# Topic Overview
## Faculty/Subject: Innovation/DT
## Year Group: 8
## Topic: Chocolate Mould project

**What BIG IDEAS will you cover in this topic?**

Students are asked to showcase any prior knowledge from Primary school and beyond to demonstrate the design technology influences they have been exposed to. They will recap health and safety in both the workshop and foodroom and learn about assessing risks before undertaking a task.

Students will learn basic CAD design in SolidWorks.
Understand vacuum forming principles.
Master chocolate tempering techniques.
Integrate design, manufacturing, and food preparation.

Students will be exposed to new skills, software and materials such as -
Software: SolidWorks or equivalent CAD software.
Hardware: Vacuum former, 3D printer/CNC mill (if applicable), heat-resistant gloves.
Food Materials: Food-safe plastic sheets, high-quality chocolate, and decorating tools.

**What other key concepts, knowledge and skills will you learn in this topic?**

1.1 CAD Design with SolidWorks

- Basic Skills:
  - Navigating the interface and tools of SolidWorks.
  - Sketching 2D shapes and extruding them into 3D forms.
- Advanced Skills:
  - Adding features like fillets, patterns, and text.
  - Preparing and exporting designs for manufacturing.
- Design Principles:
  - Iterative design: Modifying and refining mold designs based on feedback.
  - Considering functionality and aesthetics in design.

1.2 Manufacturing Principles

- Vacuum Forming:
  - Understanding the process: heating plastic

1.3 Overall knowledge and skills

- Equipment, uses and health & safety
- Risk assessments
- Peer and self-evaluation

**What important prior knowledge will you use from your prior learning?**

- Measured and marked out accurately.
- Identified the main stages of making any product.
- Had experience using CAD/CAM.
- Gained some understanding of the design process.
- Have a basic understanding and knowledge of some tools and equipment

**Where does this topic fit into the curriculum plan for this subject?**
Design:

- Use research to develop design ideas for a product.
- Generate, develop, model, and communicate ideas using CAD.
- Investigate and analyze products to inform design decisions.

Make:

- Select and use tools, equipment, and materials safely and effectively.
- Understand and use manufacturing processes (e.g., vacuum forming).
- Apply technical knowledge to create functional products

Evaluate:

- Test, evaluate, and refine ideas and products.
- Consider the aesthetic, functional, and food-safe aspects of the design.

Technical Knowledge:

- Understand mechanical and scientific principles (e.g., vacuum forming, tempering).
- Apply knowledge of properties of materials (e.g., food-safe plastic, chocolate).
- understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.
- investigate new and emerging technologies- plastics (bio plastics)

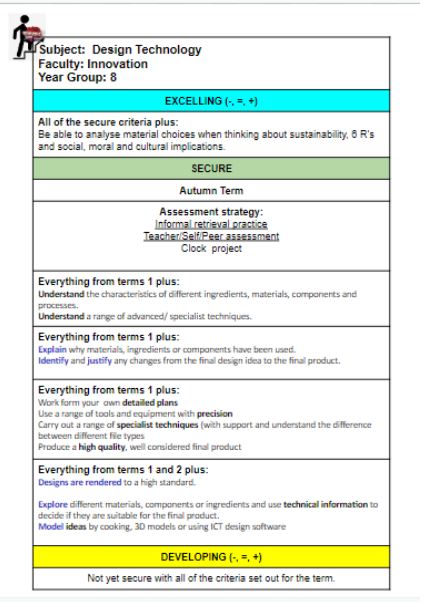
Cooking and Nutrition:

- Understand the science behind food preparation (e.g., chocolate tempering).
- Work with food safely and hygienically to create edible products.

Prior Learning:At Primary school in Ks2 students have;
- Looked at safety and hygiene in other DT rooms
- Worked with paper and card
- Made 3D models in simple materials

**Assessment:**
**How and when will you be assessed on this topic?**
**What will the success criteria be?**

- Class discussion, peer assessment and oral assessment.
- Teacher and student assessment of design work, practical work, technical language and evaluation.
- Self, peer, oral and teacher assessment methods as indicated within the scheme.
- Students will self-evaluate and set targets for future development.



**Subject: Design Technology**
**Faculty: Innovation**
**Year Group: 8**

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| EXCELLING (-, =, +) |
| **All of the secure criteria plus:**<br>Be able to analyse material choices when thinking about sustainability, 6 R's and social, moral and cultural implications. |
| SECURE |
| Autumn Term |
| **Assessment strategy:**<br>Informal retrieval practice<br>Teacher/Self/Pear assessment<br>Clock project |
| **Everything from terms 1 plus:**<br>**Understand** the characteristics of different ingredients, materials, components and processes.<br>**Understand** a range of advanced/ specialist techniques. |
| **Everything from terms 1 plus:**<br>**Explain** why materials, ingredients or components have been used.<br>**Identify** and **justify** any changes from the final design idea to the final product. |
| **Everything from terms 1 plus:**<br>Work form your own **detailed plans**<br>Use a range of tools and equipment with **precision**<br>Carry out a range of **specialist techniques** (with support and understand the difference between different file types<br>Produce a **high quality**, well considered final product |
| **Everything from terms 1 and 2 plus:**<br>**Designs are rendered** to a high standard.<br><br>**Explore** different materials, components or ingredients and use **technical information** to decide if they are suitable for the final product.<br>**Model ideas** by cooking, 3D models or using ICT design software |
| DEVELOPING (-, =, +) |
| Not yet secure with all of the criteria set out for the term. |

**What is the key vocabulary that you will need to know in this topic?**

- Tempering
- Quality control
- Chamfer
- Extrude
- Vacuum forming

**What is the structure of learning/lessons in this topic?**

1. Overview of project, tools, and materials.
2. Advanced SolidWorks tools
3. Principles of vacuum forming, material requirements

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| • Acetate | 4. Vacuum forming process and safety measures.<br>5. Chocolate tempering and mold filling.<br>6. Demold chocolates, decorate using food-safe tools and evaluate. |