DT OVERVIEW – Chetwynde Primary

Design……Make……Evaluate……Apply

	Autumn	Spring	Summer
EYFS			
Year 1	**Mechanisms:** **How can you make a picture move?**	**Structures:** **How can you stop a tower from falling over?**	**Food and Nutrition:** **How does food affect your senses?** **(rainbow wraps)**
	• **Substantive Knowledge** • Know that mechanisms make objects move. • Know that sliders create movement in a straight line. • Know that levers move around a pivot. • Know that materials can be joined to create moving parts. **Disciplinary Knowledge** • Explore and investigate moving pictures. • Design and make a moving picture using a slider or lever. • Use cutting, joining and assembling techniques. • Test and evaluate how successfully their mechanism works.	**Substantive Knowledge** • Know that structures are made from different materials. • Know that a strong and stable structure is less likely to fall over. • Know that a wide base can make a tower more stable. • Know that materials can be joined together to make structures stronger. **Disciplinary Knowledge** • Explore and investigate different towers and structures. • Design a tower that is strong and stable. • Select suitable materials and use joining techniques to build a tower. • Test the stability of their tower and make improvements. • Evaluate how successfully their tower stands without falling over.	**Substantive Knowledge** • Know that we use our senses to explore different foods. • Know that foods have different tastes, smells, colours and textures. • Know that different foods come from plants and animals. • Know that eating a variety of foods helps us stay healthy. • Know that good hygiene is important when preparing food. **Disciplinary Knowledge** • Explore different foods using sight, smell, touch and taste. • Describe and compare the taste, smell and texture of different foods. • Select ingredients based on their sensory properties. • Use simple food preparation skills, such as washing, peeling and cutting. • Follow basic food hygiene and safety rules. • Evaluate food choices using their senses and explain their preferences.
Year 2	**Understanding Materials:** **How strong is a piece of paper?**	**Textiles** **How can you repurpose old clothing?**	**Food and Nutrition:** **What does healthy mean?**
	Substantive Knowledge • Know that materials have different strengths and properties. • Know that paper can be made stronger by folding, rolling or layering. • Know that the shape of a structure affects its strength. • Know that joining materials together can make structures stronger. • Know that structures need to be strong and stable.	**Substantive Knowledge** • Know that old clothing can be reused to make new products. • Know that reusing materials helps reduce waste. • Know that fabrics have different properties, such as thickness, texture and strength. • Know that fabrics can be cut, shaped and joined together. • Know that products are designed for a particular purpose.	**Substantive Knowledge** • Know that eating a balanced and varied diet helps us stay healthy. • Know that different foods provide nutrients that our bodies need. • Know that fruits and vegetables are important parts of a healthy diet. • Know that foods can be grouped into different food groups. • Know that good hygiene is important when preparing and handling food.

