

Design and Technology Curriculum Purpose and Rationale

At Arden Forest our vision is to enable our whole school community with the skills to be happy, successful and independent life-long learners with healthy mind, bodies and spirit.

'Little Learners, Big Achievers'

Taken from Arden Forest vision statement and school motto.



Statutory Commitment

EYFS Statutory Framework – (Sept 2021)

Educational Programme - Physical Development (fine motor)

Fine motor control and precision helps with hand-eye co-ordination, which is later linked to early literacy. Repeated and varied opportunities to explore and play with small world activities, puzzles, arts and crafts and the practice of using small tools, with feedback and support from adults, allow children to develop proficiency, control and confidence.

Educational Programmes – Expressive Arts and Design

The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

KS1 National Curriculum – Design and Technology (2013)

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.

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.

School Commitment

Our Curriculum Intent (Appendix A) identifies what opportunities and experiences our pupils have on entering our school. This also recognises what our pupils need in order that we fully enable our school vision. It maintains a fidelity to the new EYFS Statutory Framework and KS1 national Curriculum as well as a commitment to alignment across the two phases in our school.

With regard to Design and Technology provision, our Curriculum Intent has identified that on entry into school, children lack creativity and skill with design. We have observed that children's fine motor skills are typically not as developed as their gross motor skills. We have also observed that our children tend to have a limited cultural experiences or awareness of their wider community. Pupils' often lack sustained thinking and focus.

We value Design and Technology as an important and integral part of the children's entitlement to a broad and balanced curriculum at Arden Forest. Design and Technology gives pupils the opportunity to develop skills, knowledge and understanding of designing and making functional products. We feel it is vital to nurture creativity and innovation through design, and by exploring the designed and made world around us. Design and Technology also supports opportunities for pupils to apply their Maths and English skills in fun and purposeful contexts. Children will encounter high quality resources and equipment and will be encounter designers across genders and culture.

Our Growth Mindset Learning Behaviours help children develop the right attitudes to Design and Technology in order that they fulfil their potential and experience success. For example, children are taught to understand the 'Power of Yet!' when faced with a new learning experience and understand the characteristics of a 'Solvotops' when generating design ideas in response to a given problem. They are given opportunities to work together as a 'Team Rex.'

Within all aspects of Design and Technology, there are opportunities for pupils to develop our School Responsibilities' of being kind and respectful, learn and let others learn and keeping themselves and others safe. Safe handling of resources and equipment is essential. For example, safe use of hammers and saws for woodwork and the following of food hygiene requirements when cooking.

Why do learners at Arden Forest Infant School need to study Design and Technology?

"Design and Technology in primary schools develops children's skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food. It encourages children's creativity and encourages them to think about important issues."

Design and Technology Association website 2021

We believe that Design and Technology helps to prepare our children for the developing world that they will encounter. The subject encourages children to become creative problem solvers, both as individuals and as part of a team. Through the study of design and technology, they combine practical skills with an understanding of aesthetic, social and environmental issues. Design and Technology at Arden Forest will also provide the building blocks for all pupils to become discriminating and informed consumers and potential innovators. It should assist children in developing a greater awareness and understanding of how everyday products are designed and made.

Our teaching of Design and Technology supports our vision of inclusive practice and it enables all children to achieve their potential. We believe that Design and technology lessons engage, inspire and challenge all children to reach their full potential. We acknowledge that where a child might need additional support with Literacy and Maths they may excel in Design and Technology.

Design and Technology gives children the opportunity to experience stimulating resources, including a wide variety of design, materials, recipes and cookery from a diverse range of cultures and backgrounds. Children also encounter how Design and Technology reflects and shapes our history, and contributes to the culture, creativity and wealth of our nation.

It is important that children are competent in Design and Technology expectations for Key Stage One in readiness for the next steps in their learning.

How we promote personal characteristics and relationships?

At Arden Forest Infant School, the Design and Technology curriculum delivers a vast range of social, moral, spiritual and cultural aspects which reflect the school's Personal Characteristics and Relationships principles. It encourages our children to be responsible, show kindness, respect, positivity, tolerance and resilience. All of these themes are woven through our wider curriculum, but are also echoed in Design and Technology by creating pleasure and interest in Design and Technology in the wider world.

