Design and Technology Teaching and Learning Policy

This teaching and learning policy is underpinned by the school's vision and values:

Be happy: aspire, believe, achieve

Happiness is… the feeling you get when you help others and contribute to the world; when you work hard at something that was difficult to begin with; when you feel safe, cared for and respected; when you feel confident in your uniqueness and know where you are going.

Philippians 4:13

'I can do all things through Christ who strengthens me.'

1. Introduction

1.1 This teaching and learning policy is written so that staff, parents and governors are clear with regard to teaching and learning standards and expectations of Design and Technology across the school.

1.2 The school's Design and Technology subject leader is Mr Simon Robson.

1.3 The school's Art and Design link governor is Julia Clarke.

2. Aims and objectives
2.1 Intent

We acknowledge and celebrate that each child is unique and that they learn in different ways. At Croft school, we provide a rich and varied Design and Technology learning experience that allows children to develop their skills and abilities to their full potential. Our Design and Technology curriculum is ambitious and designed to meet the diverse needs of the children who attend Croft School. It aims to provide all pupils with the knowledge, skills and cultural capital they need to succeed in their lives.

Our core aims are to provide a Design and Technology curriculum that builds on pupils' individual talents and uniqueness and empowers our children to be:
- Independent
- Perseverant
- Respectful

We believe that these are the three gifts that we would like to give our pupils help them to succeed as life-long learners and children of God. The 'giving' of these gifts are what drive the curriculum at Croft school.

The development of pupils as learners of the future is at the heart of what we are trying to achieve at Croft School. We want our children to be happy designers who are confident, reflective, and resilient.

2.2 Implementation
Our curriculum provides pupils with rich, deep, inter-connected curriculum contexts to develop their skills of resilience, independence and emotional intelligence. These key curriculum elements are woven into our coherently planned, sequenced, enquiry-led learning units. This is supported by an approach that highly values metacognition and self-regulated learning. Whilst developing Design and Technology key skills and vocabulary to allow pupils to develop as technically-able artists and designers, learning in Design and Technology also supports pupils to debate, learn about design culture and history and engage in social action projects and have a positive impact on the lives of others. Teaching promotes the development of pupils' resilience skills to become confident designers and creators.

Mental health and well-being is a right of way for all pupils at Croft school; it is given high priority. Design and Technology is used as a gateway to reduce anxiety and acknowledge the importance of mental well-being.

2.3 Impact
Our Design and Technology curriculum ensures that our children develop detailed knowledge and skills across the curriculum and, as a result, achieve exceptionally well and is reflected in our consistently high outcomes for our pupils.
Our pupils will:
- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- 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
- Critique, evaluate and test their ideas and products and the work of others
- Understand and apply the principles of nutrition and learn how to cook.
- Produce creative work, exploring their ideas and recording their experiences
- Know about great designers, innovators and craftspeople, and understand the historical and cultural development of their designs.
- Experience a diverse range of design and technology through STEM visits and visitors
- Learn about career opportunities that involve design and technology
- Enable children to become happy designers, makers and evaluators: confident, resilient and independent.

Our pupils are continually growing as independent, perseverant and respectful learners and citizens.

3. Effective learning
3.1 We acknowledge that children learn in many different ways and we recognise the need to develop strategies that allow all children to learn in ways that best suit them most effectively. We consider the different ways that children learn when planning and teaching in order to ensure all children access a full and varied curriculum.

3.2 Pupils will work independently, in pairs, small groups and larger groups in structured and unstructured ways. Our Design and Technology curriculum encourages children to take responsibility for their own learning, to be involved as far as possible in reviewing the way they learn, and to reflect on how, what helps and what makes it difficult for them. In addition to the curriculum knowledge that we deliver we also aim to develop children's learning to learn skills; life-long skills that will play a major role in their learning both at school and in later life.

