Learning at River View

Design & Technology Curriculum End Points

**Key Stage One**

By the end of Key Stage 1, children will be able to use a range of materials creatively to design and make products. They will be exploring textiles, structures and mechanisms to develop and share their ideas, experiences and imagination. Children will be able to develop a wide range of design and technology techniques for designing, making and evaluating a product.

**Year 1**

The children will design, make and evaluate a puppet, constructing a windmill and wheels and axles. Using textiles children will experiment and learn joining techniques to connect two pieces of material together. They will develop some knowledge that different techniques for joining materials can be used for different purposes. When exploring structures the children will develop an understanding that the shape of materials can be changed to improve the strength and stiffness of structures and different structures can have differing purposes. When developing their understanding of mechanisms children will know that wheels need to be round to rotate and move with an axle required to enable this.

| **Questions to Check Understanding**   * How do you know what you do first when making your product? * What materials did you need for your product? * What is needed for a strong structure? * How do wheels move? * What is an axel? * What is a design criteria? |
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**Year 2**

The children will design, make and evaluate a pouch, a toy chair and a moving monster. Using textiles the children will know that different stitches can be used when sewing and the importance of tying a knot after sewing the final stitch. When exploring structures they will know that materials can be manipulated to improve strength and stiffness. Also that a ‘stable’, ‘strong’ and ‘stiff’ structure. When developing their understanding of mechanisms there is a collection of moving parts that work together as a machine to produce movement; there is always an input and output in a mechanism and a lever is something that runs on a pivot.

| **Questions to Check Understanding**   * What is the name of a stitch used for joining fabric? * When sewing must tie a note at the end, why is this important? * Why is a design criteria important? * What is a structure? * What does stiff/ strong/ stable mean? * What is an audience? * What is a lever? * What is an input/output? |
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**Key Stage Two**

By the end of Key Stage 2, children will be able to use a range of materials creatively to design and make products and talk confidently about the processes of producing their final product. They will be exploring textiles, structures, mechanisms and electrical systems to develop and share their ideas, experiences and imagination. Children will continue to further develop a wide range of design and technology techniques for designing, making and evaluating a product. Exploring key concepts in more depth to develop understanding as designers.

**Year 3**

The children will design, make and evaluate a castle construction, a cushion and pneumatic toys. Through textiles children will know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric. They will develop the understanding that the join in fabric is a seam and techniques which make sewing easier and neater. When exploring structures children will understand that wide and flat based objects are more stable. They will also explore the importance of strength and stiffness in structures. When developing their understanding of mechanisms explore how pneumatic systems work; operating by drawing in, releasing and compressing air.

| **Questions to Check Understanding**   * What is used to operate pneumatics? * Why must we label our designs? * What is the purpose? * What 2 stitches could be used to join fabric? * What is applique? * What makes a structure more stable? |
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**Year 4**

The children will design, make and evaluate a pavilion, fastenings and a car slingshot. Through textiles children will know fastening is something which holds two pieces of material together and are useful for different purposes. Children will also develop an understanding of the useful purpose of creating a mock up (prototype) of their design. When exploring structures the children will build an understanding of what a frame structure is and know what a ‘free-standing’ structure is. When developing their understanding of mechanisms they will develop their understanding of air resistance being the level of drag on an object as it is forced through the air and understand that the shape of a moving object will affect how it moves due to air resistance.

| **Questions to Check Understanding**   * What is a fastening? * What is an example of a fastening? * What is a fastening useful for? * What is a free standing structure? * What can you do to strengthen a structure? * What is air resistance? |
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**Year 5**

The children will design, make and evaluate bridge structures, doodlers and make a pop-up book. Through electrical systems children will know that series circuits only have one direction for the electricity to flow and know that an electric motor converts electrical energy into rotational movement, causing the motor’s axle to spin. When exploring structures children will understand some different ways to reinforce and understand why material selection is important based on their properties. When developing their understanding of mechanisms that control movement and change one kind of motion into another. They will also develop an understanding of how to use sliders, pivots and folds to create paper-based mechanisms.

| **Questions to Check Understanding**   * What is a circuit? * How is a circuit broken? * What happens when a circuit is broken? * What are the strengths and weaknesses of your product? * What is a motor? * What is triangulation? * What is a truss bridge? * What is a design brief? * What is a slider/pivot/fold? |
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**Year 6**

The children will design, make and evaluate playground structures, steady hand toys and automata toys. Through electrical systems children will know that batteries contain acid, which can be dangerous if they leak and will understand the components in a basic series circuit including a buzzer. When exploring structures they will build an understanding of how they can be strengthened by manipulating materials and shapes. When developing their understanding of mechanisms they will know that an automata uses a system of cams, axles and followers and understand that different shaped cams produce different outputs.

| **Questions to Check Understanding**   * What is perspective? * What does it mean to be accurate? * What is an improvement? * What is a buzzer? * What does it mean if a design is effective or ineffective? * What makes successful structure? * What is a cam? * What is a linkage? |
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