



Wood End Park Academy
Design and Technology (DT) Policy



Introduction

This policy reflects the school's values and philosophy in relation to the teaching and learning of Design and Technology.

Design and Technology is a foundation subject within the National Curriculum which we follow. The aims of teaching Design and Technology are consistent with the academy's commitment that all pupils are entitled to an excellent full curriculum.

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.

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 Intent

Design and Technology at Wood End Park Academy gives students the opportunity to explore the steps involved during a product's development. Starting with market research, pupils identify similar products already on the market, allowing them to develop a knowledge base of existing products they can draw inspiration from. Students are then taught skills related to the design area of choice via a series of learning questions (lessons), before generating their own design ideas through class discussion, annotated sketches, exploded diagrams and product prototyping. Throughout the process students are encouraged to try new things and make mistakes; they are taught that mistakes are not failures but an opportunity to learn and get better. They are then expected to critique and self-reflect on their work, an important skill as they transition into Key Stage 3 learning. Additionally, as part of the design curriculum, children at WEPA are also taught how to cook and apply the principles of nutrition and healthy eating which will allow them to instill a love of cooking crucial for later life.

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
Use the key DT vocabulary associated with the unit, this will be promoted by our 'vocabulary ladders'
- 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

We follow the National Curriculum (2014); 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.

Implementing Design and Technology

The minimum amount of Design and Technology undertaken should be one unit per term. This is usually delivered as a unit of work at the end of one of the half terms.

Units of work will always include types of activity so that children have the opportunities to develop their Design and Technology capability through:

- Research beforehand of the product and developments over time
- Exploring via various modes of design
- Having A go
- Ongoing evaluation and reflection.

The above are in line with our teaching and learning policy.

Planning for Design and Technology

Teaching staff currently develop their own units of work for this subject. Co-working with a senior leader supports a set of lesson plans being improved from the previous year to achieve even higher outcomes.

Units of work are mapped across the year groups to ensure balance and progression- see our overview at the back of this policy.

Learning questions are planned and delivered to engage the children and the work in the lesson builds towards an answer.

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 skills from other curriculum areas e.g. mathematics and measuring; IT to control a design; Science to create an electrical science; Art to ensure the product is appealing etc
- Use of the Opening Minds skills especially: valuing diversity, working for a real life purpose, establishing value for money and risk-taking.

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
- Use creations to act as props in role play etc.

Key Stage One will build on and further develop these skills.

During **Key Stage One** and **Key Stage Two** we must ensure that a balance of experiences and materials are delivered and used. In delivering units of work we must look for progression in designing and making skills, and ensure knowledge about processes and techniques is taught.

Progression will be ensured by reference to the schemes of work and by each teacher knowing the content that they are required to teach. Continuity will be ensured by all staff conforming to the agreed mode of working as outlined in this policy.

The table below sets out the key learning of each key stage group.

KS1

<u>Food (years 1 and 2)</u>	<u>Textiles (year 2)</u>	<u>Structures (years 1 and 2)</u>	<u>Mechanisms (year 1)</u>
<ul style="list-style-type: none"> • Develop a food vocabulary using taste, smell, texture and feel. • Group familiar food products e.g. fruit and vegetables. • Explain where food comes from. • Cut, peel, grate, and chop a range of ingredients. • Work safely and hygienically. • Understand the need for a variety of foods in a diet. • Measure and weigh food items, non-statutory measures e.g. spoons, cups. 	<ul style="list-style-type: none"> • Start to use the appropriate vocabulary to refer to fabrics and tools. • Cut out shapes which have been created by drawing round a template onto the fabric. • Join fabrics by using e.g. running stitch, glue, staples, over sewing, tape. • Decorate fabrics with attached items e.g. buttons, beads, sequins, braids, ribbons. • Colour fabrics using a range of techniques e.g. fabric paints, printing, painting. 	<ul style="list-style-type: none"> • Refer to materials, tools and techniques using appropriate vocabulary. • Explore how to make structures stronger. • Investigate different techniques for stiffening a variety of materials. • Test different methods of enabling structures to remain stable. • Join appropriately for different materials and situations e.g. glue, tape. • Mark out materials to be cut using a template. 	<ul style="list-style-type: none"> • Start to use technical vocabulary when describing mechanisms, tools and materials. • Join appropriately for different materials and situations e.g. glue, tape. • Mark out material to be cut using a template. • Fold, tear and cut paper and card. • Cut along lines, straight and curved.