These include:
- Observation and reflections skills
- Group work and team work skills
- Problem-finding and problem-solving skills
- Creative thinking skills and imagination
- Analysis, logic, reasoning and synthesis
- Lateral thinking skills
- Listening skills
- Research skills (including locating and managing)
- Resources, questioning, skimming, scanning
- Comprehension; (summarising, note-making)
- Personal organisation skills
- Presentation skills
- Peer teaching and learning skills
- Evaluation skills
- Personal and collaborative decision-making skills
- Time management skills
- Memory skills
- Leadership skills
- Social skills
- Digital literacy skills

4. Curriculum Design

4.1 Curriculum

We use the Design and Technology National Curriculum and Key Stage expectations to plan our curriculum. 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

4.2 Content

In Early Years we use Development Matters 'expressive arts and design' and 'understanding the world' to guide teaching and learning. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes associated with the following content:

Early Years Foundation Stage

Pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have opportunities to learn to:
● Explore the textures, movement, feel and look of different media and materials
● Respond to a range of media and materials, develop their understanding of them in order to manipulate and create different effects.
● Use what they have learnt about media and materials in original ways, thinking about uses and purposes.
● Use different media and materials to express their own ideas
● Explore colour and use for a particular purpose
● Develop skills to use simple tools and techniques competently and appropriately
● Select appropriate media and techniques and adapt their work where necessary
● Represent their own ideas, thoughts and feelings through design and technology Children recognise that a range of technology is used in places such as homes and schools.
● They select and use technology for particular purposes.

Key stage 1
Pupils are taught to:
Design
● Design purposeful, functional, appealing products for themselves and other users based on design criteria
● Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
Make
● Select from and use a range of tools and equipment to perform practical tasks
● Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
Evaluate
● Explore and evaluate a range of existing products
● Evaluate their ideas and products against design criteria
Technical knowledge
● Build structures, exploring how they can be made stronger, stiffer and more stable
● Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.
Cooking and Nutrition
● Use the basic principles of a healthy and varied diet to prepare dishes
● Understand where food comes from.

Key stage 2
Pupils are taught to:
Design
- Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make
- Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate
- Investigate and analyse a range of existing products
- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- Understand how key events and individuals in design and technology have helped shape the world

Technical knowledge
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- Apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition
- Understand and apply the principles of a healthy and varied diet
- Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

4.2 How does the school ensure curriculum coverage?

The Design and Technology subject leader is responsible for developing the school's curriculum intent and ensuring that it is implemented consistently and effectively and is having an impact across the school. The Design and Technology curriculum is split into broad 'Learning Focuses' to form a long term map. The Design and Technology Learning Focuses are:

- structures
- mechanisms
- food
- electrical systems

The subject leader works with other subject leaders across the school to make relevant links between learning focuses and across the curriculum. The Design and Technology curriculum operates on a two-year rolling cycle from Early Years to Year 6 and ensures full curriculum coverage of learning focuses (see appendix 1 – Design and Technology Long Term Map).

4.3 Curriculum Organisation

The Design and Technology curriculum is organised so that key skills and key vocabulary are built upon sequentially to ensure that learning is deep and embedded. The subject leader developed a progression in Design and Technology key vocabulary and key skills document to communicate this (see appendix 2 – Design and Technology Key Vocabulary Progression Map and appendix 3 – Design and Technology (Key Skills Progression Map).

4.4 Planning

Using the Design and Technology long term map and progression in key vocabulary and key skills documents, learning is structured into learning units (see appendix 4 - Design and Technology Learning Unit Overviews). The subject leader produces learning unit overviews for staff that summarise key aspects of learning in Design and Technology.

The school uses a cross-curricular approach to planning Design and Technology and uses 'WOW' experiences and STEM visits and visitors to engage pupils' interest, often at the outset of learning.' This is intended to motivate and stimulate the children's curiosity for the topic.

5.0 Teaching

Learning Units

5.1.1 Each learning unit will usually last around 6-8 weeks. Learning unit overviews provide key medium-term planning for teachers to follow. They include: key learning focus; learning theme; learning objectives; vocabulary; resources; assessment tasks and assessment criteria.

