



# Ackton Pastures Primary Academy

## Design and Technology Progression Grid



In DT, like all other subjects, we recognise the importance of the methods and practice of teaching we choose to use in enabling pupils to know more, understand more and remember more. In DT, the following approaches will be used and be evident in pupils' books, in order to ensure that the DT learning opportunities are as effective as possible and that pupils progress throughout the year and across year groups during their DT experiences in school:

### National Curriculum statements - 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.

#### Cooking and nutrition

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

### National Curriculum statements - 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

- 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

		Early Years		Key Stage One		Lower Key Stage Two		Upper Key Stage Two		
		Nursery:	Reception:	Year One:	Year Two:	Year Three:	Year Four:	Year Five:	Year Six:	
Research	ELG  • Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.  • Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.  • Children represent their own ideas, thoughts and feelings through design and technology.			<ul style="list-style-type: none"> <li>• Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.</li> <li>• Children represent their own ideas, thoughts and feelings through design and technology.</li> </ul>			<ul style="list-style-type: none"> <li>• Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.</li> <li>• Children represent their own ideas, thoughts and feelings through design and technology.</li> </ul>			<ul style="list-style-type: none"> <li>• Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.</li> <li>• Children represent their own ideas, thoughts and feelings through design and technology.</li> </ul>
		Design			<ul style="list-style-type: none"> <li>• Talk about what they want to make, in relation to the design brief and their research.</li> <li>• Draw a labelled picture of their product, which may include parts, components, materials.</li> <li>• Choose the materials/ingredients/tools they will use, from a selection.</li> <li>• Write a list of the materials/ ingredients/tools they will need.</li> </ul> <p><b>Food and cookery</b></p> <ul style="list-style-type: none"> <li>• Understand that the basic principles of a healthy and varied diet feature within their design.</li> <li>• Create a basic recipe, using drawings and labels.</li> </ul>			<ul style="list-style-type: none"> <li>• Use their research to develop some of their own design criteria.</li> <li>• Draw a fully labelled sketch/diagram of their product, including some measurements. <ul style="list-style-type: none"> <li>• Indicate where electrical components will go and briefly explain how they will function.</li> </ul> </li> <li>• Choose the materials/ ingredients /tools they will use, based on their suitability for the task.</li> <li>• List the materials/ ingredients/tools they will need.</li> <li>• Order the main stages of making.</li> <li>• Use computer aided design.</li> </ul> <p><b>Food and cookery</b></p> <ul style="list-style-type: none"> <li>• Use the principles of a healthy and varied diet to help inform their design decisions.</li> <li>• Understand seasonality and locality of food and use this knowledge when designing their product. <ul style="list-style-type: none"> <li>• Create/adapt a recipe, including some weight/volume measurements.</li> </ul> </li> </ul>		
Make - Construction			<ul style="list-style-type: none"> <li>• Mark materials before cutting and sometimes measure.</li> <li>• Cut paper and other materials safely and with increasing accuracy.</li> <li>• Begin to choose the most effective joining methods for the task/materials.</li> <li>• Use simple components, such as split pins.</li> <li>• Test their product as they work, to see if it meets the requirements of the intended user.</li> <li>• Apply their knowledge of materials to make a structure stiffer/ more stable as they work.</li> </ul>			<ul style="list-style-type: none"> <li>• Measure and mark materials before cutting.</li> <li>• Cut materials accurately, using appropriate tools. • Score and fold paper/card accurately.</li> <li>• Join a range of materials using a variety of methods, usually choosing the method most suited to the task. <ul style="list-style-type: none"> <li>• Test their product as they work, making informed adjustments to ensure their product meets the design criteria.</li> </ul> </li> <li>• Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.</li> <li>• Create a basic electrical circuit and incorporate it into their product.</li> <li>• Pay attention to the finishing of their product.</li> </ul>			<ul style="list-style-type: none"> <li>• Measure and mark materials with increased accuracy, before cutting.</li> <li>• Cut materials accurately, using appropriate tools.</li> <li>• Join a range of materials using a variety of suitable methods.</li> <li>• Test their product as they work, making informed adjustments and striving to address any anticipated problems.</li> <li>• Apply their prior knowledge and understanding to make structures stiffer/ more stable as they work.</li> <li>• Create a working mechanism (pulleys and gears) and incorporate it into their product.</li> <li>• Create a basic electrical circuit and incorporate it into their product. <ul style="list-style-type: none"> <li>• Programme a computer to control their product.</li> </ul> </li> <li>• Create a polished and well-finished product.</li> </ul>	

