CHERRY TREE ACADEMY

DESIGN TECHNOLOGY

Subject Statement
Design Technology

Rationale	At Cherry Tree Academy we teach a broad and balanced Design and Technology curriculum. All units of work follow the design, make and evaluate cycle, with each step rooted in technical knowledge and vocabulary. We give meaning to the children's learning by making sure that the design process has a real life, relevant context. Children can choose from a wide range of tools and materials for their work and then they evaluate their own product against the design criteria, a process that helps them to understand how and why a product or design element has been successful or not and then use this to adapt and improve their product. Throughout school, the children will study mechanisms, structures, food and nutrition and textiles. Key Stage Two will also study electrical mechanisms.
Vision for the curriculum	At Cherry Tree Academy we aspire for our Design and Technology curriculum to cultivate a creative, innovative, and problem-solving mindset in our pupils. We aim to inspire children to design and create dynamic products that meet real needs and address real-world problems. We believe that high-quality Design and Technology education make an essential contribution to the creativity, culture, wealth and wellbeing of the nation. Through the evaluation of past and present technology, we develop an understanding of its impact on daily life and the wider world.
Intent	At Cherry Tree Academy, our Design and Technology curriculum is constructed around the principles of the National Curriculum, ensuring that all pupils develop essential skills in the areas of designing, making, and evaluating. We intend for Design and Technology learning to be practical and experience based and we aim to develop children's creativity and set them challenges grounded in real-life situations. Our intent is underpinned by our commitment to providing rich learning experiences that promote independence, collaboration, and creativity. We strive to instil an understanding of the importance of Design and Technology in everyday life and its impact on society, the environment, and the economy. During our unit structures in Key Stage One, the children will discuss the ethical issues around keeping animals in a zoo. During the pneumatics unit in Lower Key Stage Two, the children will discuss the use of water and why we should be conservative with it. During our unit structures Upper Key Stage Two, the children will discuss homelessness. Through engaging projects, we encourage pupils to explore materials and technology while considering sustainability and ethical implications, such as the environmental impact of where food comes from during our food and nutrition units.
Implementation	The Design and Technology curriculum follows a cyclical approach, ensuring that key skills and techniques are revisited and built upon over time. Each phase of learning covers the core units of mechanisms, food, structures, textiles and electrical systems. These units are delivered on a two-year cycle, with one unit taught every other half-term. Children practise the key skills needed to be successful before designing, which allows them to be creative and knowledgeable while encouraging them to be resilient problem solvers. Lessons are delivered following the Cherry Tree Way, with children's progress carefully monitored through formative assessment. This includes teacher observation, pupil-teacher discussions, questioning, and the monitoring of work. A summative assessment sheet is completed at the end of each unit to capture overall attainment and progress. Children enjoy enriching educational visits to support their learning in Design and Technology, including The Yorkshire Wildlife Park in Key Stage One and a theme park in Key Stage Two. We host parent and pupil Art and Craft sessions at Easter and Christmas, providing opportunities for families to enjoy creative activities together.
Impact	• It is anticipated that almost all children will achieve age-related expectations or above in Design and Technology by the end of the academic year. • Our children will design and make with confidence using the skills taught. • Our children will demonstrate a growing knowledge and understanding of designers and makers. • Our children will think and act like designers and makers by using their knowledge and understanding to inform, inspire and record ideas.

	• Our children will use independence, initiative and originality to develop their ideas. • Our children will select and use materials, processes and techniques skilfully and inventively to realise intentions and capitalise on the unexpected. • Our children will reflect on, analyse and critically evaluate their own work and that of others. Our children will show passion for, and commitment to, Design and Technology.
Pedagogical Approach	At Cherry Tree Academy, we follow Rosenshine's Principles of Instruction when teaching, using The Cherry Tree Way. Each lesson begins with a Prior Learning Activation activity, helping children to recall what they already know so they can build on it and remember more over time. New learning is introduced in small steps, supporting children's working memory and preventing cognitive overload. We model new knowledge and skills clearly and provide scaffolding to ensure all pupils can access the Design and Technology curriculum successfully. Vocabulary is a key focus and is pre-planned across the school to ensure consistent development of subject-specific language. Before children move on to independent work, we use hinge questions to check their understanding and readiness to apply new knowledge. The Independent Practice Task then allows children to demonstrate what they have learned, either in their Design and Technology book or on a larger scale. These tasks are adapted or scaffolded where appropriate to meet individual needs. Assessment is embedded throughout the lesson using strategies such as peer assessment, questioning, and discussions about pupils' work. Children have opportunities to evaluate and discuss their own work and that of their peers at planned points within the unit. At the end of each unit, pupils are assessed against clear criteria and unit content, with outcomes recorded and shared with teachers, subject leaders, and school leaders to inform next steps.
Adaptation for SEND learners	• Make sure all children have an appropriate work space. • Provide children with fine motor control difficulties a broader range of resources. • Allow children to work independently rather than as part of a group if needed. • Provide a quiet area for children to work if needed. • Have all resources ready and accessible without the need to get it from a central area. • Pre-teach new vocabulary or how to use new resources if needed. • Show children an example of a possible final outcome to engage learners. • Provide visual resources including examples of designers work, photos of equipment and word banks. • Allow more time to clean up and tidy away at the end of a lesson. • Work in a small group with an adult either before or during the lesson to build confidence and allow time to ask questions. Step-by-step approach to allow children to do practical tasks alongside the teacher.
Strengths	• Children show passion for and enjoyment in Design and Technology • Classes have working wall displays inside the classroom to show the progression of learning over time, the key vocabulary taught and to support the children to know and remember more. (During the appropriate half term). • A clear, mapped, Design and Technology progression of skills. Clear teaching of skills needed by the children before they design and make.

