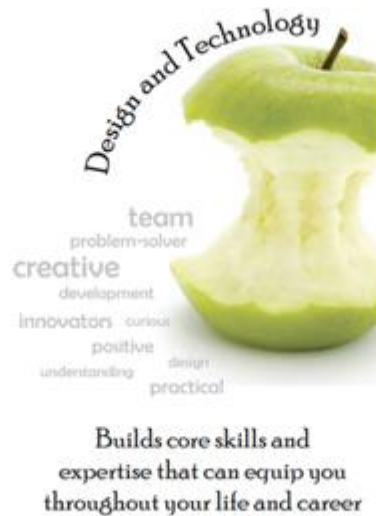




Waddington All Saints Academy
A L.E.A.D. Academy

Design and Technology Curriculum


Year 1 to Year 6



Overarching Principles

Subject Intent

- ❖ At Waddington All Saints Academy, we have built a Design Technology curriculum which is inspiring, rigorous, and practical. We want our children to use creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum to create something for someone with some purpose,
- ❖ Design and Technology has a vital role in contributing to a balanced curriculum and creating the problem solvers of the future. It is a subject that encourages children to 'learn to think' creatively to solve practical problems both as individuals and through teamwork.
- ❖ Our intention is to develop pupils who will think as designers and problem solvers through acquiring and applying the understanding of materials and components, mechanisms and control systems, and structures. They are encouraged to be creative and innovative, and are actively encouraged to think about important issues such as sustainability and enterprise.
- ❖ Design and Technology education involves two important elements - learning about the designed and made world and how things work, and learning to design and make functional products for particular purposes and users.
- ❖ At Waddington All Saints Academy we teach our pupils to be prepared to be an active participant in society who has knowledge and experience of the ways that the world works, how to operate within that world, and how to use that knowledge and experience to their advantage.

Substantive Knowledge	Disciplinary Knowledge	Connecting themes
<ul style="list-style-type: none">❖ Substantive knowledge represents the technical content and vocabulary that is taught in each year group - in planning, this knowledge is presented as specific 'learning outcomes' - the content we want the children to know and remember. In selecting the specific content, we ensure that the heritage of our children is highlighted and celebrated.	<p>Disciplinary knowledge in design and technology is the process of enabling children to use their substantive knowledge of products and materials around them to make links between and across different areas of the curriculum. Knowledge in design and technology will equip the children with the opportunity to explain how and why products have changed over time and how they might be further improved in the future. They can use their knowledge and understanding to suggest how existing products may be improved with</p>	 <p>Design technology in 'real life' and for an audience and purpose.</p> <p>The skills learned in D&T also help with learning across the curriculum. Knowledge about the properties of materials helps in science and the practice of measuring</p>

the advances in modern technology. This is realised through an understanding of the methods or conceptual frameworks used by designers. We present these as the lens or 'Big ideas' that designers apply when viewing their subject.

accurately helps in maths. These skills help in IT through the children's use of computer control and, naturally, in art and design.

Key Subject Teaching Approach at All Saints

- ❖ **At Waddington All Saints Academy, we use the 'Projects on a page' from the Design and Technology Association as a starting point. This ensures clear progression and the opportunity to meet the needs and interest of our pupils through our bespoke planning.**
- ❖ **Planned retrieval and knowledge organisers will support pupils to build on prior knowledge and use this knowledge as a stepping stone.**
- ❖ **Design and Technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high-quality Design and Technology curriculum. This is implemented through::**

-A well thought out, whole school, yearly overview of the DT curriculum which allows for progression across year groups in all areas of DT (textiles, mechanisms, structures, food and electrical systems)•

-Well planned and resourced projects providing children with a hands-on and enriching experience •

-A range of skills being taught ensuring that children are aware of health and safety issues related to the tasks undertaken •

-Teachers allow the time needed for the children to be critical, inventive and reflective on their work..

