



DESIGN & TECHNOLOGY CURRICULUM

Long-Term Overview

A curriculum for purposeful creativity, technical knowledge, practical capability and innovation.

Park Road Academy uses Kapow Primary as its Design and Technology curriculum spine. Learning is deliberately sequenced from exploratory designing and making in EYFS to increasingly precise research, technical systems, manufacture, testing and independent problem-solving by Year 6.

The overview combines statutory curriculum entitlement with World Space Week and British Science Week STEM enrichment, real-world careers, cultural capital, inclusion, sustainability and consistent assessment.

CURRICULUM DESIGN

Progressive Kapow curriculum, design-make-evaluate cycle and assessment.

ENRICHMENT

World Space Week (October) DT/STEM Project • British Science Week (March) STEM workshops across the school • challenges • visits • workshops and masterclasses.

CULTURAL CAPITAL

Products, engineering, architecture, textiles, food, mechanisms, electronics and sustainable design.

BRITISH VALUES

Voice, collaboration, safety, responsibility, respectful evaluation and informed choice.

INCLUSION

Adaptive tools, materials, processes and equitable practical access with high ambition.

CAREERS

Visible routes into design, engineering, construction, textiles, food, electronics and hospitality.

SPECIALISTS

Purposeful links with designers, engineers, makers, chefs, food specialists and community expertise.

SUSTAINABILITY

Responsible materials, repair, reuse, food provenance, reduced waste and durable design choices.

EYFS FOUNDATIONS	KS1 DEVELOP & APPLY	LOWER KS2 REFINE & CONNECT	UPPER KS2 DESIGN & RESOLVE
Materials • joining • construction • simple movement • food preparation • tool control • design talk • testing	User & purpose • design criteria • stable structures • textiles • wheels & axles • food origin • healthy eating • test & improve	Seasonality • seams • nets • framed structures • gears & pulleys • recipe adaptation • prototypes • accurate measuring	Circuits & motors • mechanical systems • recipe development • garments • specifications • quality control • hospitality • independence

INTENT	IMPLEMENTATION	IMPACT
Every pupil develops design confidence, technical knowledge and practical capability; experiences structures, mechanisms, electrical systems, textiles and food; designs for real users and purposes; and learns to evaluate and improve.	Kapow Primary provides the curriculum spine. Teachers analyse existing products, model vocabulary, technical concepts and safe practice; build deliberate practical rehearsal; and move pupils from design criteria through manufacture, testing and iteration.	Pupils know more, can do more and remember more. They select tools, materials, ingredients and components with increasing accuracy, explain how products work, solve problems, test against criteria and improve independently.
INCLUSION	ASSESSMENT	CULTURAL CAPITAL
Tools, scale, materials, templates, communication, pace, modelling and adult support are adapted where needed. Success includes technical understanding, practical control, problem-solving, creativity, independence and evaluation.	Formative assessment uses questioning, product analysis, designs, prototypes, practical outcomes, testing and evaluation. Teachers assess achievement against relevant Kapow objectives and record judgements on FFT at the end of each half term.	Pupils encounter everyday and specialist products, engineering, architecture, textiles, food traditions, manufacturing, sustainability and careers; enrichment links design learning to real-world problems and future pathways.

BUILD

Secure safe tool use, material knowledge, food hygiene and simple design-and-make foundations before increasing technical demand.

REVISIT

Return to users, purposes, structures, joining, mechanisms, textiles, food and evaluation through new products and contexts.

REFINE

Use research, prototypes, vocabulary, testing, feedback and evidence to improve accuracy, function and decision-making.

INNOVATE

Increase independence, specification writing, problem-solving, iteration, quality control and responsibility for purposeful outcomes.

