Riversdale Primary School

"A nurturing, ambitious and values led school."

Design & Technology Policy

Date: 30th November 2024

Review Date: 29th November 2027

"Thinking about design is hard, but not thinking about it can be disastrous."
Ralph Caplan

Article 28:
You have the right to education.

Article 29:
You have the right to education which develops your personality, respect for other's rights and the environment.

LEGAL FRAMEWORK

This policy has due regard to all relevant legislation and statutory guidance including, but not limited to, the following:

- DfE (2013) 'National curriculum in England: design and technology programmes of study'
- DfE (2017) 'Statutory framework for the early year's foundation stage'

INTENT

Our engaging and rigorous Design and Technology curriculum aims to inspire pupils to use their creativity and imagination, to design and make products that solve real and relevant problems. It supports pupils in becoming creative problem-solvers, both as individuals and as members of a wider team, that apply their learning to a range of design contexts, considering their own and others' needs, wants and values. Through critical reflection and evaluation of existing and past products, they will develop an understanding of design and technology's impact on our daily life and the wider world, and are encouraged to become innovators and risk-takers.

IMPLEMENTATION

According to The Design and Technology Association, there are three core activities that pupils must engage with in Design and Technology:

- Activities which involve investigating and evaluating existing products,
- Focused tasks in which pupils develop particular aspects of knowledge and skills,
- Designing and making activities in which pupils design and make 'something' for 'somebody' for 'some purpose'.

These three activities are combined in sequence to create a Design and Technology project.'

<u>CURRICULUM PROGRESSION</u>

Based on the National Curriculum, senior and subject leaders have constructed a curriculum progression map which identifies how the design and technology (D&T) specific knowledge and skills develop over a pupils' time at the school. This progression ensures that pupils build increasingly rich schemata, revisiting and deepening their understanding of key concepts as they move through the primary years. Each year group's objectives are linked, growing in complexity and independence to foster mastery and ensure alignment with National Curriculum expectations.

The curriculum is structured around five key technical domains: Cooking and Nutrition, Textiles, Structures, Mechanisms, and Electrical Systems. These domains are complemented by the three core skill strands of Designing, Making, and Evaluating. Careful consideration has been given to how these domains and strands are addressed, beginning with the Early Years Foundation Stage and continuing through each subsequent year group. This creates a spiral curriculum, where key concepts are revisited at increasing levels of complexity, allowing pupils to build upon prior knowledge and skills, fostering long-term retention and mastery.

To ensure comprehensive coverage of the National Curriculum for D&T, the curriculum progression map specifies when and where each concept is introduced and revisited across the academic year and in each year group. This provides a clear long-term plan, allowing staff to ensure all National Curriculum expectations are met while offering opportunities for revisiting and reinforcing key skills and knowledge. Teachers use this map to plan lessons and projects that allow pupils to apply and deepen their understanding, while also providing opportunities for adaptive teaching and assessment.

TECHNICAL KNOWLEDGE DOMAINS

The five technical domains are introduced in a way that builds complexity as pupils advance through the school.

Cooking and Nutrition:
This domain is prioritised to equip pupils with life skills that will enable them to independently prepare healthy meals by the end of their primary years. Pupils start by learning basic food preparation skills, such as chopping fruit and vegetables safely and hygiene practices, and gradually progress to planning and preparing more complex dishes. They learn about nutrition, the importance of a balanced diet, and how to make healthier food choices. In later years, pupils explore food sources, seasonality and consider the environmental impact of food production and processing.

Textiles:
Pupils are introduced to basic textile techniques, such as cutting, sewing, and joining materials, starting with simple projects like creating a felt puppet. Over time, pupils develop their ability to design, create, and evaluate more complex textile products. They learn about different fabrics, their properties, and how to select materials for specific purposes, while refining their sewing and stitching skills. In the later years, pupils are encouraged to experiment with techniques like appliqué, embroidery, and more intricate design work.

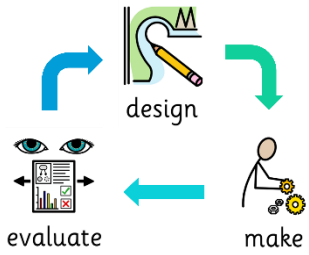
Structures:
The study of structures begins with simple freestanding constructions, where pupils explore how to support structures using basic materials. They then progress to understanding how different structures are designed for stability and strength including how shell structures are strengthened through laminating, corrugating or ribbing. By the end of primary school, pupils will be able to design and build more complex structures, considering factors like load-bearing, stability, and materials selection.

