

# **ALDER COPPICE PRIMARY SCHOOL**

*Achievement through Commitment*

## **Design and Technology Rationale**

### **Rationale**

At Alder Coppice, Design and Technology prepares children to deal with tomorrow's rapidly changing world and encourages them to be creative and independent thinkers. Creative thinking encourages children to make positive changes to their quality of life and prepares them for the world they will be living in and the jobs that have not yet been created. The subject encourages children to become autonomous and solve real-life problems, both as individuals and as part of a team, whilst applying their knowledge of other subjects, e.g. Science and Maths.

The UK creative industries generates more than £111 billion pounds a year to the UK economy (Department for Digital, Culture, Media & Sport and The Rt Hon Nigel Adams MP, February 2020) with an estimated 2,040,000 jobs - 75 per cent of them outside London - the UK's creative industries are developing jobs faster than other sectors despite record employment in the UK economy as a whole (<https://www.thecreativeindustries.co.uk/facts-figures/uk-creative-overview-facts-and-figures-employment-figures> March 2021). Therefore, our Design and Technology curriculum will help the children at Alder Coppice to become informed future consumers and potential innovators needed to fulfil the roles required within the creative industry.

The key aspects of our Design and Technology curriculum have been carefully planned to ensure progression of key knowledge and skills. For example, in Food Technology, in EYFS children develop their awareness of a range of foods, this leads to learning about healthy food choices and food hygiene in Key Stage 1. This is then developed further throughout Key Stage 2, by linking their understanding to learning about seasonality, food preparation techniques and adding creative flair to simple dishes, alongside a deeper understanding of food hygiene practices. Additionally, technical knowledge is developed through the teaching of structures and mechanisms throughout their learning journey, e.g. in EYFS children explore construction kits that may contain some mechanisms - wheels /gears/levers etc. and have opportunities to create their own models. In Key Stage 1 children are introduced to more technical vocabulary and build on their design skills to make products demonstrating their knowledge of structures and mechanisms. Whilst in Key Stage 2, this is further developed by combining knowledge from maths and science to include elements such as electrical components and making informed choices of the mechanisms required to support their purposeful designs.

Further opportunities are also provided to enhance the children's learning and experiences within school and the wider community, e.g. visits to local secondary schools to facilitate learning that goes beyond the primary national curriculum.

## **Intent**

At Alder Coppice, we aim to provide children with a Design and Technology curriculum which allows them to:

- Develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making;
- To foster enjoyment, satisfaction and purpose in designing and making;
- Enable children to talk about how things work, and to draw and model their ideas;
- Encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures;
- Solve problems and exercise their creativity within a variety of contexts considering their own needs and that of others;
- Have opportunities to reflect on and evaluate present and past design and technological processes, products, uses and impact and their contribution to society;
- Combine a range of skills from across the curriculum to design, make and evaluate products showing their understanding of purpose, aesthetic and environmental issues, which will allow them to be successful in society, secondary education, further education and eventually, out in the working world.

## **Implementation**

At Alder Coppice we include a range of teaching strategies and techniques aimed at enhancing long term retention of substantive knowledge, including regular retrieval practice. The full details of these can be found in our *Curriculum Policy*. We plan to ensure pupils revisit key themes and concepts and retrieve key knowledge to support long term memory, which will drive student progress and raise standards across the curriculum.

In EYFS, children develop their Design and Technology skills through exploration and play and are introduced to techniques to design, make and evaluate simple products.

In Key Stage 1 and 2, in line with the National Curriculum, through a range of practical activities children are taught the knowledge, understanding and skills needed to engage in the processes of designing, making and evaluating, linked to specific criteria. Units are planned progressively each term to build on current knowledge within the Design and Technology curriculum; children develop the range, accuracy and breadth of understanding that will prepare them for Key Stage 3, when children select from and use a wider, more complex range of materials and components in their designs.

Our lessons follow a cycle of the key components of the National Curriculum for Design and Technology:

#### Design

The children will be taught to generate and share ideas for designs based on different criteria. They will be taught how to communicate their ideas carefully through discussion and annotated sketches.

#### Make

The children will be taught how to use a range of tools and techniques safely to perform practical tasks and begin to consider the most effective for the task. They will work with a range of materials and components, including construction materials, textiles and ingredients according to their characteristics.

#### Evaluate

Children will explore and evaluate a range of existing products and designers in order to understand how key events and individuals in design and technology have helped shape the world. They will also evaluate their own ideas and products against a range of design criteria and begin to consider views of others to improve their work.

#### Technical Knowledge

Children will learn how to apply their understanding of how to strengthen, stiffen and reinforce more complex structures. They will develop their knowledge and understanding of how to use mechanical and electrical systems in their products.

Key skills and key knowledge for Design and Technology have been mapped across the school (see the *Long Term Plan* for full details) to ensure progression between year groups. This also ensures that there is a context for the children's work in Design and Technology; that they learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study.

Some of the key strategies used to support the delivery of the curriculum are:

**Knowledge Organisers** – Knowledge Organisers are produced as part of each Unit of work and contain key information, vocabulary, significant designers and diagrams to support understanding, and are regularly referred to in a Unit of work. Pupils are encouraged to read and share information from these during lessons and help pupils to make links with their learning and digest essential knowledge.

**Resource Booklets** – These include a copy of the Knowledge Organiser, Retrieval Practice questions in the form of Do Now activities and Exit Ticket questions to practise key learning and any practical activity or questions the pupils will answer to support their understanding of a Unit.

**Key Vocabulary** – As well as introducing pupils to key vocabulary on their Knowledge Organisers, pupils are exposed to challenging vocabulary during an 'Everybody Reads'

session, where pupils are provided with opportunities to orally rehearse vocabulary and discuss the meaning of key words with their Learning Partners. This supports pupils with expanding their vocabulary knowledge and embedding new words so pupils have the confidence to use them independently in discussions or when carrying out practical work.

Retrieval Practice – Throughout a Unit of work, pupils have the opportunity to retrieve prior learning and are supported to make connections and links across lessons or Units in order to support a mastery approach to learning.

Learning Environment – The learning environment enables pupils' knowledge to develop and evolve – diagrams are displayed in the classroom to communicate key information and key vocabulary and knowledge are displayed in corridors to help deepen pupils' understanding of the design process.

## **Impact**

The Design and Technology Curriculum at Alder Coppice will ensure that the children develop the creative, technical and practical expertise needed to perform everyday tasks confidently in preparation for higher learning and to be able to participate successfully in an increasingly technological world. Throughout their learning, pupils will build and apply a repertoire of knowledge, understanding and skills in order to design and make products for a wide range of users and critique, evaluate and test their ideas and products and the work of others. In addition to this they will be able to apply the principles of nutrition and learn how to cook. Children will design and make a range of products appropriate to the age and ability of the child.

The children will learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they will 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.

To measure progress and understanding each Unit of work has an End of Unit Quiz, which is designed to ensure that core knowledge is retained. These quizzes are repeated on a regular basis in line with Rosenshine Principles to support retention in the long-term memory.

*Do Now* activities completed at the start of each lesson enables the teacher to assess how well pupils have retained key learning from previous lessons or Units of study. These activities ensure key knowledge is consistently called upon and where there are gaps, allows the teacher to identify them and to re-teach and recap where necessary.

The DT Subject Leader regularly carries out book trawls and questions pupils to assess the progress of pupils' DT knowledge and understanding of key concepts taught.