Design and Technology Subject Overview Report

2020-2021

St. Joseph & St. Bede R.C. Primary School

WORD WELFARE WORSHIP WITNESS WELCOME

With **Christ** at the **centre**, our *Dream* is for **greatness** in our **learning**, to *Believe* in our **unique talents**, to be Guardians of life & creation and to *Achieve* **a better world**, by **living life** to the **full**.

Intent: What do we aim to do in Design & Technology?

"Technology is a gift of God. After the gift of life it is perhaps the greatest of God's gifts. It is the mother of civilisations, of arts and of sciences."

– Freeman Dyson

Rationale

Through the practice of Design and Technology, our children will have the opportunity to Dream, Believe and Achieve as learners. They will be able to live out our gospel values as they immerse themselves in God's gift of technology and work towards building a better future for our ever-changing world.

SIP Focus:

Priority 1 – Good teaching, challenging learners, good progress.

Priority 4 – Develop positive behaviours and attitudes to aid personal development.

What are our main aims in Design and Technology?

Our DREAM is for greatness in our learning…

- To raise the aspirations of our children by helping them understand how their creations can help make a difference.
- To expand our children's technical vocabulary and enable them to express their ideas and thinking.
- To develop our children's imaginative thinking and enable them to put this into practice.

…to BELIEVE in our unique talents…

- To help our children gain a sense of their own identity and discover their strengths and talents.
- To enhance our children's confidence and self-esteem.

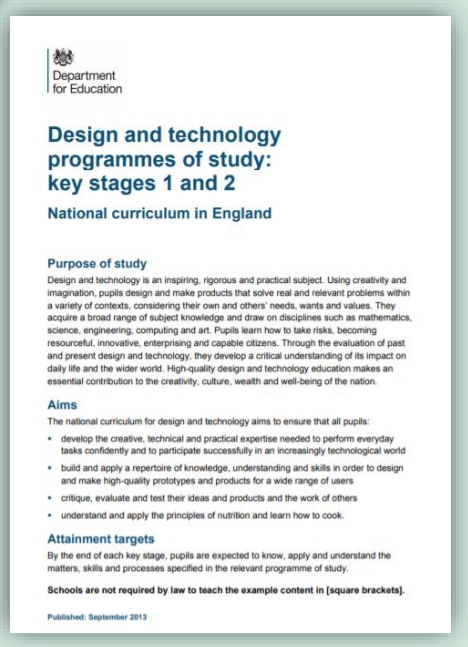
…to ACHIEVE a better world…

- To promote our children's mental health and well-being through learning about how to live a healthy lifestyle.
- To celebrate the diversity of different industries and explore what they achieve in the world.
- To develop successful learners who enjoy learning, make progress and achieve.
- To develop confident individuals who are able to live safe, healthy and fulfilling lives.

Our main aims are inspired by 'Dream, Believe, Achieve.'

Intent: Progression of Skills

Updated progression for 2021-2022



Department for Education

Design and technology programmes of study: key stages 1 and 2

National curriculum in England

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

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
- understand and apply the principles of nutrition and learn how to cook.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Schools are not required by law to teach the example content in [square brackets].

Published: September 2013

National Curriculum Statements for KS1 and KS2

St Joseph and St Bede RC Primary School
Design and Technology

		EYFS		KS1		LKS2		UKS2	
		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing	**National Curriculum Links:** In Ks1, When designing and making, pupils should be taught to: • design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, draw, templates, mock-ups and, where appropriate, information and communication technology In Ks2, When designing and making, pupils should be taught to: • 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								
	Structures	• Test out stacking and building with different blocks and explore balancing them on top of each other. • Think and talk about what I am going to make before I do it and carry it out. • Plan what I am going to make by drawing it first. • Use a tick list to say what resources I am going to need.		• Learn the importance of a clear design criteria • Include individual preferences and requirements in a design • Generate and communicate ideas use sketching and modelling • Learn about different types of structures, found in the natural world and in everyday objects		• Design a castle with key features to appeal to a specific person/purpose • Draw and label a castle design use 2D shapes, labelling: - the 3D shapes that will create the features - materials needed and colours • Design and/or decorate a castle tower on CAD software • Design a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect • Build frame structures designed to support weight		• Design a stable structure that is able to support weight • Create frame structure with focus on triangulation • Design a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs	
	Mechanisms/ Mechanical systems			• Explain how to adapt mechanisms, use bridges or guides to control the movement • Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move • Create clearly labelled draws which illustrate movement • Select a suitable linkage system to produce the desired motions • Design a wheel, selecting appropriate materials based on their properties		• Design a toy which uses a pneumatic system • Develop design criteria from a design brief • Generate ideas use thumbnail sketches and exploded diagrams • Learn that different types of draws are used in design to explain ideas clearly • Design a shape that reduces air resistance • Draw a net to create a structure from • Choose shapes that increase or decrease speed as a result of air resistance • Personalise a design		• Design a pop-up book which uses a mixture of structures and mechanisms • Name each mechanism, input and output accurately • Storyboard ideas for a book • Experiment with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement • Understand how linkages change the direction of a force • Make things move at the same time • Understand and draw cross-sectional diagrams to show the inner-workings of the automata	
	Electrical systems					• Design a game that works use static electricity, including the instructions for playing the game • Identify a design criteria and a target audience • Design a torch, giving consideration to the target audience and creating both design and success criteria focuse on features of individual design ideas		• Design an electronic greetings card with a copper track circuit and components • Create a labelled circuit diagram showing positive and negative parts in relation to the LED and the battery • Write design criteria for an electronic greeting card • Compile a moodboard relevant to my chosen theme, purpose and recipient • Design a steady hand game - identify and naming the components required • Draw a design from three different perspectives • Generate ideas through sketching and discussion • Model ideasthrough prototypes • Understand the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'	

Organised into the four main strands: **Designing, Making, Evaluating, Technical Knowledge**

Each strand then covered in 6 areas: **Structures, Mechanisms, Electrical Systems (KS2 Only), Cooking and Nutrition, Textiles, Digital World (KS2 Only)**

Each area is broken down by key stage. Objectives are covered over two years.