Mechanisms:
Pupils are introduced to simple mechanisms such as levers and sliders, learning how these can be used to create movement and perform tasks. As they move through the curriculum, pupils develop a deeper understanding of more advanced mechanisms, such as wheels, axles and cams, and apply them to design, make, and evaluate projects that incorporate these mechanisms, such as toys.

Electrical Systems:
Starting with basic circuits and understanding the use of electrical components like bulbs and buzzers, pupils progressively learn to create more complex electrical systems. By the end of primary school, pupils are expected to design and build simple working electrical products, understanding the role of switches, motors, and sensors, and applying these in their projects.

THE DESIGN, MAKE & EVALUATE CYCLE

The curriculum progression clearly identifies how pupils' skills in designing, making, and evaluating are developed across each phase. In the earlier years, pupils begin by generating simple ideas, selecting materials, and constructing basic models. As they progress through the school, pupils are encouraged to design more complex solutions, develop prototypes, and refine their work based on evaluation and feedback. By the end of Year 6, pupils are expected to work with increasing independence, applying their learning to real-world problems and evaluating the effectiveness of their designs critically.



CURRICULUM PLANNING

Each year group focuses on three units of learning throughout the year. To ensure that pupils develop the technical knowledge within a design and technology contextual framework, each unit of learning is addressed through a specific project (as recommended by The Design and Technology Association). Pupils are presented with a "real-life" scenario that they need to solve using the technical knowledge that they will subsequently develop. They then undertake the design, make and evaluate cycle to develop a product that aims to solve this problem.

Within each unit of learning pupils will follow the cycle and…

Evaluate by:

- Discussing Existing Products

Design by:

- Understanding Contexts, Users and Purposes,
- Generating, Developing, Modelling and Communicating Ideas,

Make by:

- Planning (Processes, Tools and Components),
- Applying Practical Skills & Techniques (Domain Specific),

and Evaluate by:

- Critically Reflecting on Own Ideas and Products.

To support teachers with ensuring that the correct technical knowledge and skills are addressed within each unit of learning, and that the design, make and evaluate cycle is applied, Teacher Knowledge Organisers are provided. These identify what substantive knowledge and disciplinary skills should be taught in each lesson in the sequence. This ensures consistency of lesson content over time and therefore curriculum coverage. Linked to this, teacher knowledge organisers clearly identify appropriate retrieval questions which should be asked throughout the unit of learning, to support pupils in transferring knowledge from the short term to the long-term memory, as well as providing appropriate formative assessment opportunities. These documents are not schemes for learning, as the methods used to impart the desired knowledge and skills are not mandated, rather they will be decided by the teacher based on the specific pupils within their class.

At the start of each unit of learning, pupils are provided with a Knowledge Organiser that:

- outlines prior learning that they will be building upon,
- lists the sequence of lessons so that pupils know what they are studying,
- identifies the most significant knowledge that they should gain
- includes images of key concepts, or significant examples to provide additional context for the pupils
- defines the subject specific terminology that they are expected to learn and use.

These are referred to throughout the unit of learning, supporting pupils in the development of the technical knowledge required to solve the problem they have been presented with.

<u>LESSON STRUCTURE</u>

D&T is taught through discrete meaningful lessons that take place fortnightly. We structure the timetable in such a way as to ensure pupils are building on knowledge and skills throughout the year, rather than in blocks, and use retrieval practices to move knowledge from pupils' working memory to their long-term memory. Occasionally units of learning may have a cross curricular link if this is genuine and does not detract from the core D&T knowledge and skills.

Pupils in the Foundation Stage are given the opportunity to, 'safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function' through basic and enhanced provision.

Pupils in Key Stage 1 and 2 will follow the school's lesson structure, which has been developed in reference to Rosenshine's Principles of Instruction:

- Retrieval (daily, weekly and monthly review),
- New Learning (in small steps):
    - Modelling (including asking questions),
    - Guided Practice (including checking student understanding and additional scaffolds that meet need),
- Independent Practice (providing enough challenge/support to obtain at least 80% success rate).

