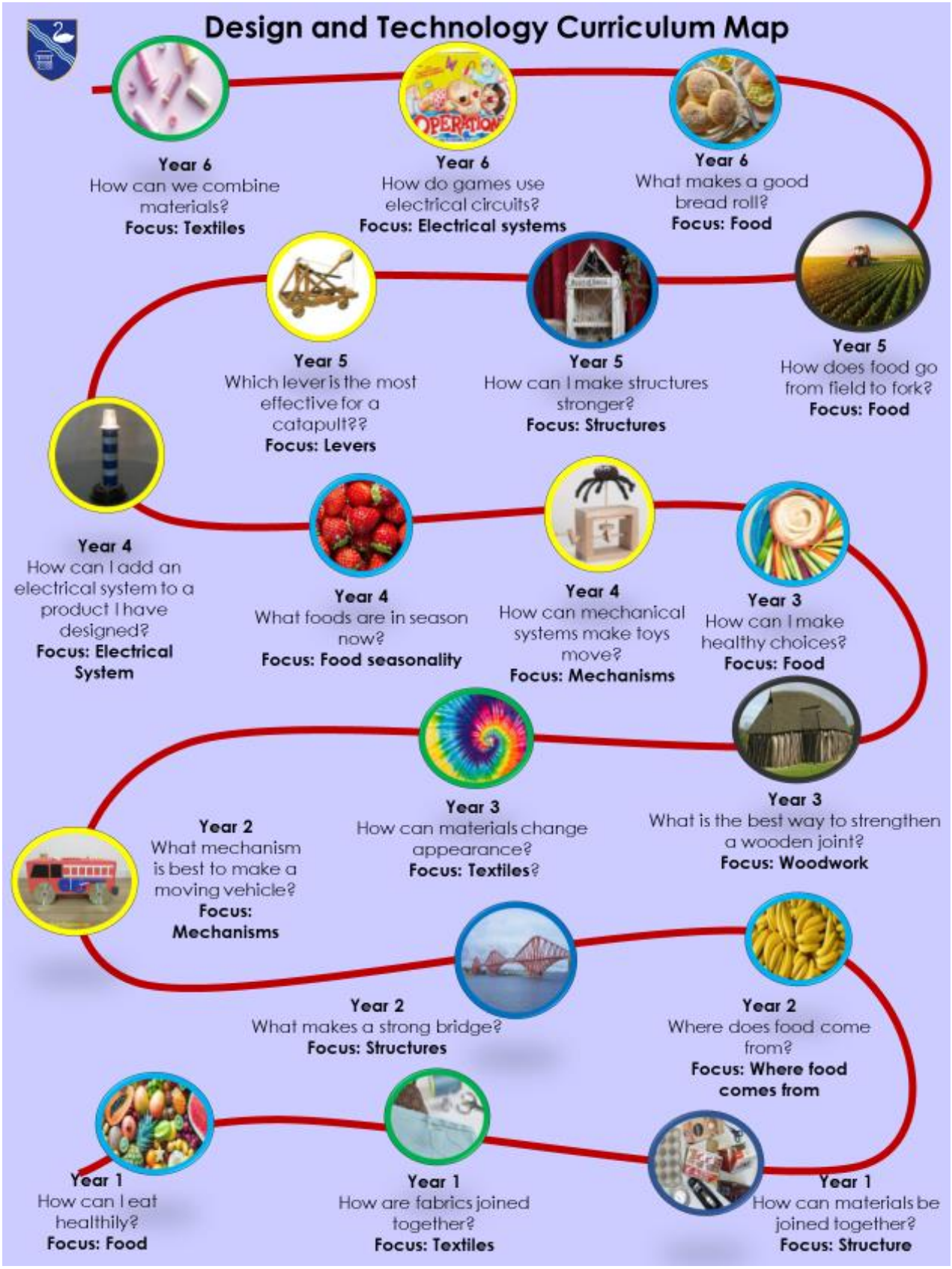
Spiritual: In Design Technology, spiritual development and learning is shown by the way the children express themselves, through the use of materials and resources. Children value and respond to the ideas of others and share ideas of their own. Teachers support spiritual learning by encouraging children to think creatively and develop self confidence in their work. Children develop knowledge and understanding from prototype to final design, a curious attitude and perseverance. DT supports spiritual development by allowing pupils the opportunity to exercise imagination, inspiration, intuition and insight through creativity when analysing, designing and creating their products.