Intent: Progression of Skills

St Joseph and St Bede RC Primary School
Design and Technology

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		Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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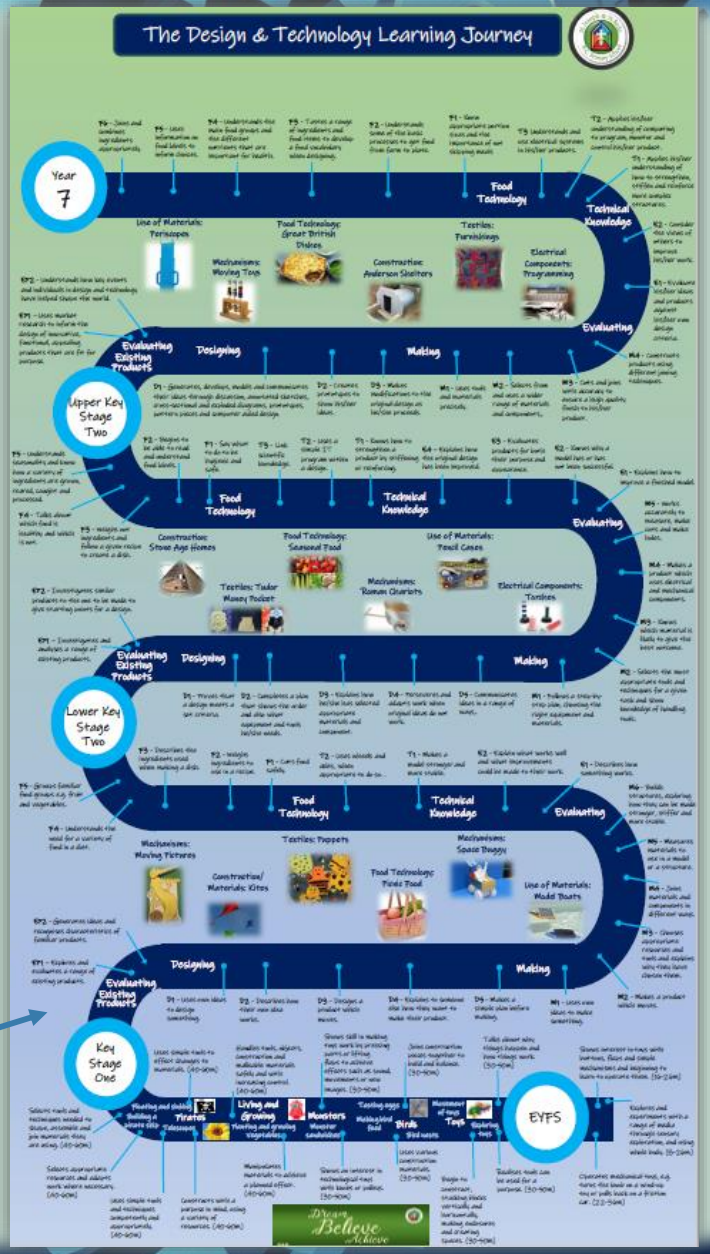
	Structures	• Test out stacking and building with different blocks and explore balancing them on top of each other. • Think and talk about what I am going to make before I do it and carry it out. • Plan what I am going to make by drawing it first. • Use a tick list to say what resources I am going to need.		• Learn the importance of a clear design criteria • Include individual preferences and requirements in a design • Generate and communicate ideas use sketching and modelling • Learn about different types of structures, found in the natural world and in everyday objects		• Design a castle with key features to appeal to a specific person/purpose • Draw and label a castle design use 2D shapes, labelling: - the 3D shapes that will create the features - materials needed and colours • Design and/or decorate a castle tower on CAD software • Design a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect • Build frame structures designed to support weight		• Design a stable structure that is able to support weight • Create frame structure with focus on triangulation • Design a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs	
	Mechanisms/ Mechanical systems			• Explain how to adapt mechanisms, use bridges or guides to control the movement • Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move • Create clearly labelled draws which illustrate movement • Select a suitable linkage system to produce the desired motions • Design a wheel, selecting appropriate materials based on their properties		• Design a toy which uses a pneumatic system • Develop design criteria from a design brief • Generate ideas use thumbnail sketches and exploded diagrams • Learn that different types of draws are used in design to explain ideas clearly • Design a shape that reduces air resistance • Draw a net to create a structure from • Choose shapes that increase or decrease speed as a result of air resistance • Personalise a design		• Design a pop-up book which uses a mixture of structures and mechanisms • Name each mechanism, input and output accurately • Storyboard ideas for a book • Experiment with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement • Understand how linkages change the direction of a force • Make things move at the same time • Understand and draw cross-sectional diagrams to show the inner-workings of the automata	
	Electrical systems					• Design a game that works use static electricity, including the instructions for playing the game • Identify a design criteria and a target audience • Design a torch, giving consideration to the target audience and creating both design and success criteria focuse on features of individual design ideas		• Design an electronic greetings card with a copper track circuit and components • Create a labelled circuit diagram showing positive and negative parts in relation to the LED and the battery • Write design criteria for an electronic greeting card • Compile a moodboard relevant to my chosen theme, purpose and recipient • Design a steady hand game - identify and naming the components required • Draw a design from three different perspectives • Generate ideas through sketching and discussion • Model ideasthrough prototypes • Understand the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'	

Skills are mapped out onto the Art and Design Learning journey . This in in the process of being updated for 2021-2022.



Intent: Progression of Vocabulary

Vital Vocabulary for each key stage, broken down into each unit. This can be accessed by staff on the server and is to be used in correspondence with the vocabulary policy.

EYFS

Designing: create, experiment, colours, draw, marks, stacking, building, explore, balance, plan, design, implement, draw, tick list, resources, explore

Making: construct, stack, balance, push, model, build, materials, push, pull, construct, tools, equipment, safely, techniques, join, structure, thread, weave, squash, pinch, roll, pour, fill, measure, weigh, stir, mix, surface, cutter

Evaluating: creation, thought, good, bad, improve, different, change, like, dislike, alteration, evaluate, test

Technical Knowledge: strong, weak, texture, symmetry, detail, healthy, balance, materials, weigh, measure, flavour, sweet, savoury

Key Stage One

Year A

- **Mechanisms: Moving Monsters** - evaluation, input, lever, linear motion, linkage, mechanical, mechanism, motion, oscillating motion, output, pivot, reciprocating motion, rotary motion, survey
- **Textiles: Pouches** - accurate, fabric, knot, pouch, running-stitch, sew, shapes. Stencil. Template, thimble
- **Mechanisms: Wheels and Axles** - axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel
- **Structures: Windmills** - client, design, evaluation, net, stable, strong, test, weak, windmill
- **Cooking & Nutrition: Fruits and Vegetables** - blender, carton, fruit, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable

Year B

- **Mechanisms: Moving Story Book** - assemble, design, evaluation, mechanism, model, slider, stencil, target audience, template, test
- **Textiles: Puppets** - decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template
- **Mechanisms: Fairground Wheel** - axle, decorate, evaluation, ferris wheel, mechnisms, stable, strong, test, waterproof, weak
- **Structures: Baby Bear's Chair** - function, man-made, mould, natural, stable, stiff, strng, structure, test, weak
- **Cooking & Nutrition: A Balanced Diet** - alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refridgerator, sugar, substitute

