DT content coverage 2023 – 2024

	Mechanisms	Textiles	Structures	Food	Electrical systems
Reception/Year 1	Year 1 sliders and levers		Free standing structures	Preparing fruit and vegetables	
Year 2	Wheels and axles	Templates and joining		Preparing fruit and vegetables.	
Year 3	Levers and linkages		Shell structures using computer aided design	Healthy and varied diet.	
Year 4/5	Cams	Combining different fabrics and using computer aided design in textiles.	Frame structures		
Year 6	Pulleys or gears			Celebrating culture and seasonality.	More complex switches, monitoring and control.

The expectation is that one element is taught each term following the process of: investigate, design, develop skills, make and evaluate.

Reception & Year 1 DT coverage

	Foundation (prior learning)		Reception & Year 1		Year 2 (next steps)	
Mechanisms	**Vocabulary:** Stick, card, paper, sellotape, glue, join, paper fastener, hole punch, string, paperclips, evaluate.	**Making:** I know how to join construction materials together to make simple models. To understand the concept of balancing within construction. To investigate how to apply materials to one another. Assess and review: I am beginning to plan my work before I make it and can change my work to make it better. I am proud to share my designs/models with others and ask to put them on display.	**Mechanisms** **Sliders and leavers** **Vocabulary:** slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function	**Technical knowledge and understanding** • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project	**Mechanisms** **Wheels and axles** **Vocabulary:** vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	**Technical knowledge and understanding** Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.
Main resource – Projects on a page, s drive DT Additional resources: www.data.org.uk working with sliders and levers, levers and linkages – poster and support Pack D&T Primary issue 17 Focus and Mechanisms						
Assessment Question: Who will your product be for? What will be its purpose? How do you want it to move? Will you use a lever or a slider? How does the slider move? How does the lever move? Which part of the mechanism is the pivot? What does the movement of the slider and lever remind you of?						
	Foundation (prior learning)		Reception & Year 1		Year 3 (next steps)	
Structures	**Vocabulary:**	**Making:**	**Structures** **Freestanding structures:** **Vocabulary:** structure, wall, tower, framework,	**Technical knowledge and understanding** Know how to make freestanding structures stronger, stiffer and more	**Structures** **Shell structures using computer aided design (CAD)** **Vocabulary:** shell structure, three-dimensional (3-	**Technical knowledge and understanding** Develop and use knowledge of nets of cubes and cuboidsand, where

			weak, strong, base, top, underneath, side,edge, surface, thinner, thicker, corner, point,straight,curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function	stable. • Know and use technical vocabulary relevant to the project.	D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype	appropriate, more complex 3D shapes. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project.
Main resource – Projects on a page, s drive DT Additional resources: www.data.org.uk Chairs for three bears, hinges and catches, picture frames and holders						
Assessment Question: *Who will your product be for? What will be its purpose? What materials will you use? How will you make it strong and stable? How can you stop your structures from falling over? How they can be made stronger and stiffer in order to carry a load?*						
	Foundation (prior learning)		Reception & Year 1		Year 2 (next steps)	
Food			**Food** **Preparing fruit and vegetables.** **Vocabulary:** fruit and vegetable names, names of equipment and utensils (bowl, chopping board, knife, cutting, peeling) sensory vocabulary e.g. soft, juicy, crunchy, sweet,	**Technical knowledge and understanding** Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand basic principles of a healthy diet to prepare dishes, including how fruit and vegetables are part of The eatwell	**Food** **Preparing fruit and vegetables.** **Vocabulary:** More unusual fruit and vegetable names, names of equipment and utensils (grater, spiraliser, corer, plus year 1) sensory vocabulary e.g. sticky, sharp, sour, crumbly, flesh, slicing,	**Technical knowledge and understanding** Understand where a more complex range of fruit and vegetables come from e.g. farmed, from abroad, or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes,

			smooth, crisp, hard skin, seed, pip, core, peeling, cutting, healthy diet, choosing, investigating tasting, arranging, popular, design, reflect, test	plate. • Know and use technical and sensory vocabulary relevant to the project.	squeezing, ingredients, planning, investigating tasting, arranging, popular, evaluate, criteria	including how fruit and vegetables are part of The eatwell plate. • Know and use technical and sensory vocabulary relevant to the project.
Main resource – Projects on a page, s drive DT Additional resources: www.data.org.uk Fantastic fruits www.foodafactoflife.org.uk http://www.nhs.uk/livewell/5aday/pages/5adayhome.aspx www.eatwell.gov.uk						
Assessment Question: What will you need? What fruit/vegetable will you need? How much will you need? How will you present the product? Do we eat the whole fruit? Why or why not? Which parts do we eat? What might we have to do before eating this? Why do we cut, grate, peel and slice in this way?						

