Curriculum Knowledge Map

CHS Computing and Technology 2023/2024

Design and Technology & Food Preparation and Nutrition

Key stage 3: Rotation model

	Design and Technology	Food Preparation and Nutrition	Computing
Year 7	2 hours per week 10 weeks	2 hours per week 10 weeks	2 hours per week 20 weeks
Year 8	2 hours per week 10 weeks	2 hours per week 10 weeks	2 hours per week 20 weeks
Year 9	2 hours per week 20 week rotation	2 hours per week 20 week rotation	1 hour per week 40 weeks

Year 8	Rotation			
	New and Emerging Technologies		The Science of Food	
	Weeks 1 - 7	Weeks 8 - 14	Weeks 1 - 5	Weeks 6 - 14
Declarative *What should they know?*	**Industry** • Students should know about automation. • Students should know about Types of CAD & CAM and their uses. • Students should know about Types of signage and Health and safety regulation. **Electronics** • Students should know about differences in Systems – inputs, outputs and process blocks. • Students should know about How resistors are coded. • Students should know about Recognised circuit diagrams and components. • Students should know about Understand the use of Quality control.	**Forces and stresses** • Students should know about different types of forces and stresses. • Students should know about what a specification is and its use. • Students should know about how composite materials combat forces and stresses. **Structures** • Students should know about what technical drawings are. • Students should know about the purpose of orthographic, elevation and plan drawings. **Prototyping** • Students should know about Why prototypes are used and created.	**Nutrition** *(Recall and Develop)* • Students should know about nutrition and energy balance in the diet. • Students know about dietary requirements linking to dietary needs based on allergies and lifestyle. **Nutrients** • Students should know about macro nutrients in the diet (Recall and Develop). • Students know about micronutrients found in foods such as vitamins, and minerals and the benefits of water. • Students should understand how micronutrients are beneficial to the functions	**Food Practical – Pizza (Making Dough)** • Students should know how to weigh and measure ingredients (Skill 1). • Students should un • Understand how to make a dough (Bread) (Skill 10). • Students should know how to prepare ingredients using a knife (Skill 2/3). • Students should understand how to prepare fruit/vegetables using the bridge and claw method. • Students should understand how to use the Hob/Oven when cooking dishes (Skill 4). **Food Science (Gelatinisation)**

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	Smart and modern materials • Students should know about Why new materials get developed and how we classify them. • Students should know about Identify potential applications of smart and modern materials. • Students should know about biomimicry. DT Practical – Torch • Students should know how to place components in circuit boards correctly. • Students should know how to create a good solder joint. • Students should know the health and safety required when using soldering irons. • Students should know why solder is used as the joining metal. DT Practical – Thermochromic Paint Stencil • Students should know how to create a stencil. • How to use stippling brushes and thermochromic paints appropriately. • Students should know how decorations can have functional and aesthetic qualities.	• Students should know about Different types of prototyping. • Students should know about What iterative design is. • Students should know about Recognise specialist tools for prototyping in card. • Students should know about types of tests undertaken to different prototypes. DT Practical – Levers • Students should know how to create a working lever. • Students should know how forces and be used and altered by chaining pivot points. • Students should know how to use machinery such as pillar drills and sanders. DT Practical – Structures • Students should know how to create prototypes. • Students should know how forces and stresses impact porotype development. • Students should know how to reinforce materials. • Students should know how to make modifications to existing prototypes.	of the body, and how the absence of micronutrients can cause harm/illnesses. **Seasonality** • Students should understand the benefits of eating seasonal foods (richness in vitamins, minerals and flavour). • Students should understand how foods can be available all year round (GM Foods, Importing and exploring of food). • *Link to seasonality practical session* Food Practical – Fruit Crumble/Apple cake *(can be substituted for seasonal soup)* • Students should know how to prepare ingredients using a knife (Skill 2/3). • Students should understand how to prepare fruit/vegetables using the bridge and claw method. • Students should understand the crumbing method used when combining materials and ingredients (Skill 7). • Students should understand how to use the Hob/Oven when cooking dishes (Skill 4). **Food Provenance (Farming)** • Students should know the methods used to obtain food from its sources. • Students should understand the difference between caught, reared and grown ingredients. • Students should know about the difference between organic and intensive farming methods *(link back to seasonality).* • Know about the impact of food consumption and food waste on the environment. **Food Science (Raising Agents)** • Students should understand the need for certain recipes to increase volume with the use of a raising agent.	• Students should know what gelatinisation is and how it occurs during cooking. • Students should understand how gelatinisation can impact on starch based ingredients when heated (links to food practical - Sauce making). Food Practical – Pasta & Sauce (Mac and Cheese) • Students should know how to weigh and measure ingredients (Skill 1). • Students should know how to prepare ingredients using a knife (Skill 2/3). • Students should understand how to prepare fruit/vegetables using the bridge and claw method. • Students should understand how to use the Hob/Oven when cooking dishes – sauce making (Skill 8). **Food Science (Fats)** • Students should know about how fats are used in cooking for shortening & emulsification. • Students know about the working characteristics, functional and chemical properties of fats and oils. • Students should understand how fats can be used and their states changes from solid to liquid to enhance the texture of food/pastry items. Food Practical – Pastry Top Pie (shortening) • Students should know how to prepare ingredients using a knife (Skill 2/3). • Students should understand how to prepare fruit/vegetables using the bridge and claw method. • Students should understand how to make a dough (Bread) (Skill 10).