Lower Key Stage Two

Year A

- **Textiles: Fastenings** - aesthetic, assemble, book sleeve, design criteria, evaluation, fabric, fastening, mock-up, net, running-stitch, stencil, target audience, target customer, template
- **Electrical Systems: Static Electricity** - attract, component, constructive criticism, design criteria, electrostatic, evaluation, feedabck, motion, repel, target audience, test
- **Mechanisms: Slingshot Cars** - aesthetic, air resistance, chassis, design, design criteria, function, graphiscs, kinetic energy, mechanism, net, structure
- **Digital World: Electronic Charm** - smart wearables, product design, analogue, digital, micro: bit, program, loops, simulator, monitor, user, computer-aided-design, point of sale
- **Structures: Castles** - 2D shapes, 3D shapes, castle, design criteria, evaluate, façade, feature, flag, net, recyclable, scoring, stable, strong, structure, tab, weak
- **Cooking & Nutrition: Eating Seasonally** - climate, dry climate, exported, imported, mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate

Year B

- **Textiles:Cushions** - accurate, applique, cross-stitch, cushion, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template
- **Structures: Pavilions** - aesthetic, cladding, design criteria, evaluation, frame structure, function, inspiration, pavilion, reinforce, stable, structure, target audience, target customer, texture, theme.
- **Mechanisms: Pneumatic Toys** - exploded-diagram, function, input, lever, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch
- **Digital World: Mindfulness Moments Timer** – research, advantage, disadvantage, ergonomic, timer, program, loop, coding, block, variable, pause, bug, debug, net, template, prototype, branding, logo, sketchpad, computer-aided - design
- **Electrical Systems: Torches** - battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electricity, electrical item, function, insulator, series circuit, switch, test, torch, wire
- **Cooking & Nutrition: Adapting a Recipe** - adapt, budget, equipment, evaluation, flavour, ingredients, method, net, packaging, prototype, quantity, recipe, target audience, unit of measurement, utilities

Upper Key Stage Two

Year A

- **Structures: Bridges** - abutment, accurate, arched bridge, beam bridge, compression, coping saw, evaluation, file, forces, mark out, measure, predict, reinforce, research, right-angle, sandpaper, set square, shapes, strong structure, suspension bridge, tenon saw, tension, test, truss bridge, weak
- **Mechanisms: Automata Toys** - accurate, assembly-diagram, automata, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bits, exploded-diagram, finish, follower, frame, function, hand drill, jelutong, linkage, mark out, measure, mechanism, model, research, right-angle, set square, tenon saw
- **Digital World: Monitoring Devices** – monitor, electronic, sensor, thermoscope, thermometer, inventor, vivarium, programming loop, programming comment, ambient, alert, boolean, duplicate, microplastics, synthetic, molecules, versatile, water-resistent, durable, consumerables, CAD, replica, manoevre, manipulate, workplace, group, ungroup
- **Electrical Systems: Electrical Greetings Cards** – battery, buzzer, circuit, component, conductor, copper, design, design criteria, function, graphite, innovative, insulator, LED, modify, parallel circuit, series circuit, switch, target audience, test, wire
- **Textiles: Stuffed Toys** – accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffed toy, stuffing, template
- **Cooking & Nutrition: What could be healthier?** – beef, cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe, research, substitute, supermarket, vegan, vegetarian, welfare

Year B

- **Textiles: Waistcoats** – accurate, adapt, annotate, design, design criteria, detail, fabric, fastening, knot, properties, running-stitch, seam, sew, shape, target audience, target customer, template, thread, unique, waistcoat, waterproof
- **Structures: Playgrounds** – adapt, apparatus, bench hook, cladding, coping saw, design, dowel, evaluation, feedback, idea, jelutong, landscape, mark out, measure, modify, natural materials, plan view, playground, prototype, reinforce, skecth, strong, structure, tenon saw, texture, user, vice, weak
- **Electrical Systems: Steady Hand Games** – assemble, battery battery pack, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, function, insulator, LED, megnatic field, net, perspective drawing, plan, pliers, prototype, series circuit, side view, steady hand game, switch, symmetrical, target audience, test, top view, wire cutters
- Mechanisms: Pop-Up Books – aesthetic, computer-aided-design (CAD), caption, design, design brief, design criteria, exploded-diagram, function, input, linkage, mechanism, motion, output, pivot, prototype, slider, structure, template
- **Digital World: Navigating the World** – compass, pedometer, GPS tracker, navigation, cardinal compass, duplicate, program, loop, variable, boolean, corrode, mouldable, lightweight, sustainable, biodegradable, finite, infinite, product lifecycle, product lifespan, CAD, CGI, 3D, replica, manoeuvre, workplane, transparent, opaque, pitch, investment, client, concept, manufacture
- **Cooking & Nutrition: Come Dine with Me** – accompanient, adjective, caption, collaboration, cookbook, cross-contamination, equipment, farm, flavour, flavour, illustration, imperative-verb, ingredients, method, nationality, preparation, processed, reared, recipe, research, storyboard, target audience, top-tips, unit of measurement

Implementation: What are we doing?

Planning

St. Joseph and St. Bede R.C. Primary School: Design and Technology Whole School Overview

Year A

Key Stage One

Autumn 1: Jurassic World	Autumn 2: Jurassic World	Autumn 2: STEM Week	Spring 2: Magical Adventures	Summer 2: Food Safety Week
Mechanisms: Moving Monsters	**Textiles: Pouches**	**Mechanisms: Wheels and Axles**	**Structures: Windmills**	**Cooking & Nutrition: Fruits and Vegetables**
Designing • Devise and use design criteria • Plan for the design and creation of a mechanical toy • Draw simple diagrams to express ideas Making • Cut and assemble accurately • Select appropriate crafting materials and tools Evaluating • Carry out primary research, exploring and discussing existing objects which have linkages, levers and pivots Technical Knowledge • Identify inputs and outputs as part of a mechanism • Develop an understanding of how linkages, levers and pivots operate together	Designing • Develop and sketch design ideas using a template Making • Thread a needle • Sew a running stitch • Prepare fabrics for sewing • Tie a secure knot Evaluating • Discuss the making process and finished product • Review other's final outcome Technical Knowledge • Identify parts of a needle • Understand the alternative ways of joining fabrics and embellishments	Designing • Sketch, measure and plan the chassis of the vehicle, including a computer- based digital racing flag design Making • Adapt mechanisms, measuring and cutting accurately to a design brief • Work to scale and identify commonly used materials for wheel Evaluating • Research and test mechanisms Technical Knowledge • Investigate how wheels work as part of a full mechanism including axles and axle holders	Designing • Design for a client and consider the client's preferences and requirements • Follow a basic list of criteria Making • Use templates and nets • Select from basic crafting tools and materials to create a functional mechanical windmill Evaluating • Explore different forms of windmill structures • Test the finished windmill Technical Knowledge • Develop awareness of different structure formats • Form an understanding of how to turn 2D nets into 3D shapes	Designing • Design a smoothie carton, using traditional or digital (ICT) methods based on a chosen ingredient combination • Select fruits and vegetables for a smoothie recipe Making • Prepare, chop and blend fruit and vegetables Evaluating • Trial and explore combinations of ingredients, specifying favourite combinations Cooking and Nutrition • Recognise the difference between fruit and vegetables • Describe texture and taste • Develop knowledge about where fruit and vegetables grow

