



Cherry Tree Academy Medium Term Design and technology Cycle A

Autumn 1		
Frame Structures		
UKS2	Year 5	Year 6
	<p>L1: What structures are already in use?</p> <p>L2: How has triangulation been used to strengthen structures?</p> <p>L3: How can we apply what we have learned to design a shelter structure?</p> <p>L4/5: What materials and tools will we need to construct our designed structure?</p> <p>L6: How successful is our shelter structure?</p>	<p>L1: What structures are currently in use and how have they evolved over time?</p> <p>L2: How has triangulation been used historically and in modern architecture to strengthen structures?</p> <p>L3: How can we apply our knowledge of structural design principles to create a more advanced shelter structure?</p> <p>L4: What specific materials and advanced tools will we need to construct our designed shelter effectively?</p> <p>L5: How can we integrate sustainable practices into the construction of our shelter structure?</p> <p>L6: How effectively does our shelter structure meet the criteria for strength, durability, and sustainability?</p>
<b>Key Concepts to assess</b>	<p>L1: Children can discuss the pros and cons of these structures compared to other types of structures.</p> <p>L2: Through a practical activity, children will understand how triangulation helps a structure's rigidity.</p> <p>L3: Children will have designed a structure through discussion and research, correctly annotating it.</p> <p>L4/5: Using a range of materials, children will construct their structures.</p> <p>L6: Children can critically evaluate their products against their design specifications, intended user, and purpose, identifying strengths and weaknesses.</p>	<p>L1: Children can discuss the pros and cons of the structures compared to other types of structures.</p> <p>L2: Children, through a practical activity, will understand how triangulation helps a structure's rigidity and can explain this to their partner.</p> <p>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.</p> <p>L4/5: Using a range of materials, children will carefully select materials to construct their structures.</p> <p>L6: Children can critically evaluate their products against their design specifications, intended user, and purpose, identifying strengths and areas for development.</p>
<b>Vocabulary</b>	Frame structure, triangulation, stability, compression, strut	Frame structure, triangulation, stability, compression, strut, critical, evaluate
<b>Experiences</b>	Walk around the local community to search for various structures and shelters.	



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<b>SMSC</b>	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.
<b>British Values</b>	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
<b>School Values</b>	Considerate about each other's feelings when providing feedback. Resilient throughout the design and make process.



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Spring 1		
UKS2	Bread – celebrating culture and seasonality	
	Year 5	Year 6
	<p>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?</p>	<p>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?</p>
<p><b>Key Concepts to assess</b></p> <p>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.</p>	<p>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.</p>	
<p><b>Vocabulary</b></p> <p>Organic, seasonal, dairy, gluten, intolerance, dough, yeast, savoury, knead, mix, rub</p>	<p>Organic, seasonal, dairy, gluten, intolerance, dough, yeast, savoury, knead, mix, rub</p>	
<p><b>Experiences</b></p>		
<p><b>SMSC</b></p> <p>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 &amp; 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.</p>		



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Summer 1		
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?
<b>Key Concepts to assess</b>	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.
<b>Vocabulary</b>	pulley, gear, direction, speed, rotation, evaluate	pulley, gear, direction, speed, rotation, frictions, axle, evaluate
<b>Experiences</b>		
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