-Each project from Year 1 to Year 6 addresses the principles of designing, making, and evaluating and incorporating relevant technical knowledge and understanding in relevant contexts..

-Pupils are introduced to specific designers, chefs, nutritionists, etc. helping to engender an appreciation of human creativity and achievement and increase the cultural capital from which they can draw in the future.

- ❖ **Opportunities for national and community STEM projects are embraced.**
- ❖ **We believe that there are three core activities our pupils need to engage with in Design and Technology:**

1. Activities which involve investigating and evaluating existing products and this we call 'tinker time.' It is important that they learn from their mistakes in a safe environment.



Having a good idea is one thing, but persuading other people to buy it is quite another. Good inventors are polymaths: they think with their hands and their brains. They're experts in design, engineering and business.

— James Dyson —

2. Focused tasks in which children develop particular aspects of knowledge and skills



Knowledge
& Skills



3. Designing and making activities in which children design and make 'something' for 'somebody' for 'some purpose'.



Assessment

- ❖ We believe that Design and technology is more than just knowing designers, products, or materials. We continually assess the children's ability to apply their knowledge and skills throughout the whole designing and making process.. This provides information on the children's ability to use a combination of substantive, disciplinary and procedural knowledge..
- ❖ Questioning is important to assess understanding and to challenge thinking. Our questions are both planned and reactionary.
- ❖ Evaluations are another opportunity for assessment where our pupils to explain their understanding and this is both during and at the end of the process..
- ❖ Pupils are encouraged to self-assess their learning against the Learning Objects and Success Criteria. Opportunities for collaborative learning and peer assessments will support self-reflection and assessments.
- ❖ It is important that our pupils understand the cultural capital opportunities within the process. We teach our pupils to be prepared to be an active participant in society who has knowledge and experience of the ways that the world works, how to operate within that world, and how to use that knowledge and experience to their advantage.






• *Empathy and Optimism: Understanding people's lives and identifying problems from their perspective. Knowing that even if we don't know the answer, that it's out*

there and we can find it

- *Exploration: Understanding that we always start from the place of not knowing, and that a firm foundation of knowledge is the best place from which to tackle a design challenge*
- *Iteration: Understanding that by continually developing, refining and improving our work, we put ourselves in a place where we'll have more ideas, try a variety of approaches, unlock our creativity and arrive more quickly at successful solutions .*
- *Making (and learning from failure): Understanding that by making, we convey ideas, share them, and learn how to make them better The explicit sharing of disciplinary knowledge means that we're able to show the children how designers use their ideas when approaching different stages of the design process.*

Design and Technology Overview and Skill progression.

	MECHANISMS	STRUCTURES	COOKING AND NUTRITION	TEXTILES
FS	<p>Focus: Moving parts</p> <p>To explore how to make parts of a picture move using resources such as split pins.</p>  <p>Key Vocabulary: Build, join, split pin, move</p>	<p>Focus: Construction/ Modelling</p> <p>To begin to build structures independently using a range of materials, inside and out.</p>   <p>Key Vocabulary: Build, join, construct</p>	<p>Focus: Exploring food</p> <p>To begin to explore the taste, smell, texture and feel of food, developing a wider vocabulary to be able to describe this. To begin to understand the need for a healthy and varied diet.</p>   <p>Key Vocabulary: Taste, smell, texture, feel, diet, healthy, unhealthy</p>	<p>Focus: Weaving</p> <p>To learn how to weave with a range of different fabrics.</p>   <p>Key vocabulary: Fabric, weave.</p>

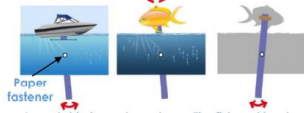
Y 1

Focus: Sliders and Levers

Outcome: Moving Pictures linked to a curriculum area

'Project on a Page'

To begin to explore simple mechanisms, such as sliders and levers.



Key Vocabulary:

Slider, lever, pivot, slot, bridge/guide

Focus: Free standing, stable structures.