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			• Students should understand the difference between biological, chemical and mechanical raising agents. • Students should understand how different raising agents might increase the CO2 levels in a mixture through hypothesis and experimentation. Food Practical – Bread rolls (Making Dough) • Students should know how to weigh and measure ingredients (Skill 1). • Students should understand how to make a dough (Bread) (Skill 10). • Students should understand how to use the Hob/Oven when cooking dishes (Skill 4). • Students should know how to shape and form ingredients (dough) for uniformity (Skill 4).	• Students should understand how to use the Hob/Oven when cooking dishes – sauce making (Skill 8). **Progress Tests & Map Master, Move forwards lessons to end rotation.**
Procedural *What should they be able to do?*	• Students should be able to Identify health and safety signage. • Students should be able to Solder a circuit and its components accurately. • Students should be able to Work out the value of resistors. • Students should be able to Create flow charts. • Students should be able to Create patterns inspired by nature. • Students should be able to Identify different smart and modern materials. • Students should be able to Create stencils and stencils accurately. • Students should be able to Use specialist tools and equipment in the workshop safely and effectively. • Students should be able to Apply quality control methods.	• Students should be able to Modify materials to support different forces and stress. • Students should be able to Create composite materials. • Students should be able to Create a mechanical device using levers. • Students should be able to complete assessment style questions. • Students should be able to Create a specification and use it. • Students should be able to create a design brief and use it. • Students should be able to Create different structures. • Students should be able to Design using orthographic, isometric rendering, plan and elevations. • Students should be able to Prototype using basic specialist equipment. • Students should be able to Generate a range of test to assess quality of prototypes and designs. • Students should be able to Generate critical evaluations.	During the rotation students will complete a number of practical lessons (some may be omitted due to time); Fruit crumble, apple cake, bread rolls (iced buns), pizza, pasta and sauce, fruit tarts, pastry topped pie and samosas/spring rolls. During these practical's there will be procedural knowledge acquired relating to the application of skills: Fruit crumble/apple cake • Rubbing in method (Skill 7) • General practical skills – weigh and measure (Skill 1) • Use of the cooker (Skill 4) Bread rolls (iced buns) & Pizza • General practical skills – weigh and measure (Skill 1) • Use of the cooker (Skill 4) • Prepare, combine and shape (Skill 7) • Making a dough (Skill 10) • Raising agents (Skill 11) Pasta and sauce • Knife Skills (Skill 2)	During these practicals there will be procedural knowledge acquired relating to the application of skills: Pasta and sauce (Mac and Cheese) • Knife Skills (Skill 2) • Preparing fruits and vegetables (Skill 3) • Use of the cooker (Skill 4) • Cooking methods (Skill 6) Sauce making (Skill 8) Fruit tarts/Pastry topped pie. • General practical skills – weigh and measure (Skill 1) • Use of the cooker (Skill 4) • Prepare, combine and shape (Skill 7) • Sauce making (Skill 8) • Making a dough (Skill 10) • Setting mixtures (Skill 12)