Year 2 DT coverage

	Year 1 (prior learning)		Year 2		Year 3 (next steps)	
Mechanisms	**Mechanisms** **Sliders and leavers** **Vocabulary:** slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function	**Technical knowledge and understanding** • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project	**Mechanisms** **Wheels and axles** **Vocabulary:** vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	**Technical knowledge and understanding** Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	**Mechanisms** **Levers and linkages** **Vocabulary:** mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function prototype, design criteria, innovative, appealing, design brief	**Technical knowledge and understanding** Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project.

Main resource – Projects on a page, s drive DT
Additional resources: www.data.org.uk working with wheels and axles, Let's look at vehicles power points, Toys – Activities and goals – poster and support Pack D&T Primary issue 34 Innovations in wheel design

Assessment Question:

How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? Why do you think the wheels are round?
How does your model work? Does it match your design criteria? Have you made any changes? What were they and why did you make these changes?

	Year 1		Year 2		Year 4 (next steps)	
Textiles	No previous DT exploration of textiles has been taught however children will have investigated the properties of a range		**Textiles** **Templates and joining techniques** **Vocabulary:**	**Technical knowledge and understanding** Understand how simple 3-D textile products are	**Textiles** **2D shape – 3D product** **Vocabulary:** fabric, names of	**Technical knowledge and understanding** Know how to strengthen, stiffen

	of materials.		names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function	made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.	fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.

Main resource – Projects on a page, s drive DT
Additional resources: www.data.org.uk
Teddy's Safety Jacket
Joining and fastening Fabrics
Special Sun Hat for Barnaby Bear

Assessment Question:

How many parts is it made from? What is it joined with? How is it finished? Why do you think these joining techniques have been chosen? How is it fastened? Who might use it and why?

What parts will the product need to have and what will it be made from? What size will it be? How will it be joined and finished? Why did you choose this fabric? Does it work for its purpose? Have you made any alterations and why?

	Year 1		Year 2		Year 3 (next steps)	
Food	**Food** **Preparing fruit and vegetables.** **Vocabulary:** fruit and vegetable names, names of equipment and utensils (bowl, chopping board, knife, cutting, peeling) sensory vocabulary e.g. soft, juicy, crunchy, sweet, smooth, crisp, hard skin, seed, pip, core, peeling, cutting, healthy diet, choosing, investigating tasting, arranging, popular, design, reflect, test	**Technical knowledge and understanding** Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand basic principles of a healthy diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate.* • Know and use technical and sensory vocabulary relevant to the project.	**Food** **Preparing fruit and vegetables.** **Vocabulary:** More unusual fruit and vegetable names, names of equipment and utensils (grater, spiraliser, corer, plus year 1) sensory vocabulary e.g. sticky, sharp, sour, crumbly, flesh, slicing, squeezing, ingredients, planning, investigating tasting, arranging, popular, evaluate, criteria	**Technical knowledge and understanding** Understand where a more complex range of fruit and vegetables come from e.g. farmed, from abroad, or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate.* • Know and use technical and sensory vocabulary relevant to the project.	**Food** **Healthy and varied diet** **Vocabulary** name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, smell, cook, fresh, savoury hygienic, edible, grown, reared, caught, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch	**Technical knowledge and understanding** Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately

Main resource – Projects on a page, s drive DT
Additional resources: www.data.org.uk Fantastic fruits
www.foodafactoflife.org.uk
http://www.nhs.uk/livewell/5aday/pages/5adayhome.aspx
www.eatwell.gov.uk

Assessment Question:

What will you need? What fruit/vegetable will you need? How much will you need? How will you present the product?
Do we eat the whole fruit? Why or why not? Which parts do we eat? What might we have to do before eating this? Why do we cut, grate, peel and slice in this way?

Year 3 DT coverage

	Year 2 (prior learning)		Year 3		Year 4 (next steps)	
Mechanisms	**Mechanisms** **Sliders and leavers** **Vocabulary:** vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional	**Technical knowledge and understanding** Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	**Mechanisms** **Wheels and axles** **Vocabulary:** mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function prototype, design criteria, innovative, appealing, design brief	**Technical knowledge and understanding** Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project.	**Mechanisms** **Levers and linkages** **Vocabulary:** components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate	**Technical knowledge and understanding** Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the project.

