



Five Stones Learning Federation

Design and Technology LTP Overview - Cycle A

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Ingredients	Textiles	Joining Materials	Mechanisms	Structures	Woodwork
Year 1/2	Mechanisms: Making Cards (levers and sliders)		Textiles: Puppets		Structures: Bridges - Beam Design	
Year 3/4	Materials: Textiles Design and make pillow case		Structures: Towers		Mechanism - Lighthouse Circuits and pulleys (Link to Lighthouse Keepers lunch)	
Year 5/6	Structures: Bridges (strength and aesthetics) Draw Bridge		Mechanisms: Fairgrounds		Ingredients: Food Celebration cakes	



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Design and Technology LTP Overview - Cycle B

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Ingredients	Textiles	Joining Materials	Mechanisms	Structures	Woodwork
Year 1/2	Materials: Vehicles		Structures: Towers		Ingredients: Food -Picnic	
Year 3/4	Mechanisms: Vehicles - Pneumatic balloon powered		Structures: Bridges Truss Bridge		Ingredients: Food Pizza/cakes	
Year 5/6	Mechanisms: Wind Turbines		Structures: Bird House/Bug Hotel		Materials: Textiles Design and make a bag	

EYFS - Aims

- To develop children's design and technical skill ability, in order to create for a purpose.
- To provide frequent opportunities for children to see and participate in design and technology.

EYFS - Content

Pupils should be taught:

- Use a range of materials, tools and techniques, experimenting with design, texture, form and function.
- To share their creations, explaining the process they have used.
- Create and make use of props and materials.

Each element of design and technology below will be explored across all terms through provision areas. In addition to this one specific element will be explored each term in greater detail.

Opportunity across the year will be given for children to experience and talk about their creations using the following techniques.

<p>Ingredients. (Autumn 1)</p> <ul style="list-style-type: none"> • Use a variety of ingredients for baking. • Collecting apples and brambles for crumble. • Bread making. Little Red Hen • Chopping vegetables and making soup for Harvest soup share. <p>Cooking: Chop, cut, peel, mash, sieve, stir, bake, roll, knead.</p>	<p>Joining materials. (Spring 1)</p> <ul style="list-style-type: none"> • Exploring a range of ways to join materials. • Chinese New Year, dragon props and puppets. • Evaluate strength and durability. • Joining heavy and light materials. <p>Joining: Cut, stick, join, attach, connect, glue, tie.</p>	<p>Structures. (Summer 1)</p> <ul style="list-style-type: none"> • Test a range of materials for strength. • Building a strong bridge, and evaluate. Billy Goats Gruff • Den building, outdoors. • Making bird feeders and shelters. <p>Building: Strong, heavy, solid, cover, shelter, weather proof</p>
<p>Textiles. (Autumn 2)</p> <ul style="list-style-type: none"> • Using a variety of textiles to make Nativity costumes or props. • Natural/ man made textiles. • Sewing and stitching fabric and felt. • Weaving and plaiting fabrics. <p>Textiles: Scissors, needles, thread, buttons, stitch, sew, tie.</p>	<p>Mechanisms. (Spring 2)</p> <ul style="list-style-type: none"> • Experimenting with split pins to create moving objects. • Moving chicks. Chicken Licken • Wind-up toys with elastic bands. (Boats, link to testing materials, waterproof) • Making Mother's Day and Easter cards. • Moving pictures. <p>Mechanisms: Slide, fold, pull, twist, tight, press, pin.</p>	<p>Woodwork (Summer 2)</p> <ul style="list-style-type: none"> • Balsa wood and panel pins, to make wind chimes. • Range of suitable materials to create sound. • Hammering and protective equipment. <p>Woodwork: Hit, chop, saw, hold, tie, glue, pin</p>



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KS1 Design and Technology Long Term Plan

KS1 - Aims

- The national curriculum for design and technology aims to ensure that all pupils:
- develop the creative, technical and practical expertise needed to perform everyday
- tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design
- and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others

KS1 - Content

Pupils should be taught:

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.