DESIGNING & USERS

User • purpose • research • existing products • brief • criteria • specification • sketch • model • prototype

EVALUATING & ITERATING

Test • compare • feedback • evidence • fault • adapt • refine • quality control • user experience

MECHANISMS & MECHANICAL SYSTEMS

Wheel • axle • rotation • gear • driver • follower • pulley • belt • tension • mechanical advantage

TEXTILES

Fabric • template • pattern piece • seam • seam allowance • stitch • fastening • fit • finish

MAKING & PRACTICAL SKILLS

Select • measure • mark • cut • join • assemble • prepare • sew • cook • finish • safe tool use

STRUCTURES

Stability • base • frame • shell • net • triangulation • bracing • reinforcement • cladding • load

ELECTRICAL SYSTEMS

Circuit • cell • motor • switch • buzzer • conductor • insulator • continuity • connection • control

COOKING & NUTRITION

Ingredients • hygiene • food origin • balanced diet • seasonality • recipe • adaptation • nutrition • presentation

EYFS Long-Term Curriculum Map

Build curiosity, practical confidence and early design thinking. Children explore materials, tools, construction, food and simple problems through purposeful play.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	What makes me special?	What do I celebrate?	Can you tell me a tale?	What do you see on the Farm?	Who are our helping heroes?	Where shall we travel to?
Reception	Who am I? / Who lives around me?	Where will my imagination take me?	What happens in our world?	Do I want to be a knight? / How did people from the past get around?	Where do animals live? / Are Minibeasts like me? / How does your garden grow?	Do I want to be a pirate?

ENRICHMENT

World Space Week (October) DT/STEM Project • British Science Week (March) STEM workshops across the school • personalised models and joining • celebration products • story props and puppets • model farms and shelters • safety products • vehicles, boats and waterproofing challenges

CAREERS MADE VISIBLE

Toy/Product Designer • Event Designer • Craft Maker • Model/Prop Maker • Farm Equipment Designer • Safety Equipment Designer • Engineer • Architect • Construction Designer • Environmental Designer • Garden/Ship Designer • Inventor

PROGRESSION EMPHASIS

Explore, choose and combine materials; cut, fold, join, build, mix and test; talk about who a product is for and what it should do; develop safe tool use, fine-motor control and willingness to change an idea.

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KS1 Long-Term Curriculum Map

Design purposeful products for known users. Pupils develop safe practical skills, technical vocabulary and simple testing across structures, textiles, mechanisms and food.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Structures: Stable structures	Structures: Stable structures	Textiles: Puppets	Textiles: Puppets	Cooking and nutrition: Fruits and vegetables	Cooking and nutrition: Fruits and vegetables
Year 2	Structures: Baby Bear's chair	Structures: Baby Bear's chair	Cooking and nutrition: A balanced diet	Cooking and nutrition: A balanced diet	Mechanisms: Fairground wheel	Mechanisms: Fairground wheel

ENRICHMENT

World Space Week (October) DT/STEM Project • British Science Week (March) STEM workshops across the school • local architecture and structure challenges • puppet theatre and sewing • fruit tasting/smoothie making • furniture design and load testing • healthy wrap workshop • class fairground exhibition

CAREERS MADE VISIBLE

Structural Engineer • Architect • Construction Designer • Textile Designer • Toy Designer • Costume Maker • Chef • Nutritionist • Food Product Developer • Furniture/Product Designer • Joiner/Carpenter • Dietitian • Food Technologist • Mechanical Engineer • Ride Designer

PROGRESSION EMPHASIS

Move from EYFS exploration to simple design criteria, templates and more accurate making. Build stable and strengthened structures, join textiles, prepare food hygienically, construct a wheel-and-axle mechanism, test function and explain improvements.

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LKS2 Long-Term Curriculum Map

Refine and connect design knowledge. Pupils research users and contexts, measure more accurately, use prototypes and apply technical understanding across food, textiles, structures and mechanisms.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	Cooking and nutrition: Eating seasonally	Cooking and nutrition: Eating seasonally	Textiles: Cushions	Textiles: Cushions	Structures: Constructing a castle	Structures: Constructing a castle
Year 4	Structure: Pavilions	Structure: Pavilions	Cooking and nutrition: Adapting a recipe	Cooking and nutrition: Adapting a recipe	Mechanical systems: Gears and pulleys	Mechanical systems: Gears and pulleys

ENRICHMENT

World Space Week (October) DT/STEM Project • British Science Week (March) STEM workshops across the school • seasonal food tasting using local produce • textiles workshop • castle visit/build challenge • architecture walk • recipe-development workshop • engineering challenge using gears and pulleys

CAREERS MADE VISIBLE

Sustainability Food Advisor • Chef • Food Supply Chain Manager • Interior/Textile/Soft Furnishings Designer • Civil Engineer • Architectural Model Maker • Heritage Building Consultant • Architectural/Structural/Exhibition Designer • Food Product Developer • Development Chef • Automotive/Mechanical Engineer • STEM Engineering Technician

PROGRESSION EMPHASIS

Develop more accurate measuring, cutting, sewing, net construction and food preparation. Research context and user; use annotated ideas and prototypes; understand framed structures, seasonality, recipe variables, gears and pulleys; compare evidence and refine.

