DESIGN TECHNOLOGY
OCEAN ACADEMY

Purpose:

The purpose of this document is to outline the planning intent and implementation of the DT curriculum at Ocean Academy. In response to the DT National Curriculum, our planning and approach has been reviewed to ensure that the DT curriculum offers the best education for our pupils. To ensure that all staff understand the high expectations agreed, whilst establishing and maintaining a consistent approach to the teaching and learning of DT across our school; ensuring that all learners have exposure to high quality DT teaching and learning opportunities. The effective teaching of DT requires not just a well-structured and progressive programme but its consistent implementation across the school. Consequently, this will ensure that excellent attainment and progress is achieved by all children, regardless of ability, gender or socio-economic backgrounds.

Underpinning evidence:

1. National Curriculum: DT
2. The forgetting curve, Ebbinghaus
3. Cognitive Load Theory, Sweller
4. Principles of Instruction, Rosenshine
5. Metacognition and Self-regulated Learning, EEF
6. Feedback, EEF Teaching and Learning Toolkit
7. Mastery Learning, EEF Teaching and Learning Toolkit

Introduction and aims:

Intent - Sequencing and planning

'Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.' National Curriculum 2014

At Ocean Academy, we aim to ensure that all pupils:

Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world:

At Ocean Academy, our curriculum is planned to ensure that:

- Skills are broken down into the simplest form and modelled effectively. Specific skills and terminology are explicitly taught so that pupils have this knowledge in their long term memory so that it can be used to apply in their creative work.

- Pupils become proficient in the use of a wide range of tools and equipment to perform practical tasks.

- Pupils experience and use a range of materials and components within their DT learning.

- Pupils learn to communicate their ideas effectively in various ways (annotated sketches, prototypes and computer-aided design).

- Pupils have the time and opportunity for repeated practise and application of the intended skills, building on prior and existing knowledge. Each pupil has a DT book which shows the progression of skills over time.

- DT is valued in the curriculum and is given substantial and protected time within the curriculum. Planning is blocked and planned to focus upon skill development so that children have the opportunity and time to master that skill, becoming proficient over time.

- Quality resources and equipment are readily available for staff and pupils to use to implement the curriculum.

- It is broad and balanced. Children experience progressive teaching to develop a range of skills spanning: structures, textiles, food, mechanisms, electrical systems and computer programming.

- Lessons are designed and planned to regularly revisit and revise the work and skill development from previous learning, attaching new learning to existing schemas.

Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users:

At Ocean Academy, our curriculum is planned to ensure that:

- Each topic of learning provides opportunities for pupils to: research and explore; develop proficiency of skill; design, create and evaluate their product.

- Pupils are given extensive time to become proficient and master the skills needed in order to design and make high quality products.

- Pupils have the opportunity to apply their understanding of strengthening structures and learn how to incorporate mechanical systems, and computing within their products.

- Pupils can record their experiences and learning over time within their DT books. These are used to show the process of development and show the progression of their learning including opportunities for innovating and improving their products.

- It is relevant and engaging. The skills the pupils learn are applied in a purposeful way. Pupils have the freedom to explore, create and innovate, applying their skills in various ways.

Critique, evaluate and test their ideas and products and the work of others

At Ocean Academy, our curriculum is planned to ensure that:

- Pupils have the opportunity to use research to investigate and analyse a range of existing products, developing design criteria to inform their designs.

- Lessons incorporate time for pupils to evaluate their ideas and products against the design criteria and consider how to improve their work.

- Key vocabulary is mapped and planned across the curriculum to ensure that pupils are exposed to the language of design and technology and use this to articulate their thoughts and ideas.

- Pupils learn about relevant professions that relate to design and technology and, where appropriate, structures and innovations in the real world that are linked to their learning (e.g. famous architects and engineers and some of the iconic structures that they have designed).

Understand and apply the principles of nutrition and learn how to cook

At Ocean Academy, our curriculum is planned to ensure that:

- Pupils have an understanding and are able to apply the principles of a healthy and varied diet.
- Pupils are explicitly taught the skills required to prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques such as chopping, kneading, mixing, and weighing and measuring.
- Topics are planned with seasonality considered. Lessons ensure that pupils know where and how a variety of ingredients are grown, reared, caught and processed.
- Skills are progressive and built over time so that the dish that is produced develops in complexity and applies the skills pupils have learned during KS2.