MEDIUM TERM PLAN

Cycle A

Cherry Tree Academy Medium Term - Design Technology

Autumn 2		
KS1	Mechanisms – Sliders and Levers moving Christmas card How can mechanisms improve a product for the user?	
	Year 1	**Year 2**
	L1: What is a mechanism? L2: What is the difference between a lever and a slider? L3: How do we design a winter card with a moving part? L4: Can you select the appropriate tools to cut and join your product? L5: Is your product suitable for the user?	L1: What is a mechanism? L2: What is the difference between a lever and a slider? L3: How do we design a winter card with a moving part? L4: Can you select the appropriate tools to cut and join your product? L5: Is your product suitable for the user?
Key Concepts to assess	L1: Children understand that different mechanisms produce different types of movement. L2: Children understand the difference between sliders and levers. L3: Children can design a product with a slider or lever and can explain the purpose. L4: Children can select from PVA glue, glue sticks and scissors to cut and join materials (card and paper) with adult guidance. L5: Children can state if their card is suitable for the intended user and purpose.	L1: Children understand that different mechanisms produce different types of movement. They can describe what a mechanism is and how it works. L2: Children understand the difference between sliders and levers and can compare them and say how they are similar and different. L3: Children can design a product with a slider or lever and can explain the user and purpose. L4: Children can independently select from PVA glue, glue sticks and scissors to cut and join materials (card and paper). L5: Children can state if their card is suitable for the intended user and purpose and why.
Vocabulary	slider, lever, pivot, slot, guide, mechanism, evaluate	slider, lever, pivot, slot, bridge/guide, function, mechanism, evaluate, appeal
Experiences		
SMSC	Cultural – during the autumn unit of sliders and levers we make Christmas/winter cards and discuss respect and tolerance for those children who do not celebrate Christmas	
British Values		
School Values	Consideration – for the user Honest – when evaluating products Resilient – things go wrong and we need to work past this to fix the problems and re-think.	

Cherry Tree Academy Medium Term - Design Technology

Spring 2		
KS1	Cooking and Nutrition – Preparing fruits and vegetables (making a fruit salad) How can you create an appealing and healthy product?	
	Year 1	**Year 2**
	L1: Why should we eat healthy food? L2: Can you evaluate a range of fruit and talk about the journey it takes from the farm to your home? L3: Can you design a healthy fruit salad? L4: Which techniques will you use to make your fruit salad? L5: Have you created an appealing and healthy product?	L1: Why should we eat healthy food? L2: Can you evaluate a range of fruit and talk about the journey it takes from the farm to your home? L3: Can you design a healthy fruit salad? L4: Which techniques will you use to make your fruit salad? L5: Have you created an appealing and healthy product?
Key Concepts to assess	L1: Children understand and use basic principles of a healthy and varied diet. L2: Children have an understanding that food comes from different countries and can be grown. L3: Children can design a healthy snack and can explain the purpose. L3: Children can select from a variety of ingredients to create their product, considering the taste, colour and general appeal of the fruits. L4: Children can select from knifes, graters, peelers and juices to prepare common fruits and vegetables and can use these with some support. L5: Children can evaluate their own product considering its overall appeal as well as considering its effectiveness of being a healthy snack.	L1: Children understand and use basic principles of a healthy and varied diet. They can name the five food groups and name a range of fruits and vegetables. L2: Children have an understanding that food comes from different countries and can be grown. They can name some fruits and vegetables that can be grown in the UK and can say how they feel about it. L3: Children can design a healthy snack and can explain the user and purpose. L3: Children can select from a variety of ingredients to create their product, considering the taste, colour, general appeal of the fruits and whether they go well together. L4: Children can select from knifes, graters, peelers and juices to prepare common fruits and vegetables and can use these independently. L5: Children can evaluate their own product considering its overall appeal as well as considering its effectiveness of being a healthy snack. They can say how their product might be improved.
Vocabulary	Fruit, vegetable, roots, stems, leaves, utensil, knife, grater, grating, peeler, slicing, peeling, cutting, squeezing, juicing, evaluate, appeal	Fruit, vegetable, roots, stems, leaves, utensil, knife, grater, grating, peeler, slicing, peeling, cutting, squeezing, juicing, evaluate, appeal, design, plan
Experiences		
SMSC		
British Values		
School Values	Consideration – for the user Honest – When evaluating products. During our food topic we teach honesty and responsibility when we talk about where food is grown and the journey it takes to get from the farm to our homes. We also discuss how healthy we are with the foods we consume. Resilient – things go wrong and we need to work past this to fix the problems and re-think. Healthy – fruits as part of the balanced diet. Good food is good for our minds and bodies.	

Cherry Tree Academy Medium Term - Design Technology

Summer 2		
KS1	Structures – Freestanding structures (Zoo enclosures) How can you make a structure stronger, stiffer and more stable?	
	Year 1	**Year 2**
	L1: What is a free-standing structure? What do zoo enclosures need to consider? L2: How can you make a free-standing structure stronger and more stable? L3: Can you design a free-structure for a purpose? L4: Can you select the correct materials to make your product and join it securely? L5: How does the enclosure appeal to the users?	L1: What is a free-standing structure? What do zoo enclosures need to consider? L2: How can you make a free-standing structure stronger and more stable? L3: Can you design a free-structure for a purpose? L4: Can you select the correct materials to make your product and join it securely? L5: How does the enclosure appeal to the users?
Key Concepts to assess	L1: Children can discuss the different types of animal enclosures – penguins have to have water to swim in and land, lions need high fences so they don't jump out, giraffes need trees to eat from. L2: Children can strengthen a structure using stronger materials, like card instead of paper or lolly pop sticks instead of cardboard. L3: Children can design a structure and explain the purpose. L4: Children can select from PVA glue, glue sticks and scissors to cut and join materials (card and cardboard). L5: Children can state if their structure is suitable for the intended user and purpose.	L1: Children can discuss the different types of animal enclosures – penguins have to have water to swim in and land, lions need high fences so they don't jump out, giraffes need trees to eat from. They can say what makes an enclosure suitable or not. L2: Children can strengthen a structure using stronger materials, like card instead of paper or lolly pop sticks instead of cardboard. They can test out different ideas and choose the best solution. L3: Children can design a structure and explain the user and purpose L4: Children can select from PVA glue, glue sticks and scissors to cut and join materials (card and cardboard). They can test out different options and explain why they have chosen the one they have. L5: Children can state if their structure is suitable for the intended user and purpose and why.
Vocabulary	Free-standing structure, framework, strengthen, user, purpose, appeal, evaluate	Free-standing structure, framework, strengthen, user, purpose, appeal, evaluate, product, design, make, fix, improve, alter
Experiences		
SMSC		
British Values	Rule of law – we discuss the rules for keeping animals both at home and at zoos.	
School Values	Consideration – for the user Honest – when evaluating products Resilient – things go wrong and we need to work past this to fix the problems and re-think.	