Outcome: Biscuit Houses (linked to Hansel and Gretel/ fairy tales)

To begin to build structures, joining components together to create a finished product.



Key Vocabulary:

Build, join, construct, wall, stable, strong, roof, edge, base.

Focus: Peeling, cutting and chopping

Outcome: Fruit and vegetable kebabs

'Project on a page'

To begin to develop an understanding that all food comes from plants or animals. To begin to develop children's peeling and chopping skills to create a fruit kebab.



Key Vocabulary:

Fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard.

Focus: Templates and joining fabrics

Outcome: Glove/ finger puppet

'Project on a page'

To learn how to place a template.

To learn to sew and join two pieces of fabric using a **running stitch**.

To use the fabric felt.



Key Vocabulary:

Join, thread, needles, fabric glue, scissors, fabrics, template, pattern pieces, mark out, finish.

Y 2

Focus: Winding Mechanisms (including wheels and axles)

Outcome: Rapunzel's Tower/Castle draw bridge

With developing independence explore and use winding mechanisms. Begin to incorporate wheels and axles into products.

Focus: Free standing, stable structures

Outcome: Playground Equipment

'Project on a Page'

To begin to build structures with increasing independence, exploring how they can make them stronger and

Focus: Peeling, cutting, chopping, squeezing and grating.

Outcome: Fruit Salad/Fruit Smoothie

'Project on a page'

To be able to sort and name foods into the five main food groups, with a growing awareness of what makes a healthy diet.

To begin to use techniques such as

Focus: Templates and joining fabrics

Outcome: Outfit/ simple bag for a bear

'Project on a page'

To use a template with developing independence.

To be able to sew and join fabrics using a range of basic stitches-



Key Vocabulary:

Winding mechanism, wheel, axle, axle holder, chassis

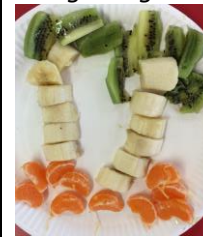
more stable.



Key Vocabulary:

Structure, wall, tower, stable, rigid, weak, strong.

cutting, peeling, chopping, squeezing and grating.



Key Vocabulary:

Fruit and vegetable names, names of equipment and utensils

sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard.

running stitch, back stitch.



Key Vocabulary:

Join, thread, needles, fabric glue, scissors, fabrics, template, pattern pieces, mark out, finish

Y
3

Focus: Mechanical Systems- Levers and linkages

Outcome: Information Book- linked to non-core learning

'Project on a Page'

To begin to develop an understanding of mechanical systems incorporating levers and linkages.

- Simple single lever
- Double level with flexible linkages
- Level and two parallel linkages

Focus: Shell Structures using CAD (computer aided design)

Outcome: Gift box, money box, desk tidy

'Project on a Page'

To build structures with increasing independence and accuracy.

Demonstrate a secure understanding of how they can be made stronger and more stable.



Focus: Cutting, peeling, grating, spreading

Outcome: Sandwiches/toasties/ pitta pocket

'Project on a Page'

To gain an increasing awareness of where food comes from (grown, reared and caught), in the UK, Europe and the wider world.

To be able to confidently use a range of techniques such as: peeling, chopping, slicing, spreading and grating.

Focus: 2D shape to 3D product- link to Enterprise.

Outcome: Wallet

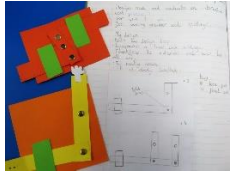
'Project on a Page'

To be able to sew and join fabrics using a range of stitches with increasing independence, including: **running stitch, back stitch, backwards running stitch.**

To be introduced to the **over sew stitch and blanket stitch.**

To incorporate a fastening- a button or velcro.

To learn to add further decoration



Key Vocabulary:

Mechanism, lever, linkage, pivot, rotate, slot, bridge, guide system, input, process, output



Key Vocabulary:

Structure, shape, net, cube, prism, vertex, join, assemble, accuracy, innovative, prototype.



