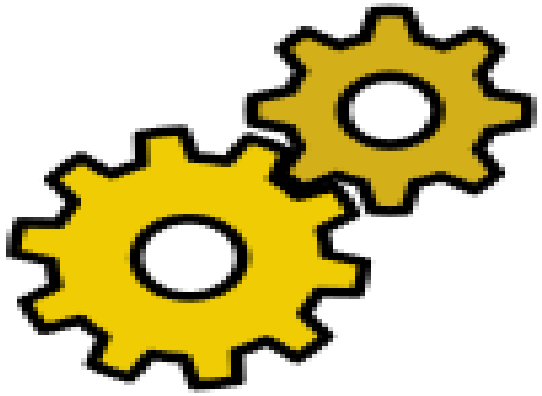
Design and Technology



Subject Definitions

KS1 definition:

Design and Technology is finding out how things work and designing, making and evaluating products including food.

KS2 definition:

Design and Technology is about solving practical and technical problems by investigating, designing, making and evaluating products including food.

Overall, Design and Technology is designing and making something for somebody with some purpose.

Long Term Plan

	Autumn	Spring	Summer
Caterpillars	**Paper craft and junk modelling / Construction kits / Food**		
Butterflies	**Paper craft and junk modelling / Construction kits / Food**		
Reception	**Food** **Gingerbread men**	**Structures** **Vehicle junk modelling**	**Textiles** **Sock puppets**
Year 1	**Mechanisms** **Moving Christmas cards** *(Planbee Year 1 Moving Pictures)*	**Structures** **Free-standing black and white houses** *(Planbee Year 1 Homes)*	**Food** **Fruit kebabs** *(Planbee Year 1 Healthy Snacks)*
Year 2	**Textiles** **Puppets** *(Planbee Year 2 Puppets)*	**Mechanisms** **Moving vehicles** *(Planbee Year 2 Fire Engines)*	**Food** **Pizzas** *(Planbee Year 2 Perfect Pizzas)*
Year 3	**Mechanisms** **Pneumatics** *(Planbee Year 3 Moving monsters)*	**Food** ***Apple flapjack bites*** *(Oak Academy: Year 3 Food Origins: From Food to Fork)*	**Structures** **Boxes** *(Planbee Year 3 Chocolate packaging)*
Year 4	**Electrical Products** **Light-up Christmas cards** *(Planbee Year 4 Light-up Signs)*	**Textiles** **Pencil cases** *(Planbee Year 4 Pencil cases)*	**Food** **Food in Europe: Irish Soda bread or Italian Frittatas** *(Oak Academy Year 4: Cooking for Life or Eatwell Plate)*
Year 5	**Mechanisms** **Cams** *(Planbee Year 5 Moving Toys)*	**Structures** **Bridges** *(Planbee Year 5 Building Bridges)*	**Food** **South American / Mexican food** *(Oak Academy Year 5 Mexican Pockets)*
Year 6	**Textiles** **Bags** **(**Planbee Year 6 Fashion and Textiles)	**Food** **Food of West Asia** *(Planbee Year 6 Food of West Asia)*	**Electrical products** *(Planbee Year 6 Programming Pioneers)*

Progression - Design Process skills and key vocabulary

	Caterpillars	Butterflies	Reception
Designing	• I am beginning to talk about what I am making. • make, build	• I can talk about my ideas and say what I would like to make. • I can draw closed shapes with continuous lines and use these shapes to represent objects. • make, build	• I can name some familiar products. • I can talk about my ideas and say what I would like to make. • I can add some detail to shapes when drawing. • investigate, explore, design, make
Making	• I can freely explore different materials through play. • I am beginning to use my fingers to paint as well as pencils, brushes and other tools with support. • I am beginning to use utensils to eat independently and mix together ingredients. • I can make simple models using my own ideas.	• I am beginning to develop my ideas about how to use different materials and what to make with them. • I can choose from a small range of materials and tools with support. • I am beginning to make snips in paper and card using scissors. • I am beginning to hold a pencil and paintbrush with some control and with a dominant hand. • I am beginning to use utensils with some control to mix together ingredients.	• I can talk about how I could use different materials and what I could make with them. • I can choose from a range of materials with help when needed. • I can select from and use a range of tools and equipment to shape, join and finish products with help when needed. • I am beginning to hold scissors correctly and cut materials safely. • I can hold a pencil and paintbrush correctly with a tripod grip. • I am beginning to use food utensils to assemble food products.
Evaluating	• I am beginning to talk about what I like.	• I am beginning to explore how things work. • I can say what I like about products.	• I am beginning to explore how things work. • I can say what I like about products.