Cherry Tree Academy Medium Term - Design Technology

LKS2	Autumn 2	
	Shell Structures	
	Year 3	**Year 4**
	L1: What makes a good structure? L2: What techniques can we use to strengthen a structure? L3: Can I design my own structure? L4: Can I make my own structure? L5: How can I improve my structure? L6: How can I evaluate my structure?	
Key Concepts to assess	L1: Children will be able to talk about existing structures and conduct research into existing shell structures. L2: Children will make 3D shapes using nets and practise strengthening techniques such as laminating, ribbing and corrugating. L3: Children will develop a design criterion through discussion with adults and peers that includes the intended user, the purpose and the materials used. L4: Children will select from and use appropriate tools to accurately measure, mark out, score, cut, shape, join and strengthen their shell structures using card, cardboard, paper straws, scissors, glue and tape. L5: Children will show resilience to persevere with their structure and can discuss ways in which they can improve and adapt their structure. L6: Children can carry out appropriate tests to evaluate their product against their design specification.	L1: Children will be able to analyse existing structures, talk about which methods of construction have been used and conduct accurate research into existing products. L2: Children will cut and score shapes accurately and use Microsoft Word to add images and text. L3: Children will develop a design criterion and present their design using annotated sketches and computer-aided design. L4: Children will use tools accurately and finishing and decorative techniques suitable for the product they are designing and making in order to make it appealing. L5: Children will model and communicate their ideas using prototypes. They will reflect on their model during the process and make adaptations they can then explain. L6: Children can evaluate their product, including its functionality and can note in detail how their product could be improved.
Vocabulary	Research, 3D, nets, strengthen, design, purpose, material, resilience, evaluate	analyse, conduct, construct, score, laminate, ribbing, corrugating, annotate, functionality
Experiences		
SMSC	Knowledge of the world and famous landmarks, associating landmarks with countries,	
British Values	Tolerance, mutual respect, rule of law	
School Values	Inclusion, resilience	

Cherry Tree Academy Medium Term - Design Technology

LKS2	Spring 2	
	Electrical systems – simple circuits and switches	
	Year 3	**Year 4**
	L1: What is an electrical circuit? L2: How can we make an electrical circuit? L3: What happens if an electrical circuit is broken or rearranged? L4: Can I design a circuit? L5: Can I make a circuit? L6: Can I evaluate a circuit?	
Key Concepts to assess	L1: Children can disassemble pre-existing battery-operated products and discuss their findings. L2: Children can make simple circuits and use commercial made switches including push-to-break, push-to-make and toggle switches. L3: Children can explore what happens when the circuit is broken or rearranged and can discuss with adults and peers. L4: Children can gather information about needs and wants and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups L5: Children can select from and use tools and equipment to cut, shape, join, and finish with some accuracy. L6: Children can evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work	L1: Children can compare and consider pre-existing battery-operated products and discuss their uses and functionality. L2: Children can make a variety of switches by using simple classroom materials and test their switches in a simple circuit. L3: Children can work on debugging circuits and can explicitly explain why a circuit is not working. L4: Children can generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches and cross-sectional diagrams. L5: Children can select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. L6: Children can evaluate their product and can make an evidence-based prediction of what would happen with additional batteries.
Vocabulary	Assemble, disassemble, battery, circuit, switch, connection	Series circuit, fault, insulator, conductor, debug, annotate, cross-sectional
Experiences		
SMSC	General knowledge, life skills	
British Values	Tolerance, mutual respect, rule of law	
School Values	Inclusion, resilience	

Cherry Tree Academy Medium Term - Design Technology

LKS2	Summer 2	
	Textiles	
	Year 3	**Year 4**
	L1: What are textiles? L2: What are the different types of stitch? L3: Which type of stitch is the most effective? L4: Can you design a textile product considering how to join two pieces of fabric securely? L5: Can I make my own pencil case? L6: Can I evaluate my pencil case?	
Key Concepts to assess	L1: Children can consider the 2D shapes that have been used to create the different products, and discuss how different products have been sewn together. L2: Children can identify different types of stitch choose one to practise. L3: Children can explore a variety of materials and consider their properties: waterproof, rigidity, strength L4: Through discussion with peers and adults, children can develop a design criterion, which considers the intended user, the purpose of the pencil case, and the materials. L5: Children will select from and use appropriate tools to accurately measure, mark out, cut, shape, join and strengthen their pencil cases using fabric, scissors, needles and thread. L6: Children will evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development.	L1: Children can consider the user, purpose and appeal of each of the products, and can say which ones have been designed for a child or an adult. L2: Children can practise a range of stiches – backstitch, running stitch, backwards running stitch, over sew stitch and blanket stitch and evaluate the effectiveness of the different stitches. L3: Children can explore a variety of materials, consider their properties and consider their finish, and whether it is suitable and appealing. L4: Children will design their own product including how it will be joined, strengthened and finished and present their ideas through annotated sketches and pattern-pieces. L5: Children will use finishing and decorative techniques suitable for the product they are designing and making in order to make it appealing e.g. embroidery and applique. L6: Children will evaluate their own work including carrying out appropriate tests.
Vocabulary	Textiles, pattern-pieces, template, seam, stitch	Applique, embroidery, seam allowance, backstitch, running stitch, over sew stitch, blanket stitch.
Experiences		
SMSC	General knowledge, life skills	
British Values	Tolerance, mutual respect, rule of law	
School Values	Inclusion, resilience	