Autumn	Spring	Summer
<p>Mechanisms - Making cards with levers (Y2) and sliders (Y1).</p> <ul style="list-style-type: none"> Design Make Test Evaluate 	<p>Textiles - Puppets</p> <ul style="list-style-type: none"> Design Make Test Evaluate 	<p>Structures - Bridges - beam bridge</p> <ul style="list-style-type: none"> Design Make Test Evaluate
Key Vocabulary	Key Vocabulary	Key Vocabulary
Design, Plan, test, pin, stick, join, connect, materials, tools, equipment, function, lever, slider, fold, template, design criteria, decorate, split pin, product.	Appearance, design, Equipment, Evaluation, texture, textile, materials, function, proportion, felt, sew, running stitch, hot glue gun, decoration, template, product.	Brittle, Design, diagram, structure, engineering, flexible, strong, strength, via duct, pedestrian bridge, beam bridge, crossing, mock up, design criteria, product.
Suggested Texts	Suggested Texts	Suggested Texts
<ul style="list-style-type: none"> Make Your Own Greeting Cards by Steve Biddle & Megumi Biddle (NF) <p>https://www.redtedart.com/20-card-making-ideas-for-kids/ https://www.science-sparks.com/mechanisms-pop-up-cards/</p> <p>https://www.stem.org.uk/resources/collection/2892/designing-key-stage-one https://www.bbc.co.uk/bitesize/subjects/zb9d7ty</p>	<ul style="list-style-type: none"> Easy to Make Puppets (ladybird) by Alan Stockwell & Brenda Stockwell (NF) How to Make a Sock Puppet (Collins Big Cat) by Jillian Powell & Steve Lumb (NF) Art Attack": How to Make Puppets by Karen Brown (NF) EASY TO MAKE PUPPETS AND HOW TO USE THEM by ROTTMAN FRAN (NF) The Ultimate Sock Puppet Book: Clever Tips, Tricks, and Techniques for Creating Imaginative Sock Puppets Paperback - by Tiger Kandel & Heather Schloss (NF) <p>https://artfulparent.com/hand-puppets-for-kids/</p> <p>https://www.kidspot.com.au/things-to-do/activity-articles/5-fun-puppets-to-make/news-story/829c3a6fd8d81aad4449bc335d8c140e</p> <p>https://www.accessart.org.uk/fingerpuppets/</p>	<ul style="list-style-type: none"> The Tower Bridge Cat and The Baby Whale Paperback - by Tee Dobinson & Steve Cox (F) Brilliant Bridges: (Collins Big Cat) Paperback - by Kay Barnham & Laszlo Veres (NF) Building Bridges (Young Engineers) by Tammy Enz (NF) Building Strong Bridges (Fun Stem Challenges) - by Marne Ventura (NF) Secret Engineer: How Emily Roebling Built the Brooklyn Bridge Hardcover - by Rachel Dougherty (NF) <p>https://easyscienceforkids.com/all-about-bridges/ https://kids.kiddle.co/Bridge https://www.youtube.com/watch?v=oVOnRPefcno (What makes bridges so strong?) https://kids.britannica.com/kids/article/bridge/352881 https://www.stem.org.uk/resources/community/collection/285271/structures</p> <p>https://www.twinkl.co.uk/resource/t2-d-068-structures-lesson-teaching-pack</p>
Autumn	Spring	Summer
Art	Art	Art
Aims and focused content:		
<ul style="list-style-type: none"> Design Make Test Evaluate 		<ul style="list-style-type: none"> Equipment - making appropriate selections Develop key skills - cutting, shaping, joining and finishing Use of ICT

- Technical Knowledge - mechanisms, improving structures



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Design and Technology LTP Year 1/2 - Cycle B



