West Hill Primary School

Design and Technology POLICY

Let's shine together

Our vision is a school where everyone shines

What we do and encourage as a school family;

Achievement – excellence in teaching and learning which excites and inspires our children to be the best they can be.

Happiness – smiling, engaged and articulate children who are listened to, encouraged and given every support to maximise their own individual potential.

Friendship – children who are kind and caring towards each other, building lasting friendships.

Respect – a respect for people, each others' beliefs, our environment and all living things.

Responsibility – independent, creative thinkers who have the confidence to be responsible for themselves, their behaviour and for others.

Co-operation – working together, listening and valuing others' opinions within the school family and the wider community.

This policy was adopted by West Hill Primary School on **August 2020**

Date of Review	Body responsible for review	Date of next review
Autumn 2023	**D & T Subject Leader**	**Autumn 2026**

STATEMENT OF SAFEGUARDING CHILDREN

At West Hill Primary School, our school community has a duty to safeguard and promote the welfare of children who are our pupils. This means that we have a Safeguarding Children and Child Protection Policy and Procedures in place which we refer to in our prospectus. All staff including our volunteers and supply staff must ensure that they are aware of our procedures. Parents and carers are welcome to read these on request.

Sometimes we may need to share information and work in partnership with other agencies when there are concerns about a child's welfare. We will always ensure that our concerns about our pupils are discussed with their parents/carers first unless we have reason to believe that this is not in the child's best interests

Intent

To ensure that all pupils have opportunities to a broad and balanced diet of D&T provision across their school career and that they are able to show increased independence in the planning, designing, making and evaluating of their work.

The rationale for teaching Design and Technology

- We aim to prepare pupils to participate in tomorrow's rapidly changing technologies.
- To provide opportunities for all the children to design and make quality products.
- To provide children with the opportunity to explore food and cooking techniques along with healthy eating and environmental issues within food production.
- To develop design and making skills, knowledge and understanding to the best of each child's ability; using and selecting a range of tool, materials and components.
- To become creative problem solvers as individuals and members of a team.
- To be able to use computing in conjunction with the Designing and Making process.
- To develop an ability to criticise constructively and evaluate their own products and those of others.
- To help the children develop an understanding of the ways people in the past and present have used design to meet their needs. To reflect on and evaluate such techniques, its uses and effects.
- To prepare the children for living in a multi-cultural society by teaching consideration for other cultures.

How Design and Technology is structured throughout the school

To achieve our aims, we ensure that the carefully planned activities our children undertake are challenging, motivating, relevant and enjoyable. We give children confidence in their work by providing continual support and encouragement. The children are extended in their work in a way which develops their expertise across the whole curriculum and in their links to other subjects.

Our Design and Technology curriculum planning units are interlinked across our whole school curriculum. (Refer to Medium Term Planning templates – Appendix 1)

Our Design and Technology curriculum overview is shown below:

West Hill Design Technology Curriculum Map

The 'BIG' Problem:

	Autumn	Spring	Summer
Y1	**Mechanisms - creating hinged pictures** Can you design, make and evaluate: **a moving picture for a friend?**	**Structures** Can you design, make and evaluate: **a sturdy lighthouse for the lighthouse keeper?**	**Cooking and nutrition** Can you design, make and evaluate: **a healthy salad for the Headteacher's lunchbox?**
Y2	**Mechanisms and Structures - Wheels and axles** Can you design, make and evaluate: **a sleigh for Santa for when his reindeers are poorly?**	**Cooking and nutrition** Can you design, make and evaluate: **a smoothie for children that helps them to be healthy?**	**Textiles - Template and joining templates** Can you design, make and evaluate: **a hand-puppet for children that they can play with?**
Y3	**Textiles – Sewing** Can you design, make and evaluate: **a cushion or bag for Daisy from the Beasties to help her with bedtime stories?**	**Mechanisms – pneumatics** Can you design, make and evaluate: **a pneumatic monster toy for a young child that they can play with?**	**Structures (including computer aided design)** Can you design, make and evaluate: **a marble run rollercoaster for a rollercoaster design team to demonstrate a new rollercoaster for their theme park?**
Y4	**Cooking and nutrition** Can you design, make and evaluate: **a baked food which could be used to celebrate Central American culture and ingredients?**	**Mechanisms – pulleys and gears** (Lego systems) Can you design, make and evaluate: **A mechanism to make lifting and moving heavy weights easier?**	**Understand and use mechanical and electrical systems** Can you design, make and evaluate: **a product to help you read in the dark?**
Y5	**Mechanisms (levers and linkages)** Can you design, make and evaluate: **a picture book for a younger child, using levers and linkages to create moving parts.**	**Textiles - Quilting** Can you design, make and evaluate: **a fabric case to collect or protect items**	**Cooking and nutrition** Can you design, make and evaluate: **a new flavour of bread roll for a teacher to enjoy for their lunch.**
Y6	**Textiles** Can you design, make and evaluate: **a Christmas-themed stocking for Tiny Tim?**		**Electrical systems** Can you design, make, program and evaluate: **a working model fairground ride for a theme park?**