Cherry Tree Academy Medium Term - Design Technology

Autumn 2		
UKS2	Frame Structures	
	Year 5	**Year 6**
	L1: What structures are already in use? L2: How has triangulation been used to strengthen structures? L3: How can we apply what we have learned to design a shelter structure? L4/5: What materials and tools will we need to construct our designed structure? L6: How successful is our shelter structure?	L1: What structures are currently in use and how have they evolved over time? L2: How has triangulation been used historically and in modern architecture to strengthen structures? L3: How can we apply our knowledge of structural design principles to create a more advanced shelter structure? L4: What specific materials and advanced tools will we need to construct our designed shelter effectively? L5: How can we integrate sustainable practices into the construction of our shelter structure? L6: How effectively does our shelter structure meet the criteria for strength, durability, and sustainability?
Key Concepts to assess	L1: Children can discuss the pros and cons of these structures compared to other types of structures. L2: Through a practical activity, children will understand how triangulation helps a structure's rigidity. L3: Children will have designed a structure through discussion and research, correctly annotating it. L4/5: Using a range of materials, children will construct their structures. L6: Children can critically evaluate their products against their design specifications, intended user, and purpose, identifying strengths and weaknesses.	L1: Children can discuss the pros and cons of the structures compared to other types of structures. L2: Children, through a practical activity, will understand how triangulation helps a structure's rigidity and can explain this to their partner. L3: Children will have designed a structure through discussion and research that has been annotated correctly with reasons for their choice of structure and materials. L4/5: Using a range of materials, children will carefully select materials to construct their structures. L6: Children can critically evaluate their products against their design specifications, intended user, and purpose, identifying strengths and areas for development.
Vocabulary	Frame structure, triangulation, stability, compression, strut	Frame structure, triangulation, stability, compression, strut, critical, evaluate
Experiences	Walk around the local community to search for various structures and shelters.	

Cherry Tree Academy Medium Term - Design Technology

SMSC	Spiritual – children are taught to reflect upon what they see and develop ideas and solutions to problems which are both workable and innovative Moral – children are faced with moral decisions throughout the design process. This includes selecting materials and ways of manufacturing, identifying and meeting the needs of others, sustainability & environmental impact Social – children learn to articulate their thoughts and feelings about their own and other's' work. To do this, they must take criticism without offence and provide constructive feedback. Cultural – Children are taught that all their design work should be sensitive to needs and beliefs of different backgrounds, ensuring all imagery, text and products won't cause offence.
British Values	Democracy – children are encouraged to be participants of an ethos that encourages the freedom to express themselves and share their experiences of the world around them The rule of law – children are encouraged to be participants of an ethos that encourages the freedom to express themselves and share their experiences of the world around them Mutual respect - routines and school systems are consistently implemented to ensure that everyone has the right to be heard and respected
School Values	Considerate about each other's feelings when providing feedback. Resilient throughout the design and make process.

Cherry Tree Academy Medium Term - Design Technology

Spring 2		
UKS2	Bread – celebrating culture and seasonality	
	Year 5	**Year 6**
	L1: How many types of bread products do we already know? L2: How important is bread in different cultures? L3: What do we consider important when designing a loaf? L4: Can you follow a set of instructions? L5: Has your celebration loaf turned out as planned?	L1: How many types of bread products do we already know, and how do they differ in terms of ingredients and preparation methods? L2: How important is bread in different cultures, and how does its significance vary across regions and traditions? L3: What factors do we think are important when designing a loaf, considering both aesthetic appeal and nutritional value? L4: Can you follow a set of detailed instructions to bake a complex bread recipe, ensuring precision in measurements and techniques? L5: Has your celebration loaf turned out as planned, and what adjustments could be made to improve its taste or appearance?
Key Concepts to assess	L1: Through research, children will understand that there is a range of different breads available beyond the loaf. L2: Children can name a significant loaf used for celebration. L3: Through research, children will design their own celebration loaf, annotated to inform the reader why it is special. L4: Based on their design, children will make their celebration loaf. L5: Children will critically evaluate their loaf.	L1: Through research, children will understand that there is a range of different breads available beyond the loaf and can compare these products. L2: Children can name a significant loaf used for celebration and know its origin in a particular religion. L3: Through research, children will design their own celebration loaf, annotating to explain why it is special and referencing the loaves that inspired their design. L4: Based on their design, children will make their celebration loaf. L5: Children will critically evaluate their loaf.
Vocabulary	Organic, seasonal, dairy, gluten, intolerance, dough, yeast, savoury, knead, mix, rub	Organic, seasonal, dairy, gluten, intolerance, dough, yeast, savoury, knead, mix, rub
Experiences		
SMSC	Spiritual – children are taught to reflect upon what they see and develop ideas and solutions to problems which are both workable and innovative Moral – children are faced with moral decisions throughout the design process. This includes selecting materials and ways of manufacturing, identifying and meeting the needs of others, sustainability & environmental impact Social – children learn to articulate their thoughts and feelings about their own and other's' work. To do this, they must take criticism without offence and provide constructive feedback. Cultural – Children are taught that all their design work should be sensitive to needs and beliefs of different backgrounds, ensuring all imagery, text and products won't cause offence.	