	Disciplinary Knowledge • Explore and test the strength of paper. • Investigate different ways to strengthen paper. • Design a structure that can support weight. • Use folding, rolling and joining techniques to build a structure. • Test how much weight the structure can hold. • Evaluate the finished structure and suggest improvements.	**Disciplinary Knowledge** • Explore and investigate ways to reuse old clothing. • Compare different fabrics and their suitability for a product. • Design a simple product using recycled fabric. • Select suitable materials and use cutting and joining techniques. • Make a new product using old clothing. • Test and evaluate the finished product and suggest improvements.	**Disciplinary Knowledge** • Explore and identify foods from different food groups. • Investigate ingredients and make choices to create a balanced dish. • Design a simple healthy snack using a variety of ingredients. • Use basic food preparation skills, such as washing, peeling, cutting and mixing. • Follow food hygiene and safety rules when preparing food. • Taste and evaluate their finished product, suggesting improvements.
Year 3	**Materials** **How can you make a box out of cloth?**	**Nutrition** **What do we mean by a balanced diet?**	**Structures** **What makes a bridge strong?**
	Substantive Knowledge • Know that fabrics have different properties, including strength, flexibility and texture. • Know that fabric can be shaped and strengthened to create a structure. • Know that a net is a flat shape that can be folded to create a 3D structure. • Know that fabrics can be joined using techniques such as sewing and gluing. • Know that materials and joining techniques are selected based on the purpose of a product. **Disciplinary Knowledge** • Explore and investigate different fabrics and their properties. • Investigate ways to strengthen and shape fabric. • Design a fabric box that is suitable for a particular purpose. • Select appropriate materials and use measuring, cutting, folding and joining techniques. • Make a fabric box using suitable construction techniques. • Test and evaluate the strength, shape and suitability of their finished product, suggesting improvements.	**Substantive Knowledge** • Know that a balanced diet includes a variety of foods from different food groups. • Know that different food groups provide nutrients that help our bodies stay healthy. • Know that fruits, vegetables, carbohydrates, proteins and dairy foods or alternatives all contribute to a balanced diet. • Know that food choices can affect our health and wellbeing. • Know that good hygiene and safe food handling are important when preparing meals. **Disciplinary Knowledge** • Explore and identify the different food groups and their importance. • Investigate and compare ingredients to make balanced food choices. • Design a healthy meal or snack using a variety of ingredients. • Select suitable ingredients and use preparation skills such as chopping, peeling, grating and mixing. • Follow food hygiene and safety procedures when preparing food. • Evaluate their finished product, considering taste, appearance and how it contributes to a balanced diet.	**Substantive Knowledge** • Know that bridges are structures designed to span a gap and support weight. • Know that different types of bridges use different shapes and structures to provide strength. • Know that triangles can be used to strengthen and support structures. • Know that the choice of materials and joining techniques affects the strength of a bridge. • Know that a strong structure must be stable and able to support a load. **Disciplinary Knowledge** • Explore and investigate different types of bridges and how they are constructed. • Test different shapes and materials to investigate their strength. • Design a bridge that is strong, stable and suitable for its purpose. • Select appropriate materials and use measuring, cutting and joining techniques to construct a bridge. • Test how much weight their bridge can support. • Evaluate the strength and stability of their bridge and suggest improvements.
Year 4	**Food and Nutrition:** **What's really in your food?**	**Structures** **Which shapes will give a structure stability**	**Materials:** **How do you keep a tea towel from slipping off a hook?**
	Substantive Knowledge • Know that foods contain different nutrients that help our bodies stay healthy. • Know that food packaging provides information about ingredients and nutritional content. • Know that some foods contain added sugar, salt and fats. • Know that processed foods may contain additional ingredients to improve flavour, appearance or shelf life.	**Substantive Knowledge** • Know that different shapes affect the strength and stability of structures. • Know that triangles are strong shapes that help make structures rigid. • Know that a wide base can improve the stability of a structure. • Know that joining and reinforcing materials can make structures stronger. • Know that structures need to be stable to support weight. **Disciplinary Knowledge**	**Substantive Knowledge** • Know that different fabrics have different properties, including strength, texture and flexibility. • Know that fabrics can be joined using techniques such as sewing and stitching. • Know that a loop or fastening can be added to a textile product to make it more functional. • Know that different stitches can be used to create strong and secure joins. • Know that products are designed to meet a specific purpose and the needs of the user.