Implementation

Our approach to Design and Technology

The 'Big' Problem

Each learning sequence will begin with a 'Big' problem to be solved such as:

- Year 1 - cooking and nutrition – Can you design, make, and evaluate a healthy salad (product) for the busy Headteacher's (user) lunchbox (purpose)?

- Year 2 – mechanisms and structures - Can you design, make and evaluate a sleigh (product) for Santa (user) for when his reindeers are poorly (purpose)?

Children are told that the knowledge and skills gained throughout the topic will allow them to answer this 'Big' question using a range of design, making and technical skills. This is how we are developing our learners to becoming good problem solvers.

Sharing the project title.

Each project has been given a title so all children are clear on what is expected from them. It also reinforces the vocabulary associated with designing, making, and evaluating.

Design, make and evaluate a _____ (product) for _____ (user) for _____ (purpose).

Our medium-term plans, which we have adopted from the National Curriculum, give details of each unit of work for each term. They identify learning objectives and outcomes for each unit, and ensure an appropriate balance and distribution of work across each term.

Our medium-term planning articulates the knowledge progression, alongside skills and understanding for pupils to develop enriched learning throughout the school in Design and Technology. Using objectives taken from the National Curriculum, we teach DT skills discretely and through our Curriculum themes; ensuring all children access all aspects of the Design and Technology curriculum during their school career.

To facilitate our objectives, different teaching styles and methods are used as appropriate. These include small-group and individual work.

Design and Technology in Early Years Foundation Stage

Design and Technology is an integral part of topic work, relating aspects of the children's work to the objectives set out in the Early Learning Goals, and Expressive Arts and Design.

During the EYFS pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities.

They have the opportunities to learn to:

• Use different media and materials to express their own ideas

• Use what they have learnt about media and materials in original ways, thinking about form, function, and purpose

• Make plans and construct with a purpose in mind using a variety of resources

• Develop skills to use simple tools and techniques appropriately, effectively and safely

• Select appropriate resources for a product and adapt their work where necessary

• Cook and prepare food adhering to good health and hygiene routines

Equal Opportunities in Design and Technology

The teaching of design and technology offers opportunities to support the social development of our children through the way we expect them to work with each other in lessons. Our groupings allow children to work together, and give them the chance to discuss their ideas and feelings about their own work and the work of others. Through their collaborative and co-operative work across a range of activities and experiences in design and technology, the children develop respect for the abilities of other children and a better understanding of themselves. They also develop a respect for the environment, for their own health and safety and for that of others. They develop their cultural awareness and understanding, and they learn to appreciate the value of differences and similarities. A variety of experiences teaches them to appreciate that all people are equally important, and that the needs of individuals are not the same as the needs of the group.

This supports our whole school approach to 'Learning Behaviours' at West Hill Primary School.

Design and technology contributes to the teaching of personal, social and health education (PSHE) and citizenship. We encourage the children to develop a sense of responsibility in following safe procedures when making things. They also learn about health and healthy diets. Their work encourages them to be responsible and to set targets to meet deadlines. They also learn, through their understanding of personal hygiene, how to prevent disease from spreading when working with food.