	Year 1	Year 2
Designing	• I can recognise characteristics of familiar products. • I can talk about my ideas and use pictures and words to describe what I want to make. • Investigate, design, make, evaluate	• I can create designs using drawing, templates, mock-ups and where appropriate, software with support. • I can explain what my product is, who it is for and why I am making it. • Investigate, design, make, evaluate, product, user, purpose
Making	• I can choose from a range of materials. • I can select from and use a range of tools and equipment to shape, join and finish products. • I can cut materials safely using the tools provided.	• I can choose from a range of materials and explain why they are being used. • I can select from and use a range of tools and equipment to cut, shape, join and finish products.
Evaluating	• I can explore a range of existing products and designs to identify likes and dislikes. • I can say what I like and dislike about my designs. • I can refine my design as my work progresses.	• I can explain why I like and dislike aspects of existing designs and products. • I can suggest improvements to my work and the work of others. • I can refine my design as my work progresses and give reasons for any changes I make.

	Year 3	Year 4	Year 5	Year 6
Designing	• I can design with purpose and identify the product criteria and intended user. • I can use annotated sketches, diagrams, prototypes and software with increasing independence to design products. • I can complete a plan that shows what equipment and tools I need. • design, make, evaluate, product, user, purpose, function design brief, design criteria, prototype	• I can design with purpose and explain how my design meets the product criteria. • I can use annotated sketches, diagrams, pattern designs and software to design products. • I can complete a plan that shows the order and what equipment and tools I need. • investigate, design, make, evaluate, product, user, purpose, function, design brief, design criteria, prototype, annotated sketch	• I can carry out research, using surveys, interviews or questionnaires to identify the needs, wants, preferences and values of particular individuals or groups. • I can use annotated sketches, prototypes, cross-sectional and exploded diagrams, pattern designs and computer software to design products. • I can produce appropriate lists of tools, equipment and materials that I need and formulate step-by-step plans as a guide to making. • investigate, design, make, evaluate, product, user, purpose, function, research, survey, questionnaire, design brief, design criteria, prototype, annotated sketch, cross-sectional diagram, exploded diagram, pattern designs	• I can carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. • I can develop a simple design specification to guide the development of my ideas and products. • I can identify some of the great designers, inventors, engineers and chefs when generating ideas for my products. • I can use annotated sketches, prototypes, cross-sectional and exploded diagrams and computer software to design products with increasing complexity. • investigate, design, make, evaluate, product, user, purpose, function design brief, design criteria, prototype, annotated sketch, cross-sectional diagram, exploded diagram
Making	• I can explain how I have selected appropriate materials and components to create my product. • I can select appropriate joining techniques.	• I can explain clearly how my choice of materials and components has contributed to my product. • I can choose suitable techniques to construct products or to repair items.	• I can cut materials with precision and refine the finish with appropriate tools. • I can select from a wide range of materials and components	• I can formulate a clear plan, including a step-by-step list of what needs to be done and a list of resources to be used.

	• I can select appropriate tools and cut materials safely and with some accuracy.	• I can cut, join and finish products with some accuracy.	according to their functional properties and aesthetic qualities. • I can choose appropriate tools to cut and shape according to the quality of the material (such as the nature of fabric may require sharper scissors than would be used to cut paper).	• I can competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • I can use finishing and decorative techniques suitable for the product I am designing and making.
Evaluating	• I can investigate and analyse a range of existing products. • I can name a famous designer or chef. • I can refine my design and techniques as my work progresses and give reasons for any changes.	• I can disassemble and analyse a range of existing products. • I am beginning to find out about famous designers and bakers. • I can refine work and techniques as work progresses, continually evaluating the product design.	• I can disassemble products to understand what they are made from and how they work. • I can research famous designers, engineers and bakers/chefs. • I can evaluate my products against their design criteria and consider the views of others to improve my work. • I can make refinements to products and give detailed reasons for my choices.	• I can investigate and evaluate a range of existing products, explaining why materials have been chosen, the methods of construction used, how well they work, and how innovative and sustainable they are. • I can independently research the work of famous designers, inventors, engineers and chefs. • I can critically evaluate my product against the design specification, identify strengths and areas for development and carry out appropriate tests.

