

# Ashton West End Primary Academy

## Design and Technology Policy



## **Vision:**

In our multicultural and eco- friendly school, we celebrate differences and encourage mutual respect. We support each other and our community to work together and take pride in the things we do. We demonstrate perseverance, inclusion and respect. Everyone is welcome!

## **Introduction**

Design and Technology is a foundation subject within the National Curriculum. 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.

The key aim of Design and Technology is to enable pupils to learn how to contribute towards and intervene creatively and constructively to improve the man-made world in a rapidly changing technological society.

Our 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.

It should enable pupils to become discriminating citizens and customers, and to be able to contribute to their home, the community and industry by having a better understanding of products and the associated values.

Quality Design and Technology learning should foster the design and manufacturing skills needed to produce quality practical solutions to real problems.

## **Subject Aims**

Ashton West End Primary Academy supports the National Curriculum in its aims to ensure that all pupils:

- To develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making.
- To enable children to talk about how things work, and to draw and model their ideas.
- To encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures.
- To develop an understanding of technological processes, products, their manufacture, and their contribution to our society.
- To develop an understanding of the ways in which people have designed products in the past and present to meet their needs.
- To develop a curriculum which is broad and balanced.
- To foster enjoyment, satisfaction, and purpose in designing and making.
- To promote skills, attitudes and attributes that can support learning in other subject areas, and that are needed for life and work.
- 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 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.

## **Design and Technology in Our Curriculum**

Through Design and Technology pupils should:

- Have their intellectual, innovative, and creative abilities stimulated to generate and optimise their design proposals.
- Integrate and apply technological knowledge and understanding.

- Develop skills in looking at products and systems and combine this with associated values related to social, environment, spiritual, moral, aesthetic, and economic aspects of products and systems.
- Develop design and thinking skills, including recognition and analysis of need, generating ideas, modelling, and planning possible solutions.
- Use materials, technological components, tools (both hand and computer controlled), techniques and processes to create quality products.
- Develop the personal qualities needed to complete a design project from initial ideas to finished product.
- Develop skills in communication, problem solving, application of number and information technology.
- Work autonomously and collaboratively with others on tasks.

## Implementing Design and Technology

The minimum amount of Design and Technology undertaken should be one unit per term.

In line with National Curriculum requirements, units of work will always include three types of activity so that children have the opportunities to develop their Design and Technology capability through:

- Investigative, disassembly and evaluative activities.
- Focused practical tasks.
- Designing and making assignments.

## Planning for Design and Technology

Units of work are mapped across the year groups to ensure balance and progression.

Each unit delivered must include:

- Investigating, disassembling, and evaluating activities.
- Focused practical tasks.
- A designing and making assignment.

Focused practical tasks should be used to teach the correct use of tools and equipment.

Relevant links with art, maths, science, and IT should be made in unit plans.

In planning a unit consideration should be made of the following:

- Developing children's designing skills, including generating and developing ideas, clarifying their task.
- Creating design proposals, communicating ideas, planning, and evaluating.
- Acquiring and refining the practical skills associated with making, including working with materials and components, tools, and processes, for example by planning, measuring, and marking out, cutting, and shaping, joining, and combining, finishing, and evaluating.
- Application of mathematical skill, for example by measuring to an appropriate number of decimal places, drawing, and interpreting tables, graphs, and bar charts.
- Application of ICT skill, for example by making things happen by the use of control, handling information through the use of a database or spread sheet.
- Application of art skill, for example by investigating texture and colour or recording visual information.

## Curriculum Coverage

During the Foundation Stage children will work towards the areas of learning set out in the Early Years Foundation Stage that underpin the curriculum planning for children from birth to five.

During the **Foundation Stage children** will be encouraged to:

- Fit things together and take them apart.
- Explore and select materials and equipment.
- Change the shape and arrangement of objects, in a variety of ways, for example stacking, connecting, stretching, enclosing.
- Experience and experiment with a range of technology with support.

- Use a variety of tools safely.
- Use skills such as cutting, joining, folding, and building for a variety of purposes.
- Talk about what works/ does not work and suggest improvements.
- Recognise a problem and suggest ideas for solving it.
- Help to plan the sequence and details of tasks.
- Build and construct with a wide range of objects, selecting appropriate resources, and learn to adapt their work when necessary.
- Select the tools and techniques they need to shape, assemble, and join the materials they are using.
- Find out and identify the uses of everyday technology to support their learning.

**Key Stage One** and **Key stage Two** follow the objectives set out in the National Curriculum.

In **Key Stage One** the National Curriculum states that:

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.

In **Key Stage Two** the National Curriculum states that:

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 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**

During the Foundation Stage children will work towards the areas of learning set out in the Early Years Foundation Stage that underpin the curriculum planning for children from birth to five.

During the **Foundation Stage children** will be encouraged to:

- Use one handed tools and equipment such as using spoons to mix with.
- Start eating independently using a knife and a fork.
- Manage their own personal needs such as hand hygiene.
- Making healthy choices about food and drink.

**Key Stage One** and **Key stage Two** follow the objectives set out in the National Curriculum.

In **Key Stage One** the National Curriculum states that:

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:

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

In **Key Stage Two** the National Curriculum states that:

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:

- 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.

## **Learning Outcomes**

Children will design and make a range of products. A good quality finish will be expected in all design and make activities appropriate to the age and ability of the child. Foundation Stage children will recognise that a range of technology is used in places such as homes and schools and will be able to select and use technology for a particular purpose.