Impact

Assessment and Recording in Design and Technology

<u>Assessment</u>

Assessing a child's performance is a continuous process carried out over the full seven years of Primary school and our assessment methods include the following, as appropriate:-

- Looking at a child's recorded work, i.e. model, photographs, written work.

- Individual discussion.

- Listening to the children's ideas as they discuss between themselves.

- Group discussions in both the planning and reporting-back sessions.

- Observing the children's skills in Design and Technology.

- Record the progress that children make by assessing the children's work against the learning objectives for their lessons.

At the end of a unit of work, teachers make a judgement against our School Learning Expectations for Design and Technology, as detailed in our medium term planning.
(Refer to Medium Term Planning templates – Appendix 1)

Recording

It is essential that the type of recording be matched to the type of Design and Technology activity, as well as to the needs and abilities of the child. A variety of recording methods are therefore used. These include pictures, structured worksheets, sketches, diagrams, flow charts, model making, written explanations, photographs, school displays and the occasional video recording.

Pupils in KS1 and KS2 keep evidence of their learning in specific D&T work folders.

Monitoring and review

The monitoring of the standards of children's work and of the quality of teaching in Design and Technology is the responsibility of the Design and Technology subject leader. The work of the subject leader also involves supporting colleagues in the teaching of Design and Technology, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The Design and Technology subject leader gives the Headteacher an annual report in which they evaluate the subject and indicate areas for further development.

The Design and Technology subject leader has designated management time in order to review evidence of the children's work. They undertake lesson observations of Design and Technology teaching across the school and meet twice a year with the designated school Governor with responsibility for Design and Technology.

Resources

Our school has a wide range of resources to support the teaching of Design and Technology across the school. Classrooms have a range of basic resources, with the more specialised equipment being stored centrally.

(Refer to Appendix 2 – Resource List document)

Safety in Design and Technology

The safety of the children is the responsibility of the class teacher. The children are made aware of the safe use and correct procedure involved when using tools and equipment in a learning environment and how to follow proper procedures for food safety and hygiene.

The children are made aware of the need to be careful and to understand that their actions can affect others.

In addition:

- particular attention is paid to the safe use of craft knives, which are only to be used by adults and under close supervision by pupils in Years 5 & 6;

- low-melt glue guns are for adult use across the school and for use in Years 5 & 6 by pupils who have been trained and who can demonstrate that they can use the equipment safely and correctly;

The subject lead for D&T has adopted the 'Characteristics of a genuine D&T experience within the school curriculum' (2013) to support the principles for guiding and evaluating school practice that is provided by the National Curriculum Expert Group for D&T.

The key principals reflect the genuine D&T experience expected from a pupils' perspective and include:

- User
- Purpose
- Functionality
- Design Decisions
- Innovation
- Authenticity

(Refer to Appendix 3 - 'Characteristics of a genuine D&T experience within the school curriculum')

D.T.	Class 3	Unit of work:		Appendix 1
INTENT	**Core Knowledge**	• •	**Resources:**	•
	Context for learning What do we want the end product to be/do?	**Design Problem:** Can you design and make a		
	Vocabulary	**Designing**	*??*	
		Making	*??*	
		Knowledge and understanding	*??*	

		Designing	Making	Evaluating	Technical Knowledge
IMPLEMENTATION	**Knowledge** (Inc. Developing Skills and Understanding)	**National Curriculum** • 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. Developing planning and communicating ideas: • Generate ideas for an item, considering its purpose and the user/s • Identify a purpose and establish criteria for a successful product. • Plan the order of their work before starting • Explore, develop and communicate design proposals by modelling ideas • Make drawings with labels when designing	**National Curriculum** • 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 Working with tools, equipment, materials and components: • Select tools and techniques for making their product • Measure, mark out, cut, score and assemble components with more accuracy • Work safely and accurately with a range of simple tools • Think about their ideas as they make progress and be willing change things if this helps them improve their work • Measure, tape or pin, cut and join fabric with some accuracy • Use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT	**National Curriculum** • 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. Evaluating processes and products: • Evaluate their product against original design criteria e.g. how well it meets its intended purpose • Disassemble and evaluate familiar products	•

		Below ARE	@ ARE	Greater Depth
IMPACT	**Expectations**	•	•	•
End of Unit Assessment		**Pupils achieving Below ARE**		**Pupils achieving Greater Depth**