Progression - Foundation Stage Knowledge and key vocabulary

	Caterpillars	Butterflies	Reception
Paper craft, junk modelling and fabric design	• I am beginning to build using recyclable materials. • join, stick	• I am beginning to build structures using recyclable materials and know that if they are not strong, they will break. • I am beginning to explore how to cut and shape materials including paper, card and recyclable materials. • I am beginning to join paper and card using glue sticks, glue with a glue spreader and masking tape. • join, stick, glue, shape, cut, strong	• I am beginning to build structures using recyclable materials and can talk about how they can be made stronger. • I am beginning to explore how to cut and shape materials including paper, card, fabric and recyclable materials. • I am beginning to join materials using glue sticks, PVA glue with glue spreaders, masking tape and staples. • material, cut, fold, join, fix, glue, strong, weak
Construction kits	• I am beginning to stack blocks horizontally and vertically. • I know that blocks can be put on top of each other to make different shapes. • I can put objects inside each other and take them out again. • I can make enclosures and spaces with construction and small world equipment. • build, stack, on top of, in out, inside, outside, up, down	• I can make imaginative and complex 'small worlds' with blocks and construction kits. • I can select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. • I can combine shapes to make new ones – an arch, a bigger triangle, etc • I am beginning to explain how to make strong structures such as walls, bridges, furniture or playground equipment using construction. • join, fix, together, strong, shape, tall	• I can make imaginative and complex 'small worlds' with blocks and construction kits. • I can explain how to make strong structures such as walls, bridges, furniture or playground equipment using construction. • join, pull, push, up, down, forwards, backwards, strong
Food	• I know that I need to wash my hands before touching food. • I can taste, choose and assemble ingredients with support. • I can talk about what I like. • food, snack, bowl, spoon, eat, drink, taste, mix, stir	• I can wash my hands properly. • I can taste, choose and assemble ingredients. • I am beginning to make healthy food choices. • some ingredient names, spoon, knife, fork, bowl, sensory vocabulary (hard, soft, crunchy) taste, choose, cut, chop, mix, stir	• I can wash my hands properly. • I can taste, choose and assemble ingredients. • I can talk about healthy food choices. • ingredient names, names of equipment and utensils, sensory vocabulary (hard, soft, crunchy, juicy, sweet), taste, choose, mix, stir, spoon.

Development Matters	**Physical Development** • Develop manipulation and control. * • Explore different materials and tools **Understanding the World:** • Explore materials with different properties. **Expressive Arts and Design:** • 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.	**Personal, Social and Emotional Development:** • Select and use activities and resources, with help when needed. **Physical Development:** • Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors **Understanding the World** . • Explore how things work **Expressive Arts and Design**: • 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, in order 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. Create closed shapes with continuous lines and begin to use these shapes to represent objects.	**Physical Development** • Progress towards a more fluent style of moving, with developing control and grace. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. **Expressive Arts and Design** • 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. **Early Learning Goals:** **Fine Motor Skills** • Use a range of small tools, including scissors, paint brushes and cutlery; • Begin to show accuracy and care when drawing. **Creating with Materials** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function • Share their creations, explaining the process they have used

Progression - Textiles knowledge and key vocabulary

Year 2	Year 4	Year 6
Puppets	**Pencil cases**	**Bags**
• I can join two identical fabric shapes or templates together to create a puppet. • I can thread a needle with support. • I can sew and join fabric using a running stitch. • I can colour and decorate textiles using a number of techniques. • Sock puppet, hand puppet, finger puppet, marionette, textiles, fabric, template, join, glue, staple, sew, thread, needle, pin, running stitch, over stitch, decorate, finish	• I can practise sewing using running stitch, back stitch and whipstitch and select when each technique is required. • I can investigate how different fasteners such as buttons and poppers can be attached. • I understand the need for patterns and a seam allowance. • I can join fabric with appropriate stitching. • I can select the most appropriate techniques to decorate textiles. • textiles, fabric, template, pattern, sew, stitch, running stitch, back stitch, whipstitch, seam, seam allowance, finishing technique, appliqué, embroidery	• I will draw pattern pieces with a seam. • I will measure, mark and cut fabric. • I will join fabric pieces by hand sewing with a combination of stitching techniques • I can sew a hem and add design details. • name of textiles and fastenings used (button, popper, zip, velcro), pins, needles, thread, pinking shears, seam, seam allowance, hem, right side, wrong side, template, mock up, pattern pieces, drawstring, aesthetics, appliqué, fray