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			• Preparing fruits and vegetables (Skill 3) • Use of the cooker (Skill 4) • Cooking methods (Skill 6) • Sauce making (Skill 8)	
Disciplinary Literacy *(Tier 3 Vocab)*	Tier 3 Disciplinary literacy linked to the unit of study: • Hazzard • Biomimicry • Soldering • Component • System • Smart material • Modern material • Composite • Quality control • Fusibility • Fabricate • CAD • CAM • Input • Output • Process • Circuit	Tier 3 Disciplinary literacy linked to the unit of study: • Modification • Iterative • Orthographic • Elevation • Plan • Evaluate • Quality • Design brief • Mechanism • Force • Stresses • Tension • Torsion • Compression Shear	Tier 3 Disciplinary literacy linked to the unit of study: • Nutrition • Nutrients – Vitamins, Minerals • Hydration • Seasonality • Genetically modified (GM) • Food waste • Weigh, Measure, Rubbing in • Food provenance • Caught, Grown, Reared • Organic, Intensive • Primary processing • Secondary processing • Raising agent • Chemical • Mechanical • Steam • Biological • Yeast • Kneading, Proving • Gluten	Tier 3 Disciplinary literacy linked to the unit of study: • Raising agent • Dextrinisation • Shape and form • Gelatinisation, • Caramelisation • Starch • Roux, Reduction • Viscosity • Convection & Conduction • Al dente • Shortening • States • Room temperature • Texture • Setting agent (quick gels) • Shortening, Plasticity • Texture • Standard component • Spices & Season(ing) • Marinade
Assessment	**Key assessment task:** Practical assessment - Electronic circuit build, students will be assessed on quality of final product, health and safety, and terminology of tools, equipment and components	**Key assessment task:** Extended writing assessment - critical evaluation, students will be assessed on, SPAG, use of ACCESS FM. **Key assessment task:** Progress Test - marked and fed back as part of a Key Assessed piece of work. The assessment will be marked out of 50 and developmental approaches used to improve students' knowledge and understanding. Feedback should use a two star and wish model.	**Key assessment task:** Assessment – feedback should be generated using a 2 star and wish method. Feedback to learners should be based on extended written piece focussing on the impact of food waste on the environment, focussing on food waste caused in the home, food production and retailers and what steps can people take to reduce food waste. **Home Learning Task:** Fair trade – students should investigate the principles of fair trade, investigating the impact upon farmers/growers as well as the social development of Fairtrade on developing communities.	**Key assessment task:** Practical Assessment – feedback should be generated using a 2 star and wish method. Feedback to learners should be based on practical skills and development evidenced in the lessons to support progress in future practicals. **Key assessment task:** Evaluation activities for practical lessons: students should complete a structured evaluation assessment for their practical task which will form feedback generated from their teacher. **Key assessment task:** Progress Test - marked and fed back as part of a Key Assessed piece of work.

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			Students should compare the cost of fair-trade products and summaries their understanding with a big question relating to fair trade. **Home Learning Task:** Breads – bread is a staple food in most cultures around the world. Students should research and investigate how bread recipes and varieties varies across the world through an independent research and investigation task.	The assessment will be marked out of 50 and developmental approaches used to improve students' knowledge and understanding. Feedback should use a two star and wish model. **Home Learning Task:** Home Study Task – in preparation for the end of unit Progress Test students should investigate their key learning topics from this rotation through study activities scaffolded by home learning. Students should investigation (using their books and revision resources): • Nutrition and Nutrients • Food provenance • Food production • Seasonality • Raising agents • Food science (carbohydrates) • Food science (fats & oils)