Years 3 and 4

<u>Food (years 3 and 4)</u>	<u>Textiles (year 3)</u>	<u>Structures (year 4)</u>	<u>Mechanisms (year 4)</u>
<ul style="list-style-type: none"> • Develop sensory vocabulary /knowledge using, smell, taste, texture and feel. • Analyse the taste, texture, smell and appearance of a range of foods. • Follow instructions/ recipes. • Make healthy eating choices- • Join and combine a range of ingredients. • Prepare and cook using a range of cooking techniques. • Explore seasonality of vegetables and fruit. • Find out which fruit and vegetables are grown in countries/ continents studied in Geography. 	<ul style="list-style-type: none"> • Develop vocabulary for tools, materials and their properties. • Understand seam allowance. • Join fabrics using running stitch, over sewing and blanket stitch. • Prototype a product using J cloth. • Use prototype to make pattern. • Explore strengthening and stiffening of fabrics. • Explore fastenings and recreate some. • Use appropriate decoration techniques. 	<ul style="list-style-type: none"> • Develop vocabulary related to the project. • Create shell or frame structures. • Strengthen frames • Make structures more stable by giving them a wide base. • Measure and mark square section, strip and dowel accurately to 1cm. 	<ul style="list-style-type: none"> • Develop vocabulary related to the project. • Use mechanical systems such as gears, pulleys, levers and linkages. • Incorporate a circuit into a model. • Use electrical systems such as switches, bulbs and buzzers. • Use ICT to control products. • Use lolly sticks/card to make levers and linkages. • Use linkages to make movement larger or more varied.

Years 5 and 6

Food (years 5 and 6)	Textiles (years 5 and 6)	Structures (year 6)	Mechanisms (years 5 and 6)
<ul style="list-style-type: none"> • Prepare mostly savoury dishes using their own selection of ingredients, taking into account their nutritional properties and sensory characteristics. • Weigh and measure using scales. • Select and prepare foods for a particular purpose. • Work safely and hygienically. • Develop understanding of a healthy diet (using the eat well plate) and apply in their ingredient choices. • Use a range of cooking techniques. • Join and combine a widening range of ingredients. • Know where and how ingredients are grown and processed. • Consider influences of chefs e.g. Jamie Oliver and school meals, Hugh Fearnley-Whittingstall and sustainable fishing etc. 	<ul style="list-style-type: none"> • Use the correct vocabulary appropriate to the project. • Create 3D products using patterns, pieces and seam allowance. • Understand pattern layout. • Decorate textiles appropriately (often before joining components). • Pin and tack fabric pieces together. • Join fabrics using over sewing, back stitch, blanket stitch or machine stitching-under close supervision. • Combine fabrics to create more useful properties. • Make quality products. 	<ul style="list-style-type: none"> • Use the correct terminology for tools materials and processes. • Use bradawl to mark hole positions. • Use hand drill to drill tight and loose fit holes. • Cut strip wood, dowel, square section wood accurately to 1mm. • Join materials using appropriate methods. • Build frameworks to support mechanisms. • Stiffen and reinforce complex structures. 	<ul style="list-style-type: none"> • Develop a technical vocabulary appropriate to the project. • Use mechanical systems such as cams, pulleys and gears. • Use electrical systems such as motors. • Program, monitor and control using ICT.

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.

Children will keep examples of their work in their DT Folders 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 co-ordinator 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.

Throughout all Design and Technology work care will be taken to differentiate tasks and teaching styles in order to take into account the whole spectrum of individual needs. Consideration needs to also extend to children who are left handed or colour blind.

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. We have a risk assessment for tools that are used in school.

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, table tops, cookers will be kept clean, tidy and in working order.

Assessment, recording and reporting

Teacher assessment should concentrate on the aspects of capability in order to inform future teaching and learning. Examples of work, including photographs will be kept in DT Folders 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 age-related 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 questions 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.

At the end of each term, a pupil from each class is awarded the 'Daring Designer' Curriculum Award.

Resources

At present, basic resources are stored in a central Design and Technology area. It is the responsibility of the lead teacher in each year group to manage the resources required during their unit and advise the subject co-ordinator 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 in order to allow visual access to the children.

Safe and tidy working practices are encouraged at all times.

Budget

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
- Staff training needs

Review

This policy will be reviewed by the subject leader every four years. 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 worked well in the unit?
- What was the children's reaction to the unit?
- Did it extend the most able?
- How did we help access for those with special needs?
- Did we have any resource problems with the unit?
- What would you change if doing it again?
- What advice would you give other teachers regarding this unit?

WEPA DT Overview						
Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS						
1	Fruit Kebabs			Kites		Moving monsters
2	Tudor Houses		Animal Puppets		Healthy Sandwiches	
3	Healthy Wraps		Weather Maps			Egyptian Masks
4	Torches		Moving playgrounds			Making bread
5		Victorian Puppets	Bake off!			Moon Buggies
6		Fashion in the 60s		Bridges	Pizza	Computing: additional unit