

THE WILLOWS PRIMARY SCHOOL



DESIGN TECHNOLOGY POLICY

Safeguarding Statement

The school is committed to safeguarding children and promoting the welfare of children and young people and expects all staff and volunteers to share this commitment.

Author: DT Subject Leader

Date: September 2021

Review Date: September 2023

Signed :

Intent

The study of design technology gives learners the opportunity to develop unique skills related to the development of products and innovation. Our curriculum has been designed to allow learners to apply their knowledge and understanding gained in other areas of the curriculum in order to develop skills in food technology, engineering, functional & aesthetic design and production, textiles, and systems and control.

Learners will gain an understanding of the ways in which people have designed products in the past and present gaining a deeper understanding of their impact in daily life and the wider world, both now and for the future. They will improve their knowledge of materials and the ways they can be shaped and manipulated. The opportunities and experiences provided for learners are intended to reflect a design cycle – design, make and evaluate.

As a result of our Design Technology curriculum, children are encouraged to generate ideas and designs, discuss features of their designs and communicate them through annotated sketches, diagrams, prototypes, pattern pieces and computer aided design. Children are taught to select and use appropriate materials, equipment and tools safely in order to develop essential skills such as measuring, marking out, cutting and joining.

Children will evaluate and test their finished products, describing how and why they work. They will also evaluate design and technology from the past, explaining how and why existing products work. Evaluation and reflection will be both ongoing during the DMA process and summative upon completion of the process or finished product.

Our aspiration is that children are inspired to be curious about different products and types of technology and develop their knowledge of how to design and create them both in and out of school.

To be successful, learners must:

- design and make products that solve real and relevant problems and meet specific needs.
- Design, develop and produce prototypes and use products for a wide range of audiences.
- use of a range of materials and components and develop skills and key techniques as part of the practical process of production
- evaluate materials, processes and products
- develop the appropriate vocabulary and subject-specific terminology to describe how and why existing products work and evaluate their fitness for purpose.
- Understand the effects of technology on people's lives and the wider world
- Connect learning within different aspects of design technology and between design technology and other subjects (e.g. history)
- Engage with the diversity of technological products, including ethical issues

Implementation

EYFS 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

Toddlers and young children will be learning to:

- Start to develop pretend play, pretending that one object represents another. For example, a child holds a wooden block to her ear and pretends it's a phone
- Explore different materials, using all their senses to investigate them. Manipulate and play with different materials.
- Use their imagination as they consider what they can do with different materials.
- Make simple models which express their ideas.

3 and 4-year-olds will be learning to:

- Take part in simple pretend play, using an object to represent something else even though they are not similar.
- Begin to develop complex stories using small world equipment like animal sets, dolls and dolls houses, etc.
- Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park
- Explore different materials freely, to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Join different materials and explore different textures.

Children in reception will be learning to:

- Explore, use and refine a variety of artistic effects to express their ideas and feelings
- Return to and build on their previous learning, refining ideas and developing their ability to represent them.
- Create collaboratively, sharing ideas, resources and skills

| | | | |
|-----------|---|---|--|
| Y1 | Design, make and evaluate a nesting box for bees | Plan, make, test and evaluate a vehicle | Fruit and Vegetables - Making Smoothies |
| Y2 | Making cards with a moving part/mechanism | Making picture frames Making models of different shaped buildings | Design, make and evaluate a holiday souvenir |
| Y3 | How to design, make and evaluate Anglo Saxon brooches and buckles | How to design, make and evaluate an Egyptian shaduf (a device with a lever that was used to remove water from the Nile) | Sustainable fast-food packaging Design, make and evaluate a tasty and appealing dish. Designing our own milkshake brand and packaging. |
| Y4 | Design, make and evaluate their own pizzas Skills – grate, peel, chop, kneading, rolling, grating, cutting/peeling/dicing/slicing | Moving Toy/Glider | Design, make and evaluate a mask that represents an animal and is secure enough to wear for a dance. |
| Y5 | DMA - Design make and evaluate own Mars Rover | Bake It – Baking bread unit Anglo-Saxon soup - Veg dish – mash/dice/slice | Making Bridges- Annotated sketches and prototypes of bridges before final outcome. |
| Y6 | Making a Roman Road Design an eco-friendly village | Clay work – shields/coats of arms | Design and make a model theme park ride |

