Design Technology

RIDGEWOOD SCHOOL

Year 7 Learning Maps – Design Technology Rotation

Earphone Wrap		
Prior Learning This topic builds on technology delivered in primary school, looking at new technologies that are emerging and how these can be used in new products. Knowledge will be developed to enhance both research and practical CAD skills.	**Current Learning** In this project students will develop skills within CAD software by designing an innovative earphone wrap, via the use of 2D design software and the laser cutter. Students will undertake some research into existing earphone wraps by using the internet and books. They will then use their research to design their own earphone wrap that demonstrates creativity and innovation. This will then lead onto creating the design using 2D design CAD software and then laser cutting the final design.	**Subsequent Learning** This topic will prepare students to make informed choices when analysing existing products and re-designing a current concept. They will recognise the importance of research in helping them to make informed decisions, which is an essential skill for future success in DT.

Lesson Sequencing		**Tier 3 Vocabulary**	**Wider Reading Opportunities**	**Ways in which parents/carers can support**
Lesson 1	Specification/idea	Creativity Innovation Computer Aided Design (CAD) Computer Aided Manufacture (CAM) Softwoods Hardwoods Manufactured boards Specification Rapid prototyping Templates, jigs, moulds Development Anthropometric data	Bitesize - CAD Production Techniques and Systems Woods Revision	Choose five products from around the home and think about how you could enhance them by adapting them to be more creative/innovative. Identify products around the home that are already innovative and are designed to be a problem-solving product.
Lesson 2	Development/ practical			
Lesson 3	Practical			
Lesson 4	Practical			
Lesson 5	2D Design			
Lesson 6	2D Design			

LEGO

Prior Learning	Current Learning	Subsequent Learning
This topic builds on technology delivered in primary school, linking to systems and control. Knowledge will be developed to enhance both research and practical skills within simple control systems.	In this project students will develop accuracy whilst programming the WeDo LEGO kits. Students will be taught basic mechanisms to enhance their understanding within systems and control and to help them apply this in a practical manner. They will undertake some research, using the internet and books, to explore different ways that mechanisms can be used. To challenge students, they will then apply their research to progress from the WeDo LEGO set tasks to creating their own programmed mechanism using the WeDo LEGO kit provided.	This topic will prepare students to be able to follow, understand and create their own control systems using programming and robotics.

Lesson Sequencing		Tier 3 Vocabulary	Wider Reading Opportunities	Ways in which parents/carers can support
Lesson 1	Mechanical Movements	Linear Rotary Reciprocating Oscillating Gear Train Pulley System Cam Linkages Class 1 Lever Class 2 Lever Class 3 Lever Compressive Strength Tensile Strength Programming Integrated Circuit Motor	Mechanical Devices - Motion Mechanical Devices – Levers Mechanical Devices – Linkages Mechanical Devices – Cams Mechanical Devices – Gear Trains Mechanical Devices – Pulleys and Belts	Look at different products around the house that use a programming system. Identify how they use the programming system to function. Identify the correct motions used within different types of products around the house e.g. a washing machine.
Lesson 2	Levers			
Lesson 3	Linkages			
Lesson 4	We-do			
Lesson 5	Evaluation KA			
Lesson 6	Evaluation KA and improvements			

Photo Frame

Prior Learning	Current Learning	Subsequent Learning
This topic builds on technology delivered in primary school, using wood and plastic to manufacture a photo frame. Knowledge will be developed to enhance both research and practical skills.	In this project students will develop accuracy whilst manufacturing a photo frame independently. Students will use the following equipment to manufacture the photo frame: thermoforming oven, mitre saw, electric drill, coping saw, files etc. They will undertake some research into different cultures using the internet and books. They will then use their research to work with wood and plastic, creating a photo frame that is based on a culture of their choice.	This topic will prepare students to make informed choices in the future, when manufacturing with woods and plastics. They will recognise the importance of research in helping them to make informed decisions, which is an essential skill for future success in DT.

Lesson Sequencing		Tier 3 Vocabulary	Wider Reading Opportunities	Ways in which parents/carers can support
Lesson 1	Research	Primary Research Thermoforming oven Vacuum forming Product Analysis Specification Pine Acrylic Mitre Joint Belt clamp Laser Cutter	Technology Student CGP Books - KS3 Science Workbook - Levels 3-7: Materials and Their Properties Workbook KS3 Design and Technology - BBC Bitesize KS3 D and T | Learning and Teaching for Year 7, Year 8 and Year 9 (educationquizzes.com)	Look at different wooden products around the house and discuss the different joining methods. Look at different tools around the home and identify the correct name and function.
Lesson 2	Research			
Lesson 3	Plastics			
Lesson 4	Practical			
Lesson 5	Practical			
Lesson 6	Practical			

Pull-along Toy

Prior Learning	Current Learning	Subsequent Learning
This topic builds on technology delivered in primary school, using wood to manufacture a pull along toy for a young child. Knowledge will be developed to enhance both designing skills and practical skills.	In this project students will develop wood working skills whilst manufacturing a pull-along toy independently, using basic hand held tools. Students will use the following equipment to manufacture the pull-along toy: coping saw, vice, electric drill, pillar drill, hole saw and files. They will produce a range of ideas and develop these through sketches and card modelling, before creating a final idea out of wood.	This topic will prepare students to make informed choices in the future, when manufacturing with woods. They will recognise the importance of designing for a target market and using tools safely, which are essential skills for future success in DT.