Main resource – Projects on a page, s drive DT
Additional resources: www.data.org.uk Mighty levers and linkages – poster and support pack
Mechanisms with a message
Moving History book.

Assessment Question:

Who might it be for? What is its purpose? What part moved and how did it move? What materials have been used? How effective do you think it is and why? What else could move?
What are going to be your main stages in making your product? Is it safe for purpose? How does it fulfil its intended purpose? Does it include all the design features planned? If you were to make alterations what would they be and why?

	Year 1 (prior learning)		Year 3		Year 5 (next steps)	
Structures	**Structures Freestanding structures: Vocabulary:** structure, wall, tower, framework, weak, strong, base, top, underneath, side,edge, surface, thinner, thicker, corner, point,straight,curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function	**Technical knowledge and understanding** Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.	**Structures Shell structures and computer aided Design (CAD) Vocabulary:** shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing,	**Technical knowledge and understanding** Develop and use knowledge of nets of cubes and cuboidsand, where appropriate, more complex 3D shapes. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project.	**Frame Structures - Vocabulary:** frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional	**Technical knowledge and understanding** • Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project.

			laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype			

Main resource – Projects on a page, s drive DT
Additional resources: www.data.org.uk
Banish broken biscuits! Box them brilliantly
Desk Tidy
Working with Materials
Packaging – with links to maths
Nets for packaging.

Assessment Question:

What is the purpose of the shell structure – protecting, containing, presenting? What material is it made from? How has it been constructed? Are the materials recyclable or reusable? How has it been stiffened i.e. folded, corrugated, ribbed, laminated? What size/shape/colour is it? What information does it show and why? How attractive is the design?

What do you prefer and why? What style of graphics and lettering might we want to include in our product to meet users' preferences and its intended purpose? Which packaging might be the best for…?

What will you need to include in your design? How can you improve it? What materials will you use? How will you make sure your product works well and has the right appearance?

During construction and on completion: What is the key sequence in your constructing? What skills are you applying? Which tools will you require and why? Is your finished product suitable for purpose? How closely does it match your design? Does it meet the criteria? Have you made changes and if so why? What might you change if you were to make this again?

	Year 2		Year 3		Year 4 (next steps)	
Food	**Food** **Preparing fruit and vegetables.** **Vocabulary:** More unusual fruit and vegetable names, names of equipment and utensils (grater, spiraliser, corer, plus year 1) sensory vocabulary e.g. sticky, sharp, sour, crumbly, flesh, slicing, squeezing, ingredients, planning, investigating tasting, arranging, popular, evaluate, criteria	**Technical knowledge and understanding** Understand where a more complex range of fruit and vegetables come from e.g. farmed, from abroad, or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate.* • Know and use technical and sensory vocabulary relevant to the project.	**Food** **Healthy and varied diet** **Vocabulary:** name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	**Technical knowledge and understanding** Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately	**Food** **Healthy and varied diet** **Vocabulary** .	**Technical knowledge and understanding**

Main resource – Projects on a page, s drive DT
Additional resources: dips and Dippers, Super Salads, Sandwich Snacks adapted for SEN
www.foodafactoflife.org.uk
http://www.uk/livewell/5aday/pages/5adayhome.aspx
www.eatwell.gov.uk

Assessment Question:

What ingredients have been used? Which food groups do they belong to? What substances are used in the products e.g. nutrients, water and fibre?
How do the sensory characteristics affect your liking for the food?
Where and when are the ingredients grown? Where do different meats/fish/cheese/eggs come from? How and why are they processed?
What should we do before we work with food? Why is following instructions important?

Year 4/5 DT coverage

	Year 4 (prior learning)		Year 4/5		Year 6 (next steps)	
Mechanisms CAMS	**Mechanisms** **Pneumatics** **Vocabulary:** components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate	**Technical knowledge and understanding** •Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the project.	**Mechanisms** **CAMS** **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 annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	**Technical knowledge and understanding** • Understand that mechanical systems have an input, process and an output. • Understand how cams can be used to produce different types of movement and change the direction of movement. • Know and use technical vocabulary relevant to the project.	**Mechanical systems – Pulleys or gears.** **Vocabulary:** pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram annotated drawings, exploded diagrams mechanical system, electrical system, input, process, output design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	**Technical knowledge and understanding** • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project.

Main resource – Projects on a page, s drive DT
Additional resources: www.data.org.uk
Levers and Linkages, Working with wheels and axles, Mechanisms with a message, Gears and Pulleys, Fairgrounds.