Pupils are given the opportunity to work as a class, as part of a group or as an individual. The choice of class organisation will be determined by: the learning task or activity, the nature of the theme and the resources being used.

ASSESSMENT

To ensure that pupils are progressing in their D&T learning, assessment is integrated throughout the curriculum. Teachers use both formative and summative assessment methods to monitor pupils' understanding and skills development. Formative assessments, such as observational notes and peer evaluations, help track individual progress and inform future lesson planning. Summative assessments, including project reviews and knowledge acquisition assessments ensure that pupils are meeting the expected learning outcomes by the end of each academic year. The curriculum also emphasises the development of self-assessment and reflective skills, encouraging pupils to evaluate their work and identify areas for improvement.

INCLUSION

The school is committed to ensuring pupils of all backgrounds and abilities can access the curriculum. The subject leader will review the content of the curriculum and any relevant assessment or teaching practices, and make sure any necessary reasonable adjustments are arranged, so that all pupils can access the learning.

- Tasks are adapted to ensure pupils of all abilities are challenged.
- Reasonable adjustments are made by the class teacher and subject leader in collaboration with the SENCo and other relevant members of staff.
- The SENCo will review reasonable adjustments on a termly basis to ensure they remain suitable for pupils.
- Reasonable adjustments are carried out in accordance with the school's Equal Opportunities Policy, SEND Policy and EAL Policy.

HEALTH AND SAFETY

When working with tools, equipment and materials, in practical activities and in different environments, including those that are unfamiliar, pupils will be taught:

- about hazards, risks and risk control.
- to recognise hazards, assess consequent risks and take steps to control the risks to themselves and others.
- to use the information to assess the immediate and cumulative risks.
- to manage the environment to ensure the health and safety of themselves and others.
- to explain the steps that they must take to control risks.

The location and storage of consumable items can be found in class areas. Leaders/class teachers replace their stock/order new requirements as needed. A limited number of tools and non-consumable items can be found in the DT cupboard located outside the "Aquarium" and "Pond" staff areas.

Food that is to be used for Cooking and Nutrition lessons will be purchased the day before it is due to be cooked and stored in the staff refrigerator on the middle floor.

The design and technology lead will undertake *Level 2 Food Safety* accreditation which must include full training on safe food handling, hygiene & storage, as well as guidance and documentation to enable the school to carry out risk assessments.

IMPACT

- Each pupil's performance in design and technology will be assessed by the teacher against the progression documentation expectations.
- Pupil progress will be reported to parents through the end of year report and orally during the parent-consultation evenings where parents specifically ask.
- Children are given opportunities to self-assess their own achievement and progress throughout the year.

ROLES AND RESPONSIBILITIES

Governors

- Ensuring a broad and balanced design and technology curriculum is implemented in the school.
- Ensuring the school's design and technology curriculum is accessible to all pupils.

Headteacher/Deputy Headteacher (Quality of Education)

- The overall implementation of this policy.
- Ensuring the school's design and technology curriculum is implemented consistently.
- Ensuring appropriate resources are allocated to the design and technology curriculum.
- Ensuring all pupils are appropriately supported.
- Appointing a member of staff to lead on the school's approach to teaching design and technology.

Subject Leader

- Preparing policy documents, curriculum plans and schemes of work for design and technology.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of design and technology, providing support for staff where necessary.
- Organising the sourcing of and deployment of resources and carrying out an annual audit of all design and technology resources.
- Advising on the contribution of design and technology to other curriculum areas.
- Keeping up to date with developments in design and technology education, passing this on to other members of staff. This could include leading staff meetings and providing staff members with the appropriate training, working alongside colleagues etc…
- Monitoring and evaluating progress in design and technology and liaising with senior management on any action necessary.
- Liaising with appropriate bodies e.g. other primary schools and secondary schools, governors, the LA etc. concerning matters relating to design and technology.

Teacher

- Acting in accordance with this policy.
- Liaising with the design and technology lead about key topics, resources and supporting individual pupils.
- Ensuring that all relevant statutory content is covered within the school year.
- Monitoring the progress of pupils in their class and reporting this on an annual basis to parents.
- Reporting any concerns regarding the teaching of the subject to the design and technology lead or a member of the SLT.
- Undertaking any training that is necessary to teach the subject effectively.

MONITORING & REVIEW

This policy is monitored and reviewed by the design and technology subject leader.

This policy will be reviewed at least every three years.