Children in the Early Years Foundation Stage will keep examples of their work in the form of observations and photographs in their learning journey. Examples of their work will be displayed in their classroom.

Children in Key Stage One and Key Stage Two will keep examples of their work in their DT books to aid assessment and progression and finished products will be displayed in the classroom and around school.

Examples of work, products and relevant photographs will be made available to the subject lead as evidence of work completed and as an aid to monitoring progression and assessment.

## **Inclusion**

In line with the school's Inclusion Policy, each child will have an equal entitlement to all aspects of the Design and Technology curriculum. We believe that it is important for all children to experience the range of Design and Technology activities. We will use opportunities within Design and Technology to challenge stereotypes.

With specific reference to Design and technology, teachers should be aware of recent research which shows that girls tend to outperform boys in investigating, designing, and evaluating and boys tend to outperform girls in planning and making. Teachers should be aware of their own expectations and their position as a positive role model. The children's access to resources, particularly computer, construction kits and tools should be monitored with specific regard to gender.

Throughout all Design and Technology work care will be taken to differentiate tasks and teaching styles to consider the whole spectrum of individual needs. Consideration needs to also extend to children who are left-handed or have visual or hearing impairments.

## **Health and safety**

Teachers will always teach the safe use of tools and equipment at the outset of each unit and insist on good practice. Children will be taught to return tools to the appropriate place when not in use.

Food hygiene and safety is very important:

- Children and adults will wash their hands thoroughly before handling food.
- Food will be bought when it is needed to ensure the freshest ingredients are used.
- Cupboards, tabletops, cookers will be kept clean, tidy and in working order.

## **Assessment, recording and reporting**

Teacher assessment should concentrate on the aspects of capability to inform future teaching and learning. Examples of work, including photographs will be kept in DT books to demonstrate work completed and progression whenever possible. Each unit has 'end of unit expectations' which describe what children might be expected to know and be able to do. This also shows the range of expectations for the more able and less able. This should help teachers to determine those who are performing to the normal expectations and making sound progress and those who are performing at a different level. In cases where performance is different to the norm, the learning objectives and particularly the learning outcomes should be analysed to inform future teaching to ensure the child is further extended or focused teaching is used where progress has not been made.

## **Design Process**

All children should complete the key stage appropriate planning design sheet to detail the processes they will undertake when making their products (See Appendix 1). The proforma design sheet will include information about resources and equipment used in addition to the steps needed to make their product. Evaluation will be included and should be linked directly to the design brief for the curriculum topic area. Teachers should detail the making process using photographs where necessary to show the practical aspects of learning.

## **Resources**

At present, basic resources are stored in a central Design and Technology area. It is the responsibility of the class teacher to manage the resources required during their unit and advise the subject lead if additional resources are required.

In relation to everyday general resources, our aim is to organise classrooms in such a way to promote the development of independent learning. Resources and equipment should be clearly marked and labelled to allow visual access to the children.

Safe and tidy working practices are always encouraged.

## **Funding**

Managing the funding for Design and Technology is the responsibility of the Principal.

Each year financial consideration will be given to:

- New equipment investment
- Equipment renewal
- The purchasing of sufficient materials to cover the breadth of design and technology
- Curriculum highlights
- Staff training needs

## **The Role of the Design and Technology Subject Lead**

The Design and Technology lead is responsible for:

- Reviewing and updating the School's policies relating to Design and Technology.
- Maintaining centrally stored tools and materials.
- Monitoring standards of achievement and progression.
- Informing new staff of resources available to them.
- Coordination of assessment of Design and Technology.
- Offering advice on Design and Technology skills, knowledge and understanding requested.
- Liaising with other curriculum coordinators to ensure coordination of resources for cross-curricular work.
- Keeping abreast of new developments with an impact on Design and Technology in the school.
- Maintaining a portfolio of evidence of children's work across the school.

## **Review**

This policy will be reviewed by the subject leader annually. Amendments will be made where necessary after consultation with teaching staff and the governing body.

In reviewing teaching and learning that has taken place, we must look for progression in designing and making skills and ensure knowledge about processes and techniques is taught effectively.

A critical aspect of teaching is to review work by asking:

- What has worked well in this unit?
- What was the children's reaction to the unit?
- Did it stretch the most able?
- How did you help access for those with special needs?
- Did you have any resource problems with the unit?
- What would you change if doing it again?
- What advice would you give other teachers doing this unit?

# Appendix 1

Year 1

My Design		Name
I am designing a		
What materials I will use	What equipment I will use	
My design will look like this		
My evaluation		

Year 2

My Design		Name
I am designing a		
What materials I will use and why	What equipment I will use and why	
My design will look like this		
First I will need to		
Next I will need to		
My evaluation		
What would I do better next time		

Year 3/4

My Design		Name
I am designing a		
It will be used by or for		
It will need to		
What materials I will use and why	What equipment I will use and why	
My design will look like this		
First I will need to		
Next I will need to		
After that I will need to		

Year 3/4

My evaluation
What can I change to make my product <u>better?</u>
How has or will this improve my <u>product?</u>

My Design		Name
I am designing a		
It will be used by or for		
It will need to		
What materials I will use and why		What equipment I will use and why
Design 1		
Views of the user		
Design 2		
Views of the user		

Plans - Step by step
Evaluations / Alterations and why you have done <u>this</u> ?
How has this improved my <u>product</u> ?
What would I do better next <u>time</u> ?