UKS2 Long-Term Curriculum Map

Design, manufacture and evaluate with increasing independence. Pupils combine technical systems, precise practical processes, specifications, quality control and real-world presentation.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	Electrical systems: Doodlers	Electrical systems: Doodlers	Mechanical systems: Gears and pulleys	Mechanical systems: Gears and pulleys	Cooking and nutrition: Developing a recipe	Cooking and nutrition: Developing a recipe
Year 6	Textiles: Waistcoats	Textiles: Waistcoats	Electrical systems: Steady hand game	Electrical systems: Steady hand game	Cooking and nutrition: Come dine with me	Cooking and nutrition: Come dine with me

ENRICHMENT

World Space Week (October) DT/STEM Project • British Science Week (March) STEM workshops across the school • STEM electronics workshop and Doodler exhibition • paper-engineering/mechanism challenge • healthy recipe development • fashion/waistcoat workshop • steady-hand games arcade • Come Dine With Me event for invited guests

CAREERS MADE VISIBLE

Electrical Engineer • Product Electronics Designer • Robotics Technician • Paper Engineer • Book/Toy & Games Designer • Public Health Nutritionist • Food Policy Advisor • Fashion Designer • Tailor • Costume Designer • Electronics Engineer • Game Designer • Product Tester/Quality Engineer • Restaurant Chef • Hospitality Manager • Food Writer

PROGRESSION EMPHASIS

Work from research and increasingly measurable specifications. Combine electrical, mechanical, textile and food knowledge; manufacture accurately; diagnose faults; test performance and user experience; manage resources and timing; justify trade-offs and refine independently.

Progression at a Glance

A concise inspection-facing view of increasing design and technical sophistication

Progression thread	EYFS	KS1	Lower KS2	Upper KS2 / End Point
Designing & users	Explores products through play; talks about what to make and who may use it.	Identifies a user and purpose; uses simple criteria, labelled drawings and templates.	Researches context and users; develops briefs, annotated ideas, prototypes, nets and pattern pieces.	Writes increasingly measurable specifications; uses technical diagrams, pattern pieces, menus and production plans to communicate justified solutions.
Making & practical skills	Cuts, folds, joins, stacks, mixes and assembles with growing control and safe routines.	Selects familiar tools/materials; measures, cuts, joins, sews and prepares food more accurately.	Uses a wider range of tools and processes accurately: seams, nets, frames, gears, pulleys and recipe adaptation.	Coordinates complex electrical, mechanical, textile and food processes with precision, independence, quality control and resource management.
Evaluating & iteration	Tries products, notices problems and makes simple changes.	Tests stability, movement, joining and taste; compares against criteria and makes purposeful improvements.	Uses prototypes, sensory/functional tests and feedback; records evidence and explains modifications and trade-offs.	Diagnoses faults, tests reliability and user experience, evaluates against specification and refines independently using evidence.
Structures & mechanisms	Builds and balances; explores wheels, ramps and moving parts.	Builds stable/strengthened structures and constructs a wheel-and-axle mechanism.	Applies nets, shell/frame structures, triangulation, gears and pulleys to functional products.	Applies mechanical knowledge within complex products and explains how component choices affect speed, force, movement and reliability.
Electrical & textiles	Explores flexible materials, simple joins and everyday switches with adult support.	Uses templates and simple sewing; names parts/components and develops accurate joining.	Sews seams and fastenings; uses textiles as components; prepares for increasingly complex technical systems.	Builds and troubleshoots motor/buzzer circuits; understands conductors/insulators; adapts pattern pieces and constructs a fitted textile product.
Cooking & nutrition	Explores ingredients, food origins, hygiene and sensory language.	Identifies fruits/vegetables and food groups; prepares simple healthy products hygienically.	Explains seasonality; follows and adapts recipes using accurate measuring, controlled variables and sensory evidence.	Develops recipes for nutritional purpose and plans, prepares and presents a coordinated meal considering hygiene, timing, guest needs and hospitality.