Pupils will be encouraged to show respect for other people's designs and ideas. When working together, children will need the attributes of tolerance where opinions may differ. For example, when discussing a design or tasting a prepared dish in cooking.

Within Design and Technology, children will often have opportunities to work responsibly, sharing resources and managing given tasks. Children are encouraged to support each other positively and respectfully and to peer assess and evaluate. This demonstrates respect and tolerance for each other. They will use resources responsibly, avoid waste and where possible make use of reclaimed materials.

Pupils are able to develop their self-esteem, self-knowledge and self-confidence to produce individual ideas, designs and products in response to a given stimulus. Resilience is essential for pupils to overcome challenges in their learning and they will learn how successful designers have overcome challenges.

Children learn how to respect different cultures within Design and Technology and questioning is encouraged to consolidate understanding of controversial or sensitive issues. Together, children will experience challenge safely.

What are the aims for the Design and Technology Curriculum?

(What do we want learners to be able to know and do by the time they leave Arden Forest Infant School?)

Our aim is to engage, inspire and challenge children, equipping them with the knowledge and skills to experiment, talk about and record designs and create their own products. Throughout their Design and Technology journey in school they will be able to think critically and develop a more rigorous understanding of Design and Technology.

In order to achieve these aims, the Design and Technology curriculum at Arden Forest, provides lots of first hand and real-life experiences to make learning relevant and purposeful. These opportunities will give access to a range of designs and high quality media which supports their social, cultural and moral development in order that we can widen their life experiences. In each lesson, children will reflect on prior experience and taught skills and make links to previous learning across the curriculum.

Children will develop skills in design, making, evaluating, technical knowledge and cooking and nutrition. The opportunity to be reflective and evaluate their work, thinking about how they might develop a piece is integral within Design and Technology. We encourage the children to take risks, experiment and reflect on their learning to develop children's perseverance and resilience. Ultimately the children will maximise their learning potential in Design and Technology.

How does Design and Technology help our pupils to be aspirational lifelong learners?

Learning through and about Design and Technology enriches children's experiences while at school as well as adding value to their wider life beyond school. Children will become naturally inquisitive to design all around them. Exploration of Design and Technology can build confidence as well as a sense of individual identity which encourages creativity and self-expression.

Having secure knowledge and skills in Design and Technology could provide direct links to a wide variety of future employment. This includes being able to use the skills flexibly, even for the jobs that don't yet exist! These opportunities will mean that our children will contribute to their community and wider society. For example, computer-aided design technician, costume designer, engineer, chef, teacher, set designer, architect, interior designer, nutritionist.

Design and Technology experiences as a hobby can also have a positive impact in mental health and wellbeing.

Why has the specific knowledge been selected?

We teach Design and Technology as an individual subject as well as incorporating it into other curriculum areas. Children experience a carefully planned and varied Design and Technology curriculum with a clear progression in teaching and learning across year groups. Children are able to revisit and built upon skills in designing, making, evaluating, technical knowledge and cooking and nutrition.

Coverage of EYFS and Key Stage One National Curriculum expectations is enabled through planned subject content. High quality teaching and learning at each key stage enables children to develop the necessary knowledge and skills in readiness for next steps in their learning.

How is Design and Technology implemented?

Careful consideration is given to the pedagogy of how we teach in order to best meet our children's needs. Children experience Design and Technology opportunities for learning each term. These are taught as a series of lessons or within a block. Children will encounter inspirational and functional designs as a starting point to their new learning.

Purposeful projects are planned to enable key aspects of learning in Design and Technology. Where meaningful, work is planned within a theme to enable pupils to make links to learning in other subject areas. Authentic opportunities are routinely given to showcase their products with others.

Children experience stimulating resources, including a wide variety of design from a diverse range of cultures and backgrounds. Children use the work of designers to explore similar techniques, problem solve and inspire their own responses. They are supported to communicate their ideas through discussion, recording their own designs and making products. They evaluate their own products and those of others and consider how a product might be improved.

Within the EYFS, there is a balance between direct teaching sessions, guided tasks and the opportunity to explore Design and Technology within the environment in response to their own interests. For example, children will have regular access to a well-resourced Workshop area to apply their skills.

What is the impact?

The impact of our Design and Technology curriculum can be seen through children's verbal and written responses when exploring an existing product, planning their own designs and evaluating their own products and those of others. Children's development of skills and technical knowledge will be evaluated within a lesson, unit of work, across a year group and across their time in school.

