# St Mary's Catholic Junior School
# Year 6
# Design & Technology Long Term Plan

| Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
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| | Food: Come dine with me | | Mechanical Systems: Automata toys | | Electrical systems: steady hand game |

| Design | Make | Evaluate | Technical Knowledge |
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| Food<br>Writing a recipe, explaining the key steps, method and ingredients<br>Including facts and drawings from research undertaken<br><br><br>Mechanical Systems<br>After experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement<br>Understanding how linkages change the direction of a force<br>Making things move at the same time<br><br><br>Electrical Systems<br>Designing a steady hand game – identifying and naming the components required<br>Drawing a design from | Food<br>Following a recipe, including using the correct quantities of each ingredient<br>Adapting a recipe based on research<br>Working to a given timescale<br>Working safely and hygienically with independence<br><br>Mechanical Systems<br>Measuring, marking and checking the accuracy of the jelutong and dowel pieces required<br>Measuring, marking and cutting components accurately using a ruler and scissors<br>Assembling components accurately to make a stable frame<br>Understanding that for the frame to function effectively the components must be cut<br>accurately and the joints of the frame secured at right angles | Food<br>Evaluating a recipe, considering: taste, smell, texture and origin of the food group<br>Taste testing and scoring final products<br>Suggesting and writing up points of improvements in productions<br>Evaluating health and safety in production to minimise cross contamination<br><br>Mechanical Systems<br>Evaluating the work of others and receiving feedback on own work<br>Applying points of improvements<br>Describing changes they would make/do if they were to do the project again<br><br>Electrical Systems<br>Testing own and others finished games, identifying what went well | Food<br>Learning how to research a recipe by ingredient<br>Recording the relevant ingredients and equipment needed for a recipe<br>Understanding the combinations of food that will complement one another<br>Understanding where food comes from, describing the process of 'Farm to Fork' for a given ingredient<br><br>Mechanical Systems<br>Using a bench hook to saw safely and effectively<br>Exploring cams, learning that different shaped cams produce different follower movements<br>Exploring types of motions and direction of a motion<br><br>Electrical Systems |

| | three different perspectives<br>Generating ideas through sketching and discussion<br>Modelling ideas through prototypes | Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set | and making suggestions for improvement | Understanding how electromagnetic motors work<br>Learning that batteries contain acid, which can be dangerous if they leak<br>Learning that when electricity enters a magnetic field it can make a motor |
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| | **Key Knowledge** | **Vocabulary** | **Assessment Criteria – 'Can I...? statements'** |
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| **Food: Come dine with me** | • To research and design a three-course meal<br><br>• To prepare three courses for a meal using a recipe<br>• To understand where their food comes from<br>• To write up a recipe | Bridge method<br>Cookbook<br>Cross-contamination<br>Equipment<br>Farm to Fork<br>Flavour<br>Flavours<br>Ingredients<br>Method<br>Preparation<br>Recipe<br>Research<br>Storyboard | • Can I research a recipe by ingredient?<br>• Can I understand that not all courses complement one another?<br>• Can I list the ingredients I need for my chosen recipe?<br>• Can I read the method and make a list of all of the equipment I need for my chosen recipe?<br><br>• Can I prepare ingredients and follow a recipe safely and sensibly?<br>• Can I describe the process of 'Farm to Fork' for a given ingredient using a storyboard?<br>• Can I contribute an attractive and easily understood recipe page to a class cookbook using imperative verbs, adjectives and illustrations? |
| **Mechanical Systems: Automata toys** | • To prepare (mark, cut, saw) the materials required for the automata frame<br><br>• To assemble the automata frame components and supports with the help of an exploded-diagram | Accurate<br>Automata<br>Bench hook<br>Cam<br>Client<br>Communication<br>Components<br>Cross-sectional diagram<br>Customer | • Can I measure, mark and check the accuracy of the wood and card automata components?<br>• Can I follow health and safety rules?<br>• Can I suggest appropriate design criteria points to fulfil the design brief?<br><br>• Can I cut components from my cutting list?<br>• For my frame to function effectively I know that:<br>   o the components must be cut accurately<br>   o the joints of my frame should be secured at right angles |

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| | • To explore the relationship between cam profiles and follower movement, to inform a design decision<br><br>• To apply the housing and finishing touches to the automata frame | Design brief<br>Design criteria<br>Designer<br>Exploded diagram<br>Follower<br>Follower base<br>Follower topper<br>Inner-workings<br>Mark out<br>Mechanism<br>profile<br>Sandpaper<br>Tenon saw<br>Verbal<br>Visual<br>Woodwork | • Can I demonstrate that I know a glue gun can be dangerous if not used properly?<br><br>• Can I understand the cam profile causes a follower to rise, fall or remain static at different points depending on its shape?<br>• Can I make informed design decisions based on my exploration of cam profiles?<br>• Can I complete an automata mechanism including cam, follower and axle?<br><br>• Can I measure and apply panels to my automata to conceal the inner-workings?<br>• Can I demonstrate that I know that good quality products should be neat, accurate and securely assembled?<br>• Can I evaluate my automata against a list of criteria? |
| **Electrical systems: steady hand game** | • To research and analyse a range of children's toys<br><br>• To design a steady hand game<br><br>• To construct a stable base<br><br>• To assemble electronics and complete their electronic game | Assemble<br>Benefit<br>Buzzer<br>Circuit<br>Copper wire<br>Design criteria<br>Electrical circuit<br>Electricity<br>Fine motor skills<br>Fit for purpose<br>Form<br>Function<br>Gross motor skills<br>Net<br>Research<br>Stable<br>Tabs<br>User | • Can I gather images and information about existing children's toys?<br>• Can I analyse a selection of existing children's toys?<br>• Can I apply my knowledge of form and function?<br><br>• Can I identify and name the components in a steady hand game?<br>• Can I decide on clear design criteria for my game?<br>• Can I design a game and draw it from three different perspectives?<br>• Can I ensure my design reflects the design criteria?<br><br>• Can I accurately cut and assemble a net?<br>• Can I decorate the base and ensure a high-quality finish?<br>• Can I ensure that the sides of the base are aligned when glued?<br>• Can I use tabs to secure the pieces of the net in place?<br><br>• Can I make and test a circuit?<br>• Can I incorporate a circuit into a base?<br>• Can I name electrical components? |