Cherry Tree Academy Medium Term - Design Technology

British Values	Democracy – children are encouraged to be participants of an ethos that encourages the freedom to express themselves and share their experiences of the world around them The rule of law – children are encouraged to be participants of an ethos that encourages the freedom to express themselves and share their experiences of the world around them Mutual respect - routines and school systems are consistently implemented to ensure that everyone has the right to be heard and respected
School Values	Considerate about each other's feelings when providing feedback. Resilient throughout the design and make process.

Cherry Tree Academy Medium Term - Design Technology

Summer 2		
UKS2	Mechanical systems – Pulleys and gears	
	Year 5	**Year 6**
	L1: What are gears and pulleys? L2: How do pulleys and gears work? L3: Can we design a fairground ride that uses gears or pulleys? L4/5: How will we use our design to create a fairground ride? L6: Has your fairground ride turned out as planned?	L1: What are gears and pulleys, and how do they work together? L2: How do pulleys and gears help machines move? L3: Can we design a funfair ride using gears or pulleys? L4/5: How will we build our funfair ride based on our design ideas? L6: Did your funfair ride turn out as you planned?
Key Concepts to assess	L1: Children can explain the differences between gears and pulleys. L2: Children will experiment with making a pulley and a gear to see how the mechanics work. L3: Children will choose a ride from a selection and design their own for the Cherry Tree Fun Fair. L4/5: Using a range of materials, children will construct their ride. L6: Children can critically evaluate their products against their design specification, intended user, and purpose.	L1: Children can explain the differences between gears and pulleys, detailing how each mechanism functions. L2: Children will conduct hands-on experiments to observe how pulleys and gears operate and affect motion. L3: From a selection of rides, children will choose one to design for the Cherry Tree Fun Fair, considering factors like safety and excitement. L4/5: Using a variety of materials, children will construct their chosen ride, applying their design ideas and engineering principles. L6: Children can critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development.
Vocabulary	pulley, gear, direction, speed, rotation, evaluate	pulley, gear, direction, speed, rotation, frictions, axle, evaluate
Experiences		
SMSC	Spiritual – children are taught to reflect upon what they see and develop ideas and solutions to problems which are both workable and innovative Moral – children are faced with moral decisions throughout the design process. This includes selecting materials and ways of manufacturing, identifying and meeting the needs of others, sustainability & environmental impact Social – children learn to articulate their thoughts and feelings about their own and other's' work. To do this, they must take criticism without offence and provide constructive feedback. Cultural – Children are taught that all their design work should be sensitive to needs and beliefs of different backgrounds, ensuring all imagery, text and products won't cause offence.	
British Values	Democracy – children are encouraged to be participants of an ethos that encourages the freedom to express themselves and share their experiences of the world around them The rule of law – children are encouraged to be participants of an ethos that encourages the freedom to express themselves and share their experiences of the world around them Mutual respect - routines and school systems are consistently implemented to ensure that everyone has the right to be heard and respected	
School Values	Considerate about each other's feelings when providing feedback. Resilient throughout the design and make process.	

MEDIUM TERM PLAN

Cycle B

Cherry Tree Academy Medium Term - Design Technology

Autumn 2		
KS1	Mechanisms – Wheels and Axles How are wheels and axles useful?	
	Year 1	**Year 2**
	L1: What is an axle? L2: What is the difference between a fixed and moving axle? L3: Can you design a product with wheels and axles? L4: Which items are best for joining your materials? L5: Do the wheels work effectively?	L1: What is an axle? L2: What is the difference between a fixed and moving axle? L3: Can you design a product with wheels and axles? L4: Which items are best for joining your materials? L5: Do the wheels work effectively?
Key Concepts to assess	L1: Children can name a variety of real-life items that use wheels and axles such as cars, vans, lorries, bicycles, Ferris wheels, electric fans etc L2: Children can understand the difference between fixed and moving axles. L3: Children can design a product with wheels and axles and can explain the purpose. L4: Children can select from PVA glue, glue sticks and scissors to cut and join materials (card and paper). L5: Children can state if their vehicle is suitable for the intended user and purpose. They can offer a way to improve their vehicle with some guidance.	L1: Children can name a variety of real-life items that use wheels and axles such as cars, vans, lorries, bicycles, Ferris wheels, electric fans etc. They can explain what an axle is and what job it does. L2: Children can understand the difference between fixed and moving axles and can explain how each one works. L3: Children can design a product with wheels and axles and can explain the user and purpose. L4: Children can select from PVA glue, glue sticks and scissors to cut and join materials (card and paper). They can explore different ones and explain why the have chosen the ones they have. L5: Children can state if their vehicle is suitable for the intended user and purpose. They can offer a way to improve their vehicle.
Vocabulary	Wheel, axle, mechanism, chassis, fixed axle, moving axle, evaluate	Wheel, axle, mechanism, chassis, fixed axle, moving axle, evaluate, design, make, plan
Experiences		
SMSC	Social – we discuss the different uses of vehicles and how they support and impact the local and wider community.	
British Values		
School Values	Consideration – for the user Honest – when evaluating products Resilient – things go wrong and we need to work past this to fix the problems and re-think.	