- Key learning focus:
- Learning theme:
- Learning objectives:
- Vocabulary
- Resources:
- Assessment tasks:

5.1.2 Learning Unit Structure

Each Learning Unit begins with a focus on a key question, which is linked to the topic being studied by the class. Key skills and vocabulary are discussed. They build their skillset from looking at existing designs, practising skills and creating prototypes before embarking on creating their final design. The final, pupil and teacher-assessed piece of work, in each learning unit, demonstrates a child's interpretation and evaluation of these skills within their own work.

5.2 Lessons

High quality Design and Technology teaching involves drawing on a range of strategies that are closely matched to the learning objectives of the lesson. This, in turn, will match the particular learning needs of the pupils in the class. Teachers plan and resource lessons with high expectations for all pupils including the most able. Learning objectives reflect this and are used to measure the outcomes of the lesson.

Lessons are not always the same, however teachers will always ensure that:

5.2.1 All tasks and activities that the children partake in are safe and appropriate risk assessments are made prior to learning.

5.2.2 The leaders and experts in the classroom are the adults. Adults lead pupils decisively and confidently following school policies and class routines having high expectations of what pupils can achieve.

5.2.3 Staff are always ready for pupils as soon as they enter the room with work and resources prepared.

5.2.4 Learning objectives and key vocabulary are visually shared and discussed with pupils at the outset of learning. Learning objectives are used to measure the outcomes of the lesson. Pupils and staff know the language that they are expected to use and its meaning before learning begins. Technical and subject specific vocabulary is shared with Teaching Assistants prior to learning.

5.2.5 Learning objectives and the date are written and underlined (with a ruler) at the top of the page in pupils' topic books.

5.2.6 'Thinking Frames' are the only form of worksheets that are be used to ensure that pupils remain focused on key learning skills. Pupils are taught to talk about the learning skills that they are developing.

5.2.7 Learning is differentiated. The teacher will use resources such as: word mats, visual prompts, now and next prompts, technology, simplified texts etc to ensure that pupils can access learning and achieve. Some pupils will require more intense, targeted support and may need guidance from an adult to meet their needs.

5.2.8 Learning is pitched to meet all children's needs. Children who are capable of more within a lesson are moved on swiftly to more challenging work. Pupils who are finding work challenging are quickly identified and supported.

5.2.9 Questioning is purposeful and promotes learning. Teachers anticipate where mistakes arise and plan probing questions or examples ready to shape learning. Teachers provide TAs with examples of questions prior to learning.

5.2.10 Teaching assistants and other adult helpers are deployed effectively. Sometimes they work with individual children or with groups.

5.2.11 Adults consistently and overtly praise and value 'hard work' and 'making mistakes' so that pupils feel empowered to take risks in their learning and develop resilience.

5.2.12 Adults promote a culture of independence and enable pupils to solve their own problems and not do this for them. They work hard to help pupils to 'help themselves'.

5.2.13 Staff do not accept poor standards of handwriting and spelling in Design and Technology. Pupils are challenged to rectify this swiftly and consistently.

5.2.14 Lessons are concluded with a reflection activity where pupils assess their own learning and each other's. Pupils are provided with an introduction to where the learning will go to next.

5.3 What resources are available?

The Design and Technology subject leader is responsible for planning, ordering, managing, organising Design and Technology resources. The basics include: construction paper, dowel, wheels, rubber bands, paper, pencils, pens, crayons, modelling materials, scissors, glue, paint, fabrics, sewing materials, tools, including saws and hand drills, batteries, wires and motors and basic cooking equipment. There is an annual resources budget available for the subject leader of £500.

6. Assessment

6.1 Formative assessment and feedback

Pupils' Topic books and pupils' larger work saved on Seesaw provide the main evidence for formative assessment. However, pupils are also observed when they are working and are assessed against learning outcomes using the school's one page learning evaluation and feedback summary sheet.

6.1.1 All work in pupils' individual Topic books is acknowledged with at least a tick. Occasionally, staff will use written and verbal questions to extend and consolidate pupils' understanding. Written questions, in pupils' books, are always responded to by pupils.