Implementation - Pedagogy

'The instruction, practice and feedback that pupils receive within lesson time should enable all pupils to develop their competency, reinforcing the important message that everyone can improve.' Ofsted, 2022.

DT is planned and delivered in blocks of progressive lessons that are covered so that pupils are able to master and become proficient in the specified skill of that block. Lessons are consistently delivered for a set number of sessions so that pupils have sufficient time to repeatedly practise and apply the skill.

All planning is designed in conjunction with teaching staff. The staff who deliver these DT lessons have regular opportunities to discuss and evaluate planning and delivery, making changes to the topic areas when necessary to ensure lesson content remains relevant and engaging.

Within a block of learning, DT sessions will be delivered in the following process:

- Introduction to new topic and relevance to future careers.
- Pupils will research, evaluate and analyse existing products creating a design criteria.
- Teachers and pupils will revisit and revise prior learning and exposure to this skill, which will be evident in their DT book.
- Pupils will be assigned an application task or scenario which enables them to practise specific skills (e.g. measuring, cutting, attempting new sewing stitches) in a simple, scaffolded context. Firstly pupils will create their design through annotated sketches, diagrams, prototypes, patterns or computer-aided design.
- Pupils will demonstrate their skill proficiency by using appropriate tools and equipment to make their design accurately.

- Pupils will then evaluate and analyse their work, considering the skill proficiency and effectiveness of the final product.

To ensure that the intended planning is delivered effectively, lessons are planned with the underpinning understanding that high quality teaching and learning in DT includes the following:

- **Effective modelling and powerful demonstrations:** Because of regular support, rigorous planning and quality resources, teacher subject knowledge of the DT skills is strong. Because of this, teachers can provide specific models and break a skill down into manageable learning chunks for pupils to learn and develop over time. Use of videos, demonstrations and visualisers enables teachers to provide excellent models.

- **Sequential practice:** Learning is blocked, revisited and revised within and across year groups so that it builds upon existing knowledge and is planned sequentially and progressively. This is to ensure that learning is mastered and does not overload the working memory when learning new skills and knowledge.

- **Repeated practice:** Pupils are repeatedly given the opportunity to practise each skill to become fluent and competent. As pupils gain fluency, the complexity and difficulty of the practice or task will increase. Skills are revisited as pupils progress through the school.

- **Purposeful feedback:** Because of regular support, rigorous planning and quality resources, teacher subject knowledge of the DT skills is strong. Because of this, within every lesson, teachers can offer specific and purposeful feedback to pupils to improve their knowledge and skill proficiency, aiding their creativity. The feedback focuses on what they can do and their next steps in learning.

- **Maximum time being engaged in skill development:** Lessons are designed to ensure children access the maximum amount of practise time. This is achieved by ensuring that resources are well stocked and available for individual practice. Lessons are designed so that application opportunities provide optimal engagement.

Assessment:
Teachers' subject knowledge of each aspect of DT is secure and planning and resources support this to enable teachers to provide specific feedback to move learning on, within and across lessons, blocks of learning and year groups. Peer assessment and self-evaluation are used regularly within lessons across the school.

SEND and inclusion:
Throughout this document, the methods used to ensure all children, including those with additional needs, have been made explicit. All planning ensures that pupils with SEND or physical impairment can achieve just as well as their peers. The school works closely with the SENCO and external agencies through regular consultations to understand the specific needs, individual goals and incorporate these into the planning and delivery of DT lessons. All lessons are adapted to ensure that all children can access the learning and work with their peers.

Monitoring and Evaluation of Teaching and Learning:
We regularly monitor teaching and learning across the school to make sure that all of our pupils make the best possible progress from their starting points.

Aims of monitoring and evaluation:

- To make secure judgements of teaching and learning across the school
- To monitor and evaluate the progress of students
- To evaluate the performance of individual teachers against the Teacher Standards and check that high standards of professional performance are established and maintained
- To identify training needs across the teaching and support staff and drive the CPD programme

SLT and subject leaders will monitor and evaluate the impact of teaching on student's learning through:

- Learning walks
- Book looks
- Gathering input from pupil voice and staff voice

Review:
This policy is subject to yearly reviews by the subject leader and SLT.
Upon review, amendments will be made in line with the Academy Improvement Plan and shared with all staff.