Lesson Sequencing		Tier 3 Vocabulary	Wider Reading Opportunities	Ways in which parents/carers can support
Lesson 1	Designing	Design Brief Target Market Plywood Sand Paper Hole Saw Vice Hook and Eye Pillar Drill Health and Safety Files	The Hand Drill (technologystudent.com) The Coping Saw (technologystudent.com) Hand Files / Engineers Files - 1 (technologystudent.com) Workshop Safety Rules (technologystudent.com)	Develop drawing skills for designing for different target markets. Try designing a mobile holder for an elderly person. Look at different tools around the home and identify the correct name and function.
Lesson 2	Designing/Practical			
Lesson 3	Designing/ Practical			
Lesson 4	Practical			
Lesson 5	Practical/ improvements			
Lesson 6	Practical- finishing touches			

Keep Calm and Bake

Prior Learning	Current Learning	Subsequent Learning
This topic builds on technology delivered in primary school. Knowledge will be developed on how to eat healthy and use different cooking equipment to cook a range of different products the form part of a healthy, balanced diet.	In this project students will learn about different pieces of specialist equipment used for baking and cooking. They will demonstrate this knowledge through practical activities in addition to a written key assessed piece.	This topic will prepare students to make informed choices in the future, about their health and diet. They will understand the importance of accurate weighing and measuring and how to follow recipes correctly to make different food dishes. These are essential skills used in future study of food technology.

Lesson Sequencing		Tier 3 Vocabulary	Wider Reading Opportunities	Ways in which parents/carers can support
Lesson 1	Introduction to KCAB	Hygiene Non-slip Clean Chef whites Hat Nails Jewellery Illness Accidents Bacteria	Kids' Fun & Healthy Cookbook by Nicola Graimes Cooking - Food A Fact Of Life Energy needs - Diet - KS3 Biology Revision - BBC Bitesize	Leisure time: watch food programmes such as 'The Great British Bake-Off' and 'MasterChef'. Dinner time: Support your child in planning and preparing dinner for the family. Ask your child to demonstrate good hygiene by completing the washing up after dinner.
Lesson 2	Key assessed piece			
Lesson 3	Cookies practical			
Lesson 4	Small cakes practical			
Lesson 5	Improvements/DIRT			
Lesson 6	Cheese scones practical			

Food Hygiene

Prior Learning	Current Learning	Subsequent Learning
This topic builds on technology delivered in primary school, focusing on the digestive system and the importance of physical exercise and diet. Students will build upon their basic hygiene skills to keep safe in a kitchen environment.	In this project students will learn about the importance of food hygiene and safety in the kitchen. They will learn about how bacteria can multiply and how to limit the possibility of food-related illnesses. Students will cook a range of healthy meals to develop their basic cooking and hygiene skills.	This topic will prepare students to have the knowledge and skills to make a range of healthy dishes containing high and low risk foods. Whilst cooking, students will demonstrate high standards of food hygiene. Students will recognise the importance of correct food storage and factors that can affect food-borne illnesses.

Lesson Sequencing		Tier 3 Vocabulary	Wider Reading Opportunities	Ways in which parents/carers can support
Lesson 1	Introduction to food hygiene	Hygiene Safety Danger zone Temperature Bacteria Pathogens Binary fission Multiply	Energy needs - Diet - KS3 Biology Revision - BBC Bitesize Eat well - NHS (www.nhs.uk) Hygiene and safety - Food A Fact Of Life Food safety advice when handling foods - Food safety 2 – CCEA - GCSE Home Economics: Food and Nutrition (CCEA) Revision - BBC Bitesize	Shopping: Challenge your child to explain why foods are stored in different sections (shelves, fridge, freezer etc.) Can they explain high risk foods? Can they unpack the shopping into the correct places? Dinner time: support your child in planning and preparing dinner for the family. Ask your child to demonstrate good hygiene by completing the washing up.
Lesson 2	Fruit salad practical			
Lesson 3	Food hygiene key assessed piece			
Lesson 4	Pasta salad practical			
Lesson 5	Improvements			
Lesson 6	Chili con carne practical			