Lower Key Stage 2

Autumn 1: Ancient Greece	Autumn 2: Science – Electricity	Autumn 2: STEM Week		Spring 2: The Tudors	Summer 2: Food Safety Week
Textiles: Fastenings	**Electrical Systems: Static Electricity**	**Mechanisms: Slingshot Cars**	**Digital World: Electronic Charm**	**Structures: Castles**	**Cooking & Nutrition: Eating Seasonally**
Designing • Devise a list of design criteria • Plan production • Annotate isometric diagrams and sketches to further develop initial design ideas Making • Select appropriate fastening types and equipment to sew • Measure and cut fabric materials accurately Evaluating	Designing • Use research and design criteria to develop ideas • Determine the target audience • Utilise computer-aided design (CAD) to draw a box panel for the game Making • Use electrostatic energy to move objects in isolation as well as part of a system • Cut, measure and join various crafting materials Evaluating	Designing • Develop designs following a list of design criteria • Model and test the launch chassis Making • Select the materials and tools to measure, mark, cut and assemble accurately • Use nets and tabs to design and make the car chassis Evaluating • Test products in time trials • Compare to other's designs	Designing • Read a scenario and consider how a smart product could aid children walking at night • Develop design criteria to fulfil the need • Design 2D CAD display badges and mini stands. Making • Make a soft-foam pouch to house the microprocessor and LED screen for your flashing light to hang on a bag • Decorate the pouch to meet the design criteria	Designing • Plan for manufacture • Establish and use a design criteria to help focus and evaluate their work • Utilise research to inform idea generation Making • Use more demanding practical skills (paper engineering/ paper folding techniques) • Include traditional and digital net creation using computer-aided design (CAD)	Designing • Generate and adapt a seasonal recipe idea based on research • Design to simple criteria Making • Safely prepare fruit and vegetables • Follow a recipe • Adapt a recipe Evaluating • Taste and evaluate their dessert against design criteria

Timetabling

ART / D&T – Whole School Year A & B

Key Stage 1:

Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Jurassic World		Magical Adventures		All Creatures: Great and Small	
Art & Design	Key Skills Week		Collage using different media		Sculptures and Collages (Living things)	Formal Elements (Children's Art Week)
Design & Technology	**Mechanisms:** Moving Monster	**Textiles:** Pouches **Mechanisms:** Wheels and Axles (STEM Week)		**Structures:** Constructing a Windmill		**Cooking & Nutrition:** Fruit and Vegetables (Food Safety Week)

Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Quests and Journeys		Space		Explorers	
Art & Design	Key Skills Week		Sculpture and Mixed Media		Human Form	Formal Elements (Children's Art Week)
Design & Technology	**Mechanisms:** Moving Story Book	**Textiles:** Puppets **Mechanisms:** Fairground Wheel (STEM Week)		**Structures:** Baby Bear's Chair (Science – Materials)		**Cooking & Nutrition:** A Balanced Diet (Food Safety Week)

Wider Experiences

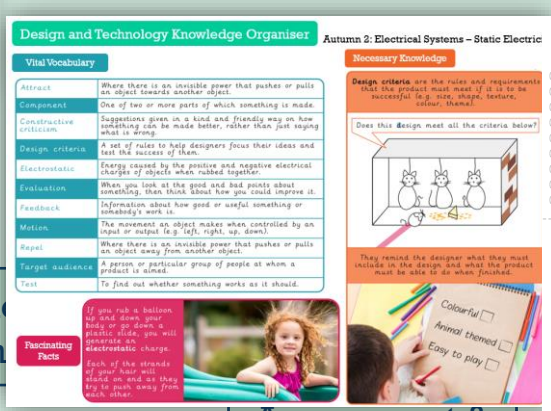
STEM – SCIENCE TECHNOLOGY ENGINEERING MATHMATICS

MANCHESTER CITY 1894 – CITY IN THE COMMUNITY

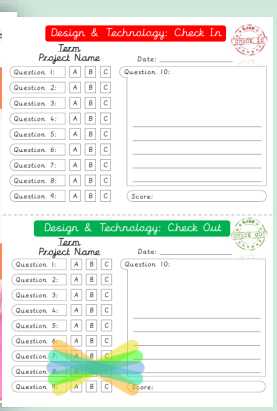
Online Resources

Kapow Primary™

Knowledge Organisers



Assessment & Monitoring



Seesaw

Staff CPD

Implementation: Planning

Whole School Overview

Organised into Year A and Year B.

St. Joseph and St. Bede R.C. Primary School: Design and Technology Whole School Overview

Year A

Key Stage One

Autumn 1: Jurassic World	Autumn 2: Jurassic World	Autumn 2: STEM Week	Spring 2: Magical Adventures	Summer 2: Food Safety Week
Mechanisms: Moving Monsters	**Textiles: Pouches**	**Mechanisms: Wheels and Axles**	**Structures: Windmills**	**Cooking & Nutrition: Fruits and Vegetables**
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Lower Key Stage 2

