River Primary School
Design and Technology Subject Policy

Our school policies reflect our commitment to an inclusive, creative and exciting curriculum, based around high quality teaching and learning.

PURPOSE OF STUDY

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.

CURRICULUM DRIVERS IN DESIGN AND TECHNOLOGY

Collaboration: Nurturing creativity and innovation through design, and by exploring the designed and made world in which we all live and work is integral to our curriculum. Children are encouraged to negotiate while working with others towards a common goal. There will be ample opportunities for children to work as part of a team, developing their entrepreneurship and leadership skills, in which they will need to fulfil their role/responsibility as part of the design evaluation and production process. Problem-solving is a key driver in the design and engineering of innovative solutions, and so children are encouraged to design and test possibilities before making a final design for a product. We foster creativity and innovation by embracing curiosity and inquisitiveness about the physical and digital world, helping children to question or challenge concepts or knowledge in order to deepen their own understanding, and providing a foundation for product development and entrepreneurial actions.

Initiative: The ability to manage risks exceptionally well to manufacture products safely and hygienically encourages children to develop enterprise. By carrying out thorough research, children show initiative and ask questions to develop a detailed knowledge of users' needs before undertaking the process of applying their learning, skills and understanding in creative ways to develop a final product. Children are encouraged to show significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes. Learners' understanding of the world around them can help them work towards purposeful outcomes while developing resilience and perseverance, where failure is seen as a stepping stone to success. When learning about and working with technological processes, planning and organisation skills are taught in order for children to become increasingly independent when developing their ideas, implementing solutions, and monitoring and reflecting on results.

Diversity: Children are encouraged to explore the designed and made world in which we all live and work, and to recognise how global communities may differ. When learning skills related to food and nutrition, children learn to prepare a range of traditional and modern dishes from different cultures and countries. For example, researching a range of festival foods in the topic *Lets explore the world.* Children will also learn to recognise the importance of acting as responsible makers and designers, working ethically. Children will learn about a diverse range of designers, engineers and architects throughout the world. These have been carefully selected to avoid stereotypes and promote different genders, cultures and socio-economic groups as well as learning about some of the greatest in History that have shaped design as we know it today.

AIMS

The national curriculum for Design and Technology aims 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
- 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.

SUBJECT SKILLS

Our Design and Technology programme of study links closely with our cross curricular topic themes. The children have the opportunity to design, construct and evaluate products connected with their learning, while acquiring skills in order to use a range of tools and techniques effectively.

The high-quality Design and Technology lessons at River Primary School allows pupils to build on their skills and knowledge each year. For example, when using textiles, pupils will learn sewing in the topic *Rio de Vida* and will use a running stich. This then progresses the next year in the topic *Muck, Mess and Mixture* to use the over stich in addition to the running stich.

The teacher's careful consideration and planning builds on this previous knowledge. Teachers use retrieval in lessons to assess pupils' knowledge and will then plan their series of lessons based on this skill and knowledge, giving scaffolding where needed.

The essential qualities of a Design and Technology lesson includes research, represent their ideas, explore and investigate, develop their ideas, make a product and evaluate their work. During this process teachers will introduce vocabulary to the pupils to use.

In Design and Technology, it is key to allow pupils to develop their practical knowledge and skills. Good quality resources give pupils the best experiences and allows them to produce high quality products. During the topic

The termly overviews are carefully considered to allow an even spread of different skills used in year groups. The progression of skills allows teachers to be knowledgeable of other year groups and inform their planning.

Each year group has an extended DT project to give pupils the opportunity to apply their knowledge and skills. This is usually linked to their other learning. For example, in the topic *Revolution* pupils use their science knowledge of electricity to create buzzer games. Pupils also showcase their work to parents during their *Scream Machine* topic.

Design and Technology in EYFS

There are many opportunities for D&T related activities across all areas of the curriculum, and it is identified as a strand within the Expressive Arts and Design ELG 'Creating with Materials', along with links to other ELGs. Our children explore and can use a variety of media and materials through a combination of child initiated and adult led activities. Children's interests and self-directed projects are supported by adults through high quality scaffolding and modelling techniques. Through continuous provision, children have access to a variety of D&T related

resources. For example: Indoors – Small and large construction kits, Lego, junk modelling, cutting and joining resources. Outdoors – den building resources, wheels, woodwork, real tools.

Many opportunities are provided for children in EYFS in order to lay a firm foundation for future learning in Design and Technology:

- Explore the textures, movement, feel and look of different media and materials.
- Respond to a range of media and materials developing an understanding that they manipulate and create effects with these.
- Use different media and materials to express their own ideas.
- Construct with a purpose in mind using a variety of resources.
- Develop skills to use simple tools and techniques competently and appropriately.
- Select appropriate resources for a product and adapt their work where necessary.

D&T also makes a very important contribution to the 'Characteristics of Effective Learning' specified in the EYFS framework– exploring, active learning, creating and thinking critically.

