**Design and Technology at Mount Primary**

**Long Term Plan**

**Key Concepts**

**Master Practical Skills**

Involves developing the skills needed to make high quality products

**Design, make, evaluate and improve**

Involves developing the process of design thinking and seeing design as a process.

**Take inspiration from design throughout history**

Involves appreciating the design process that has influenced the products we use in everyday life.

**Topics**

| **Year** | **Topic** | **Overview** | **Rationale** |
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| **Year 1** | Mechanisms/tools- sliders and leavers  | Understand why we use tools and suggest which tool is best for the jobUnderstand how sliders and levers workKnow the different mechanisms produce different type of movement | Links with history toys topic Build on EYFS curriculum  |
|  | Freestanding structure  | Know that materials have different properties and they can be used to make other thingsKnow that some joining techniques are more appropriate that others depending on structureUnderstand that tools can be used and to use them safely . | Links with Science- materials STEM links  |
|  | Food | Be able to name some foodsKnow some of the different food groupsUnderstand and talk about a healthy meal | Links to Science and PSHECommunity links- local shops |
| **Year 2** | Mechanisms/tools- wheels and axels  | Understand what a wheel is and how it can be usedUnderstand what an axel is and how it can be used  | Build on Y1 skills Link with KS1 history- transport topic  |
|  | Food | Understand different tastes- e.g. sweet, sour Begin to name food groupsknow how to grate, peel and cut food for simple dishes safely | Links to Science and PSHEBuild on Y1 topic Build on Y1 Science- senses topic  |
|  | Textiles  | Know materials have different textures and understand tools can be used to cut theseUnderstand the suitability of different materials Join materials including sewing  | Links to Science- Materials – Y1 and Y2Build of EYFS topics PSHE- Keeping safe  |
| **Year 3/ 4 Cycle A** | Levers and linkages | Understand the purpose of a leverKnow that mechanical systems must be assembled using many componentsKnow that marking out after measuring helps to create accurate components for mechanical systems | Build on mechanisms and tools- KS1 topicsLink to Science- forces STEM links Look at how levers and linkages are used in the local area  |
|  | Food | Know the different food types and what they doUnderstand an ideal healthy dietHave an awareness of home-grown and imported foodUnderstand processed and unprocessed food  | Build on KS1 topicsLinks with Science, PE and PSHEGeography- countries food is imported from  |
|  | Textiles  | Know that a materials have both functional and aesthetic qualitiesUnderstand that materials can be combined and mixed to create more useful characteristics.Know that there are different styles of stitching to join materials and the names for these  | Build on Year 2 topic Build on KS1 Science- materials topic  |
| **Year 3/ 4** **Cycle B** | Food- cooking savoury food | Know the names of at least two methods of cooking such as boiling, frying, baking or roasting.Understand that food can be peeled, sliced, chopped  | Build on KS1 topicsLinks with Science, PE and PSHEGeography- countries food is imported from |
|  | Electrical systems- simple circuits and switches  | Know and name the components for an electrical systemKnow that in a series circuit, all components are connected end-to-end, forming a single path for current flow. | Links to Science topics Link to PSHE- Staying Safe  |
|  | Structures Shell structures  | Know that a shell structure is a structure which is made with a 3D shaped shell and name real life examples e.g. tin can, milk carton etc.Understand that CAD can assist in the design process of a product with a shell structure by using computer programs to design/draw nets which can then be printed and built into 3D shell structures | Links with Maths- Shape Link with Computing Real life examples |
| **Year 5/ 6 Cycle A** | Frame structures | Know that a frame structure is a structure which is made up of a series of thin bars, which create a frameworkUnderstand that frame structures are used in everyday lifeKnow that some materials are more/less effective when designing/making frame structures. | Real life examples Build on KS1 Science- materials and their properties  |
|  | Food- celebrating culture and seasonality  | Know that seasonality affects the production of food as some foods are only produced due to qualitiesUnderstand that food can be processed in factoriesKnow that countries, counties and cities have specific regional and national dishes | Build on KS1 and Y3/4 topicsYear 1- seasonal changes Links with Science, PE and PSHEGeography- countries food is imported from and regional dishes  |
|  | Electrical systems- more complex switches and circuits  | Know that simple electrical circuits and components can be used to create functional moving productsUnderstand that in a series circuit, all components are connected end-to-end, forming a single path for current flow.Be aware of the differences between input and output devices  | Links to Science topics Link to PSHE- Staying Safe Build on Y3/4 electrical systems topic  |
| **Year 5/ 6 Cycle B** | Textiles- including computer aided design  | Understand that CAD can assist in the textiles design process through specific computer programsKnow that designs often have limitations e.g. time, materials, budget which can affect design choices and criteriaKnow that in exploded diagrams the representation of the finished product looks as though it has exploded outwards and individual elements of the product can be seen more clearly | Build on Year 2 topic Build on KS1 Science- materials topic Link with computing  |
|  | Mechanical systems- pulleys, gears or cams | Know that cams are rotating or sliding pieces in a mechanical linkage used for transferring rotary motion into linear motionUnderstand cams, cogs and pulleys | Build on mechanisms and tools- KS1 and Y3/4 topicsLink to Science- forces STEM links Look at how they are used in the local area  |
|  | Food- celebrating culture and seasonality  | Know the nutritional components of a given meal (with drink) including food groups (Fat, Sugar, Protein, Carbohydrate, Vitamins and Minerals)Know that recipe can be followed to create a meal which can be adapted and each step has a skillBe aware that intolerances and allergies are not the same thing | Build on KS1 and Y3/4 topicsLinks with Science, PE and PSHEGeography- countries food is imported from and regional dishes Links to RE- cultural and religious meals/dishes/celebrations  |