Autumn 1: Ancient Greece	Autumn 2: Science – Electricity	Autumn 2: STEM Week		Spring 2
Textiles: Fastenings	**Electrical Systems: Static Electricity**	**Mechanisms: Slingshot Cars**	**Digital World: Electronic Charm**	**Structu**
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• Research and analyse methods of fastening fabric, determining the strength and use of each Technical Knowledge • Understand stitches and fastenings and their pros and cons • Know how to use pattern pieces to tesselate and save fabric as well as produce more accurate results	• Evaluate and adapt designs • Experiment with scientific theories to inform a design • Listen and act on constructive feedback gathered from others Technical Knowledge • Understand what static electricity is and how to generate it • Know what a target audience is • Construct nets as part of a product to house a game	• Discuss and record ways to improve the speed of the car • Review and learn about aerodynamic shapes in cars Technical Knowledge • Utilise car-part terminology (e.g. chassis) • Consolidate net and temple creation • Recognise key mechanisms as part of a product's key functionality	Evaluating • Consider the impact of the digital revolution across a range of well-known products and the new wave of smart wearables Technical Knowledge • Apply computing skills to develop a program that will provide a flashing light as part of a bag charm • Extend the program to automatically flash when the light levels drop too low.	Evaluating • Reflect on their project as it progresses • Evaluate their own and others' final product Technical Knowledge • Apply prior understanding and increasing knowledge of paper or card nets and structures • Consolidate methods and techniques to improve stability and strength	Cooking & Nutrition • Know what foods are in season and when • Understand the benefits of various foods • Know how climate affects which food can grow naturally in different environments

Upper Key Stage 2

Autumn 1: Rivers & Mountains	Autumn 2: STEM Week		Spring 1: Science – Electricity	Spring 2: Journeys	Summer 2: Food Safety Week
Structures: Bridges	**Mechanisms: Automata Toys**	**Digital World: Monitoring Devices**	**Electrical Systems: Electrical Greetings Cards**	**Textiles: Stuffed Toys**	**Cooking & Nutrition: What could be healthier?**
Designing • Design arch and truss bridges • Model various methods of bridge-making Making • Use triangulation for bracing • Select appropriate tools and equipment to cut wood down to size and to achieve a high-quality finish Evaluating • Test through trial and error to evaluate the successful and unsuccessful functional properties of a design and its materials Technical Knowledge • Understand the importance of compression and tension in bridge structures • Establish methods of reinforcing more complex structures to improve strength stability and stiffness	Designing • Draw and annotate exploded and cross-sectional diagrams to illustrate idea • Model various cam shapes • Generate ideas based on a design brief Making • Measure, mark and cut woodwork accurately • Select appropriate equipment • Assemble components accurately to create a fully functional mechanical toy Evaluating • Experiment with cams to establish which movement is fit for purpose against their design ideas • Investigate and discuss existing automata toys • Check accuracy of joints Technical Knowledge • Understand the relationship between the cam, follower, axle, handle and topper, as part of a complete mechanism • Create a stable frame structure to support the mechanism	Designing • Generate and communicate ideas using thumbnail sketches, exploded-diagrams and modelling • Draw plans to house the mechanism Making • Select appropriate materials and equipment for functional and aesthetic purposes Evaluating • Asses how well their product works and if it matches their original design ideas and criteria Technical Knowledge • Understand how pneumatic systems work • Identify the key inputs and outputs of the mechanism • Express the need for visual communication in the design process	Designing • Apply scientific knowledge to generate design ideas • Identify the target audience • Consider methods of incorporating the circuitry Making • Select materials based on their properties • Create and incorporate a functional series circuit concealing it inside card Evaluating • Experiment with and test series and parallel circuits to determine which would be fit for purpose as part of their design ideas Technical Knowledge • Draw circuit diagrams and symbols • Know the function of different circuit components • Understand terminology: insulator, conductor, LED, battery	Designing • Design for a purpose • Consider which techniques and materials to use • Create a paper pattern piece for the main body and individually for and additional components Making • Select and use appropriate stitch types to join and attach materials depending on their properties Evaluating • Compare 3D object to 2D design • Evaluate existing stuffed toys • Identify poor sewing technique and where possible rectify it Technical Knowledge • Identify methods of joining fabric effectively • Know how to create a hidden seam and seal stuffing	Designing • Adapt an existing recipe Making • Cut, prepare and cook vegetables and meat hygienically • Use kitchen equipment such as knives, hot pans and hobs in a safe manner • Recognise when meat is cooked Evaluating • Taste and ~~feed-back~~ on existing pre-made sauces • Suggest substitute ingredients Cooking & Nutrition • Know where meat comes from and understand ethical issues around beef • Identify the nutritional values and contents on packaged food • Make healthier ingredient swaps

In each Key Stage, each topic is highlighted.

Each topic includes objectives which correlate with the progression document.

Implementation: Timetabling

ART / D&T – Whole School Year A & B

Key Stage 1:

Year A						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Jurassic World		Magical Adventures		All Creatures: Great and Small	
Art & Design	Key Skills Week		Collage using different media		Sculptures and Collages (Living things)	Formal Elements (Children's Art Week)
Design & Technology	**Mechanisms:** Moving Monster	**Textiles:** Pouches **Mechanisms:** Wheels and Axles (STEM Week)		**Structures:** Constructing a Windmill		**Cooking & Nutrition:** Fruit and Vegetables (Food Safety Week)

Year B						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Quests and Journeys		Space		Explorers	
Art & Design	Key Skills Week		Sculpture and Mixed Media		Human Form	Formal Elements (Children's Art Week)
Design & Technology	**Mechanisms:** Moving Story Book	**Textiles:** Puppets **Mechanisms:** Fairground Wheel (STEM Week)		**Structures:** Baby Bear's Chair (Science – Materials)		**Cooking & Nutrition:** A Balanced Diet (Food Safety Week)

A plan for yearly topics can be found on the server to help staff plan accordingly.

There are 5 or 6 Design and Technology units planned for each year and these fit around Art and Design units.
(KS1 have 5 units, KS2 have 6)

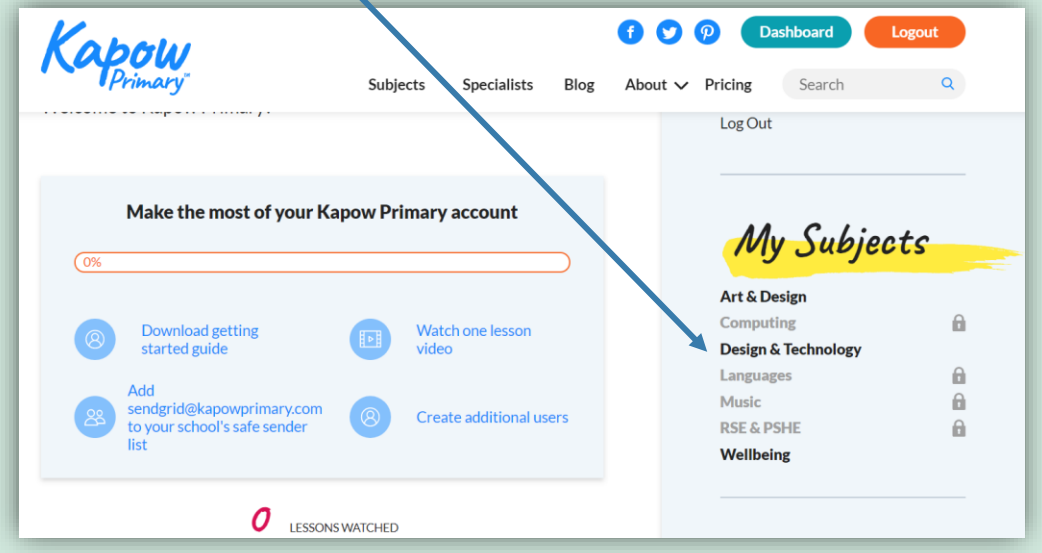
Some units are planned within a half term. It is at teacher's discretion whether these units are taught within one week or spread over the half term.

