St Richard Reynolds Catholic High School

SUBJECT: Design Technology **YEAR GROUP: 8** **TOPICS COVERED:**	
PROGRAMME OF STUDY	**METHOD OF ASSESSMENT**
Autumn Half Term 1: Designer Paul Smith Front Cover & Electronic Dice Board Game **Pupils investigate into the designer Paul Smith and create a front cover based on the concept of stripes and vibrant colours. Pupils develop their marking out skills and applying an even tone level showing accuracy in presenation and using previous knowledge learnt in year 7 to develop a front cover based in the style of Paul Smith.** **Pupils are given the opportunity to utilise their creative minds to create a board game that incorporates an electronic dice. This project incorporates 4 elements of technology; Graphics, CAD/CAM, Resistant Materials and Electronics. Pupils in the first half term develop their designs, research into machinery (Hegner Saw & Pillar Drill) and identify a wood joint to create a box frame. They learn about new electronic components and develop their circuit boards. They also develop the frame of the board game and component parts that will be used alongside their game.**	**Assessment of Practical Work** **End of Unit Theory Assessment**
Autumn Half Term 2: Electronic Dice Board Game **Pupils focus this term on finishing their board game designs and learn about the advantage of CAD/CAM within industry. Pupils complete a variety of theory elements and learn about what quality control is and how it is applied within industry. To help support this learning pupils will be given the opportunity to learn how to use a 3D printer to print their board game pieces using software Cubify Invent or TinkerCAD.**	**Ongoing Skills Assessment**
Spring Half Term 3: Cooking & Nutrition Healthy Eating **This scheme of work has been developed to enable pupils to learn where food comes from, how to cook a range of dishes safely and hygienically and to apply their knowledge of healthy eating. Pupils will develop their knowledge and understanding of ingredients and healthy eating. They will develop food preparation and cooking techniques and develop their knowledge of consumer food and drink choice. Pupils will be able to apply their knowledge to make informed choices and develop the creative, technical and practical expertise needed to perform everyday tasks confidently. Pupils will build and apply a repertoire of knowledge, understanding and skills in order to design and make high quality products for a wide range of users. Pupils will also evaluate and test their ideas and products and the work of others.**	**Assessment of Practical Work** **End of Unit Theory Assessment**
Spring Half Term 4: Cooking & Nutrition Healthy Eating **This scheme of work has been developed to enable pupils to learn where food comes from, how to cook a range of dishes safely and hygienically and to apply their knowledge of healthy eating. Pupils will develop their knowledge and understanding of ingredients and healthy eating. They will develop food preparation and cooking techniques and develop their knowledge of consumer food and drink choice. Pupils will be able to apply their knowledge to make informed choices and develop the creative, technical and practical expertise needed to perform everyday tasks confidently. Pupils will build and apply a repertoire of knowledge, understanding and skills in order to design and make high quality products for a wide range of users. Pupils will also evaluate and test their ideas and products and the work of others.**	**Assessment of Practical Work** **End of Unit Theory Assessment**
Summer Half Term 5: Structures Challenge **Pupils develop their knowledge and understanding into what a structure is and identify different examples from around the world. Pupils receive information on triangulation and the forces that act upon structures. They learn about natural and manmade structures. How nature and creatures use structures and the influences these have on inspiring design. They investigate into the Tacoma Bridge Disaster. They will also be challenged as a year group to make and design a full size bridge, made using a STIXX machine. Pupils will also complete a series of design challenges working within teams to resolve problems. These challenges will require them to manage budgets, create designs and learn about prototyping. Pupils finish the project by independently experimenting with paper creating a paper or string structure.**	**Ongoing Skills Assessment**
Summer Half Term 6: 2D Design Phone Stand **Pupils learn how to use 2D Design and the advantages of how CAD/CAM can be applied to create and manufacture products. Pupils develop there drawing skills by using isometric drawing paper to present ideas. Pupils learn how to use 2D Design software to create a design idea. They learn how to use a laser cutter safely and accurately They use a line bending/strip heater machine alongside using jigs to create a set shape. Pupils learn about the purposes of packaging (the 5 P's) and create packaging for their design ideas using a vacuum forming machine. They learn about symbols used on packaging and about the importance of sustainability.**	**Assessment of Practical Work** **End of Unit Theory Assessment**

Key Skills:

- **Understand what a structure is and the differences between Natural and Man-Made structures.**
- **Learn about the different types of forces that act upon a structure and how to make a structure more stable via completing the Tower & Bridge Team Challenge Tasks**
- **Learn to work within a team to complete a design problem**
- **Investigate into 4 types of bridges, Suspension, Beam, Arch and Cantiliver and how environmental conditions can impact on structures in different ways.**
- **Learn the purpose of what certain electronic components do and the types of symbols used to represent them**
- **Use tools and equipment safely and accurately**
- **Learn about the designer Paul Smith and incorporate his techniques with design work**
- **Develop knowledge and understanding in operating a Belt Sander and Hegner Saw safely**
- **Pupils are required to identify problems themselves in addition to responding to those that they are set**
- **Projects set provide opportunities for originality, resulting in products that work in some way in order to be successful.**
- **Products should provide an elegant solution that is engaging and aesthetically pleasing for the intended user.**
- **Pupils carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning.**
- **Pupils are taught about energy, nutrients, water and fibre, diet and health and nutritional needs throughout life.**
- **Pupils should consider the function, nutrient profile and sensory attributes of ingredients.**
- **Pupils should study and use a range of food commodities, e.g. cereals, fruit, vegetables, meat, fish, eggs, fats/oils, milk/dairy food products.**
- **Mark out and create a Comb Joint**
- **Use a coping saw safely and accurately**
- **Understand how resistors work**
- **Use a vinyl cutter to create a shape**
- **Make an STL File (3D Dimensional Design)**
- **Understand how to create 3D model using TinkerCad**
- **Understand the benefits of CAD/CAM**
- **Learn how to use a laser cutter and 2D Design Software**
- **How to use a polisher to finish acrylic material**