6.1.2 Sometimes teachers will assess learning using the school's one page learning evaluation and feedback sheet. This form of assessment reduces teacher workload and provides opportunities for teachers to asses all pupils swiftly. Outcomes of one page learning and feedback sheets are shared with pupils either at the end of the lesson or the beginning of the next lesson.

6.1.3 Mini plenaries are used during learning to assess and provide consolidation opportunities for pupils at transition points within a lesson. Pupils are also provided with 'live' individual feedback as pupils work by teachers and teaching assistants.

6.1.4 Peer to peer feedback and reflection is used regularly as an essential part of learning in Design and Technology.

6.1.5 The subject leader maintains a portfolio of examples of pupils' work to support assessment judgements and moderation.

6.1.6 Instant displays using a 'washing line' / display spaces around school and in classrooms are used to exhibit whole class work and demonstrate that pupils' work is highly valued. This work does not need to be mounted and is hung with pegs. Work is displayed as soon as the work is completed and dry (if applicable).

6.2 Summative assessment

Seesaw Skills will be used to record pupils' progress. The skills are based on the National Curriculum targets and at least one skill must be assigned to each lesson; there will sometimes be more than one skill covered in a lesson. Subject leaders will then be able to easily monitor the work produced across school and have evidence of work produced. The skills are judged out of 4 stars to match the judgements as seen below. At the end of each unit a pupil will take a picture of their work and publish on Seesaw.

Across each key stage, pupils are assessed against the following key assessment criteria:

Early Years
Can explore and using media and materials
Can be imaginative
KS1
I can design purposeful, functional, appealing products for themselves and other users based on design criteria
I can generate, develop, model and communicate my ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
I select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
I select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics
I explore and evaluate a range of existing products
I evaluate my ideas and products against design criteria
I build structures, exploring how they can be made stronger, stiffer and more stable
I explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products
I use the basic principles of a healthy and varied diet to prepare dishes
I understand where food comes from.
UKS2
I use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
I generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
I select from and use a wider range of tools and equipment to perform practical tasks
[for example, cutting, shaping, joining and finishing], accurately
I select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
I investigate and analyse a range of existing products
I evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
I understand how key events and individuals in design and technology have helped shape the world
I apply my understanding of how to strengthen, stiffen and reinforce more complex structures
I understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
I understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
I apply my understanding of computing to program, monitor and control their products.
I understand and apply the principles of a healthy and varied diet
I prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
I understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Pupils are assessed as either:

Emerging		Pupil is beginning to make simple connections within the assessment focus.
Developing		Pupil has started to develop an understanding of skills and ideas around the assessment focus.
Confident		Pupil is skilled, independent and able.
Fluent		Pupil is highly able and can coach others.

At the end of the year, a judgement is made as to whether a pupil is 'on track' to complete the key stage as: working towards expectations, working at expectations or working above expectations. When a pupil reaches the end of a key stage a formal judgement is made using the same criteria.

7. The role of pupils
7.1 Our pupils will:
- Valuing themselves and each other as resourceful, innovative, enterprising and capable citizens
- try hard and persevere with their learning
- value their Topic book
- respect and value Design and Technology resources and materials
- model positive attitudes to learning
- value and respect the therapeutic mental well-being benefits of working creatively
- listen to others well and be respectful towards adults and each other

8. The role of Staff
8.1 Teachers and teaching assistants are responsible for the delivering high quality teaching and learning. They will:
- Implement the school's Design and Technology Teaching and Learning Policy rigidly to ensure consistent practice across the school
- Model an enthusiasm for Design and Technology
- Model thinking and talk to develop pupils' metacognitive and cognitive skills and ensure that learning is sufficiently challenging to develop pupils' self-regulation and metacognition
- Ensure that pupils are taught how to organise and effectively manage their learning independently
- Plan lessons that consider prior attainment, individual learning needs, different learning styles in order all students can access the curriculum and make at least good progress
- Use questioning styles to stretch and challenge students
- Keep up to date with their Design and Technology subject knowledge and pedagogical approaches to learning
- Be acutely aware of students who are not making progress in Design and Technology and plan timely interventions to ensure that good progress is made