Autumn	Spring	Summer
<p>Mechanisms - Vehicles</p> <ul style="list-style-type: none"> • Design • Make • Test • Evaluate 	<p>Structures - Towers</p> <ul style="list-style-type: none"> • Design • Make • Test • Evaluate 	<p>Ingredients - Food / Picnic food.</p> <ul style="list-style-type: none"> • Food and nutrition • Make
<p>Key Vocabulary</p> <p>Template, measure, mark out, assemble, build, combine, evaluate, design, research, process, design criteria, wheel, axel, axel holder, mechanism, chassis, body, cab.</p>	<p>Key Vocabulary</p> <p>Materials, free standing structure, construct, strength, strong, base, wall, brick, cubes, triangles, structure, framework.</p>	<p>Key Vocabulary</p> <p>Equipment, cutting, heat source, prepare, slice, weigh, ingredients, hygiene, picnic food, healthy foods, spread, mix, combine, peel, cut, core, dairy, vegetables, fruits, meat, water, 'five a day', grate.</p>
<p>Suggested Texts</p> <ul style="list-style-type: none"> • Draw 50 Cars, Trucks, and Motorcycles by Lee J. Ames • Rigby PM Collection: Bookroom Package Orange Level 16 Grades 1-2 How to Make a Racing Car by Houghton Mifflin Harcourt • How to Build Brick Cars: Detailed LEGO Designs for Sports Cars, Race Cars, and Muscle Cars by Peter Blackert <p>https://www.teachitprimary.co.uk/resources/y3/designing-and-making/how-to-make-a-simple-moving-vehicle/19556</p> <p>https://www.twinkl.co.uk/resource/ks1-making-a-toy-car-instructions-t-d-69</p> <p>https://www.stem.org.uk/resources/community/collection/279027/get-moving</p>	<p>Suggested Texts</p> <ul style="list-style-type: none"> • The Tower Bridge Cat and The Baby Whale Paperback - Tee Dobinson & Steve Cox (F) • Terrible True Tales from the Tower of London: Sarah Kilby & Peter Cottrill (F) • Super Structures Hardcover - Ian Graham & Ian Murray (NF) <p>http://www.sciencekids.co.nz/sciencefacts/engineering/eiffeltower.html</p> <p>https://www.stem.org.uk/resources/elibrary/resource/34191/spaghetti-towers</p> <p>https://www.pinterest.co.uk/pin/25684660352676026/</p> <p>https://www.twinkl.co.uk/resource/ni-t-16-tallest-tower-challenge-powerpoint</p> <p>https://www.planbee.com/design-technology/dt-programmes-of-study/structures</p>	<p>Suggested Texts</p> <ul style="list-style-type: none"> • Food Network Magazine The Big, Fun Kids Cookbook Sampler: 150+ Recipes for Young Chefs - Maile Carpenter (NF) • Let's Party! Kids Cookbook: Tasty Recipes Kids Will Love to Make, Eat, and Share Paperback - by Ashley Moulton (NF) • Cooking Class Spiral-bound - by Deanna Cook, F.(NF) • Gruffalo Crumble and Other Recipes Hardcover - Julia Donaldson & Axel Scheffler (NF) <p>https://www.kids-cooking-activities.com/</p> <p>https://www.thekidscookeryschool.co.uk/</p> <p>https://www.deliciousmagazine.co.uk/kids-cookery-classes/</p> <p>https://www.bbc.co.uk/bitesize/topics/zpvycdm</p>
<p>Autumn</p> <p>Art</p>	<p>Spring</p> <p>Art</p>	<p>Summer</p> <p>Art</p>
<p>Aims and focused content:</p>		

- Design
- Make
- Test
- Evaluate
- Technical Knowledge - mechanisms, improving structures

- Equipment - making appropriate selections
- Develop key skills - cutting, shaping, joining and finishing
- Use of ICT



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Design and Technology Long Term Plan KS2



KS2 - Aims

- The national curriculum for design and technology aims to ensure that all pupils:
- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others

KS2 - Content

Pupils should be taught:

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



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Design and Technology LTP Year 3/4 - Cycle A