	• Know that understanding food labels can help us make informed food choices. • Know that food hygiene and safety are important when preparing food. **Disciplinary Knowledge** • Explore and investigate the ingredients found in different foods. • Read and compare food labels to identify ingredients and nutritional information. • Investigate and compare fresh and processed foods. • Design a balanced meal or snack using suitable ingredients. • Use appropriate food preparation techniques safely and hygienically. • Evaluate their finished product, considering ingredients, nutritional value, taste and appearance.	• Explore and compare structures made from different shapes. • Investigate which shapes provide the most stability. • Design a structure using shapes that improve strength and stability. • Select suitable materials and use accurate measuring, cutting and joining techniques. • Build a structure using triangles and reinforcement. • Test the stability and strength of the finished structure. • Evaluate the structure and suggest improvements.	• Know that the choice of materials and joining techniques affects the durability of a product. **Disciplinary Knowledge** • Explore and investigate different ways of hanging and securing tea towels. • Investigate suitable fabrics, fastenings and stitching techniques. • Design a practical solution to prevent a tea towel from slipping off a hook. • Select appropriate materials and use measuring, cutting and sewing techniques accurately. • Make a secure loop or fastening using suitable joining techniques. • Test and evaluate how effectively their design keeps the tea towel in place, suggesting improvements.
Year 5	**Nutrition:** **Why are our diets so different?**	**Structures** **How are frames strengthened, reinforced and made rigid?**	**Mechanisms:** **How can you lift a car onto a roof?**
	Substantive Knowledge • Know that people's diets vary due to culture, religion, health needs, availability and personal preferences. • Know that different cultures have traditional foods, ingredients and cooking methods. • Know that a balanced diet provides the nutrients needed for good health. • Know that some people have specific dietary requirements, including allergies and intolerances. • Know that ingredients can be substituted to meet different dietary needs. • Know that safe food preparation and hygiene are essential when handling and cooking food. **Disciplinary Knowledge** • Explore and compare foods and diets from different cultures. • Investigate how dietary requirements influence food choices. • Research ingredients and identify suitable alternatives for different dietary needs. • Design a balanced dish that meets a specific dietary requirement. • Select ingredients and use appropriate preparation and cooking techniques safely. • Follow food hygiene procedures, including preventing cross-contamination. • Evaluate the finished dish, considering taste, appearance, nutritional balance and suitability for the intended consumer.	**Substantive Knowledge** • Know that frame structures are made from connected parts that support loads. • Know that triangulation makes frame structures stronger and more rigid. • Know that bracing and reinforcement help prevent structures from bending or collapsing. • Know that the strength of a structure depends on its shape, materials and joining techniques. • Know that rigid structures resist changes in shape when forces are applied. • Know that frame structures are designed to meet specific purposes and withstand different loads. **Disciplinary Knowledge** • Explore and investigate existing frame structures and identify how they are strengthened. • Test different shapes, materials and joining techniques to compare their strength and rigidity. • Use triangulation, bracing and reinforcement to improve the stability of a structure. • Design a frame structure that meets specific design criteria. • Select appropriate materials and use accurate measuring, cutting and joining techniques to construct a frame. • Test the strength, stability and rigidity of their finished structure. • Evaluate the effectiveness of their design and make improvements based on testing.	**Substantive Knowledge** • Know that mechanisms can transfer and change forces and movement. • Know that pulleys use wheels and ropes to lift and move loads. • Know that gears can change the speed, direction and force of movement. • Know that winding mechanisms, such as winches, use an axle to wind a rope or cable and lift a load. • Know that some mechanisms reduce the effort needed to lift heavy objects. • Know that the choice of materials, components and joining techniques affects how effectively a mechanism works. **Disciplinary Knowledge** • Explore and investigate lifting mechanisms used in everyday life, such as cranes, pulleys and winches. • Investigate how pulleys, gears and winding mechanisms work. • Compare different mechanisms to identify how effectively they lift loads. • Design a model lifting mechanism that can raise a small toy car. • Select suitable materials and components and use accurate measuring, cutting and joining techniques. • Construct a working lifting mechanism using appropriate tools safely. • Test how effectively their mechanism lifts and lowers a load. • Evaluate the finished product against design criteria and suggest improvements
Year 6	**Mechanisms:** **How do pulleys and gears let you see the world?**	**Structures:** **How strong is a piece of spaghetti?**	**Electronics:** **Can a switch perform more than one function?**
	Substantive Knowledge	**Substantive Knowledge**	**Substantive Knowledge**

	• Know that pulleys and gears help transfer movement. • Know that pulleys use wheels and belts or ropes to create movement. • Know that gears are toothed wheels that turn together. • Know that gears can change the speed and direction of movement. • Know that pulleys and gears are used in everyday machines and vehicles. **Disciplinary Knowledge** • Explore products that use pulleys and gears. • Investigate how pulleys and gears create movement. • Design a product using a pulley or gear mechanism. • Select suitable materials and use cutting and joining techniques. • Make a working mechanism using pulleys or gears. • Test and evaluate how well the mechanism works and suggest improvements.	• Know that different materials have different strengths and properties. • Know that the shape of a structure affects its strength and stability. • Know that triangles can make structures stronger and more rigid. • Know that joining and reinforcing materials can improve strength. • Know that structures need to support loads without collapsing. **Disciplinary Knowledge** • Explore and test the strength of spaghetti. • Investigate how different shapes and joins affect strength. • Design a strong and stable spaghetti structure. • Select suitable materials and use accurate measuring and joining techniques. • Build a structure using triangulation and reinforcement. • Test how much weight the structure can support. • Evaluate the structure and suggest improvements.	• Know that a switch controls the flow of electricity in a circuit. • Know that different types of switches have different functions. • Know that switches can control components such as bulbs, buzzers and motors. • Know that circuits need to be complete for electricity to flow. • Know that switches can be used to control more than one function in a product. **Disciplinary Knowledge** • Explore and investigate different types of switches. • Build and test simple electrical circuits. • Investigate how switches can control different components. • Design a product that uses switches to perform more than one function. • Select suitable components and assemble a working electrical system. • Test and evaluate how effectively the switches and circuits work. • Make improvements to the finished product