Assessment Question:

How innovative is the product? What design decisions have been made? What type of movement can be seen? What types of mechanical components are used and where are they positioned? What are the input, process and output of the system? How well does the product work? Why have the materials and components been chosen? How well has it been designed? How well has it been made?

How many times does the smaller pulley turn each time the larger pulley turns once? Do the pulleys move in the same direction? How can you reverse the direction of rotation?

	Year 4 (prior learning)		Year 4/5		Year 7 (next steps)	
Textiles	**Textiles** **2D shape – 3D product** **Vocabulary:** fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics,	**Technical knowledge and understanding** Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.	**Textiles** **Combining different fabrics and using computer aided designs in textiles.** **Vocabulary:** seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation,	**Technical knowledge and understanding** • A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Fabrics can be strengthened, stiffened and reinforced where appropriate.	**Textiles** **Vocabulary:** Appliqué, transfer print, sequins, tie dye, reverse appliqué, hand embroidery, Batik, tassel, screen printing, bloxk printing, transfer printing, cotton, linen, silk, wool, polyester, lycra, satin, Denim, interfacing, stich and tear, knitted, warp knit, plain weave, twill weave, satin weave, bonded/nonwoven.	**Technical knowledge and understanding** **Mainly Making – Understanding Fibres and Fabrics** Children will cover the origins and features of natural and human-made fibres, methods of fabric construction including adding colour and surface decoration. Students will learn to safely operate a sewing machine to produce different stitch patterns and know at least one company who use exclusive textile prints.

	function, pattern pieces		authentic, user, purpose, evaluate, mock-up, prototype computer aided design: computer aided design (CAD), computer aided manufacture (CAM) font, lettering, text, graphics, menu, scale, modify, repeat, copy, flip design brief, design criteria, design decisions, innovative, prototype			

Main resource – Projects on a page, s drive DT
Additional resources: www.data.org.uk
Designing with textiles, designer bags, A to Z of D&T, Working with Materials, Recyling to sell, Butterflies in My Tummy, Fancy a Bag

Assessment Question:

Is the product functional or decorative? Who would use this product? What is its purpose? What design decisions have been made? Do the textiles used match the intended purpose? What components have been used to enhance the appearance? To what extent is the design innovative?
How has it been made? What has been used to enhance the appearance?

	Year 3 (prior learning)		Year 4/5		Year 7 (next steps)	
Structures	**Structures Shell**	Technical knowledge and understanding	Frame Structures – Vocabulary:	Technical knowledge and understanding	Vocabulary:	Technical knowledge and understanding

	structures and computer aided Design (CAD) Vocabulary: shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype	Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project.	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional	• Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project.		
Main resource - Projects on a page, s drive DT						

Additional resources: www.data.org.uk

Bird Hides Dragons' Den Challenge, Working with paper straws

Assessment Question:

How well does the frame structure meet users' needs and purposes? Why were materials chosen? What methods of construction have been used? How has the framework been strengthened, reinforced and stiffened? How does the shape of the framework affect its strength? How innovative is the design? When was it made? Who made it? Where was it made?

How could each of the frameworks be reinforced and strengthened?

Who is the intended user and what is the purpose of the frame structure? Will it be permanent, or can it be easily dismantled? What materials will you use? How will it be joined? How will it be reinforced? How will it be finished?

How will you make it stable? How will it stand up? How could you make it stronger? Where are the weak points? How could you reinforce them? What tools and materials will you need? How can you improve the design?

Year 6 DT coverage

	Year 5 (prior learning)		Year 6		Year 7 (next steps)	
Mechanisms Pulleys and Gears	**Mechanisms** **CAMS** **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 annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	**Technical knowledge and understanding** • Understand that mechanical systems have an input, process and an output. • Understand how cams can be used to produce different types of movement and change the direction of movement. • Know and use technical vocabulary relevant to the project.	**Mechanisms - Pulleys or Gears** **Vocabulary:** pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram annotated drawings, exploded diagrams mechanical system, electrical system, input, process, output design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	**Technical knowledge and understanding** • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project.	**Mechanical systems - Vocabulary:** Tenon saw, coping saw, ruler, tri-square, bench hook, file, sander, glass paper, paint, stain/ink, vinyl, prototyping, refine designs, evaluate	**Technical knowledge and understanding** • Health and safety of tools and machines. • Processes of cutting, shaping, wasting, and finishing a range of materials. • Precision in measuring • Develop a range of surface finish techniques

Main resource - Projects on a page, s drive DT
Additional resources: www.data.org.uk
Levers and Linkages, Developing Handmade Switches, Gears and Pulleys, Fairgrounds.