Moral: Children are taught to understand and value where resources come from and the work that goes into it before it reaches us. Children learn about where different foods come from around the world and understand the process of field to fork. Children will have a raised awareness of the moral dilemmas by encouraging them to value their environment and its natural resources and to consider the environmental impact of everyday products.

Social: Children develop socially in Design Technology through working in a variety of different ways e.g. groups, pairs or individually. Children show respect and attention when sharing ideas and opinions with one another, valuing different opinions. Design Technology promotes equality of opportunity through the development of the skills in using different equipment and tools.

Cultural: Design Technology supports cultural development by encouraging children to reflect on products and inventions, the diversity of materials and ways in which DT can improve the quality of life. Children learn where food comes from and when designing food products they learn to respect different food tastes and requirements such as allergies.

Long Term Plan



Long Term Plan: Early Years Foundation Stage

Milestones – By the end of the EYFS, children will demonstrate…
• I can use scissors correctly and accurately • I can use a range of resources to join materials together • I can explain why I have used particular resources for a task • I can work with others when making creations • I can say what has gone well in an creation and make further additions

According to the Statutory Framework, children in Nursery and Reception should be taught:
• The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts and design, enabling them to explore and play with a wide range of media and materials. • The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. • The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

The new vocabulary the EYFS children will use will include:

	Tier 1	Tier 2	Tier 3
Looking after Myself		stack, bricks	
Exploring and Investigating	make	join, tape, elastic bands, folding, paper clips and staplers	
Let's pretend		models, join, tool	
Express yourself		tool, material	
Fine Motor – Using Tools	join, tools	fix	design, improve
Fine Motor – Writing and Creating		scissors, cut, straight, curved, wavy	
Fine Motor – Being accurate	line, join, make	follow, connect	
Building Skills	join, tape	glue, choose	resources, skills
Inventing Purposefully		reflect, improve, add, change	adapt

In Nursery, the skills the children will be taught:

Learning Focus	Progression of skills
Looking after Myself	• Stack bricks on top of each other
Exploring and Investigating	• Use different methods for joining materials e.g. tape, elastic bands, folding, paper clips and staplers
Let's pretend	• Make models to express their ideas • Develop junk modelling skills using simple tools and joining methods
Express yourself	• Use a wider range of tools and materials to join in and create

In Reception, the skills the children will be taught:

Learning Focus	Progression of skills
Fine Motor – Using Tools	• Use scissors to cut in straight lines, either to cut out shapes or make fringes

Fine Motor – Writing and Creating	• Use scissors to cut curved and wavy lines • Use scissors to cut a range of materials
Fine Motor – Being accurate	• Cut out shapes following the outside line • Make models and props connecting sections together effectively
Building Skills	• Know techniques for joining materials including tape and different types of glue • Join materials to make objects for play • Explain why they have chosen particular resources for a task • Create collaboratively sharing ideas, resources and skills
Inventing Purposefully	• Reflect on what went well and what they might improve on their creations • Return to and add to/adapt work

Long Term Plan: Year 1

Milestones – By the end of Year 1, children will demonstrate…
• I can identify which foods are healthy • I can cut, grate and peel ingredients • I can design a product that is appealing and for a purpose • I can select materials appropriately for my product • I can attach 2 materials together choosing the best method • I can identify what I have done well with my product

According to the National Curriculum, children should be taught:
• 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 • 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 • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria • 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. • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from

The new vocabulary the Year 1 children will use will include:			
	Tier 1	**Tier 2**	**Tier 3**
How can I eat healthily?	group, taste, smell	senses, texture, healthy, peel, grate, chop, recipe	ingredients
How are fabrics joined together?	decorate	design, plan, fabrics, template, mark out, join, attach, glue	textiles, techniques, running stitch
How can materials be joined together?	tear, cut, fold, join, fix	design, plan, shape, mark out, measure	framework, materials, structure