Careers Pathways in Design & Technology

From primary design experiences to real UK education, training and professional routes

CAREERS ARE WOVEN THROUGH THE CURRICULUM - NOT ADDED AS A SEPARATE EVENT

PARK ROAD	SECONDARY	14–16	POST-16	CAREER ENTRY
Kapow units • World Space Week DT/STEM project • British Science Week STEM workshops • structures • mechanisms • circuits • textiles • food • authentic design challenges • careers	KS3 Design & Technology • Food Preparation & Nutrition • STEM / engineering / coding clubs • practical projects • enterprise and careers experiences	GCSE Design & Technology / Engineering / Food Preparation & Nutrition / Art & Design / relevant sciences and computing where offered	A Level Design & Technology / Product Design / sciences • T Levels • Level 3 Engineering / Construction / Food / Hospitality / Art & Design • apprenticeships	Degree / degree apprenticeship • higher or advanced apprenticeship • professional qualification • specialist training • portfolio / industry experience • employment

Routes vary by role and provider. The pathway cards below show credible examples rather than a single compulsory route.

PRODUCT DESIGNER

Curriculum link: user research, design criteria, prototypes, materials, manufacture and evaluation

ROUTE School D&T projects → GCSE Design & Technology → A Level Product Design / BTEC Design → BA (Hons) Product / Industrial Design OR product-design apprenticeship → design roles.

STRUCTURAL / CIVIL ENGINEER

Curriculum link: structures, stability, load, frames, materials, testing and problem-solving

ROUTE Structures and STEM interest → GCSE Maths & Science / D&T → A Levels Maths/Physics or Level 3 Engineering → Civil/Structural Engineering degree or degree apprenticeship → professional engineering development.

TEXTILE DESIGNER

Curriculum link: fabric properties, templates, stitches, seams, pattern, function and aesthetics

ROUTE School textiles → GCSE Art & Design / D&T → A Level Textiles / BTEC Art & Design or Fashion → BA (Hons) Textile Design / related apprenticeship → textile and product roles.

CHEF / FOOD PRODUCT DEVELOPER

Curriculum link: food preparation, hygiene, recipe design, nutrition, sensory testing and iteration

ROUTE School cooking → GCSE Food Preparation & Nutrition → professional cookery / Level 3 Food or Hospitality / apprenticeship → chef, development-kitchen or food-product roles; degree routes may support food science/development.

MECHANICAL ENGINEER

Curriculum link: wheels, axles, gears, pulleys, force, movement, testing and precision

ROUTE Mechanisms and STEM → GCSE Maths & Science / D&T → A Levels Maths/Physics or Level 3 Engineering → Mechanical Engineering degree / degree apprenticeship → engineering roles.

ARCHITECT / ARCHITECTURAL DESIGNER

Curriculum link: structures, scale, spatial thinking, materials, modelling and user needs

ROUTE School structures and drawing → GCSE Art / D&T plus Maths → A Levels / equivalent → Architecture degree route and professional stages OR architectural technology/design routes → built-environment careers.

ELECTRICAL / ELECTRONICS ENGINEER

Curriculum link: circuits, motors, switches, conductors, testing and fault diagnosis

ROUTE Electrical systems and science → GCSE Maths & Science / D&T → A Levels Maths/Physics or Level 3 Engineering → Electrical/Electronic Engineering degree, degree apprenticeship or technician route → industry roles.

ROBOTICS / ENGINEERING TECHNICIAN

Curriculum link: motors, mechanisms, electronics, assembly, troubleshooting and maintenance

ROUTE STEM projects → GCSE Science / D&T / Computing → BTEC / T Level / engineering apprenticeship → Level 3+ technician qualifications → robotics, manufacturing or maintenance roles.

FASHION DESIGNER / TAILOR

Curriculum link: pattern pieces, textiles, seam allowance, accurate construction, fit and finish

ROUTE School textiles → GCSE Art/Textiles/D&T → A Level Fashion/Textiles, BTEC or tailoring apprenticeship → fashion/textile degree or vocational training → design, garment or tailoring roles.