Key vocabulary:

Texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury

including sequins, beads and buttons.



Key Vocabulary:

Fabric, fastening, button, template, stitch, seam, seam allowance, needle, thread.

Y
4

Focus: Mechanical Systems – Pneumatics

Outcome: Moving creature/animal (culture)

'Project on a Page'

To begin to develop an understanding of mechanical systems incorporating pneumatics.

Design and make a product that incorporates a pneumatic mechanism.



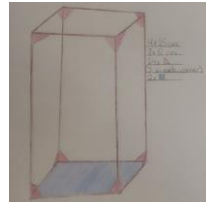
Focus: Frame Structures

Outcome: Tall strong structure.

To build structures with increasing independence and accuracy.

Demonstrate an understanding of how they can be made stronger and more stable.

Focus on architects and the tallest building in the world.



Focus: Savoury foods/ baking

Outcome: Scones

'Project on a Page' (Year 5/6)

To understand that food is grown, reared and caught in the UK, Europe and the wider world.

To understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically. To develop skills including mixing, kneading and baking.



Focus: 2D shape to 3D product

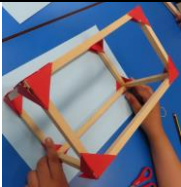
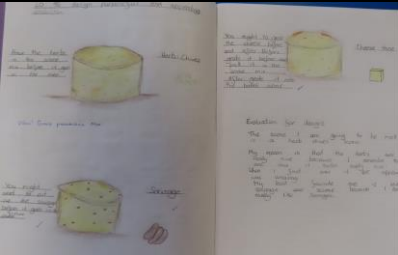

Outcome: Pencil Case/ Christmas decoration- link to enterprise

'Project on a Page'

To use a pattern to create a product, using a range of sewing skills with an increasing level of independence.

To be introduced to using a prototype.



	<p>Key Vocabulary:</p> <p>components, fixing, attaching, pneumatic system, input movement, process, output movement, control, compression, pressure, inflate. Deflate, pump, seal, air-tight</p> <p>Jobs, careers and aspirations.</p> <p>Inventor. Engineer. Toy maker.</p>	 <p>Key Vocabulary:</p> <p>girder, Rafter, Strut frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent</p> <p>Jobs, careers and aspirations.</p> <p>Engineer. Architect.</p>	 <p>Key Vocabulary:</p> <p>Ingredients, dough, flour, wholemeal, baking soda, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble</p> <p>Jobs, careers and aspirations.</p> <p>Chef. Farmer. Hospitality industry.</p> <p>Mary Berry. Tilly Ramsey. Nikki Lily.</p>	 <p>Key Vocabulary:</p> <p>Prototype, pattern, embroider, running stitch, cross stitch, over sew</p> <p>Jobs, careers and aspirations.</p> <p>Fashion designer, dress maker, tailor, small business.</p>
<p>Y</p> <p>5</p>	<p>Focus: Mechanical System-Cams</p> <p>Outcome: A toy with oscillating, rotating or reciprocating movement</p> <p>‘A Project on a Page’</p> <p><i>To being to understand how mechanical systems such as cams can create movement.</i></p> <p><i>Design and make a product that incorporates a pneumatic mechanism.</i></p>	<p>Focus: Frame Structures</p> <p>Outcome: Bug Houses</p> <p>‘Project on a Page’</p> <p><i>To build functional and appealing structures that are fit for purpose.</i></p> <p><i>Evidence how products can be made stronger and more stable.</i></p> <p><i>Use finishing techniques to strengthen and improve the appearance of their models.</i></p> <p><i>Finished products are of a high standard.</i></p>	<p>Link to RE Learning Journey</p> <p>LIGHT TOUCH- 4 sessions</p> <p>Focus: Savoury Food linked to celebration</p> <p>Outcome: Celebration Bread</p> <p>‘Project on a Page’</p> <p><i>To understand that seasons may affect the food available.</i></p> <p><i>To understand how food is processed into ingredients that can be eaten or used in cooking.</i></p>	<p>Focus: Combining different fabric shapes.</p> <p>Using CAD (Computer aided design)</p> <p>Outcome: bag</p> <p>‘A project on a page’</p> <p><i>To use ‘wild ginger online’ to create a pattern.</i></p> <p>https://www.wildginger.com/products/wildthings.htm</p> <p><i>To be able to create products using a pattern, demonstrating an awareness</i></p>