SUBJECT CONTENT

Key stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]

When designing and making, pupils should be 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 [for example, cutting, shaping, joining and finishing]
- 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
- provide opportunities to evaluate, refine and improve the ideas and products and then re-evaluate.

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.

<u>Cooking and nutrition</u>

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key stage 2
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be 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
- provide opportunities to evaluate, refine and improve their work/ ideas, products and then re-evaluate.
- 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
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Pupils should be taught to:
Key stage 2
- 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.

Use of Key Questions

The use of key questions at the beginning of Design and Technology lessons, is one of the ways we engage children with their learning; giving them an opportunity to make connections with their prior knowledge. At the end of a lesson, teachers will return to the key question, considering the improvements children have made with their responses.

Hinge Questions

During Design and Technology lessons, hinge questions are planned at specific times to enable teachers to assess the pupils understanding and thinking at that point. Following this, the responses to the hinge question will guide the teacher's next step in the lesson – this may involve a recap or moving onto the next stage in the learning sequence.

CROSS-CURRICULAR LEARNING

We approach learning through cross-curricular themes so that children make links and see the relevance of their learning in different subjects. More detail can be found in our Curriculum Policy and on our school website www.river.kent.sch.uk.

Consistent with our curriculum aims, we identify learning by subject so children know when they are learning Design and Technology. This ensures that the integrity of the subject is not degraded and children acquire the underlying knowledge needed to access the subject in later years, including the acquisition of specific subject vocabulary.

ASSESSMENT AND REPORTING

Assessment of Design and Technology at both KS1 and KS2 is based on teacher assessment. Pupils will be assessed and their progression recorded in line with the school's Assessment Policy. Teachers make judgements by assessing the answer to the inquiry question alongside the progress made against key learning objectives throughout the unit. Assessment will be undertaken in various forms, including the following:

- Talking to pupils and asking questions
- Discussing pupils' work with them
- Marking work against the key learning objectives
- Pupils' self-evaluation of their work
- Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and inform their immediate lesson planning.

Reporting

Teachers enter assessment data into the schools reporting system twice a year.

Parent consultations provide a formal opportunity to discuss both progress and attainment and parents also have the opportunity to have a look at the learning that children have been doing in Design and Technology, through their books. Pupil annual reports shared with parents in July, provide a formal report of attainment in geography.

Subject Specific Assessment

Teachers will assess pupils learning throughout each part of the project (research, represent their ideas, explore and investigate, developing ideas, make a product and evaluate their work), this includes their knowledge and practical skills. The progression document that details the expectations in each year group ensures that teachers are able to understand what has been taught previously, what they need to teach in their year group and what will be taught next. It is

also a tool for identifying any gaps in pupils' learning and allows teachers to plan for this effectively.

Subject Leader Evaluation, overview of Assessment and Monitoring
To ensure best practice, the subject leader has been involved in curriculum review and has worked with the teaching team to ensure that our current curriculum is well-designed to include all the required aspects of Design and Technology, whilst making it relevant to our children in our context. In taking this approach, we capitalize on the locality and learning from direct experiences as far as possible.

To evaluate the impact of the curriculum and the quality of teaching and learning, the subject leader works alongside the senior team to monitor standards of teaching and learning. This is achieved through evidence gathering such as: a structured approach to planning, lesson visits, conversations with teachers, conversations with children together with the outcomes of their learning.

Equality in the curriculum
The two strands to ensuring equality in the curriculum
Equality of access to learning: This means that we have a responsibility to ensure that all children, regardless of their profile, have **access to the same opportunity** to learn within each subject. This means that adaptations need to be made to resources and facilities, ensuring that children feel safe and any barriers to learning are addressed. This is the means to give each child and **equal chance of success**.
Equality as part of the Curriculum: This means that our topics for study reflect the diverse population and that our curriculum supports social inclusion through promoting acceptance and appreciation the differences of ourselves and of others. Our focus on diversity as a driver reflects our commitment to equality. Through valuing diversity, we learn to expect, respect and value difference in others. We aim for children to recognise and understand their responsibilities towards themselves and others.

Children with Special Educational Needs
We have a firm commitment to inclusion so that appropriate adjustments are made for children with special educational needs or disabilities. All children in school have an entitlement to a full education and we will modify and differentiate the curriculum to ensure access to the curriculum for all children.

Gifted and Talented Children
We have a commitment to meeting the needs of all children, including those with an aptitude in one or more areas. It is our responsibility to maximise knowledge, skills, strengths and talents in all children, enabling them to extend and develop their potential. Gifted and talented children are recognised as having particular learning needs and the curriculum is extended in this subject through learning challenges to ensure that positive learning and progress is sustained.

Signed:_____Date: _____
Chair of Learning and Development Team

Linked Documents

Whole School Long Term Curriculum Plan
Year Group Medium Term Curriculum Plans
DT - Quick Reference Guide including Big Ideas

DT Progression of Skills