FOOD TECHNOLOGIST / NUTRITION PROFESSIONAL

Curriculum link: nutrition, ingredients, food science, product development, hygiene and evaluation

ROUTE Food and science interest → GCSE Food Preparation & Nutrition / Science → A Levels / Level 3 Food Science → Food Technology, Nutrition or Dietetics degree / relevant apprenticeship → food, nutrition or development roles.

MODEL / CONSTRUCTION DESIGNER

Curriculum link: nets, structures, prototypes, scale, materials, assembly and presentation

ROUTE Model-making and structures → GCSE D&T / Art → BTEC Design / Construction or apprenticeship → HND / degree in model making, construction or built environment → technical design and model roles.

QUALITY / PRODUCT TEST ENGINEER

Curriculum link: specifications, systematic testing, reliability, evidence, fault diagnosis and improvement

ROUTE School testing and engineering → GCSE Science / D&T → Level 3 Engineering / apprenticeship / A Levels → engineering or quality-related HND/degree/apprenticeship → testing, quality and manufacturing roles.

Wider Curriculum, Real-World Provision & Sustainability

What makes the Park Road Design and Technology offer distinctive

REAL-WORLD & SPECIALIST CONNECTIONS

Planned workshops, visitors and visits connect pupils with engineers, designers, makers, chefs, food specialists, architecture and manufacturing. Authentic briefs help pupils see how technical knowledge and practical skills operate beyond school.

STEM, SCIENCE & COMPUTING LINKS

Structures connect to forces and materials; mechanisms to movement; electrical systems to circuits and control; food to nutrition and science; measuring, ratio and data support mathematics; digital design and coding can extend product development.

ENRICHMENT & AUTHENTIC OUTCOMES

World Space Week is a whole-school DT/STEM project each October. British Science Week in March includes STEM workshops delivered across the school. Pupils also experience design challenges, local visits, taste tests, product exhibitions, a fairground display, games arcade and Come Dine With Me-style event.

BRITISH VALUES & CHARACTER

Democracy through user voice and team decisions; rule of law through safety, hygiene and responsible tool use; individual liberty through design choice; mutual respect through collaboration, feedback and consideration of different users.

SUSTAINABILITY

Reuse and repurpose materials; consider durability, repair, waste and sourcing; understand food origin, seasonality and local produce; compare environmental consequences and design products that use resources thoughtfully.

SUBJECT LEADERSHIP

Triangulate curriculum planning, designs/prototypes and outcomes, lesson visits, pupil voice, vocabulary, half-termly Kapow objective judgements recorded on FFT, enrichment access, staff confidence, safety and coverage. Use findings to identify strengths, gaps and next steps.

CURRICULUM This overview • Kapow Primary units • progression • National Curriculum mapping • EYFS links • vocabulary	TEACHING Lesson visits • product analysis • modelling • technical vocabulary • safe practical routines • adaptive teaching • pupil application
ASSESSMENT Kapow objectives • half-termly FFT assessment records • questioning • designs/prototypes • practical outcomes • testing • evaluation	INCLUSION Adaptive tools/materials/processes • SEND support • equitable enrichment access • ambitious functional outcomes • pupil voice
DESIGN PROCESS & PRODUCTS Research • user/purpose • criteria/specification • sketches/diagrams • prototypes • manufacture • testing • final product • evaluation	ENRICHMENT World Space Week DT/STEM project • British Science Week STEM workshops • trips • design challenges • food experiences • exhibitions • authentic audiences
SAFETY & RESOURCES Tool routines • food hygiene • risk assessment • equipment care • appropriate supervision • safe storage and use	CAREERS Curriculum-linked roles • pathway cards • STEM and creative industries • hospitality • engineering • real-world connections
SUSTAINABILITY Reuse/repair • material choice • durability • waste reduction • food provenance/seasonality • responsible resource use	GOVERNANCE & LEADERSHIP Subject monitoring • action planning • FFT/Kapow assessment review • staff development • enrichment and access oversight

BY THE END OF YEAR 6

Pupils leave Park Road Academy as increasingly knowledgeable, capable and reflective designers and makers. They can research users and products, generate and communicate purposeful ideas, select and use tools, materials, ingredients and components safely and accurately, apply structural, mechanical, electrical, textile and food knowledge, test and refine against specifications, explain decisions using technical vocabulary, consider sustainability and recognise Design and Technology as a route into innovation, engineering, design, manufacturing, food and future aspiration.