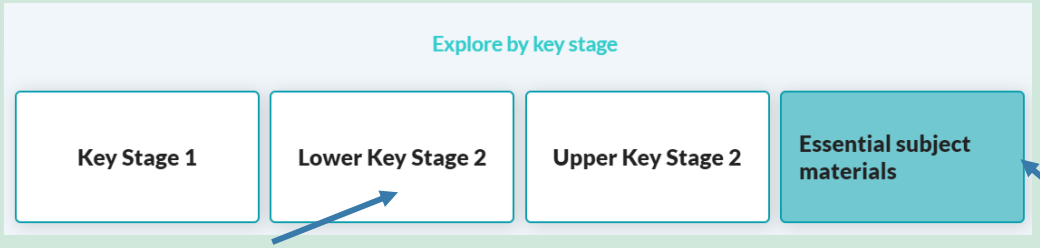
Some units are planned over a set week, in which DT is the primary focus. An example of this is during STEM week in which up to 2 units are covered. These units link to maths/ science/ computing skills. This also applies to units taught in Food Safety Week.

Implementation: Online Resources

To facilitate teaching and provide staff with CPD, we have subscribed to online resources from Kapow Primary for the upcoming academic year.

The teacher dashboard shows the curriculum areas that staff have access to.

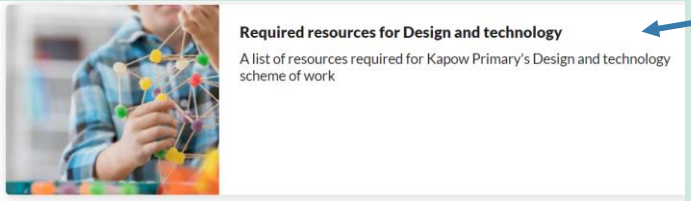




Units and lesson resources can be located in the relevant Key Stage.

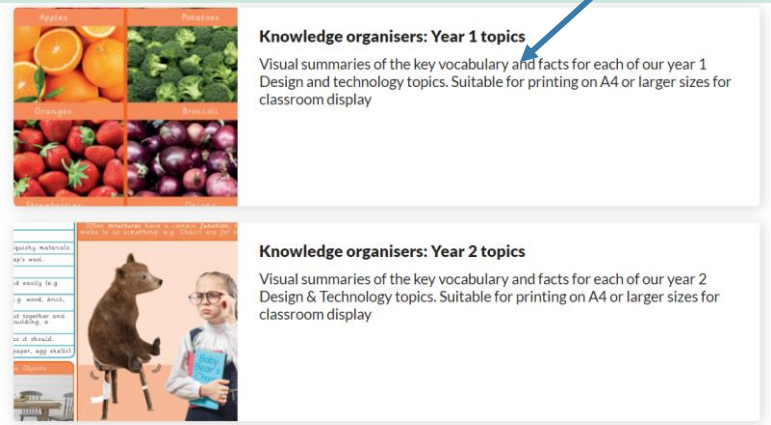
Additional subject materials to aid teaching.

Teaching videos to aid demonstration in lessons.



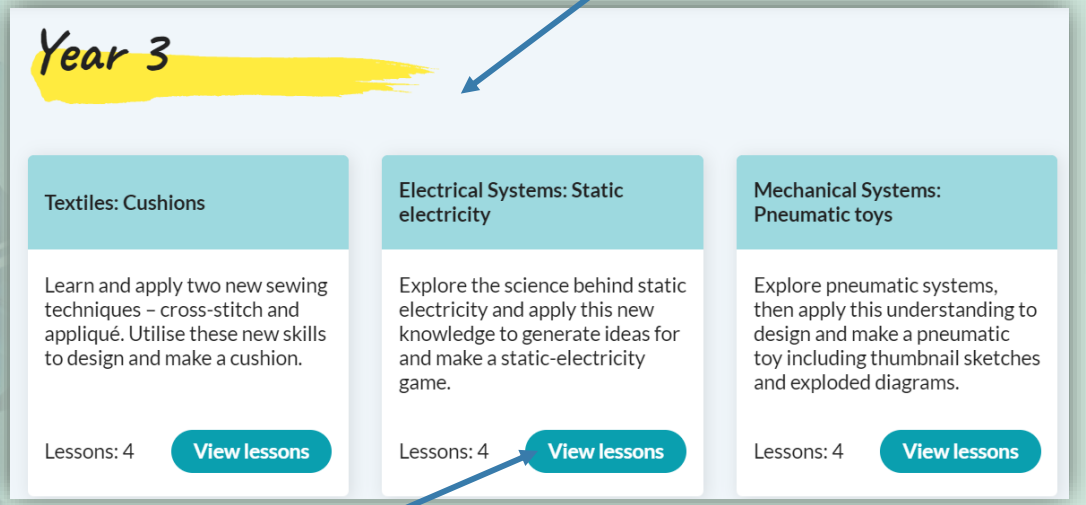
Resource lists for each unit.

Resources to help staff create unit knowledge organisers.



Implementation: Online Resources

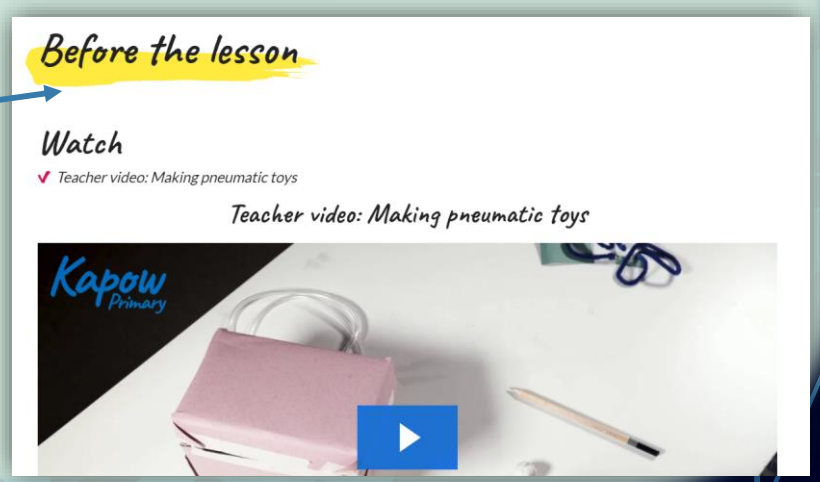
A further breakdown of Kapow Primary resources.