| | YEAR GROUP/TERM | 1A | 1SP | 1SU | 2A | 2SP | 2SU | 3A | 3SP | 3SU | 4A | 4SP | 4SU | 5A | 5SP | 5SU | 6A | 6SP | 6SU |
|---------------------|---|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|
| DESIGN | design purposeful, functional, appealing products for themselves and other users based on design criteria | X | X | | X | X | X | | | | | | | | | | | | |
| | generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology | | | | X | X | X | | | | | | | | | | | | |
| | 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 | | | | | | | X | X | X | | | X | | | | X | X | X |
| | generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design | | | | | | | X | X | X | X | X | | X | | X | | X | X |
| MAKE | select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] | X | X | | X | X | X | | | | | | | | | | | | |
| | select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics | X | X | | X | X | X | | | | | | | | | | | | |
| | select from and use a wider range of tools and equipment to perform practical tasks accurately | | | | | | | X | X | X | X | X | X | X | | X | X | X | X |
| | 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 | | | | | | | X | X | X | X | X | X | X | | X | X | X | X |
| EVALUATE | explore and evaluate a range of existing products | | | | X | X | X | | | | | | | | | | | | |
| | evaluate their ideas and products against design criteria | X | X | | X | X | X | | | | | | | | | | | | |
| | investigate and analyse a range of existing products | | | | | | | X | | X | X | | | | | X | X | | X |
| | evaluate their ideas and products against their own design criteria and consider the views of others to improve their work | | | | | | | X | X | X | X | X | X | X | | | X | X | X |
| | understand how key events and individuals in design and technology have helped shape the world | | | | | | | X | X | X | X | X | | X | | X | X | | X |
| TECHNICAL KNOWLEDGE | build structures, exploring how they can be made stronger, stiffer and more stable | | | | | X | | | | | | | | | | | | | |
| | explore and use mechanisms in their products. | | X | | X | X | | | | | | | | | | | | | |
| | apply their understanding of how to strengthen, stiffen and reinforce more complex structures | | | | | | | X | | X | | X | | X | | X | X | | X |
| | understand and use mechanical systems in their products | | | | | | | X | X | | | | | X | | | | | X |
| | understand and use electrical systems in their products | | | | | | | | | | | | | | | | | | X |
| | apply their understanding of computing to program, monitor and control their products | | | | | | | | | | | | | X | | | X | | X |
| COOKING NUTRITION | use basic principles of a healthy and varied diet to prepare dishes | | | X | | | | | | | | | | | | | | | |
| | understand where food comes from | | | X | | | | | | | | | | | | | | | |
| | understand and apply the principles of a healthy and varied diet | | | | | | | | | X | | | | | X | | | | |
| | prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques | | | | | | | | | X | X | | | | X | | | | |
| | understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed | | | | | | | | | X | | | | | X | | | | |

Time and Organisation

Design Technology is taught as part of the International Primary Curriculum and the learning goals for this subject are integrated into the termly topics. Pupils are taught individually, in groups and as a class, according to the nature of the learning task.

- KS1 pupils will follow the Milepost 1 learning goals
- LKS2 pupils will follow the Milepost 2 learning goals
- UKS2 pupils will follow the Milepost 3 learning goals

Special Needs and Classroom Support

Appropriate differentiated provision is planned by teachers to accommodate individual needs.

Pupils' Record of Their Work

Pupils' independent and group work can be recorded in a variety of ways relevant to the type and purpose of the activity. This includes the use of photos, IPADs and other media as well as recording work on paper in their IPC books. All children demonstrate and record the various stages of a design and technology project in their IPC books. They are expected to produce a clearly labelled design that they will follow and complete a written evaluation of their end product.

Monitoring and Assessment

Pupils will be monitored both individually and in groups depending on the specific activities they will be undertaking. Assessment techniques used include observation, teacher assessment of written work, practical tasks and discussion. Their knowledge, skills and understanding will be assessed and recorded against the IPC learning goals for this subject. This information will form part of the annual report to parents at the end of each academic year.

Resources

Resources are ordered to support specific topics and projects. Specific tools and materials are kept in the DT resources cupboard.



