Curriculum Intent
Subject …Year 7 Design & Technology

PRIORITIES IN WHOLE SCHOOL CURRICULUM INTENT

- Enjoyment of learning
- Knowledge acquisition and recall
- Extensive vocabulary
- Effective communication through writing, speaking & listening, and use of technology
- Numeracy
- Critical evaluation of information
- Enterprise and problem-solving
- Working with others

KEY QUESTIONS TO CONSIDER

1. Why has content been selected? Is there sufficient focus on the most powerful knowledge, concepts and skills?
2. Does learning provide sufficient challenge? Is there sufficient challenge for all learners in all year groups?
3. Why is learning sequenced in this way? Does the sequence enable students to build on prior learning, and learn in increasing breadth and depth over time?
4. How is learning sequenced or spaced to promote long-term memory?

SUBJECT CURRICULUM INTENT

Design and Technology (D&T) is the inspiring, rigorous and practical subject which prepares all young people to live and work in the world of designing and industry. Design and technology build on the skills and knowledge that students will need when entering the working environment and leverages increasingly sophisticated resources like 3D printer and laser cutters to keep up with the ever-evolving industry and practices. Design and Technology provides opportunities to learn about manufacturing and advancements in new technology, using a wide variety of skills from using hand tools to developing their understanding of virtual modeling and the use of sophisticated CNC machines. Additionally, it provides excellent opportunities for students to develop and apply value judgments of an aesthetic, economic, moral, social, and technical nature both in their own designing and when evaluating the work of others.

PDE Links

- Developing responsible, respectful and active citizens who are able to play their part and become actively involved in public life as adults.
- Developing students' confidence, resilience and knowledge so that they can keep themselves mentally healthy.

Essential knowledge

- Student will have a basic understanding of a simple circuit
- Structures and how they work
- An understanding of why we use materials in a particular way
- Learning how to test and evaluate their own work
- Understanding the safety element in a DT practical room

Essential Skills

- Using CAD and CAM equipment and software
- Using a range of cutting and shaping tools in the practical room
- Student will be able to use basic soldering techniques
- Use a range of modelling skills to create basic prototypes
- Have basic designing skills

	YEAR 7				
	KNOWLEDGE	**CONCEPTS**	**SKILLS**	**RATIONALE**	**FUTURE DEVELOPMENT**
Term 1	**Structures** The iterative design cycles. Students will have an understanding and basic knowledge about different materials. Know the different types of structures and how to reinforce them efficiently. Students will know the positive and negative each structure and why they are used. Students will learn how to construct a structure. Students will be able design and make something with target criteria in place, and designing for a purpose. They will understand and know how to alter and improve an existing structure. Students will learn how to construct and layer materials appropriately. Students will learn how to analyse existing structures and how to interpret the research found. Understand how to evaluate and improve a design using a card model. Geography- Locations, different cultures, existing structures, natural structures and how they are made.	**Design** User-centred design Communication of ideas **Make** Modelling **Evaluate** Testing **Technical knowledge** Materials and their working properties Material categories Key names of materials and their properties Structures	Students will learn about PPE equipment and how to uses the workshop safely Literacy- Writing, comparing, analysing, evaluating, methodology. Maths- Measurements, weights. Students will know the properties of each materials, and how to use them appropriately. Students will have the skill to apply the structures to any product they design. Students will learn the skills of analysing and how they can use products to identify areas of success and areas of problems. Students will have the skills to produce the same idea in multiple ways which may improve the properties of the product. Students will know the different forces and stresses that can be placed on materials and how materials can be modified to withstand greater forces or stresses. Students will be able to evaluate and analyse the success of their prototype product and suggest potential future modifications. Students will have the skill for creating a set of initial design ideas by using the iterative design process. Understand how to card model a design.	Students will study structures as the first topic this is because the knowledge that supports this is the foundation of any designing or manufacturing. Everything around us is made up of structures. Therefore, this allows us to explain to students the importance of structures and materials and how this might relate to the products they use. This will be used throughout school and in the real world. This will allow students to understand how and why we design things the way we do. Ensuring the material is appropriate and the structure will be able to hold both static and dynamic weight while under forces. By working with paper and card, it allows students to realise how strong the weakest material can be if you work with them effectively, and how to save materials. This will allow students to consider the structure rather than the materials by using them in different ways students can test the outcome and learn from the failures	Students could make multiple structures and they could evaluate which was more successful and why, when would they use each one etc.

Term 2	**Projector** Students create a structure for their projector using their knowledge from previous term. Students will learn how to carry out a project successfully, understanding each step and what task need to be done for each step. Students will learn about different wood types and how they can be used. Understanding how the purpose of structures and when they are best to use them and combine them. Students will learn how to analyse existing products. Students will look at different ways of making the same product. Understand the different design strategies that can be used to help designing. Student will learn about the basic of how a circuit works.	**Design** User-centred design Communication of ideas **Make** Sources and origins Stock forms, types and sizes Cut materials efficiently to minimise waste. how to shape and form using abrasion, cutting and addition Specialist tools and equipment Soldering **Evaluate** Testing **Technical knowledge** Commercial processes Materials and their working properties Material categories Key names of materials and their properties Circuits	students will be able to evaluate and analyse the success of their prototype product and suggest potential future modifications. understand why we use a specific tool to cut a particular material. Student will learn how to use CAD Software (2D Design) Students will cut out their design using CAM equipment they will learn how to transfer this onto their chosen area. Student will learn how to cut card using cutting mats, knifes and steal cutting rules. Student will choose from a variety of tools to cut strips of softwood. Students will learn how to use soldering equipment. Students will learn about different wood joints.	Students will move from modelling structures using card to practical making them using softwood (Pine) students can take the knowledge they have learnt from the previous term and imbedded this into their practical work. Student will be introduced to the workshop and using basic hand tools and joining techniques to prepare them for them for more complex skills in the future, these basic skills are essential life skills and can be used in may aspect of their future life. Student will build their confidence by using some of the simpler machines in the workshop and will start to understand about basic industrial application for example the use of CAD and CAM when creating their prototype.	