Cherry Tree Academy Medium Term Design and technology Cycle A

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.	

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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.

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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.	

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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
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Cherry Tree Academy Medium Term Design and technology Cycle A

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.	
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