	Knowledge based learning	Planned Tasks
Background Research – Lesson 1 Exploring context and existing products	• Identify who made the product, when it was made and what its purpose is • Identify what the product has been made from • Evaluate the product on design and use Brain Builders: Research facts about famous inventors/ chefs / designers etc linked to product	
Design Criteria – Lesson 2 Understanding their intended users and their own product	• Brain Builders: Understand and gather information about what a particular group or people want from a product • Describe the purpose of their product and how it will work • Identify design features that will appeal to intended users • Explain how parts of their product works Generate realistic ideas that meet needs of user	
Planning – Lesson 3 Communicating ideas and creating prototypes for product	• Share and discuss ideas with others • Order the main stages of making • Choose materials to use based on suitability of their properties • Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) Create pattern pieces and prototypes	
Making – Lesson 4-5 Selecting the tools and applying the practical skills and techniques	• Use Materials - construction materials and kits, textiles, food, mechanical and electrical components • Choose suitable tools for making whilst explaining why they should be used Use design criteria whilst making • Follow safety and food hygiene procedures • Measure, mark, cut and shape materials and components with some accuracy • Join, assemble and combine materials and components with some accuracy Use finishing techniques, including skills learnt in Art with some accuracy	
Evaluation – Lesson 6 Referring to planning and initial ideas in evaluating their product	• Use design criteria to evaluate product – identifying both strengths and areas for development Consider the views of others, including intended user, whilst evaluating product	

TECHNOLOGY EQUIPMENT LIST:

Technology 1 (By Fiction Library):

Cardboard wheels

Cork boards

Corks

Corriflute

Elastic bands

Hacksaw blades

Plastic cogs

Wooden wheels

Technology 2 (By Fiction Library):

Glue gun

Glue gun glue sticks

Hole punchers

Lolly sticks

Lynx joiners

Matchsticks

Pegs

Pincers kit

Pipe cleaners

Plasticine / soft dough

Propellers

Quick cutters (blue)

Safety snips (grey) x7

Stanley knives x5

Tubing

Wooden wheels

Technology 3 – (Cupboards by oven):

Cutting mats

Hacksaws

Hand drills

Metal rulers

Sand paper

Square doweling

Wooden bench hooks

Central Store:

Coloured art straws – 2 x (1/2 boxes)

Dacta Lego: Chair-o-plane (yellow) x 8

Dacta Lego sets – aged 8-14 – (red) x 3

K'nex – levers and pulleys – (yellow) x 8

K'nex – gears – (red) x 2

Levers and Linkages Box – paper, card and wooden models of moving parts/cams etc.

Food Technology Cupboards:

Baking tins

Baking trays

Cupcake trays

Graters

Measuring scales

Mixing bowls

Saucepans and lids

Sieves

Wire cooling racks

Wooden trivets

Food Technology Drawers:

Aprons

Cookie cutters

Cooking utensils: rolling pins, wooden spoons, spatulas, spoons, scissors, oven gloves

Cupcake cases

Computing Room (behind curtains)

Flow-go – input/output interface

- Clown face x2

- Light house x2

- Houses x2

- Traffic lights x2

Lego WeDo 2.0 sets, 7+ x11

ROAMER Junior x4

ROAMER

Reception Class

Lego Duplo Coding Express

Aprons	Food Technology Drawers
Baking tins	Food Technology Cupboards
Baking trays	Food Technology Cupboards
Cardboard wheels	Technology 1 (By Fiction Library)
Coloured art straws – 2 x (1/2 boxes)	Central Store
Cookie cutters	Food Technology Drawers
Cooking utensils: rolling pins, wooden spoons, spatulas, spoons, scissors, oven gloves	Food Technology Drawers
Cork boards	Technology 1 (By Fiction Library)
Corks	Technology 1 (By Fiction Library)
Corriflute	Technology 1 (By Fiction Library)
Cupcake cases	Food Technology Drawers
Cupcake trays	Food Technology Cupboards
Cutting mats	Technology 3 (Cupboards by oven)
Dacta Lego sets – aged 8-14 – (red) x 3	Central Store
Dacta Lego: Chair-o-plane (yellow) x 8	Central Store
Elastic bands	Technology 1 (By Fiction Library)
Flow-go – input/output interface • Clown face x2 • Houses x2 • Light house x2 • Traffic lights x2	Computing Room (behind curtains)
Glue gun	Technology 2 (By Fiction Library)
Glue gun glue sticks	Technology 2 (By Fiction Library)
Graters	Food Technology Cupboards
Hacksaw blades	Technology 1 (By Fiction Library)