Cherry Tree Academy Medium Term - Design Technology

Spring 2		
KS1	Cooking and Nutrition – preparing vegetables (soup) Why is it important to have a healthy diet?	
	Year 1	**Year 2**
	L1: What is the difference between a fruit and a vegetable? Why should I eat healthy food? L2: Can you evaluate existing soup and talk about where the ingredients come from? L3: Can you design a healthy soup? L4: Can you use simple utensils and equipment to make your soup? L5: Did the vegetables selected work well?	L1: What is the difference between a fruit and a vegetable? Why should I eat healthy food? L2: Can you evaluate existing soup and talk about where the ingredients come from? L3: Can you design a healthy soup? L4: Can you use simple utensils and equipment to make your soup? L5: Did the vegetables selected work well?
Key Concepts to assess	L1: Children understand and use basic principles of a healthy and varied diet. L2: Children understand where a range of fruit and vegetables come from e.g. farmed or grown at home. L3: Children can design a healthy snack and explain the purpose. L4: Children can select from knifes, graters and peelers to prepare common vegetables. L5: Children can evaluate their own soup considering the intended user, purpose and its overall appeal as well as considering its effectiveness of being a healthy dish.	L1: Children understand and use basic principles of a healthy and varied diet. They can name the food groups and a range of fruits and vegetables. L2: Children understand where a range of fruit and vegetables come from e.g. farmed or grown at home. They can give opinions about different fruits and vegetables. L3: Children can design a healthy snack and explain the user and purpose. L4: Children can select from knifes, graters and peelers to prepare common vegetables discussing why some preparation methods may not be suitable for some of the fruits/vegetables. L5: Children can evaluate their own soup considering the intended user, purpose and its overall appeal as well as considering its effectiveness of being a healthy dish. They can make suggestions about how their product could be improved.
Vocabulary	Fruit, vegetable, roots, stems, leaves, utensil, knife, grater, grating, peeler, slicing, peeling, cutting, evaluate, appeal	Fruit, vegetable, roots, stems, leaves, utensil, knife, grater, grating, peeler, slicing, peeling, cutting, evaluate, appeal, design, make, plan
Experiences		
SMSC		
British Values	During our food topic we teach respect, tolerance and individual liberty when we talk about different food choices and diets.	
School Values	Consideration – for the user Honest – when evaluating products Resilient – things go wrong and we need to work past this to fix the problems and re-think. Healthy – healthy food choices and how these affect our minds and bodies.	

Cherry Tree Academy Medium Term - Design Technology

Summer 2		
KS1	Textiles – Cutting and joining techniques (puppet) Which joining techniques can be used when making textile products?	
	Year 1	**Year 2**
	L1: Why are different joining techniques used in different products? L2: How can you join textiles effectively? L3: Can you design a hand puppet and choose an appropriate joining technique? L4: Can you make a functional hand puppet using appropriate joining techniques? L5: How does it meet your design criteria?	L1: Why are different joining techniques used in different products? L2: How can you join textiles effectively? L3: Can you design a hand puppet and choose an appropriate joining technique? L4: Can you make a functional hand puppet using appropriate joining techniques? L5: How does it meet your design criteria?
Key Concepts to assess	L1: Children can explore a variety of real-life items that use a variety of joining techniques. L2: Children understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. L3: Children can design a hand puppet and show an understanding of how simple 3-D textile products are made, using a template to create two identical shapes. L4: Children can explore different finishing techniques e.g. using painting, fabric crayons, stitching sequins, buttons and ribbons L5: Children can state if their puppet is suitable for the intended user and purpose.	L1: Children can explore a variety of real-life items that use a variety of joining techniques and explain why the joining technique is effective. L2: Children understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. They can explore different ways and say why or why not a technique is useful. L3: Children can design a hand puppet and show an understanding of how simple 3-D textile products are made, using a template to create two identical shapes. L4: Children can explore different finishing techniques e.g. using painting, fabric crayons, stitching sequins, buttons and ribbons. They can join and fix independently. L5: Children can state if their puppet is suitable for the intended user and purpose. They can make suggestions about how their product could be improved.
Vocabulary	Joining technique, template, fray, running stitch, paper pattern, evaluate	Joining technique, template, applique, fray, running stitch, paper pattern, evaluate, design, make, plan
Experiences		
SMSC		
British Values		
School Values	Consideration – for the user Honest – when evaluating products Resilient – things go wrong and we need to work past this to fix the problems and re-think.	

Cherry Tree Academy Medium Term - Design Technology

LKS2	Autumn 2	
	Levers and linkages	
	Year 3	**Year 4**
	L1: What are levers and linkages, and where do we see them in real life? L2: What techniques can we use to make working levers and linkages? L3: How can we design a moving part for a card using a lever or linkage? L4: How can we carefully make our design using the right tools and materials? L5: How can we attach our mechanism to the card and make it work smoothly? L6: What went well with our mechanical card and what could we improve?	L1: What are levers and linkages, and where do we see them in real life? L2: What techniques can we use to make working levers and linkages? L3: How can we design a moving part for a card using a lever or linkage? L4: How can we carefully make our design using the right tools and materials? L5: How can we attach our mechanism to the card and make it work smoothly? L6: What went well with our mechanical card and what could we improve?
Key Concepts to assess	L1: Children know what a lever and linkage are and can identify them in existing products. They can spot fixed and loose pivots and the direction of movement. L2: Children practise making simple mechanisms with card strips and split pins to create movement. L3: With support, children generate ideas for a moving card, considering the purpose and user, and can create simple labelled drawings. L4: Children select materials and tools and use them with support to mark, cut and join accurately to create a working mechanism. L5: They can attach their mechanism to a card base and test that it moves as planned. L6: Children evaluate their finished product against the original idea and say what works well and what could be better.	L1: Children can describe how levers and linkages work using key vocabulary like pivot, input, output, slot, and bridge. They identify these features in real examples. L2: They build and improve prototypes, adapting techniques to ensure movement is effective and secure. L3: Children design their product using annotated sketches, considering how their mechanism can be more creative or user-friendly. L4: They use a wider range of tools with increasing accuracy and apply decorative techniques that enhance the final product. L5: They adjust their design when attaching it to a card to improve function or appearance. L6: Children evaluate their work using a checklist linked to the design criteria and include comments on functionality, creativity, and areas to improve.
Vocabulary	lever, linkage, product, pivot, fixed, loose, score, join, prototype, purpose, mechanical, movement	lever, linkage, input, output, fixed pivot, loose pivot, slot, bridge, guide, annotate, adapt, function, appeal
Experiences		
SMSC	Children reflect on the role of design in communication and celebration (e.g., greeting cards) and how mechanisms can be used to bring joy or serve a purpose in daily life.	
British Values	Through discussion and peer evaluation, children learn to listen respectfully to others' ideas and opinions and recognise the importance of planning and adapting their own decisions—promoting mutual respect and individual liberty.	
School Values	Resilient – Children develop persistence when refining their designs and solving mechanical problems. Considerate – Children consider the needs and preferences of the intended user when designing their card.	