Progress over time can be seen through monitoring of children's designs, end products and evaluations. Evidence is supported through the use of displays, photographs and Design and Technology digital folders.

Discussions with Class Teachers will enable reflection on engagement, progress and the relevance of specific content to particular cohorts. It will also identify any professional development opportunities needed for staff.

Monitoring of pupils against the milestones within Progression in Learning frameworks will ensure that they are on track during the year and enable further support and experiences where necessary.

Analysis of specific groups within overall data enables us to reflect on the intent of the Design and Technology curriculum and how it is being implemented. For example, are our teaching strategies helpful? is the content inspiring to our learners?

At the end of their Reception, the impact of our Design and Technology curriculum will be reviewed against children's achievement in the Early Learning Goals for Fine Motor Development, Creating with Materials and Being Imaginative and Expressive. By the end of Key Stage One, our pupils will be skilled in designing, making, evaluating technical knowledge and cooking and nutrition as outlined within the National Curriculum.

Appendices:

A. Overall School Curriculum Intent

B. Design and Technology aims/end points of specific stages of curriculum

- EYFS Framework and National Curriculum

See Progression in Learning Framework for

- Expressive Arts and Design and Physical Development (EYFS) with overarching maps that show the sequence and progression in learning from the beginning of the pre-school year until the end of Reception with an interface to Key Stage One.
- Design and Technology (KS1) with overarching maps that show the sequence and progression in learning across Year One and Year Two with an interface to EYFS.

Appendix A

Arden Forest Infant School – Curriculum Intent

What do we know about our community of learners? What opportunities/experiences have they had already and what have they not yet benefited from?

Our pupils start Reception from a large number of different pre-school settings. They have a diverse range of cultural and family backgrounds which are valued and shape our unique relationships with our school community.

Communication skills vary on entry, children are often reluctant to engage in extended conversations or articulate their thinking. Children often need support to identify and moderate their own feelings and are not able to solve minor disagreements.

We have an increasing percentage of children with additional needs compared to the national average, including those with ASD. As such, communication and language, physical development and personal and social and emotional development is significantly lower for these children. Recently, many children have not been able to access outside agency support due to COVID restrictions.

When our children begin Reception, they are often confident, show curiosity and are eager to explore their environment. However, our pupils' often lack sustained thinking and focus. Children are reluctant to be independent in their learning and life skills, and often their resilience and perseverance in the face of challenge is low which is a barrier to success. They lack experience of opportunities to take calculated risks.

Children typically have good access to outdoor spaces which enable a knowledge of the natural world around and gross motor skills to be typically at age related expectations. However, children's fine motor skills are typically not as developed.

Children generally access books and stories at home. However, the ability to blend and segment in phonics is a barrier for most children which impacts on their reading and writing on entry. Most parents generally take an active role as partners in their children's learning.

The majority of children show everyday application of skills in mathematics. Children usually have access to technology at home.

Imagination is often good in small world and role play but children lack creativity and skill with music, art and design. We have observed that our children tend to have a limited cultural experiences of the arts or awareness of their wider community.

In September 2021, some children starting with us will have lived nearly half of their life with the pandemic.

Our Year One children spent a third of their Reception Year Learning remotely and missed a significant part of their pre-school experience due to lockdown. Our Year Two children spent a third of their time in Year One being taught remotely and missed a significant part of their Reception Year due to lockdown.



Appendix B

Design and Technology end points of specific stages of curriculum

EYFS Framework (September 2021)

Physical Development

ELG: Fine Motor Skills

Children at the expected level of development will:

- Use a range of small tools, including scissors, paint brushes and cutlery;

ELG: Creating with Materials

Children at the expected level of development will:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;
- Share their creations, explaining the process they have used;

ELG: Being Imaginative and Expressive (although not within ELG, Design Technology is within the Development Matters guidance)

Children at the expected level of development will:

- Invent, adapt and recount narratives and stories with peers and their teacher;
- Perform songs, rhymes, poems and stories with others, and – when appropriate – try to move in time with music.
- Sing a range of well-known nursery rhymes and songs;
- Perform songs, rhymes, poems and stories with others, and – when appropriate – try to move in time with music

Design and Technology Attainment Targets (2013)

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

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

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.