Key Vocabulary:

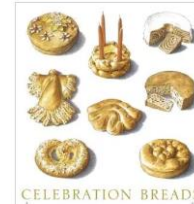
Cam, snail cam, off-centre cam, peg cam, pear shaped cam, follower, axle, shaft, crank, handle, housing, framework, rotation, rotary/oscillating/reciprocating motion



Key Vocabulary:

Girder, Rafter, Strut, frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent

To gain confidence in the skills of peeling, chopping, slicing, grating, mixing, kneading and baking.



Key Vocabulary:

Ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble.

of seam allowance.



To be taught how to blanket stitch.

Key vocabulary:

Computer aided design (CAD), computer aided manufacture (CAM), seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces names of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper

Y
6

Focus: 1) Mechanical System- Cam, gears and pulleys

2) Electrical systems- car alarm system

Outcome: Vehicle incorporating cam-driven components

'Project on a Page'

To develop a deeper understanding of how cams, gears and pulleys work to create movement. To design and make products with a higher level of independence, creating and using prototypes.

Focus: Innovative Frame Structures

Outcome: Strong Bridge Structure .

To investigate a number of innovative frame structures- including building a large scale tetrahedron in the hall.

With increasing independence and ability, build innovative, functional, appealing, stable structures that are fit for purpose. Demonstrate confidently how to reinforce and strengthen a 3D framework.

Focus: Food celebrating Italian culture.

Outcome: Pizza

'Project on a Page'

To be able to use existing knowledge and skills to know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically. To become increasingly skilled at peeling, chopping, slicing, grating, mixing, kneading and baking.

Focus: Combining different fabric shapes.

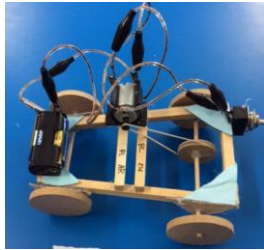
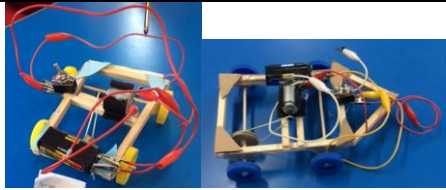
Outcome: Christmas Decoration/ Advent Calendar

'Project on a Page'

To be able to join fabrics by **over sewing, back stitch, blanket stitch.**

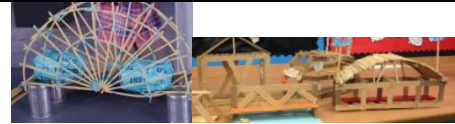
To be able use stitches to finish a product- **applique and embroidery.**





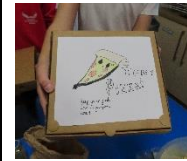
Key Vocabulary:

Cam, snail cam, off-centre cam, peg cam, pear shaped cam, follower, axle, shaft, crank, handle, housing, framework, rotation, rotary motion, oscillating motion, reciprocating motion.