Assessment Question:

How innovative is the product? What design decisions have been made? What type of movement can be seen? What types of mechanical components are used and where are they positioned? What are the input, process and output of the system? How well does the product work? Why have the materials and components been chosen? How well has it been designed? How well has it been made?

	Year 3 (prior learning)	**Year 6**	Year 7 (next steps)

Food	**Healthy and varied diet** **Vocabulary:** name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet planning, design criteria, purpose, user, annotated sketch, sensory evaluations	**Technical knowledge and understanding** • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately	**Food – Celebrating Culture and seasonality** **Vocabulary:** ingredients, yeast, 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 design specification, innovative, research, evaluate, design brief	**Technical knowledge and understanding** • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.	**Vocabulary:** Bridge, claw, sensory descriptors, presentation, vitamins, minerals, micro nutrients, macro nutrients, millilitres, grams, hygiene, nutrition, healthy, varied, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief	**Technical knowledge and understanding** • Knowledge and understanding of ingredients and their functions. • Principles of food hygiene and safety • Understanding the components of a balanced diet, including healthy eating. • Understanding that a balanced diet includes all food groups. • Food preparation and cooking techniques including use of grill, hob, oven. • Correct use of knives and holding – bridge and claw holding methods. • Safe working practices in the kitchen, including

						washing up correctly, hazard avoidance, hygine, cross, contamination to prevent food poisoning. • Understanding and the application of measurements including millilitres and grams are standard measurements for ingredients. • Functions of ingredients • Vitamins and minerals (Mirco and macro nutrients) • Understanding the skills required to make a range of high quality dishes for a range of people.
Main resource – Projects on a page, s drive DT						

Additional resources: www.data.org.uk
Christmas Ginger Biscuits, Willy Wonka's Fair Trade Cookies, Making Bread using the Six Essentials, A to Z of D&T, Make it Sake
www.foodafactoflife.org.uk

Assessment Question:

What ingredients are sourced locally/in the UK/from overseas? What are the key ingredients needed to make a particular product? How have ingredients been processed? What is the nutritional value of a product?
What ingredients help to make the product spicy/crisp/crunchy etc? What is the impact of added ingredients/finishes/shapes on the finished product?
Which shape is most appealing and why?

	Year 4 (prior learning)		Year 6		Year 7 (next steps)	
Electrical Systems	**Electrical Systems Simple circuits and switches** **Vocabulary:** series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip control, program, system, input device, output device user, purpose, function,	**Technical knowledge and understanding** • Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project.	**Electrical Systems – More complex switches, motoring and control** **Vocabulary:** series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart function, innovative, design specification, design brief, user, purpose Monitoring and control:	**Technical knowledge and understanding** • Understand and use electrical systems in their products. • Apply their understanding of computing to program, monitor and control their products. • Know and use technical vocabulary relevant to the project. Monitoring and Control:	**Vocabulary:**	**Technical knowledge and understanding** *Electrical systems is included in the science curriculum in year 7 KS3. Below are the elements taught* **Current electricity** • electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as

	prototype, design criteria, innovative, appealing, design brief		reed switch, toggle switch, push-to-make switch,push-to-break switch,light dependent resistor(LDR), tilt switch light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit function, innovative, design specification, design brief, user, purpose	• Understand and use electrical systems in their products. • Understand the use of computer control systems in products. • Apply their understanding of computing to program, monitor and control their products. • Know and use technical vocabulary relevant to the project.		flow of charge • potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current • differences in resistance between conducting and insulating components (quantitative) **Static electricity** • separation of positive or negative charges when objects are rubbed together: transfer of electrons, forces between charged

						objects • the idea of electric field, forces acting across the space between objects not in contact **Magnetism** • magnetic poles, attraction and repulsion • magnetic fields by plotting with compass, representation by field lines • Earth's magnetism, compass and navigation • the magnetic effect of a current, electromagnets, DC motors (principles only)
Main resource – Projects on a page, s drive DT Additional resources: www.data.org.uk Torches, Lamps and Lanterns, Alarming Vehicles, Designing and making alarm circuits using inputs with computer control. Designing and making alarm circuits using inputs with computer control, Developing handmade swithches.						

Assessment Question:

Who have the products been designed for and for what purpose? How and why is a computer control program used to operate the products? What input devices, e.g. switches, and output devices, e.g. bulbs, have been used?

Why is a computer control program used to operate the products? What are the advantages of using computer control? What input devices, e.g. switches, and output devices, e.g. bulbs and buzzers, have been used? Who have the products been designed for and for what purpose?