Autumn	Spring	Summer
<p>Materials - Textiles - Design and make a pillow case.</p> <ul style="list-style-type: none"> • Design • Make • Test • Evaluate 	<p>Structures - Towers</p> <ul style="list-style-type: none"> • Design • Make • Test • Evaluate 	<p>Mechanisms - Lighthouse - adding circuit and pulley (Linked to Lighthouse Keepers lunch)</p> <ul style="list-style-type: none"> • Design • Make • Test • Evaluate
Key Vocabulary	Key Vocabulary	Key Vocabulary
<i>Initial design, stitching, sketch, adhesive, design brief, design process, modify, annotate, prototype, pattern piece, basting stitch, running stitch, pillowcase, textile, cotton, needle, thread, technique.</i>	<i>Design brief, Design process, practicality, annotations, prototype, framework, construction kit, hardwood, style, stability, cross-section, product, assemble, square based pyramid, free standing, narrow, wide, tetrahedron, evaluate, test.</i>	<i>Electric circuit, crocodile clip, wire, pulley, Design brief, design process, mechanism, specification, cross-sectional diagram, finishing techniques, electrical circuit, battery, conductor, insulator, crocodile clip, light bulb, switch.</i>
Suggested Texts	Suggested Texts	Suggested Texts
<ul style="list-style-type: none"> • Creative Textiles Projects for Children Paperback - Karen Woods (NF) • Textile Crafts (Craft Attack!) Annalees Lim (NF) • Sewing for Kids: 30 Fun Projects to Hand and Machine Sew Paperback - Alexa Ward (NF) • Sewing School: 21 Sewing Projects Kids Will Love to Make - Amie Plumley & Andria Lisle (NF) <p>https://www.sewcanshe.com/blog/sewing-projects-for-kids</p>	<ul style="list-style-type: none"> • Iggy Peck, Architect: Andrea Beaty & David Roberts (NF) • See Inside Bridges, Towers and Tunnels: 1 Board book - Struan Reid & Annie Carbo (NF) <p>http://www.sciencekids.co.nz/sciencefacts/engineering/effeltower.html</p> <p>https://www.stem.org.uk/resources/elibrary/resource/34191/spaghetti-towers</p> <p>https://www.pinterest.co.uk/pin/25684660352676026/</p> <p>https://www.stem.org.uk/resources/community/collection/285271/structures</p> <p>https://www.stem.org.uk/resources/community/collection/285271/structures</p> <p>https://www.twinkl.co.uk/resource/t2-d-068-structures-lesson-teaching-pack</p>	<ul style="list-style-type: none"> • The Lighthouse Keeper's Lunch by Ronda Armitage & David Armitage. • Hello Lighthouse Kindle Edition by Sophie Blackall - Kindle Edition • Electronics for Kids: Play with Simple Circuits and Experiment with Electricity! Kindle Edition by Oyvind Nydal Dahl • Charging About: The Story of Electricity (Science Works) Paperback -by Jacqui Bailey (Author) <p>https://wiki.kidzsearch.com/wiki/Lighthouse</p> <p>https://www.bbc.co.uk/bitesize/topics/zq99q6f/resources/1</p>

https://www.risingstars-uk.com/media/Rising-Stars/Series%20Images/Series%20baners/Switched-on-D-T-sample_1.pdf https://www.bbc.co.uk/bitesize/topics/zkwxnb https://www.twinkl.co.uk/resources/key-stage2-ks2/ks2-subjects/ks2-design-and-technology		https://www.sciencekids.co.nz/gamesactivities/electricitycircuits.html https://www.theschoolrun.com/what-is-electricity https://www.dkfindout.com/uk/science/simple-machines/pulleys/ https://www.youtube.com/watch?v=LiBcur1aqcg
Autumn	Spring	Summer
Art	Art	Art
Aims and focused content:		
<ul style="list-style-type: none"> Design - Research functionality, appeal and purpose. Communicate ideas and develop prototypes using CAD. Make - Select materials, recognising functional and aesthetic properties. Test Evaluate - analyse current product and own ideas against a design criterion. Technical Knowledge - mechanisms, improving complex structures, use mechanical systems i.e. gears, pulleys, cams levers and linkages Use electrical systems <ul style="list-style-type: none"> Equipment - making appropriate selections Develop key skills - cutting, shaping, joining and finishing Use of ICT Recognise how events and individuals have influenced the world. 		