8.2 The Design and Technology subject leader is responsible for the overall leadership and management of Design and Technology across the school. They will:
- Maintain an effective Design and Technology subject leadership file.
- Create and implement an annual Design and Technology action plan and monitor and evaluate progress towards targets.
- Monitor the quality of teaching of Design and Technology (evidence includes: Lessons, Planning, Pupils' Work, Learning Walks, Class Displays, Learning Environments, Pupil Surveys, Staff Surveys, Pupil interviews)
- Maintain Design and Technology teaching and learning monitoring records.
- Maintain a termly updated Design and Technology One Page Leadership Summary.
- Ensure that the school's Design and Technology Teaching and Learning Policy and subject information on the school website are accurate and up-to date.
- Lead staff meetings, support staff and ensure that staff are clear about teaching and learning expectations in Design and Technology.
- Access and record Design and Technology CPD and maintain personal subject knowledge and skills.
- Have high expectations of themselves within the role of Design and Technology subject leader and of others in the implementation of the Design and Technology Teaching and Learning Policy.

9. The role of Design and Technology link governor.
9.1 The Design and Technology link governor will support, monitor and review the Design and Technology Teaching

and Learning Policy.
In particular they will:
- Monitor the effectiveness of the school's Design and Technology teaching and learning policy through the school self-review processes.
- Complete two governor monitoring visits each year alongside the Design and Technology subject leader.

10. The role of parents
Parents have a fundamental role to play in helping children to learn. We expect that parents will be supportive of the implementation of the school's Art and Design teaching and learning policy. Information to assist parents in supporting their children will be provided.

11. Digital Learning

11.1 The use of technology to support pupils' learning is a high priority in school. Increasingly jobs are becoming more dependent on employees using technology to work more effectively with technology. At Croft we recognise the need this creates for us to help pupils develop technological skills.

11.2 In KS2 we will allow all pupils to have access to a tablet. KS1 will have access to one between two.

11.3 Tasks that can be completed on these tablets:

- Research
- Accessing websites
- Screen sharing capabilities to support pupils work
- Screen sharing capabilities to give children live feedback within a lesson
- Support with spellings
- Access to online dictionaries
- To complete class work set on Seesaw
- To share work with home on Seesaw easily
- To have access to books and stories
- To create films
- To create posters
- Using Augmented Reality apps
- Educational games
- Whole class quizzes
- Work handouts to be available on the tablet

11.4 Work produced on Ipads will be expected to be of the same quality of work produced in books. Presentation of core and non-core work must remain formal with no use of Emojis and drawings unless pupils have been directed to do so.

11.5 Sometimes an activity will be done on Seesaw. This work must be placed in a folder which follows this format: Subject: Unit e.g. Writing: Myths. This is in order for it be found easily when monitoring.

11.6 The ways children can respond to work digitally are:

- Write in books and take photos of work
- Write on whiteboards and take photos of work
- Voice Recordings
- Screen Recordings
- Peer to peer interviews
- Screenshots
- Text
- Peer Text (#TAG)
- Videos

11.7 Screen Time must be monitored carefully. Pupils should be spending no more than 30 minutes on a tablet completing a task without an extended break. Lessons where pupils are using tablets to look at a handout can last for up to 1 hour as pupils will only be referencing the tablet while writing in their books.

11.8 Pupils will be made aware of the taking of photos on their tablets, it must be done with other people's permission. This is acceptable with the direction of the teacher and can be shared on Seesaw (if we have the child's permission)

11.9 At times pupils may been given the opportunity to partake in discussions on Seesaw. Pupils can use an informal tone of writing in their comments, this will be taught to them explicitly and support their learning of different levels of formality depending on purpose and audience. Pupils must not use abbreviations and any post containing them will not be approved. Pupils will be reminded of constructive feedback before these sessions.