Key Vocabulary:

Member, Cross Brace, Cantilever, Strut, frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent



Key Vocabulary:

Ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble



Key vocabulary:

Seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces names of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper

Progression in Key Design and Technology skills

Designing	Key Stage 1	Key Stage 2
Understanding contexts, users and purposes	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment • state what products they are designing and making • say whether their products are for themselves or other users • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • <i>develop a simple design specification to guide their thinking</i>
Generating, developing, modelling and communicating ideas	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • generate ideas by drawing on their own experiences • use knowledge of existing products to help come up with ideas • develop and communicate ideas by talking and drawing • model ideas by exploring materials, components and construction kits and by making templates and mock-ups • use information and communication technology, where appropriate, to develop and communicate their ideas 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • generate realistic ideas, focusing on the needs of the user • <i>make design decisions that take account of the availability of resources</i> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • generate innovative ideas, drawing on research • <i>make design decisions, taking account of constraints such as time, resources and cost</i>

Making	Key Stage 1	Key Stage 2
<p>Planning</p>	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • <i>plan by suggesting what to do next</i> • select from a range of tools and equipment, <i>explaining their choices</i> • select from a range of materials and components according to their characteristics 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • select tools and equipment suitable for the task • <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i> • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • <i>order the main stages of making</i> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • <i>produce appropriate lists of tools, equipment and materials that they need</i> • <i>formulate step-by-step plans as a guide to making</i>
<p>Practical skills and techniques</p>	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • follow procedures for safety and hygiene • use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components • measure, mark out, cut and shape materials and components • assemble, join and combine materials and components • use finishing techniques, including those from art and design 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • <i>use techniques that involve a number of steps</i> • demonstrate resourcefulness when tackling practical problems

Evaluating	Key Stage 1	Key Stage 2
Own ideas and products	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> • talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • <i>suggest how their products could be improved</i> 	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> • identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • <i>evaluate their ideas and products against their original design specification</i>
Existing products	<p>Across KS1 pupils should explore:</p> <ul style="list-style-type: none"> • what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products 	<p>Across KS2 pupils should investigate and analyse:</p> <ul style="list-style-type: none"> • how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants <p>In early KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused <p>In late KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose
Key events and individuals	Not a requirement in KS1	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products

Technical knowledge	Key Stage 1	Key Stage 2
Making products work	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> • about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable • <i>that a 3-D textiles product can be assembled from two identical fabric shapes</i> • <i>that food ingredients should be combined according to their sensory characteristics</i> • <i>the correct technical vocabulary for the projects they are undertaking</i> 	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • <i>that materials can be combined and mixed to create more useful characteristics</i> • that mechanical and electrical systems have an input, process and output • <i>the correct technical vocabulary for the projects they are undertaking</i> <p>In early KS2 pupils should also know:</p> <ul style="list-style-type: none"> • how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • <i>that a single fabric shape can be used to make a 3D textiles product</i> • <i>that food ingredients can be fresh, pre-cooked and processed</i> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • <i>that a 3D textiles product can be made from a combination of fabric shapes</i> • <i>that a recipe can be adapted by adding or substituting one or more ingredients</i>

Cooking and nutrition	Key Stage 1	Key Stage 2
Where food comes from	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> • that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught 	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
Food preparation, cooking and nutrition	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> • how to name and sort foods into the five groups in The eatwell plate • that everyone should eat at least five portions of fruit and vegetables every day • how to prepare simple dishes safely and hygienically, without using a heat source • how to use techniques such as cutting, peeling and grating 	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking <p>In early KS2 pupils should also know:</p> <ul style="list-style-type: none"> • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> • <i>that recipes can be adapted to change the appearance, taste, texture and aroma</i> • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health

Design and Technology Vocabulary.

