

Design and Technology
THOSE WHO CAN IMAGINE ANYTHING, CAN CREATE THE IMPOSSIBLE
 – Alan Turing –

Curriculum Drivers:

Personal – our world - context – society
Originality – oracy – adventure – risk – aspiration – creativity
Well-being – mental and physical – meta cognitive – learning powers
Environment and Nature – environment – sustainability
Real – Here and Now - current affairs – topical

Knowledge (SL)

Skills (SL)

Context (Teacher)

What should all pupils know having been to Akrotiri School? (SL and Teacher)

Year 1	Design	<ul style="list-style-type: none"> -with support, design a product for self or somebody else -check design to see if it does what it needs to do -with support, model design ideas with kits and 'junk' materials (E.g. K'nex or Lego) -use simple labelled drawings to communicate ideas -add some sentences to drawings to communicate ideas and actions needed -use my imagination in design 	•
	Make	<ul style="list-style-type: none"> -use a range of tools safely -cut a strip of wood with support -use a hand drill to drill holes in wood with support -use a hammer safely to attach an item -assemble, combine, and join different materials appropriately e.g. glue, tape, paper clips and paper fasteners -create hinges -make a sliding and moving mechanism -colour fabrics using crayons and paint. -cut out shapes with curves and straight lines accurately with scissors. -decorate fabrics with buttons, beads, sequins, braids, ribbons -use a running stitch to join two pieces of material 	
	Evaluate	<ul style="list-style-type: none"> -with support, explore and evaluate a range of existing products (design stage) -with support, make changes to original design to improve it -with support, explain what has been made, how it works and why certain choices made -with support, review product against design criteria agreed earlier and talk about it. -say what is liked and not liked about items made and attempt to say why. 	
	Technical knowledge	<ul style="list-style-type: none"> -with help, build structures, exploring how they can be made stronger, stiffer, and more stable -with support, use some simple mechanisms: [for example, levers, sliders, wheels, and axles - depends on what you are making], in their products. 	
	Cooking and Nutrition	<ul style="list-style-type: none"> -suggest different healthy foods when we plan and prepare food dishes. (without a heat source) -understand the importance/routine of washing hands before handling food -chop, mix, and grate fruit and vegetables. -measure and weigh food items using non-standard measures e.g. spoons, cups -say where some foods come from. 	

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Year 2	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	-with support, design a purposeful, functional, appealing product. (what the product must do to be successful) -design an item for self and other users (based on class criteria agreed together) -follow design criteria (agreed as a class) -model design ideas, including 'mock-ups' with kits and 'junk' materials (E.g. K'nex or Lego) -use labelled drawings to communicate ideas as they are developed. -add written notes to drawings to help explanations using some supplied technical vocabulary -use a template in design -use imagination in design	
	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	-measure and cut a strip of wood/dowel using hacksaw and bench hook -use a hand drill to drill holes in wood -use a hammer accurately and safely to attach two pieces of wood. -investigate strengthening sheet materials -investigate joining: temporary, fixed and moving -colour fabrics using a range of techniques e.g. fabric paints, printing, painting -cut out shapes which have been created by drawing round a template onto the fabric -apply fabric joining techniques e.g. using running stitch, glue, staples, over sewing, tape -follow a design to decorate fabrics with buttons, beads, sequins, braids, ribbons.	
	Evaluate -explore and evaluate a range of existing products -evaluate their ideas and products against design criteria	-explore and evaluate a range of existing products -make some changes to original design when necessary (design problem) and explain why -plan next steps based on previous experience of working with components -evaluate ideas and products against design criteria agreed earlier (similarities and differences) -say what I like and do not like about items I have made and attempt to say why -describe why a well designed product is important	
	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.	-with help build structures, exploring how they can be made stronger, stiffer and more stable -use simple mechanisms [for example, levers, sliders, wheels, and axles - depends on what you are making], in their products.	
	Cooking and Nutrition -use the basic principles of a healthy and varied diet to prepare dishes -understand where food comes from.	-apply knowledge of healthy eating and nutrition when preparing food dishes (without a heat source) -prepare food safely and hygienically -chop, mix, grate and spread independently -state that all food comes from plants or animals and that food has to be farmed, grown elsewhere, or caught (through discussion or sketching etc)	