Five Stones Learning Federation

Design and Technology LTP Year 3/4 - Cycle B



Autumn	Spring	Summer
Mechanisms - Vehicles (pneumatic - balloon powered) <ul style="list-style-type: none"> Design Make Test Evaluate 	Structures - Bridges Truss Bridge. Strength and size <ul style="list-style-type: none"> Design Make Test Evaluate 	Ingredients - Food / Pizza and cakes <ul style="list-style-type: none"> Principles of a varied healthy diet Research seasonality and where food comes from Prepare Make
Key Vocabulary	Key Vocabulary	Key Vocabulary
<i>Design brief, design process, mechanism, specification, scale, axles, chassis, cross-sectional diagram, vehicle features, prototypes, accuracy, finishing techniques, motion, pneumatic,</i>	<i>structure, tension, strong, strengthen, stiffen, reinforce, engineer, design brief, performance, beam bridge, truss bridge, cross-sectional diagram, sketching, prototype, product.</i>	<i>Market research, method, preparation, baking sheet, chopping, balanced diet, grill, bake, taste test, chopping board, allergy, peel, cut, slice, knead, appealing, hygiene, pre-cooked, fresh, processed, energy, 'The Eat Well Plate'.</i>
Suggested Texts	Suggested Texts	Suggested Texts

<ul style="list-style-type: none"> • Design Line: Planes, Trains & Automobiles Hardcover - by Chris Oxlade & Mike Lemanski (NF) • DK Eyewitness Books: Car: Discover the Story of Cars from the Earliest Horseless Carriages to the Modern (NF) • Car Science: An Under-the-Hood, Behind-the-Dash Look at How Cars Work - Richard Hammond (NF) • The Soapbox Bible: How to Build Your Own Soapbox, Buggy, or Go-Cart Hardcover - Julian Bridgewater & Glyn Bridgewater (NF) • Stickmen's Guide to Engineering (Stickmen's Guides to STEM) Kindle Edition by John Farndon (NF) <p>https://www.science-sparks.com/easy-balloon-car/</p> <p>https://www.scienceworld.ca/resource/balloon-powered-car/</p> <p>https://www.teachitprimary.co.uk/design-technology</p> <p>https://www.stem.org.uk/resources/collection</p> <p>https://www.tes.com/teaching-resource/ks2-d-and-t-activity-design-and-build-junk-model-cars-bloodhound-lsr-sustainability-activity-week-11989266</p> <p>https://www.tes.com/teaching-resource/making-a-moving-vehicle-6016536</p> <p>https://www.stem.org.uk/resources/collection/2897/designing-key-stage-two</p> <p>https://www.tts-group.co.uk/blog/2016/11/02/pulley-motorised-vehicle.html</p> <p>https://www.bbc.co.uk/teach/class-clips-video/science-design-and-technology-ks2-experimenting-with-balloon-powered-cars/zjsyqwx</p> <p>Consider o trip to organising a trip to Nissan. Invite a parent/visitor into school to speak about designing and building cars.</p>	<ul style="list-style-type: none"> • Brilliant Bridges: (Collins Big Cat) by Kay Barnham & Laszlo Veres (NF) • Building Bridges (Young Engineers) Paperback by Tammy Enz (NF) • Building Strong Bridges (Fun Stem Challenges) by Marne Ventura (NF) • Secret Engineer: How Emily Roebling Built the Brooklyn Bridge - by Rachel Dougherty (NF) • Iggy Peck, Architect: Andrea Beaty & David Roberts • 3 Bridges Children Should Know (13 Series) Brad Finger (NF) • See Inside Bridges, Towers and Tunnels: 1 Board book - Struan Reid & Annie Carbo (NF) • How a Bridge Is Built (Engineering Our World) Sam Aloian (NF) <p>https://www.bbc.co.uk/teach/class-clips-video/drawbridge/zft7nrd</p> <p>https://www.stem.org.uk/resources/elibrary/resource/35888/bridge-building</p> <p>https://www.pinterest.co.uk/bluejay362/kids-bridge-design/</p> <p>https://expeditionworkshed.org/assets/Bridge_builders_teacher_pack.pdf</p> <p>https://easyscienceforkids.com/all-about-bridges/</p> <p>https://kids.kiddle.co/Bridge</p> <p>https://www.youtube.com/watch?v=oVOnRPefcno (What makes bridges so strong?)</p> <p>https://kids.britannica.com/kids/article/bridge/352881</p> <p>https://www.tes.com/teaching-resource/bridges-6016590</p> <p>https://www.stem.org.uk/resources/elibrary/resource/25329/bridges-and-structures</p> <p>Consider organising a trip to the Baltic- free workshop on bridges with viewing galleries https://baltic.art/learn/baltic-bridges</p> <p>or</p> <p>Visit the Tees Transporter Bridge</p>	<ul style="list-style-type: none"> • Cooking Class Spiral-bound - Deanna Cook, F.(NF) • Complete Children's Cookbook (NF) • Children's Cookbook: Delicious Step-by-Step Recipes Hardcover - Katharine Ibbs (NF) • Cool Kids Cook: Delicious Recipes and Fabulous Facts to Turn You into a Kitchen Whizz - Jenny Chandler (NF) <p>https://www.bbc.co.uk/bitesize/topics</p> <p>http://www.primaryresources.co.uk/dandt</p> <p>https://www.theschoolrun.com/cooking-and-nutrition-in-primary-schools</p>
<p>Autumn</p> <p>Art</p>	<p>Spring</p> <p>Art</p>	<p>Summer</p> <p>Art</p>
<p>Aims and focused content:</p>		