Make - Textiles	<ul style="list-style-type: none"> <li>Making/using simple paper pattern pieces. • Cutting fabric carefully.</li> <li>• Learning sewing basics – threading a needle, knotting your thread, finishing off.</li> <li>• Sewing using running stitch, attempting to produce neat, equal stitches</li> <li>• Creating a design on fabric using applique.</li> <li>• Creating a design on fabric using pens/paint.</li> </ul>	<ul style="list-style-type: none"> <li>• Making/using simple paper pattern pieces.</li> <li>• Cutting fabric carefully.</li> <li>• Learning sewing basics – threading a needle, knotting your thread, finishing off.</li> <li>• Sewing using running stitch, attempting to produce neat, equal stitches</li> <li>• Creating a design on fabric using applique.</li> <li>• Creating a design on fabric using pens/paint.</li> <li>• Sewing basics – threading a needle, knotting your thread, finishing off.</li> <li>• Sewing on simple components – buttons/sequins/ribbons.</li> <li>• Using stuffing</li> </ul>	<ul style="list-style-type: none"> <li>• Making/using a paper pattern (front and back pieces).</li> <li>• Including a seam allowance.</li> <li>• Cutting fabric accurately.</li> <li>• Sewing basics – threading a needle, knotting your thread, finishing off.</li> <li>• Sewing neatly using running stitch/back stitch.</li> <li>• Turning out so stitching is hidden.</li> <li>• Creating designs on fabric using applique/pens/ paint.</li> <li>• Incorporating a fastening component – button/zip/press stud.</li> </ul>
Make- Food	<ul style="list-style-type: none"> <li>• Observe basic food hygiene procedures with support – washing hands; washing fruit/veg; keeping meat separate; cleaning surfaces before and after preparing food.</li> <li>• Use a knife and chopping board to neatly chop ingredients.</li> <li>• Use a spoon to add condiments.</li> <li>• Carefully roll up their wrap.</li> <li>• Serve food in an appealing way.</li> <li>• Clean/wash up after themselves.</li> </ul>	<ul style="list-style-type: none"> <li>• Observe basic food hygiene procedures – washing hands, washing fruit/veg; avoiding cross contamination when preparing raw meat; cleaning surfaces before and after preparing food.</li> <li>• Use appropriate tools to peel, chop, slice, grate and mix ingredients.</li> <li>• Knead and roll out dough.</li> <li>• Cook the product in the oven, ensuring it is fully cooked.</li> <li>• Serve food in an appealing way.</li> <li>• Clean/wash up after themselves</li> </ul>	<ul style="list-style-type: none"> <li>• Observe basic food hygiene procedures – washing hands, washing fruit/veg; avoiding cross contamination when preparing raw meat; cleaning surfaces before and after preparing food.</li> <li>• Use appropriate tools to peel, chop, slice, grate and mix ingredients.</li> <li>• Cook food in the oven and/or on a stove top, ensuring it is fully cooked.</li> <li>• Serve food in an appealing way.</li> <li>• Clean/wash up after themselves</li> </ul>
Evaluate	<ul style="list-style-type: none"> <li>• Describe what went well and which aspects of their product they are pleased with.</li> <li>• Describe anything that didn't work as well and any changes they had to make.</li> <li>• Discuss what the intended user might think about the product.</li> <li>• Suggest how their product could be improved.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and discuss the strengths of their product.</li> <li>• Identify any areas for development/ improvements that could be made.</li> <li>• Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose?</li> <li>• Take part in peer evaluation, giving and receiving feedback from fellow pupils.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify and discuss the strengths of their product.</li> <li>• Identify any areas for development/ improvements that could be made.</li> <li>• Discuss whether the product meets the requirements of the brief/the needs of the user – is it fit for purpose?</li> <li>• Take part in peer evaluation, giving and receiving feedback from fellow pupils.</li> </ul>
<p>Please note these definitions of key words which need to be understood in the specific context of primary Design and Technology, across all year groups.</p> <p><b>design</b> 1. plan to do something with a specific purpose in mind; 2. do a drawing of something before making it</p> <p><b>designer</b> 1. a person who creates a plan for something they want to make; 2. KS2 – also focus on 'designer' as a job title/career, e.g. 'fashion designer'</p> <p><b>technology</b> using what we know about Science to help us make useful things</p> <p><b>product</b> an outcome piece with a function/that does something - not necessarily a thing which can be sold</p> <p><b>brief</b> the initial instructions that tell us what we need to do in our project</p> <p><b>user</b> the person who we are designing our product for, whose needs/wants must be taken into account</p>			

design  
designer  
materials  
tools  
construct

## CONSTRUCTION

Make  
Cut  
Join  
strong

## FOOD

ingredients  
healthy  
cook  
taste

design  
designer  
materials  
tools  
brief  
product  
evaluate  
label  
technology  
problem-solving

## CONSTRUCTION

boat  
buoyant (Science)  
water-proof (Science)  
stable  
Isambard  
Kingdom Brunel

## TEXTILES

textiles  
needle  
thread  
pin  
pattern  
piece  
applique  
William Morris

## FOOD

ingredients  
hygiene  
balanced  
nutritious  
appealing Jamie Oliver

Design  
technology  
product  
intended user  
annotated sketch  
component  
design criteria  
computer-aided design

## CONSTRUCTION

net  
scoring  
tab  
accuracy  
packaging  
product  
designer  
graphic designer  
shelf-appeal  
battery  
circuit  
switch  
bulb  
electrical engineer  
Alexander Graham Bell  
Nikola Tesla

## TEXTILES

pattern  
piece  
running stitch  
cross stitch  
applique  
embroidery  
textile designer  
Cath Kidston

## FOOD

hygiene  
grown  
reared  
Local  
producer  
seasonal produce  
dough  
knead  
bake  
Clare Smyth

Design  
technology  
product  
intended user  
design criteria  
Cross-sectional diagram  
exploded diagram  
innovation

## CONSTRUCTION

frame structure  
triangulation  
strengthen  
reinforce  
greenhouse  
agricultural engineering  
architect  
Nicolas Grimshaw  
mechanical system  
pulley  
driver  
follower  
load transport  
mechanical engineer  
Ismail Al-Jazari  
Edmund Cartwright  
George Stephenson

## TEXTILES

Pattern  
pieces  
back  
stitch  
tension  
seam  
allowance  
turn out  
fastener  
fashion designer  
ethical product  
corporate  
social responsibility

## FOOD

hygiene  
cross contamination  
local produce  
seasonality  
cooking technique  
deconstructed food  
Heston Blumenthal