In Year 1, the knowledge the children will be taught:	
Substantive Knowledge:	
How can I eat healthily?	• Develop a food vocabulary using taste, smell, texture and feel • Group familiar food products • Cut, peel, grate, chop a range of ingredients
How are fabrics joined together	• Know how textiles can be used to make products • Demonstrate a range of methods to join (e.g. running stitch, gluing)
How can materials be joined together?	• Demonstrate a range of cutting and shaping techniques (e.g. tearing, cutting, folding) • Mark out and measure the materials.

In Year 1, the skills the children will be taught:	
Disciplinary Knowledge	
Design 	• State what products they are designing and making • Articulate who the product is for • Generate ideas by drawing on their own experiences • Use knowledge of existing products to come up with ideas • Use pictures and words to plan ideas
Make 	• Cut materials safely using scissors • Select tools and equipment to cut, shape, join, finish • Join, assemble and combine materials • Plan by suggesting what to do next • Follow procedures for safety and hygiene
Evaluate 	• Talk about their design ideas, thinking about design criteria • Suggest how their products could be improved

Long Term Plan: Year 2

Milestones – By the end of Year 2, children will demonstrate…

- I can identify where different foods come from
- I can follow a recipe
- I can measure and join materials in different ways
- I can use my own ideas to design a product for a purpose
- I can work safely and independently
- I can say what I would do differently next time

According to the National Curriculum, children should be taught:

- 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
- 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
- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria
- 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.
- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from

The new vocabulary the Year 2 children will use will include:

	Tier 1	Tier 2	Tier 3
What makes a strong bridge?	strong, join, measure, cut, shape, join, finish, safe, build	structure, strength, construct, joint, design, evaluate	safety, design criteria
Where does food come from?	food, farm, grow	ingredient, farmed, grown, harvest, chop, peel, grate	safety, hygiene
What mechanism is best for me to make a moving vehicle?	move, build	product, movement, assemble, design, evaluate	mechanism, axle

In Year 2, the knowledge the children will be taught:

	Substantive Knowledge:
What makes a strong bridge?	• Describe the different characteristics of materials • Measure materials • Join materials in different ways
Where does food come from?	• Know where different ingredients come from • Know how food is farmed and grown • Chop, peel and grate with increasing confidence
What mechanism is best for me to make a moving vehicle?	• Measure and mark out materials • Begin to use wheels and axels • Join materials in different ways

In Year 2, the skills the children will be taught:	
Disciplinary Knowledge	
Design 	• State and explain what products they are designing and making • Design a product for themselves and others. • Explain how the product will work and how it will be suitable • Use knowledge of existing products to come up with ideas • Use pictures and words to plan ideas
Make 	• Cut materials safely using scissors • Select tools and equipment to measure, cut, shape, join, finish • Join, assemble and combine materials in different ways • Explain how the product works and make suggestions of what to do next • Follow procedures for safety and hygiene
Evaluate 	• Talk about their design ideas, thinking about how they met the design criteria and what went well. • Talk about what they would do differently if they were to do it again

Long Term Plan: Year 3

Milestones – By the end of Year 3, children will demonstrate…

- I can measure, mark and cut accurately using the appropriate equipment
- I can assemble and join materials accurately
- I can research existing products to get ideas for my own design and identify what I like about them
- I can follow a given design criteria or recipe
- I can work through the design plan in order
- I can apply a range of finishing techniques to my product

According to the National Curriculum, children should be taught:

- 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
- 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
- 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.