- **Design** - Research functionality, appeal and purpose. Communicate ideas and develop prototypes using CAD.
- **Make** - Select materials, recognising functional and aesthetic properties.
- **Test**
- **Evaluate** - analyse current product and own ideas against a design criteria.
- Technical Knowledge - mechanisms, improving complex structures, use mechanical systems i.e. gears, pulleys, cams levers and linkages
- Use electrical systems
- Equipment - making appropriate selections
- Develop key skills - cutting, shaping, joining and finishing
- Use of ICT
- Recognise how events and individuals have influenced the world.

Autumn	Spring	Summer
<p>Structures - Bridges (strength and aesthetics) Draw bridge</p> <ul style="list-style-type: none"> Design Make Test Evaluate 	<p>Mechanisms - Fairground (incl. electrical component)</p> <ul style="list-style-type: none"> Design Make Test Evaluate 	<p>Ingredients - Food / Celebration cakes.</p> <ul style="list-style-type: none"> Principles of a varied healthy diet Research seasonality and where food comes from Prepare Make
<p>Key Vocabulary</p> <p><i>Member, innovative, appealing, stability, design process, risk assessment, disassembly, dismantle, arch, truss, exploded diagram, prototype, cross-sectional diagram, assemble, draw bridge, pulley, aesthetics, evaluate, test, strengthen, stiffen, reinforce.</i></p>	<p>Key Vocabulary</p> <p><i>Exploded diagram, cross-sectional diagram, function, hydraulics, gears, belt, motor, motion, cams, rotate, linear, linkages, accelerometer, product.</i></p>	<p>Key Vocabulary</p> <p><i>Icing, decorate, fold, whisk, ingredients, exploded diagram, cross-sectional diagram, bake, assemble, temperature, vessel.</i></p>
<p>Suggested Texts</p> <ul style="list-style-type: none"> Brilliant Bridges: (Collins Big Cat) by Kay Barnham & Laszlo Veres (NF) Building Bridges (Young Engineers) by Tammy Enz (NF) Building Strong Bridges (Fun Stem Challenges) Library Binding - by Marne Ventura (NF) Secret Engineer: How Emily Roebling Built the Brooklyn Bridge Hardcover - by Rachel Dougherty (NF) Iggy Peck, Architect: Andrea Beaty & David Roberts 3 Bridges Children Should Know (13 Series) Brad Finger (NF) See Inside Bridges, Towers and Tunnels: 1 Board book - Struan Reid & Annie Carbo (NF) How a Bridge Is Built (Engineering Our World) Library Binding - Sam Aloian (NF) <p>https://www.stem.org.uk/resources/elibrary/resource/35888/bridge-building</p> <p>https://www.pinterest.co.uk/bluejay362/kids-bridge-design/</p> <p>https://expeditionworkshed.org/assets/Bridge_builders_teacher_pack.pdf</p> <p>https://easyscienceforkids.com/all-about-bridges/</p> <p>https://kids.kiddle.co/Bridge</p> <p>https://www.youtube.com/watch?v=oVOnRPefcno (What makes bridges so strong?)