Progression - Mechanisms knowledge and key vocabulary

Year 1	Year 2	Year 3	Year 5
Moving pictures : Christmas cards	**Moving Vehicles**	**Pneumatics: Moving monsters**	**Moving toys: Cams**
• I can create moving pictures using sliders and levers. • I can explain how sliders and levers move. • I know that sliders move along a straight line and are not fixed. • I know that levers are fixed by a pivot or paper fastener. • mechanism, slider, lever, pivot, slot, pivoting point, wheel, card, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards	• I can create a moving vehicle using wheels and axles. • I can explain how wheels, axles and axle holders can be fixed. • mechanism, vehicle, wheel, axle, axle holder, chassis, body, cab, assemble, cut, join, shape, finish, fixed, free, moving, names of tools, equipment and materials used	• I can create a pneumatic system using a syringe and a balloon.. • I know that pneumatic systems use air pressure to make things move. • I know that air can be pushed through tubing using a syringe or pump. • I notice that when air pressure changes, parts can push, pull, lift or move. • I know that pneumatic systems need airtight joins to work properly • mechanism, pneumatic, air pressure, syringe, tubing, drinking straw, card, burger box.	• I can create a moving toy using a cam mechanism. • I can explain how cams can produce different types of movement and change the direction of movement. • cam, (snail cam, off-centre cam, peg cam, pear shaped cam), follower, axle, shaft, crank, handle, spacer, rotation, (rotary motion, linear motion, oscillating motion, reciprocating motion)

Progression - Structures knowledge and key vocabulary

Year 1	Year 3	Year 5
Free-standing black and white houses	**Boxes**	**Bridges**
• I can build structures and investigate how they can be made stronger, stiffer and more stable. • I can join and shape materials (using glue and hinges). • structure, frame, weak, strong, rigid, stable, base, interior, exterior, material, cut, fold, join, fix, strengthen, secure.	• I can make the nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • I can strengthen materials using suitable techniques to create strong, stiff shell structures. • packaging, design, consumer, target audience, design, success criteria, research, structure, shell structure, three-dimensional (3-D) shape, net, marking out, scoring, folding, tabs, accuracy, strengthen, (layering, laminating, corrugating, ribbing), font, CAD (computer aided design),	• I can join paper straws and card to make frame structures. • I understand how to strengthen, stiffen and reinforce frame structures. • beam, pillar, deck, parapet, load, span, support, strengthen, reinforce, joint, stable, truss, arch, compression, suspension, rigid, foundation, horizontal, diagonal, vertical, prototype

Progression - Food knowledge and key vocabulary

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fruit kebabs	**Pizzas**	**Flapjacks**	**Bread (or Italian frittatas)**	**Mexican Pockets**	**Food of West Asia**
• I understand where food comes from. • I understand how to wash my hands properly. • I can cut, peel or grate ingredients safely. • I can taste, select and assemble ingredients. • fruit and vegetable names, names of equipment and utensils, sensory vocabulary (juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard), flesh, skin, seed, pip, core, ingredients, Rainbow diet, bridge hold, claw grip, slice, peel, cut, squeeze, appearance, taste, texture, choose, arrange, popular.	• I understand what a healthy and varied diet is. • I can name and sort familiar foods using the Eatwell Plate. • I can select and assemble ingredients safely and hygienically with support. • ingredient names, names of equipment and utensils, taste, texture, flavour, sensory vocabulary (juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard), ingredients, balanced diet, Eatwell Plate, hygiene, bridge hold, claw grip, cut, slice, peel, grate, squeeze, sauce, base, cheese, topping, choose, arrange, popular.	• I can name and locate food from the UK. • I can taste ingredients and explain preferences using a developing food vocabulary. • I can explain which ingredients are fresh, processed, grown, reared or caught. • I can select and assemble ingredients safely and hygienically using appropriate utensils. • produce, process, fresh, local, grow, rear, catch, traditional food, food cuisine, global foods, names of equipment, utensils, techniques and ingredients, texture, taste, sweet, sour, hot, spicy, savoury, appearance, smell, hygienic seasonal, harvested, balanced diet, food group	• I can select and assemble ingredients hygienically using appropriate utensils. • I can follow a recipe • I can measure and weigh ingredients appropriately. • ingredients, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble	• I understand what seasonality is and know how a variety of ingredients are grown, reared, caught and processed. • I can join and combine ingredients appropriately to create seasonal dishes. • I can create and refine recipes. • modify, measure, grate, dice, slice, claw grip, bridge hold, fold, portion,	• I understand what seasonality is • I can join and combine ingredients appropriately to create seasonal dishes • I can demonstrate a range of preparation and cooking techniques to create savoury dishes. • I can create and refine recipes • ingredients, seasonality, utensils, combine

Progression - Electrical systems knowledge and key vocabulary

Year 4	Year 6
Light-up Christmas cards	**Electrical products**
• I can create series and parallel circuits. • I can use a circuit in my product and incorporate a bulb and switch. • circuit, switch, current, short circuit, battery/cell,/bulb, LED, battery holder, wire, switch, input/ output device, conductor, insulator, connection, crocodile clip.	• I can create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips). • series circuit, parallel circuit, push-to-break/make switches, reed switch, tilt switch, toggle switch, input/ output devices, control boxes, timed systems, monitoring systems, micro-switch, light dependent resister (LDR), monitor, control, program, flowchart