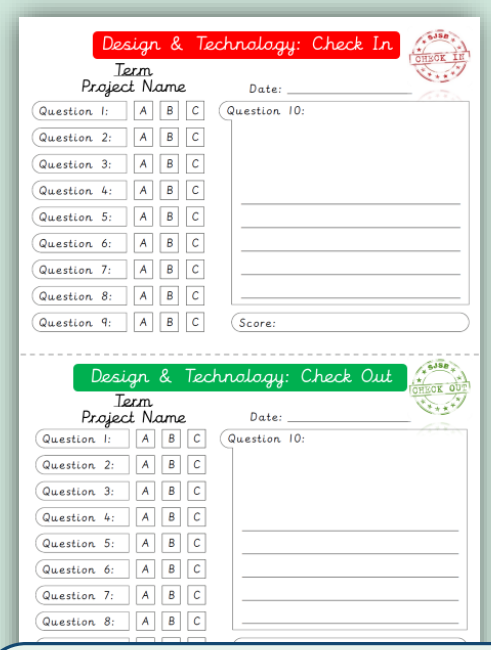
Under each key stage, each unit can be found with the corresponding number of lessons.

Units are broken down lesson by lesson in which you can find all necessary resources including videos and slide presentations.

Staff have the opportunity to develop skills prior to the lesson using CPD videos.



Implementation: Assessment & Monitoring


Design & Technology: Check In

Term

Project Name

Date:

Question 1: A B C
Question 2: A B C
Question 3: A B C
Question 4: A B C
Question 5: A B C
Question 6: A B C
Question 7: A B C
Question 8: A B C
Question 9: A B C

Question 10:

Score:

Design & Technology: Check Out

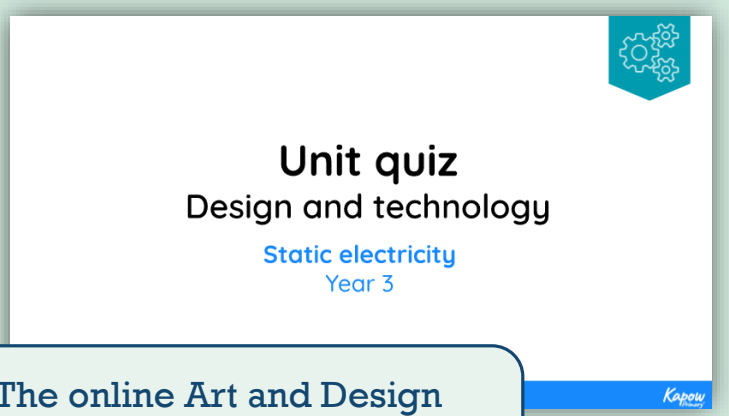
Term

Project Name

Date:

Question 1: A B C
Question 2: A B C
Question 3: A B C
Question 4: A B C
Question 5: A B C
Question 6: A B C
Question 7: A B C
Question 8: A B C

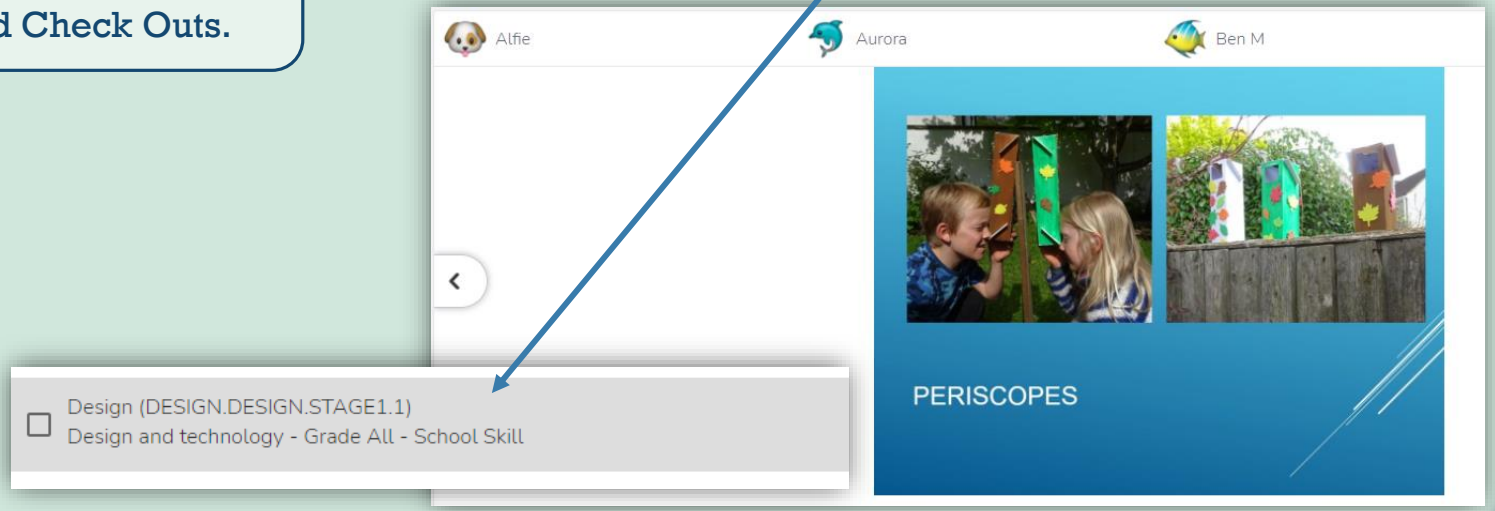
Question 10:



The online Art and Design quizzes are used to facilitate the Check Ins and Check Outs.

Check Ins & Check Outs
Testing children's knowledge at the start and end of a unit to check progress.

SeeSaw Skills
Children upload images of their Art and Design work to SeeSaw and objectives from the NC can be ticked off using the skills features.