Overarching Principles...Honesty Empathy Aspiration Respect Teamwork

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Year 3	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	-describe how products are fit for their purpose -begin to explain how particular parts of own products work -with support, gather information about the needs and wants of particular individuals and groups -with support, develop own design criteria and use these to inform ideas -with support, use annotated designs to communicate ideas, -with support, communicate ideas through computer aided design -with support, make design decisions that take account of the availability of resources	•
	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	-with support, select from and use, a range of materials and components according to their functional and aesthetic qualities -with support, use mechanical systems, including incorporating pneumatics into design -with support, make strengthened and reinforced structures, e.g. using diagonal struts -make basic strong and stable structures -test for strength and stability -with support, measure and mark out materials with care -cut slots -with support, make levers and linkages, e.g. using lolly sticks or card -with support, use linkages to make movement larger or more varied. -with support, join fabrics using running stitch, over sewing, back stitch. -understand the need for patterns	
	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	-with support, investigate and analyse a range of existing products -begin to evaluate ideas and products against design criteria, saying what went well and what needs to be improved -consider the views of others to improve my work -begin to 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.	-begin to use learning from mathematics to help design and make products that work, e.g. measuring using a variety of equipment -recognise that materials have both functional properties and aesthetic qualities -recognise that materials can be combined and mixed to create more useful characteristics -begin to understand some mechanical systems and use them in own products [for example: pulleys, levers, and linkages] -with support, apply understanding of how to strengthen, stiffen and reinforce simple structures -with support, recognise that mechanical and electrical systems have an input, process, and output -recognise the correct technical vocabulary for the projects being undertaken -with support, apply use of computing to program, monitor and control my products -with support, use a range of tools independently	
	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.	-analyse the taste, texture, feel, smell, and appearance of a range of foods using sensory vocabulary -begin to use a variety of techniques, e.g. peel, slice, knead and bake. -recognise that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in The Eatwell plate -with support, prepare and cook a range of predominantly savoury (Greek?) food dishes, including those which require the use of heat sources -begin to demonstrate the importance of working safely and hygienically -explain how seasons may affect the food available	

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Year 4

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

-describe the purpose of own products
 -explain how particular parts of own products work.
 -indicate some of the design features of my product that will appeal to intended users.
 -gather information about the needs and wants of particular individuals and groups.
 -develop own design criteria and use these to inform ideas.
 -with support, model ideas using prototypes
 -use annotated designs to communicate ideas
 -with support, communicate ideas through cross-sectional drawings
 -communicate ideas through computer aided design
 -with support, generate realistic ideas, focusing on the needs of the user
 -make design decisions that take account of the availability of resources

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

-select from and use a range of materials and components according to their functional and aesthetic qualities
 -incorporate a series circuit with a bulb and a switch into a product
 -make and test frame and shell structures for strength and stability
 -make strong and stable structures, e.g. by giving them a wide base
 -measure and mark out materials accurately to 1cm
 -with support, explore complex pop ups
 -cut internal shapes, e.g. cut a circle out of the centre of a piece of card.
 -with support, create nets, e.g. making boxes to use as food containers
 -with support, explore fastenings and recreate some e.g. sew on buttons and make loops
 -use appropriate decoration techniques e.g. appliqué (glued or simple stitches),
 -with support, begin to create a simple pattern

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

-investigate and analyse a range of existing products
 -evaluate ideas and products against design criteria, explaining what went well and what needs to be improved
 the views of others to improve work and act on advice
 -recognise 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.

-begin to apply scientific knowledge to help design and make products that work, e.g. knowledge of materials
 -use some learning from mathematics to help design and make products that work, e.g. measuring using a variety of equipment
 -recognise that materials have both functional properties and aesthetic qualities
 -recognise that materials can be combined and mixed to create more useful characteristics
 -use simple mechanical systems in products [for example, gears, pulleys, and levers]
 -demonstrate how simple electrical circuits and components can be used to create functional products
 -apply understanding of how to strengthen, stiffen and reinforce more complex structures
 -describe a mechanical and electrical system with an input, process, and output
 -use the correct technical vocabulary for the projects they are undertaking
 -with support, apply understanding of computing to program, monitor and control products.
 -use a range of tools

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.

-with support, use a variety of techniques, e.g. peel, slice, knead and bake.
 -describe a healthy diet which is made up from a variety and balance of different foods and drinks, (as depicted in The Eat well plate)
 -create, plan, prepare and cook a range of predominantly savoury food dishes, including those which require the use of heat sources.
 -work safely and hygienically
 -describe where and how ingredients used in own recipe are grown reared, caught, and processes

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Year 5

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

through brain storming, develop a clear idea of the purpose of the product, planning how to use materials, equipment, and processes
 -explain how most of the parts in own products work
 -suggest alternative methods if the first attempts fail
 -indicate the specific design features of own product that will appeal to intended users
 -develop own design specification and use this to inform ideas.
 -with support, communicate ideas through exploded diagrams
 -model simple ideas using prototypes
 -use annotated designs to communicate ideas
 -with support, communicate my ideas through cross-sectional drawings
 -communicate ideas through computer aided design
 -generate realistic ideas, focusing on the needs of the user
 -make some design decisions that take account of the availability of resources
 -with support, begin to show how to develop product, e.g. through a flow chart, instructions

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

-select appropriate materials, tools, and techniques
 -begin to measure and mark out accurately to nearest 1cm and explain importance of accuracy
 -begin to use skills with different tools and equipment accurately
 -with some support, create an electrical circuit including a bulb, sound, and a switch
 -use my knowledge of stable structures when making product
 -use complex pop ups
 -create nets, e.g.: making food packages
 -use appropriate decoration techniques
 -can create a simple pattern for own project use

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

-evaluate a product and its component ingredients and relate this to the original design specification if available
 -evaluate own ideas and products in detail, explaining what went well and what needs further improvement
 -consider the views of others to improve my work
 -demonstrate understanding of 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.