The new vocabulary the Year 3 children will use will include:

	Tier 1	Tier 2	Tier 3
How can materials change appearance?		textiles, fabrics, dye, appearance, purpose	cotton
What is the best way to strengthen a wooden joint?	structure, strong, stronger, wood, measure, cut, join, safe, tools	equipment, joint, assemble, strengthen, reinforce, saw, mark out, finish, accurate, reflect, improve	safety
How can I make healthy choices?	mix, spread, healthy, safe	identify, select, equipment, hygiene, varied diet	utensil, hygienic

In Year 3, the knowledge the children will be taught:	
Substantive Knowledge:	
How can materials change colour?	• Explain choices of textiles thinking about the appearance and purpose required • Measure and cut materials accurately
What is the best way to strengthen a wooden joint?	• Select the best method to join materials together and strengthen the joints • Explain the choice of tools and equipment used • Measure mark out and cut materials with some accuracy • Apply finishing techniques to make the product more attractive
How can I make healthy choices?	• Chop, peel, grate, mix and spread with confidence and precision • Identify and select ingredients which are healthy • Use equipment safely

In Year 3, the skills the children will be taught:	
Disciplinary Knowledge	
Design 	• Research existing products and use this for ideas for their design • Follow a design criteria • Create a plan to show the steps they need to follow and equipment and tools needed • Use labels on their design to add in details • Begin to use computers to show design
Make 	• Cut materials safely using scissors, knife or saw • Select tools and equipment to cut, shape, join, finish • Join, assemble and strengthen materials • Apply finishing techniques to make product more attractive • Follow procedures for safety and hygiene
Evaluate 	• Reflect on their product by looking back at the design criteria • Suggest how their products could be improved • Identify areas where they have been successful

Long Term Plan: Year 4

Milestones – By the end of Year 4, children will demonstrate…

- I can add a working circuit to my product
- I can identify foods grown in different seasons
- I can use different techniques when preparing food
- I can measure ingredients accurately to the nearest gram
- I can identify the strengths and improvements of my product
- I can create movement through the use of a mechanism

According to the National Curriculum, children should be taught:

- 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
- 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
- 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

The new vocabulary the Year 4 children will use will include:

	Tier 1	Tier 2	Tier 3
How can mechanical systems make toys move?	move, measure, assemble	design criteria, cams, gears, movement	
What foods are in season now?	food, grow, season, change, measure, cook, plan	seasonality, recipe, alter, hygienic	hygienically
How can I add an electrical system to a product I have designed?	product	battery, circuit, bulb, wires	electrical system, components

In Year 4, the knowledge the children will be taught:	
Substantive Knowledge:	
How can mechanical systems make toys move?	• Select most appropriate tools and techniques • Use cams or gears to create movement • Measure materials accurately to mm
What foods are in season now?	• Understand that different foods grow in different seasons • Understand that food can be grown in the UK and the wider world • Describe how recipes can be altered • Prepare and cook dishes hygienically • Measure ingredients to the nearest gram
How can I add an electrical system to a product I have designed?	• Use a number of components in a circuit • Select materials carefully to match the intended use

In Year 4, the skills the children will be taught:	
Disciplinary Knowledge	
Design 	• Begin to add to the design criteria • Use research of existing products to come up with ideas • Use annotated sketches to show ideas • Create a plan for the making of their product • Explain clearly how the product will work
Make 	• Select tools, material and equipment to cut, shape, assemble, join and finish a product • Work through a plan or recipe in order • Follow procedures for safety and hygiene
Evaluate 	• Refer back to design criteria to identify areas of strength and improvement • Know about chefs and manufacturers of existing products

Long Term Plan: Year 5

Milestones – By the end of Year 5, children will demonstrate…

- I can identify which foods are healthy
- I can cut, grate and peel ingredients
- I can design a product that is appealing and for a purpose
- I can select materials appropriately for my product
- I can attach 2 materials together choosing the best method
- I can identify what I have done well with my product

According to the National Curriculum, children should be taught:

- 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
- 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
- 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

The new vocabulary the Year 5 children will use will include:

	Tier 1	Tier 2	Tier 3
How does food go from field to fork?	grown, change, peel, chop, slice, grate, mix, spread, bake	seasonality, reared, caught, adapted, knead	
How can I make structures stronger?	join strengthen, equipment, measure, mark out	reinforce, adhesive, stability, precision	
Which lever is most effective for a catapult?	test, distance	alter, adapt, lever, distance	mechanical system