</p> <p>https://kids.britannica.com/kids/article/bridge/352881</p> <p>https://www.tes.com/teaching-resource/bridges-6016590</p> <p>https://www.stem.org.uk/resources/elibrary/resource/25329/bridges-and-structures</p>	<p>Suggested Texts</p> <ul style="list-style-type: none"> Book of Classic Board Games (Klutz) Spiral-bound - Sid Sackson (NF) Making a Circuit (It's Electric!) Chris Oxlade (NF) Wire It!: 6 Creative Stem Projects for Budding Engineers--Electric Circuit Edition (Build It!) - Caroline Alliston (NF) Board Games to Create and Play: Invent 100s of games with friends and family Hardcover - <p>https://www.tes.com/teaching-resource/making-a-board-game-6016594</p> <p>https://www.stem.org.uk/elibrary/resource/25487</p> <p>https://www.bbc.co.uk/bitesize/topics/zj44jxs</p> <p>https://www.twinkl.co.uk/resource/t2-d-072-moving-toys-cam-mechanisms-lesson-teaching-pack</p>	<p>Suggested Texts</p> <ul style="list-style-type: none"> Cooking Class Spiral-bound - Deanna Cook, F.(NF) Complete Children's Cookbook (NF) Children's Cookbook: Delicious Step-by-Step Recipes Hardcover - Katharine Ibbs (NF) Cool Kids Cook: Delicious Recipes and Fabulous Facts to Turn You into a Kitchen Whizz - Jenny Chandler (NF) <p>https://www.twinkl.co.uk/resource/tp2-d-063-planit-dt-uks2-global-food-unit-pack</p> <p>https://www.theschoolrun.com/cooking-and-nutrition-in-primary-schools</p> <p>https://www.stem.org.uk/resources/collection/2900/working-textiles-and-food-key-stages-one-and-two</p>

<p>https://www.stem.org.uk/resources/elibrary/resource/25329/bridges-and-structures</p> <p>https://www.bbc.co.uk/bitesize/clips/zjvfb9q</p> <p>Consider organising a trip to the Baltic- free workshop on bridges with viewing galleries https://baltic.art/learn/baltic-bridges</p> <p>or</p> <p>Visit the Tees Transporter Bridge</p>		
Autumn	Spring	Summer
Art	Art	Art
Aims and focused content:		
<ul style="list-style-type: none"> • Design - Research functionality, appeal and purpose. Communicate ideas and develop prototypes using CAD. • Make - Select materials, recognising functional and aesthetic properties. • Test • Evaluate - analyse current product and own ideas against a design criteria. • Technical Knowledge - mechanisms, improving complex structures, use mechanical systems i.e. gears, pulleys, cams levers and linkages • Use electrical systems <ul style="list-style-type: none"> • Equipment - making appropriate selections • Develop key skills - cutting, shaping, joining and finishing • Use of ICT • Recognise how events and individuals have influenced the world. 		