-apply scientific knowledge to help design and make products that work, e.g. knowledge of materials
 -use learning from mathematics to help design and make products that work, e.g. measuring using a variety of equipment
 -consider materials for both functional properties and aesthetic qualities and begin to justify choice
 -demonstrate that materials can be combined and mixed to create more useful characteristics
 -use mechanical systems in products [for example, gears, pulleys, and levers]
 -demonstrate how simple series circuits and components can be used to create functional products
 -apply understanding of how to strengthen, stiffen and reinforce more complex structures
 -recognise that mechanical and electrical systems have an input, process, and output
 -use the correct technical vocabulary for the projects they are undertaking
 -apply understanding of computing to program, monitor and control products.
 -use a range of tools independently

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.

-use a variety of techniques, e.g. peel, slice, knead and bake.
 -describe a healthy diet made up from a variety and balance of different foods and drinks, (as depicted in The Eat well plate)
 -I can create, plan, prepare and cook a range of predominantly savoury food dishes, including those which require the use of heat sources.
 -work safely and hygienically
 -Describe where and how a variety of ingredients are grown reared, caught, and processed.

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Year 6

<p>Design</p> <ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> through brainstorming generate, develop, and model ideas to explain the purpose of product -explain how all parts of product work -gather information about the needs and wants of particular individuals and groups -indicate the design features of product that will appeal to intended users -develop own design specification; demonstrating innovation, appeal and function which are fit for purpose -communicate my product ideas through exploded diagrams -model my ideas in detail using prototypes -use annotated sketches to communicate my ideas -communicate my product ideas through cross-sectional drawings -communicate my product ideas through pattern pieces -communicate my product ideas through computer aided design -use research to generate realistic product ideas, focusing on the needs of the user -make design decisions that take account of the availability of resources. show how I plan to make my product, e.g. through a flow chart, instructions
<p>Make</p> <ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> -select from and use a wider range of materials and components according to their functional and aesthetic qualities -incorporate an electrical circuit including bulb, switch, sound and movement. -skilfully use knowledge of stable structures when making my product justifying choices -measure and mark out materials accurately in m, cm and mm -use and explore complex pop ups -create increasingly complex nets, e.g. making boxes to use as sweet containers -explore fastenings and recreate some e.g. sew on buttons and make loops -creatively use appropriate decoration techniques e.g. appliqué (glued or simple stitches), -understand the need for patterns and create a complex pattern
<p>Evaluate</p> <ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> -investigate and analyse a range of existing products and explain the form and function of familiar existing products -evaluate ideas and products, seeking advice from others, explaining what went well and what needs further improvement and refinement -record evaluations and act upon the views of others to improve work -demonstrate a sound understanding how key events and individuals in design and technology have helped shape the world
<p>Technical knowledge</p> <ul style="list-style-type: none"> -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. 	<ul style="list-style-type: none"> -apply scientific knowledge to help design and make products that work, e.g. knowledge of materials -use learning from mathematics and science to help design and make products that work, e.g. measuring using a variety of equipment -consider materials for both functional properties and aesthetic qualities and to justify thoughtful choice -combine and mix materials to create more useful characteristics to meet the design criteria -understand and effectively use mechanical systems in products [for example, gears, pulleys, cams, levers, and linkages] -demonstrate how complex electrical circuits and components can be used to create functional products -consistently apply understanding of how to strengthen, stiffen and reinforce more complex structures in products -demonstrate how simple series circuits and components can be used to create functional products -use the correct technical vocabulary for the projects I undertake -effectively apply m understanding of computing to program, monitor and control my products. -use a range of tools independently and to good effect.
<p>Cooking and Nutrition</p> <ul style="list-style-type: none"> -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. 	<ul style="list-style-type: none"> -understand and use a variety of techniques in different food processes, e.g. peel, slice, grate, knead and bake. -describe and understand that a healthy diet is made up from a variety and balance of different foods and drinks, (as depicted in The Eat well plate) -create, plan, prepare and cook a range of predominantly savoury food dishes, including those which require the use of heat sources. -consistently work safely and hygienically -Describe where and how a variety of ingredients are grown reared, caught, and processed.

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