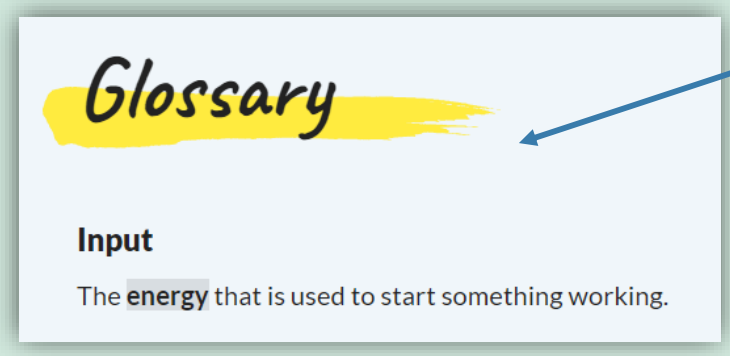


Implementation: Staff CPD

Via Kapow Primary, staff have access to resources for CPD.

Demonstration videos are available for staff to practise techniques before teaching.

Online documents ensuring staff knowledge of DT.



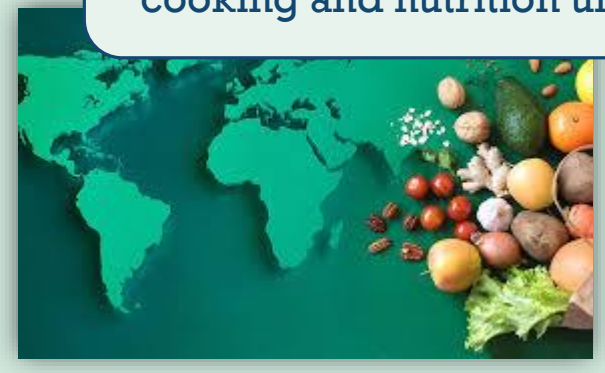
An online glossary supports staff with understanding of key Art and Design terminology and also provides and introduction to artists studied.

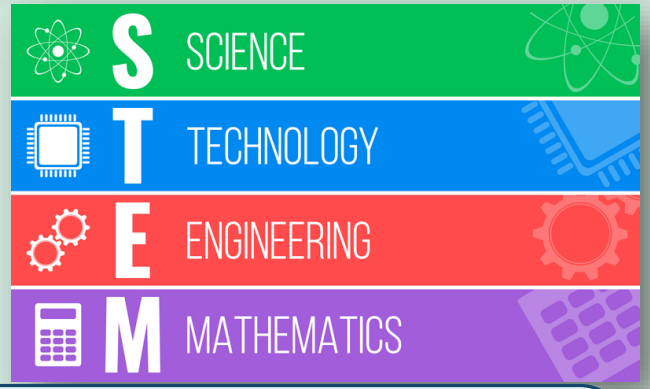
Implementation: Wider Experiences

City in the Community
Workshops held weekly for UKS2 in which they develop cooking and nutrition skills.

MOSI Visit
LKS2 visit to MOSI during Electricity science topic and Electrical Systems unit in DT

Food Safety Week
Focus weeks to engage in cooking and nutrition units.





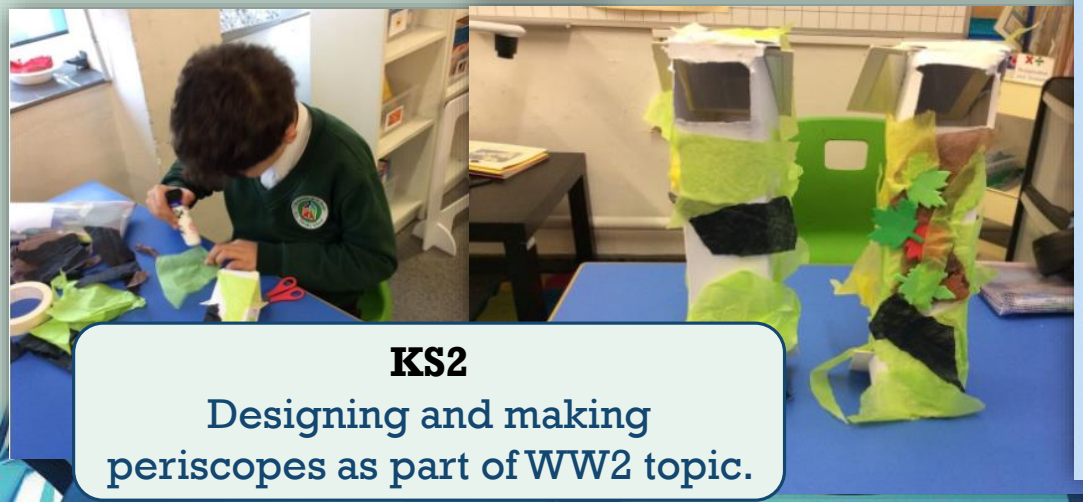
STEM Week – Autumn 2
Units planned around STEM subjects. KS1 complete one unit and KS2 complete two units. All units link to maths, science or computing.

Impact: What does Design and Technology look like at SJSB?

EYFS
Building stable structures to replicate Jack's beanstalk.

EYFS
Chopping and mixing ingredients for pumpkin soup.

KS1
Designing and sewing puppets linking to African animals.



KS2
Designing and making periscopes as part of WW2 topic.

KS2
Cooking and nutrition with City in the Community.

Next Steps: Action Plan

Intent		Implementation			Impact
Action	Success Criteria	Who?	By when?	RAG Not begun In progress Complete	Outcome
Share updated Design and Technology overview and timetabling with staff.	• Staff will know which units are being completed in which half term. • They will be able to resource accordingly. • They will be able to adapt medium term plans as necessary.	Subject leader	July 2021	Not begun	
Long Term Plans to be updated with new units.	• LTPs will correspond with Whole School Overview.	Class teachers in unit teams	September 2021	Not begun	
Ensure that staff each receive personal logins to access Kapow online resources and CPD opportunities.	• Each staff member will have access to Kapow. • Staff will feel support with planning and resourcing lessons. • Staff can develop skills and techniques before teaching.	Subject leader	July 2021	Not begun	
Ensure deep dive questions are completed.	• Question responses will clearly exemplify intent, implementation and impact.	Subject leader	September 2021	In progress	
Ensure that staff are familiar with use of skills on SeeSaw.	• Staff will use skills to identify NC objectives that children have met in Art & Design.	Subject leader	September 2021	In progress	
Update online learning journey to correspond with progression of skills.	• Completed learning journey will link to objectives on progression document.	Subject leader	July 2021	In progress	
Amend and update policy.	• Policy will include clear communication of school intent, implementation and impact.	Subject leader	July 2021	In progress	
Look in to DT exercise books.	• Children will have a space to record design work and evaluate their products.	Subject leader	July 2021	In progress	