THE WILLOWS PRIMARY SCHOOL

SUBJECT LEADER Roles & Responsibilities

To monitor the subject and be able to comment on

- Standards throughout the school
- Progression of skills throughout the school

Gather evidence on the quality of provision within the subject through monitoring/evaluation

- Lesson observations/learning walks
- Work/book scrutiny
- Planning scrutiny
- Pupil/staff discussion

Monitoring activities must be agreed with HT before they take place and feedback from these activities should be discussed and agreed with HT before it is given to staff

To be able to identify the quality of provision in the subject

- Know the strengths and weaknesses of the subject
- Know the development priorities for the subject as detailed in the SDP
- Know how the SDP priorities for the subject are being addressed

To develop secure subject knowledge and keep up to date with developments in the subject from EYFS, through KS1 and across KS2

To audit and maintain subject specific resources so that the subject can be successfully delivered throughout the school

- Order replacement/new resources in liaison with HT

Report on your subject to the HT

- Verbally at meetings, when requested
- Through the end of year co-ordinator report

Co-ordinate Governor visits, when requested, following liaison with the HT

Maintain CPD of yourself and other staff with a focus on your subject area

- Feedback to other staff on CPD undertaken
- Lead staff meetings and plan INSET when requested

Maintain the subject policy for the school

- Review the policy as per the policy review schedule
- Liaise with staff in terms of reviewing the policy – amend/distribute the policy accordingly

To advise and assist staff with the teaching and learning of the subject

Maintain a Subject Leader file

In line with HT management of teacher workload, subject leaders should not request additional work from staff unless agreed by HT beforehand

Appendix 1 – National Curriculum Requirements for Design Technology

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

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.

Key stage 2

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 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

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

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:

Key stage 1

- ♣ use the basic principles of a healthy and varied diet to prepare dishes
- ♣ understand where food comes from.

Key stage 2

- ♣ 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

Appendix 2 – IPC Learning Goals for Design Technology

| Strand | Milepost 1 | Milepost 2 | Milepost 3 |
|--------------------------------|---|--|---|
| Research, imagine and innovate | 1.01 Know that design is driven by a purpose | 2.01 Know that designs should consider aesthetics and function | 3.01 Know that there can be a tension between aesthetics and function and both should be considered in the design process |
| | 1.02 Be able to define a main need of a context/situation | 2.02 Be able to define the criteria that would meet the needs of a context/situation | 3.02 Be able to define the criteria that would meet the needs and wants of a client or context/situation |
| | 1.03 Be able to generate a design | 2.03 Be able to generate more than one design | 3.03 Be able to generate a range of designs including component parts |
| | 1.04 Be able to articulate how their design meets the identified need | 2.04 Be able to articulate how each design meets the identified needs | 3.04 Be able to rank ideas according to how well they meet the identified needs and wants |
| | 1.05 Be able to explore ways of constructing parts of a design | 2.05 Be able to use modelling and testing to explore parts of a design | 3.05 Be able to use modelling and testing to improve design |
| | 1.06 Be able to produce a final design proposal | 2.06 Be able to produce a final design proposal identifying appropriate materials | 3.06 Be able to produce a final design proposal identifying appropriate materials and tools needed |

| Strand | Milepost 1 | Milepost 2 | Milepost 3 |
|-------------------|---|---|--|
| Plan, build, test | 1.07 Be able to list materials and tools needed for production | 2.07 Be able to list materials, tools and techniques needed for production | 3.07 Be able to produce a step by step plan for production |
| | 1.08 Be able to use tools and techniques following guidance from an adult | 2.08 Be able to use appropriate tools and techniques independently | 3.08 Be able to select appropriate tools and techniques to make a product |
| | 1.09 Know the risks to self and others when using tools | 2.09 Know how to avoid the risks associated with using tools and sharing spaces | 3.09 Know how to avoid and reduce risks associated with using tools and sharing spaces |
| Test and evaluate | 1.10 Be able to compare their design and product explaining any differences | 2.10 Be able to compare their design and product explaining any differences and suggesting improvements | 3.10 Be able to evaluate the success of a product against its original design and suggest improvements |

| Strand | Milepost 1 | Milepost 2 | Milepost 3 |
|------------------------|--|--|---|
| Technology and society | 1.11 Understand that the design of products is impacted by material availability | 2.11 Understand that designers have a responsibility to consider issues of waste when designing products | 3.11 Understand that the design of products is impacted by issues of sustainability |
| | 1.12 | 2.12 | 3.12 |
| | 1.13 Be able to design products, taking inspiration from another source | 2.13 Be able to adapt and/or combine others' products for a new creation | 3.13 Be able to design products taking inspiration from many different sources |
| | 1.14 | 2.14 | 3.14 |