In Year 5, the knowledge the children will be taught:	
Substantive Knowledge:	
How does food go from field to fork?	• Begin to understand seasonality of foods • Understand that food can be grown, reared or caught in the UK and the wider world • Describe how recipes can be adapted • Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking
How can I make structures stronger?	• Select the best method to join materials together and strengthen the joints • Explain the choice of tools and equipment used • Measure mark out and cut materials with some accuracy • Apply finishing techniques to a finished product
Which lever is most effective for a catapult?	• Select materials carefully considering the intended use • Explain alterations to the product after testing it and continue working on a product even if the original did not work

In Year 5, the skills the children will be taught:	
Disciplinary Knowledge	
Design 	• Use questionnaires for research and design ideas • Take a user's view into account when designing • Begin to consider the needs/wants of individuals when designing and ensure products are fit for purpose • Create own design criteria • Produce a logical, realistic plan and explain it to others • Clearly explain how parts of a product will work • Model and refine design ideas by making prototypes
Make 	• Select tools and equipment with a good level of precision • Select appropriate materials that are fit for purpose and explain choices • Create and follow a detailed step by step plan • Mainly accurately assemble, join and combine materials/components • Mainly accurately apply a range of finishing techniques • Begin to be resourceful with practical problems
Evaluate 	• Evaluate quality of design while designing and making • Evaluate ideas and finished product against specification, considering purpose and appearance • Test and evaluate final product • Evaluate and discuss existing products considering how well they have been made, materials, whether they are fit for purpose

Long Term Plan: Year 6

Milestones – By the end of Year 6, children will demonstrate…

- I can choose the best stitch to use for my product
- I can identify what I have done well and what could be improved with my product
- I can edit a recipe to alter and improve my food product
- I can accurately measure out ingredients to the nearest gram using scales
- I can create a product using an electrical circuit to create movement or illumination

According to the National Curriculum, children should be taught:

- 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
- 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
- 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

The new vocabulary the Year 6 children will use will include:

	Tier 1	Tier 2	Tier 3
Which stitch is the most efficient to combine materials?	stitch	embroidery, template	running stitch, cross stich
What makes a good bread roll?	knead, equipment	proportions, raw foods, scales, technique	
How do games use electrical circuits?	equipment, tools, switch, wires, bulbs, battery	motor, circuit	circuit elements

In Year 6, the knowledge the children will be taught:	
Substantive Knowledge:	
Which stitch is the most efficient to combine materials?	• Experiment with a range of stitches to join and attach materials together • Create a template from the chosen design idea • Demonstrate a range of finishing techniques to ensure the final product is attractive and appealing to look at
What makes a good bread roll?	• Understand that cooking alters the flavour and texture of food. • Use proportions and ratio to edit recipes to improve the food product • Understand that some foods may not be eaten raw as it is unsafe. • Measure out ingredients accurately to the nearest gram using scales • Describe the product in terms of taste, texture and flavour and evaluate this against the original purpose
How do games use electrical circuits?	• Create a working product and use several finishing techniques to make it appealing and attractive • Use a number of components in a circuit to create illumination or create movement • Select appropriate equipment and tools to create a working product

In Year 6, the skills the children will be taught:	
Disciplinary Knowledge	
Design 	• Draw on market research to inform design • Use research of user's individual needs, wants, requirements for design • Identify features of design that will appeal to the intended user • Create own design criteria and specification • Make design decisions, considering resources and cost • Clearly explain how parts of a design will work and are fit for purpose • Use computer aided design
Make 	• Use selected tools and equipment precisely • Select appropriate materials that are fit for purpose, explain choices considering functionality and aesthetics • Create, follow and adapt detailed step-by-step plans • Explain how product will appeal to audience, make changes to improve quality • Accurately measure, mark out, cut and shape materials/components • Accurately assemble, join and combine materials/components • Accurately apply a range of finishing techniques • Be resourceful with practical steps
Evaluate 	• Evaluate quality of design while designing and making – is it fit for purpose? • Keep checking design is best it can be • Evaluate ideas and finished product against specification, stating if it is fit for purpose • Evaluate how much products