Design and Technology Vocabulary



Year 1

Food: Fruit and vegetables

blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable

Mechanisms: Making a moving story book

assemble, design, evaluation, mechanism, model, sliders, stencil, target audience, template, test

Structures: Constructing a windmill

client, design, evaluation, net, stable, strong, test, weak, windmill

Textiles: Puppets

decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template

Mechanisms: Wheels and axles

axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel

Design and Technology Vocabulary



Year 2

Food: A balanced diet

alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refrigerator, sugar, substitute

Mechanisms: Making a moving monster

evaluation, input, lever, linear motion, linkage, mechanical, mechanism, motion, oscillating motion, output, pivot, reciprocating motion, rotary motion, survey

Structures: Baby Bear's chair

function, man-made, mould, natural, stable, stiff, strong, structure, test, weak

Textiles: Pouches

accurate, fabric, knot, pouch, running-stitch, sew, shape, stencil, template, thimble

Mechanisms: Fairground wheel

axle, decorate, evaluation, ferris wheel, mechanism, stable, strong, test, waterproof, weak

Design and Technology Vocabulary



Year 3

Food: Eating seasonally

climate, dry climate, exported, imported, mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate

Structures: Constructing a castle

2D shapes, 3D shapes, castle, design criteria, evaluate, façade, feature, flag, net, recyclable, scoring, stable, strong, structure, tab, weak

Textiles: Cushions

accurate, appliqué, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template

Electrical systems: Static electricity

attract, component, constructive-criticism, design criteria, electrostatic, evaluation, feedback, motion, repel, target audience, test

Mechanical systems: Pneumatic toys

exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch

Design and Technology Vocabulary



Year 4

Structures: Pavilions

aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, target audience, target customer, texture, theme

Food: Adapting a recipe

adapt, budget, equipment, evaluation, flavour, ingredients, method, net, packaging, prototype, quantity, recipe, target audience, unit of measurement, utilities

Textiles: Fastenings

aesthetic, assemble, book sleeve, design criteria, evaluation, fabric, fastening, mock-up, net, running-stitch, stencil, target audience, target customer, template

Electrical systems: Torches

battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electricity, electronic item, function, insulator, series circuit, switch, test, torch, wire

Mechanical systems: Making a Slingshot car

aesthetic, air resistance, chassis, design, design criteria, function, graphics, kinetic energy, mechanism, net, structure

Design and Technology Vocabulary



Year 5

Food: What could be healthier?

beef, cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe, research, substitute, supermarket, vegan, vegetarian, welfare

Mechanical systems: Making a pop-up book

aesthetic, computer-aided-design (CAD), caption, design, design brief, design criteria, exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template

Textiles: Stuffed toys

accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template

Electrical systems: Electronic greetings cards

battery, buzzer, circuit, component, conductor, copper, design, design criteria, function, graphite, innovative, insulator, LED, modify, parallel circuit, series circuit, switch, target audience, test, wire

Structures: Bridges

abutment, accurate, arched bridge, beam bridge, bridge, compression, coping saw, evaluation, file, forces, mark out, measure, predict, reinforce, research, right-angle, sandpaper, set square, shape, strong structure, suspension bridge, tenon saw, tension, test, truss bridge, weak

Design and Technology Vocabulary



Year 6

Food: Come dine with me

accompaniment, adjective, caption, collaboration, cookbook, cross-contamination, equipment, farm, flavour, illustration, imperative-verb, ingredients, method, nationality, preparation, processed, reared, recipe, research, storyboard, target audience, top-tips, unit of measurement

Mechanical systems: Automata toys

accurate, assembly-diagram, automata, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bits, exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, measure, mechanism, model, research, right-angle, set square, tenon saw

Textiles: Waistcoats

accurate, adapt, annotate, design, design criteria, detail, fabric, fastening, knot, properties, running-stitch, seam, sew, shape, target audience, target customer, template, thread, unique, waistcoat, waterproof

Electrical systems: Steady hand game

assemble, battery, battery pack, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, function, insulator, LED, magnetic field, net, perspective drawing, plan, pliers, prototype, series circuit, side view, steady hand game, switch, symmetrical, target audience, test, top view, wire cutters

Structures: Playgrounds

adapt, apparatus, bench hook, cladding, coping saw, design, dowel, evaluation, feedback, idea, jelutong, landscape, mark out, measure, modify, natural materials, plan view, playground, prototype, reinforce, sketch, strong, structure, tenon saw, texture, user, vice, weak