Autumn	Spring	Summer
Mechanisms - Wind Turbines <ul style="list-style-type: none"> Design Make Test Evaluate 	Structures - Bird house / Bug hotels <ul style="list-style-type: none"> Design Make Test Evaluate 	Materials - Textiles - Design and make a bag. <ul style="list-style-type: none"> Design Make Test Evaluate
Key Vocabulary	Key Vocabulary	Key Vocabulary
<i>Mechanical movement, gears, pulleys, components, 3D framework, suitability, oscillate, pneumatics, pivot, rotary, resistance, linkage, propeller, dowel, drive belt, turbine, blades, generate.</i>	<i>supported structure, water resistant, components, strong, stiff, design, test, evaluate, saw, hammer, nail, clamp, balsa wood, cross-sectional diagram, exploded diagram.</i>	<i>Cutting, shaping, joining, finishing, seam allowance, needles, decoration, weave, template, pattern piece, back stitch, slip stitch.</i>
Suggested Texts	Suggested Texts	Suggested Texts
<ul style="list-style-type: none"> Windmills (How It Works) Paperback - by Charlotte Hunter (NF) How to build a micro wind turbine Kindle Edition by CLEMENT JOULAIN (NF) Wind Power: Sailboats, Windmills, and Wind Turbines (a True Book: Alternative Energy) Library Binding - Matt Ziem(NF) The Boy Who Harnessed the Wind Kindle Edition by William Kamkwamba (F) Finding Out About Wind Energy (Searchlight Energy Sources) by Matt Doeden (NF) Stickmen's Guide to Engineering (Stickmen's Guides to STEM) Kindle Edition by John Farndon (NF) <p>https://www.sustainablelearning.com/resource/build-your-own-wind-turbine</p> <p>https://www.tes.com/teaching-resource/how-to-make-a-model-wind-turbine-6319724</p> <p>https://www.pinterest.co.uk/pin/550424385690416368/</p> <p>https://www.sustainablelearning.com/resource/wind-farm-debate-upper-ks2</p> <p>https://www.ducksters.com/science/environment/wind_power.php</p> <p>https://www.twinkl.co.uk/resource/t2-s-1254-make-a-turbine-activity</p>	<ul style="list-style-type: none"> Submarines (What's Inside?) by David West (NF) Boats: Fast & Slow Hardcover - Iris Volant (NF) Speedboats (How Does It Work?) Library Binding - Joanne Mattern (NF) How Does a Powerboat Work? (How Does It Work? by Sarah Eason (NF) How It Happens at the Boat Factory Hardcover - by Dawn Frederick (NF) It's all about... Spectacular Ships Paperback. Kingfisher (NF) Ships & Boats: Sail Navigation Radar Anchor Keel (Exploring Science) Hardcover - by Chris Oxlade (NF) How it Works Ships and Submarines Paperback - by Steve Parker (NF) Stickmen's Guide to Engineering (Stickmen's Guides to STEM) Kindle Edition by John Farndon (NF) <p>https://www.tes.com/teaching-resource/make-a-sailboat-materials-and-forces-ks1-2-6307338</p> <p>https://www.tes.com/teaching-resource/balanced-forces-submarines-science-ks1-ks2-12081260</p> <p>http://www.sciencekids.co.nz/sciencefacts/vehicles/submarines.html</p> <p>https://www.teachwire.net/teaching-resources/float-your-boat-make-a-mini-canoe-dt-activity-for-ks2</p>	<ul style="list-style-type: none"> Creative Textiles Projects for Children Paperback - Karen Woods (NF) Textile Crafts (Craft Attack!) Library Binding - Annalees Lim (NF) Sewing for Kids: 30 Fun Projects to Hand and Machine Sew Paperback - Alexa Ward (NF) Sewing School: 21 Sewing Projects Kids Will Love to Make - Amie Plumley & Andria Lisle (NF) <p>https://www.stem.org.uk/resources/collection/2900/working-textiles-and-food-key-stages-one-and-two</p> <p>https://www.tes.com/teaching-resource/dt-year-5-textiles-sewing-project-laptop-ipad-mobile-phone-sleeve-11112146</p>

<https://www.sustainablelearning.com/resource/wind-farm-debate-upper-ks2>

Autumn

Art

Spring

Art

Summer

Art

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