Cherry Tree Academy Medium Term - Design Technology

- Up to heeLKS2	Spring 2	
	Pneumatics	
	Year 3	**Year 4**
	L1: What are pneumatics and hydraulics, and how do they work? L2: Where do we see pneumatic and hydraulic systems in everyday life? L3: How do pneumatic and hydraulic systems use air or water to move levers? L4: How can I design a working creature head using a pneumatic or hydraulic system? L5: How can I build my design accurately using the right tools and techniques? L6: How well does my pneumatic or hydraulic system work, and how could I improve it?	L1: What are pneumatics and hydraulics, and how do they work? L2: Where do we see pneumatic and hydraulic systems in everyday life? L3: How do pneumatic and hydraulic systems use air or water to move levers? L4: How can I design a working creature head using a pneumatic or hydraulic system? L5: How can I build my design accurately using the right tools and techniques? L6: How well does my pneumatic or hydraulic system work, and how could I improve it?
Key Concepts to assess	L1: Children know what pneumatic and hydraulic systems are and can describe them simply. L2: Children can identify examples of everyday objects that use pneumatic or hydraulic systems. L3: Children investigate and explain how air or water helps objects move. They describe why these systems are effective. L4: Children create an annotated design for a creature head, choosing a pneumatic or hydraulic system and labelling key features. L5: Children follow their plan to measure, cut, and join materials accurately, building their creature head with moving parts. L6: Children evaluate their finished product against their original design, explaining what works well and what they could change.	L1: Children know what pneumatic and hydraulic systems are, can describe them simply, and begin to compare similarities and differences between them. L2: Children identify examples of everyday objects that use pneumatic or hydraulic systems and explain why they are used in those products. L3: Children investigate and explain how air or water helps objects move, describing key similarities and differences in how the two systems work. L4: Children create an annotated design for a creature head, adding details about how to improve or make their design unique, and labelling all key features clearly. L5: Children follow their plan accurately, applying decorative techniques or refinements to make their creature head appealing as well as functional. L6: Children evaluate their finished product against their design criteria, explaining strengths and suggesting detailed improvements.
Vocabulary	pneumatic, hydraulic, air, water, lever, system, move, annotate, label, measure, join	pneumatic, hydraulic, similarity, difference, function, mechanism, annotate, decorative, accuracy, evaluate
Experiences		
SMSC	Children develop fascination with how air and water can power movement, encouraging curiosity and creative problem-solving.	
British Values	Children listen to others' ideas respectfully, work collaboratively, and appreciate how technology and design benefit society.	
School Values	Resilient – Pupils persevere through design and construction challenges, learning from mistakes to improve their work. Considerate – Pupils value each other's ideas and help one another to successfully create working systems.	

Cherry Tree Academy Medium Term - Design Technology

LKS2	Summer 2	
	Cooking and nutrition	
	Year 3	**Year 4**
	L1: What makes a diet healthy and balanced? L2: What products are available in shops and what makes them appealing? L3: What skills and techniques are needed to make a sandwich safely? L4: How can I design a healthy, appealing sandwich? L5: How can I make my sandwich carefully and hygienically? L6: How well does my sandwich meet the design criteria, and how could I improve it?	L1: What makes a diet healthy and balanced? L2: What products are available in shops and what makes them appealing? L3: What skills and techniques are needed to make a sandwich safely? L4: How can I design a healthy, appealing sandwich? L5: How can I make my sandwich carefully and hygienically? L6: How well does my sandwich meet the design criteria, and how could I improve it?
Key Concepts to assess	L1: Children know what it means to be healthy and can identify main food groups, naming foods in each. L2: Children explore existing sandwiches, discussing taste, texture, type of bread, fillings, and popularity. L3: Children practise basic food preparation skills: chopping, slicing, grating, and peeling safely. L4: Children design a healthy sandwich, choosing bread, fillings, and spreads. They check their plan covers different food groups using the Eatwell Plate. L5: Children make their sandwich following their plan, adjusting if needed. L6: Children evaluate their sandwich against their design criteria, considering taste, appearance, suitability for their audience, and healthiness.	L1: Children know what being healthy means, identify main food groups, and understand how much of each they should eat per meal. L2: Children explore shop-bought sandwiches, saying whether ingredients are grown, reared, or caught, and if they're fresh or processed. L3: Children can select the most suitable skill (chop, slice, grate, peel) for each ingredient and explain why. L4: Children design a healthy sandwich, explaining why they chose each ingredient and naturally opting for healthier choices. L5: Children follow hygiene standards confidently, knowing why hygiene matters. They make sandwiches with attention to appeal and finishing touches. L6: Children evaluate their sandwich based on design criteria, clearly stating what they'd improve and why.
Vocabulary	healthy, carbohydrate, protein, dairy, fruit, vegetable, sugar, salt, chop, slice, grate, peel	healthy, carbohydrate, protein, dairy, fruit, vegetable, sugar, salt, ingredient, grown, reared, caught, fresh, processed, hygiene
Experiences		
SMSC	Children reflect on the importance of nutrition for a healthy lifestyle, appreciating differences in dietary choices and traditions.	
British Values	Children respect others' food preferences and work collaboratively, understanding the importance of hygiene and safety in shared environments.	
School Values	Healthy – Children learn how to make balanced food choices. Resilient – Children practise skills, adapting their designs when things don't go to plan.	