Hacksaws	Technology 3 (Cupboards by oven)
Hand drills	Technology 3 (Cupboards by oven)
Hole punchers	Technology 2 (By Fiction Library)
K'nex – gears – (red) x 2	Central Store
K'nex – levers and pulleys – (yellow) x 8	Central Store
Lego Duplo Coding Express	Reception Classroom
Lego WeDo 2.0 sets 7+ x11	Computing Room (behind curtains)
Levers and Linkages Box – paper, card and wooden models of moving parts/cams etc.	Central Store
Lolly sticks	Technology 2 (By Fiction Library)
Lynx joiners	Technology 2 (By Fiction Library)
Matchsticks	Technology 2 (By Fiction Library)
Measuring scales	Food Technology Cupboards
Metal rulers	Technology 3 (Cupboards by oven)
Mixing bowls	Food Technology Cupboards
Pegs	Technology 2 (By Fiction Library)
Pincers kit	Technology 2 (By Fiction Library)
Pipe cleaners	Technology 2 (By Fiction Library)
Plastic cogs	Technology 1 (By Fiction Library)
Plasticine / soft dough	Technology 2 (By Fiction Library)
Propellers	Technology 2 (By Fiction Library)
Quick cutters (blue)	Technology 2 (By Fiction Library)
ROAMER	Computing Room (behind curtains)
ROAMER Junior x4	Computing Room (behind curtains)

Safety snips (grey) x7	Technology 2 (By Fiction Library)
Sand paper	Technology 3 (Cupboards by oven)
Saucepans and lids	Food Technology Cupboards
Sieves	Food Technology Cupboards
Square doweling	Technology 3 (Cupboards by oven)
Stanley knives x5	Technology 2 (By Fiction Library)
Tubing	Technology 2 (By Fiction Library)
Wire cooling racks	Food Technology Cupboards
Wooden bench hooks	Technology 3 (Cupboards by oven)
Wooden trivets	Food Technology Cupboards
Wooden wheels	Technology 1 (By Fiction Library) Technology 2 (By Fiction Library)

Characteristics of a genuine D&T experience within the school curriculum: Principles for guiding and evaluating practice

Six, interrelated principles have been agreed by the National Curriculum Expert Group for D&T. They describe the features of a genuine D&T experience from the pupils' perspective and can be applied to all material areas and aspects of the subject. Each principle should be evident to a greater or lesser degree in each project that pupils undertake. The principles do not represent an exhaustive list, but provide a helpful starting point for clarifying and securing the distinctive nature of D&T in the classroom. The new National Curriculum requirements are consistent with the six principles:

- User
- Purpose
- Functionality
- Design Decisions
- Innovation
- Authenticity

User - Pupils should have a clear idea of who they are designing and making products for, considering their needs, wants, values, interests and preferences. The intended users could be themselves or others, an imaginary or story-based character, a client, a consumer or specific target group.
Purpose - Pupils should be able to clearly communicate the purpose of the products they are designing and making. Each product they create should be designed to perform one or more defined tasks. Pupils' products should be evaluated through use.
Functionality - Pupils should design and make products that work/function effectively in order to fulfil users' needs, wants and purposes.
Innovation - When designing and making, pupils need some scope to be original with their thinking. Projects that encourage innovation lead to a range of design ideas and products being developed and are characterised by engaging open- ended starting points for learning.
Design decisions - Pupils need opportunities to make their own design decisions. Making design decisions allows pupils to demonstrate their creative, technical and practical expertise, and draw on learning from other subjects. Through making design decisions pupils decide on the form their product will take, how their product will work, what task or tasks it will perform and who the product will be for.
Authenticity - Pupils should design and make products that are believable, real and meaningful to themselves and others