

Our children are receptive, inquisitive learners who, through our Gospel values, have a unique sense of the world

The DT Curriculum K&S at St Teresa’s Catholic Academy – Upper Key Stage 2

|  |  |  |
| --- | --- | --- |
| NC objective  Pupils should be taught to:  | Year 5  | Year 6  |
| Skills  | Knowledge  | Skills  | Knowledge  |
| Design  |   |   |   |   |
|  use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups  | Generate innovative ideas through research including surveys, questionnaires and peer discussion to develop a design brief for a design specification.  Design functional, appealing products for an intended user that are fit for purpose.   | Know their product, its function, the intended user and the importance of appeal.  Know and be able to use a variety of research to inform and develop their design specification.    | Use research including interviews, surveys, questionnaires and internet research to develop a design specification for a range of functional products.  Develop their design specification taking into account restrictions such as cost, time and resources.  | Know and be able to use a wide range of research to inform their design specification.  Know what restrictions to consider when developing their design specification.  |
|  generate, develop, model and communicate their ideas through discussion, annotated sketches, cross- | Develop and communicate ideas through discussion, annotated sketches, cross-sectional and exploded  | Know how to develop and communicate their ideas through annotated sketches,  | Develop and communicate ideas through discussion, annotated sketches, cross-sectional and exploded  | Know how to use a wide range of ways to develop and communicate their ideas through annotated  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design  | drawings and computer aided design.    | cross sectional and exploded diagrams, prototypes, pattern pieces and computer aided design.  | diagrams, prototypes, and pattern pieces, pictorial representations of electrical circuits or diagrams and computer aided design.  | sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.  |
| Make  |   |   |   |   |
|  select from and use a wider range of tools and equipment to perform practical tasks[for example, cutting, shaping, joining and finishing] accurately  | Produce lists of equipment and tools relevant to their task.     | Know the function of a range of tools and equipment and why they are relevant to their task.   | Produce detailed lists of equipment and tools best suited to their task.  | Know which tools and equipment are best suited to perform each task taking into account materials used.  |
|  select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities  | Include a wide range of materials and resources in a step-by-step plan, chosen according to their functional properties and aesthetic qualities.   | Know the characteristics of a range of components, materials, textiles and ingredients.  | Select materials/ components according to their functional properties and aesthetic qualities and explain their choices Create a step-by-step plan detailing tools, equipment, materials and components.  | Know the purpose of their product and what functional properties and aesthetic qualities will be required of their materials and components.  |
|  practical skills and techniques  | Be able to use a range of equipment and tools safely and accurately to measure and combine appropriate ingredients, materials and resources.    | Know how to use a range of tools and equipment safely and accurately.  Know how to measure and combine appropriate ingredients,  | Competently select and use appropriate equipment and tools to safely and accurately measure, mark, cut and assemble materials.  Use finishing and decorative techniques.  | Know how use appropriate tools to measure, mark, cut and assemble materials accurately and safely.  Know which finishing technique is best suited to the product.  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | materials and resources.  |  |  |
| Evaluate  |   |   |   |   |
|  investigate and analyse a range of existing products  | Investigate and analyse products and identify criteria that can be used for their own designs.   | Know how to investigate and analyse effectively.  Understand what their desired criteria is.  | Investigate and continually analyse and modify their product based on other similar products.  | Know how to investigate and analyse with their desired criteria in mind.  Know how to modify their product to fit their desired criteria.  |
|  evaluate their ideas and products against their own design criteria and consider the views of others to improve their work  | Compare their final product to their original design criteria and ask for and take into account the views of others to improve their work.  | Know what their criteria was and understand how to compare and evaluate their product against it.  | Critically evaluate their product against the design specification, intended user and purpose.  Carry out tests and identify strengths and areas for development.  | Know their design specification, intended user and purpose and understand how to compare and evaluate their product against it.  Know how to identify strengths and weaknesses in relation to their product.  |
|  understand how key events and individuals in design and technology have helped shape the world  |  | Teacher/ individual year group choice (supporting document to be created)  |  |
| Structures  |   |   |   |   |
|  apply their understanding of how to strengthen, stiffen and reinforce more complex structures  | Be able to stiffen, strengthen and reinforce their structure.   | Understand how to stiffen, strengthen and reinforce 3D frameworks.  | Be able to effectively stiffen, strengthen and reinforce their structure using different techniques.   | Understand a variety of ways to stiffen, strengthen and reinforce more complex 3D frameworks.  |
| Mechanisms  |   |   |   |   |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]  | Be able to use gears and pulleys within their product (to speed up, slow down or change the direction of movement)  | Understand how gears and pulleys can be used within their product   | Be able to use gears and pulleys effectively within their product (to speed up, slow down or change the direction of movement)  | Understand how gears and pulleys can be used effectively within their product   |
| Electrical systems  |   |   |   |   |
| understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]  | Be able to securely connect electrical components to produce reliable, functional products.   | Understand that electrical systems have an input and output.   | Be able to securely connect more complex electrical components to produce reliable, functional products.   | Understand that electrical systems have an input and output.  |
| Computing  |   |   |   |   |
| apply their understanding of computing to program, monitor and control their products  | Be able to program, monitor and control their product.  | Know how to use their understanding of computing to program, monitor and control their product.  | Be able to program, monitor and control their product effectively.  | Know how to use their understanding of computing to program, monitor and control their product effectively.  |
| Cooking and nutrition  |   |   |   |   |
|  understand and apply the principles of a healthy and varied diet  | Be able to design and create healthy menu choices for themselves and explain their reasons.  | Know about a variety of ingredients and understand how these can be used to create tasty dishes.  | Be able design and create healthy menu choices for themselves and others, and evaluate their reasons.  | Know about a variety of ingredients and understand how these can be used to create tasty and nutritious dishes  |
|  prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques  | Be able to prepare and cook a savoury dish using a range of cooking techniques and heat sources.  | Know how to use utensils and equipment, including heat sources, to prepare and cook a savoury dish.  | Be able to prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques and heat sources.  | Know how to use utensils and equipment, including heat sources, to prepare and cook a variety of predominantly savoury dishes.  |
|  understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.  | Explore seasonality in relation to products and their sources.  | Know about seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.  | Explore seasonality in relation to a range of food products and their sources.  | Understand about seasonality in relation to food products, and the source of different food products.  |
| Vocabulary  | Know age-appropriate technical vocabulary relevant to their project (from the DT vocabulary document)  |