Cherry Tree Academy Medium Term - Design Technology

UKS2	Autumn 2	
	Textiles: Sustainable Fashion Accessories (pencil case/phone pouch etc)	
	Year 5	**Year 6**
	L1: What are sustainable textiles and why are they important? L2: What different stitches can we use to join fabrics securely? L3: How can we create a strong and accurate pattern for our accessory? L4: How can we make our accessory carefully, adding decorative details? L5: How do we finish our textile product neatly? L6: How successful is our textile accessory in terms of function and appeal?	L1: What are sustainable textiles and why are they important? L2: What different stitches can we use to join fabrics securely? L3: How can we create a strong and accurate pattern for our accessory? L4: How can we make our accessory carefully, adding decorative details? L5: How do we finish our textile product neatly? L6: How successful is our textile accessory in terms of function and appeal?
Key Concepts to assess	L1: Children research what sustainable fabrics are and why they matter. L2: Children practise basic stitches (running, backstitch) for strong joins. L3: Children create and cut simple patterns accurately. L4: Children construct their accessory with care, adding simple decorations. L5: Children use finishing techniques for neat appearance. L6: Children evaluate their accessory, identifying strengths and simple improvements.	L1: Children compare sustainable fabrics, explaining environmental impact. L2: Children practise and apply a range of stitches (e.g., overcast) with accuracy. L3: Children create more detailed patterns, adjusting designs if needed. L4: Children construct their accessory accurately, adding advanced decorative techniques like applique or embroidery. L5: Children apply neat, durable finishing techniques independently. L6: Children evaluate their accessory critically, suggesting detailed improvements for function and appeal.
Vocabulary	sustainable, textile, pattern, stitch, join, accurate, durable, decorative, evaluate	sustainable, textile, pattern, stitch, join, applique, embroidery, refine, embellish, accurate, durable, evaluate
Experiences		
SMSC	Children reflect on environmental impacts of materials and value sustainable choices.	
British Values	Understanding personal responsibility in protecting the environment through everyday decisions.	
School Values	Resilient – persevering when stitching goes wrong. Considerate – thinking about user needs and eco-friendly materials.	

Cherry Tree Academy Medium Term - Design Technology

UKS2	Spring 2	
	Food: Wraps & Seasonal Salads	
	Year 5	**Year 6**
	L1: What makes a balanced, healthy meal? L2: How do seasonal ingredients affect what we can include in our wraps and salads? L3: What knife and preparation skills do we need for our ingredients? L4: How can we design a wrap and salad that are healthy and appealing? L5: How can we prepare our wrap and salad carefully, following hygiene rules? L6: How successful is our wrap and salad in taste, appearance, and nutrition?	L1: What makes a balanced, healthy meal? L2: How do seasonal ingredients affect what we can include in our wraps and salads? L3: What knife and preparation skills do we need for our ingredients? L4: How can we design a wrap and salad that are healthy and appealing? L5: How can we prepare our wrap and salad carefully, following hygiene rules? L6: How successful is our wrap and salad in taste, appearance, and nutrition?
Key Concepts to assess	L1: Children identify food groups needed for a balanced meal. L2: Children research seasonal ingredients. L3: Children practise basic knife skills safely. L4: Children design a wrap and salad considering nutrition and appearance. L5: Children prepare their meal accurately, following hygiene standards. L6: Children evaluate their wrap and salad, noting what they would change.	L1: Children identify food groups and explain why each is important in a meal. L2: Children research seasonal ingredients and consider sustainability. L3: Children practise more advanced knife skills confidently. L4: Children design a wrap and salad with detailed reasons for ingredient choices. L5: Children prepare meals with precision, adding thoughtful finishing touches for presentation. L6: Children evaluate their wrap and salad critically, suggesting improvements with justification.
Vocabulary	nutrition, balanced, ingredient, hygiene, chop, grate, peel, seasonal, taste, texture, presentation	nutrition, balanced, ingredient, hygiene, chop, grate, peel, seasonal, dietary, sustainability, precision, presentation
Experiences		
SMSC	Exploring cultural foods and seasonal eating to appreciate diversity.	
British Values	Respecting dietary choices and working cooperatively during preparation.	
School Values	Healthy – choosing nutritious ingredients. Resilient – practising skills until confident.	

Cherry Tree Academy Medium Term - Design Technology

UKS2	Summer 2	
	Automated Toy	
	Year 5	**Year 6**
	L1: How do cams, levers, and simple circuits create movement in toys? L2: What materials and tools will we need to build our automata? L3: How can we design an automata toy that moves creatively? L4: How can we safely assemble the mechanical and electrical parts of our toy? L5: How can we test and refine our automata to work reliably? L6: How effective and appealing is our automata toy?	L1: How do cams, levers, and simple circuits create movement in toys? L2: What materials and tools will we need to build our automata? L3: How can we design an automata toy that moves creatively? L4: How can we safely assemble the mechanical and electrical parts of our toy? L5: How can we test and refine our automata to work reliably? L6: How effective and appealing is our automata toy?
Key Concepts to assess	L1: Children explore cams, levers, and circuits to understand basic movement. L2: Children select appropriate materials and tools. L3: Children design an automata with simple, clear annotations. L4: Children build their automata, integrating mechanical and electrical parts carefully. L5: Children test their toy and make simple adjustments. L6: Children evaluate their automata, describing what works and what could be improved.	L1: Children explain how cams, levers, and circuits work together for movement. L2: Children select and justify their choice of materials and tools. L3: Children design a more complex automata with detailed annotations showing stages of movement. L4: Children build their automata with precision, troubleshooting assembly issues. L5: Children test and refine their toy, ensuring smooth, reliable motion. L6: Children evaluate their automata thoroughly, giving detailed suggestions for improvement.
Vocabulary	cam, lever, motion, circuit, motor, switch, frame, assemble, test, evaluate	cam, lever, motion, circuit, motor, switch, frame, component, troubleshoot, refine, evaluate
Experiences		
SMSC	Valuing innovation and creativity in design.	
British Values	Working together respectfully, sharing ideas, and listening to feedback.	
School Values	Resilient – overcoming technical challenges. Considerate – designing toys others would enjoy.	