D&T Curriculum Overview

Kapow offers full coverage of the KS1 and KS2 Design & Technology curriculum and we have categorised our content into five areas:

- Structures
- Mechanisms
- Electrical Systems
- Cooking and Nutrition
- Textiles

Aside from Electrical Systems, which is KS2 only, each of these acts as the focus for a topic within each year group:

| | Cooking and Nutrition | Mechanisms | Structures | Textiles | Electrical Systems |
|----|---------------------------------|--|-------------------|--------------|--------------------------|
| Y1 | Fruit and Vegetable Smoothie | Moving Storybook: Sliders Wheels and Axles | Windmills | Puppets | |
| Y2 | A Balanced Diet | Moving Monsters Ferris Wheels | Baby Bear's Chair | Pouches | |
| Y3 | Eating Seasonally | Pneumatic Toys | Castles | Cushions | Static Electricity |
| Y4 | Adapting a Recipe | Slingshot Cars | Pavilions | Fastenings | Torches |
| Y5 | What Could Be Healthier? | Pop-up Books | Bridges | Stuffed Toys | Electric Greetings Cards |
| Y6 | Come Dine With Me | Automata Toys | Playgrounds | Waistcoats | Steady Hand Games |

There are then four strands that run through each topic:



National Curriculum by Kapow's themes and topics

| Key stage 1 National Curriculum D&T subject content | D&T Strands | Kapow Topics | | |
|--|-------------|--|---|--|
| Pupils should be taught to: | | Year 1 | Year 2 | |
| Design purposeful, functional, appealing products for themselves and other users based on design criteria | Design | Moving Story Books Windmills Puppets Wheels and Axles | Moving Monsters Baby Bear's Chair Pouches Ferris Wheels | |
| Generate, develop, model and communicate their ideas through talking, drawing, templates, mockups and, where appropriate, information and communication technology | Design | Moving Story Books Windmills, Puppets Wheels and Axles | Moving Monsters Baby Bear's Chair Pouches Ferris Wheels | |
| Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] | Make | Moving Story Books Windmills. Puppets Wheels and Axles | Moving Monsters Baby Bear's Chair Pouches Ferris Wheels | |
| Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics | Make | Moving Books Windmills Puppets Wheels and Axles Smoothies | Moving Monsters Baby Bear's Chair Pouches Ferris Wheels A Balanced Diet | |
| Explore and evaluate a range of existing products | Evaluate | Moving Story Books Windmills Wheels and Axles Smoothies | Moving Monsters Pouches Ferris Wheels A Balanced Diet | |

| Evaluate their ideas and products against design criteria | Evaluate | Moving Story Books Windmills Puppets Wheels and Axles | Moving Monsters Baby Bear's Chair Pouches Ferris Wheels |
|---|------------------------|---|---|
| Build structures, exploring how they can be made stronger, stiffer and more stable | Technical Knowledge | Windmills | Baby Bear's Chair Ferris Wheels |
| Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. | Technical Knowledge | Moving Story Books Wheels and Axles | Moving Monsters Ferris Wheels |
| Cooking and Nutrition: Use basic principles of a healthy and varied diet to prepare dishes | Technical Knowledge | Fruit and Vegetable Smoothie | A Balanced Diet |
| Cooking and Nutrition: Understand where food comes from | Technical Knowledge | Fruit and Vegetable Smoothie | A Balanced Diet |

| Key stage 2 National Curriculum Computing subject content | D&T Strands | Kapow Topics | | | |
|---|----------------|--|---|---|---|
| Pupils should be taught to: | | Y3 | Y4 | Y5 | Y6 |
| 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 | Design | Eating Seasonally Pneumatic Toys Castles Cushions Static Electricity | Slingshot Cars Torches Pavilions Eastenings Adapting a Recipe | Bridges Pop-Up Books Greetings Cards What Could Be Healthier 2 Stuffed Toys | Playgrounds Automata Toys Come Dine With Me Waistcoats Steady Hand Game |
| Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computeraided design | Design | Pneumatic Toys Castles Cushions Static Electricity | Slingshot Cars Torches Pavilions Eastenings | Bridges Pop-Up Books Greetings Cards What Could Be Healthier2 Stuffed Toys | Playgrounds Automata Toys Waistcoats Steady Hand Game |

| Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately | Make | Pneumatic Toys Castles Cushions Static Electricity | Slingshot Cars Torches Pavilions Fastenings | Bridges Pop-Up Books Greetings Cards Stuffed Toys | Playgrounds Automata Toys Waistcoats Steady Hand Game |
|---|------------------------|--|---|--|--|
| Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities | Make | Eating Seasonally Pneumatic Toys Castles Cushions Static Electricity | Slingshot Cars Torches Pavilions Fastenings Adapting a Recipe | Bridges Pop-Up Books Greetings Cards What Could Be Healthier? Stuffed Toys | Playgrounds Come Dine With Me Waistcoats Steady Hand Game] |
| Investigate and analyse a range of existing products | Evaluate | Pneumatic Toys Castles Cushions Static Electricity | Slingshot Cars Torches Pavilions Fastenings Adapting a Recipe | Bridges Pop-Up Books Greetings Cards Stuffed Toys | Playgrounds Automata Toys Waistcoats Steady Hand Game |
| Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work | Evaluate | Pneumatic Toys Castles Cushions Static Electricity | Slingshot Cars Torches Pavilions Eastenings Adapting a Recipe | Bridges Pop-Up Books Greetings Cards Stuffed Toys | Playgrounds Automata Toys Waistcoats Steady Hand Game |
| Understand how key events and individuals in design and technology have helped shape the world | Evaluate | Pneumatic Toys | Slingshot Cars Torches | What Could Be Healthier? | Come Dine With Me |
| Apply their understanding of how to strengthen, stiffen and reinforce more complex structures | Technical Knowledge | Castles | Pavilions. | Bridges. | Playgrounds |
| Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] | Technical Knowledge | Pneumatic Toys | Slingshot Cars | Pop-Up Books | Automata Toys |
| Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] | Technical Knowledge | Static Electricity | Torches | Greetings Cards | Steady Hand Game |
| Apply their understanding of computing to program, monitor and control their products | Technical Knowledge | Pneumatic Toys | Torches | Computing > Mars Rover 2*, Computing > Micro:bit** | Computing > Bletchley Park 2*** |

| Cooking and Nutrition: Understand and apply principles of a healthy and varied diet | Technical Knowledge | Eating Seasonally | Adapting a Recipe | What Could Be Healthier? | Come Dine With Me |
|--|------------------------|-------------------|-------------------|-----------------------------|-------------------|
| Cooking and Nutrition: Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques | Make | Eating Seasonally | Adapting a Recipe | What Could Be Healthier? | Come Dine With Me |
| Cooking and Nutrition: Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed | Technical Knowledge | Eating Seasonally | Adapting a Recipe | What Could Be Healthier? | Come Dine With Me |

^{*}Mars Rover 2 is used to familiarise pupils with CAD and consider how they can use their computing knowledge to control a physical system, while identifying how the product could be adapted to make it more effective

^{**}Micro:bit involves pupils using coding to program a simple device. To make stronger links with D&T, ask pupils to consider how they could house the pedometer, polling program or scoreboard to suit its target audience

^{***} Bletchley Park 2 covers key components of a computer including different forms of input and asks pupils to design their own. To make stronger links with D&T, encourage them to consider how their computer would interact with physical systems

Overview of Kapow's topics by year

| Year 1 | Food: Fruit and Vegetable Smoothie (4 lessons) Children learn how to identify fruits and vegetables and then design and make a smoothie Go to topic | Mechanisms: Moving Story Books (4 lessons) Children explore levers and sliders to make a moving story book Go to topic | Structures: Windmills (4 lessons) Through the theme of windmills, pupils design and create their own structure and functioning windmill Go to topic | Textiles: Puppets (4 lessons) Children learn the different ways they can join fabrics together through the creation of a puppet Go to topic | Mechanisms: Wheels and Axles (4 lessons) Pupils experiment with mechanisms and troubleshoot why some wheels don't rotate, before designing and building a moving vehicle Go to topic |
|-----------|---|--|---|---|---|
| | Designing for others Make Chopping fruit and vegetables Making a smoothie Evaluate Evaluating and adapting designs Technical Knowledge Describing and grouping fruits by texture and taste | Design Designing for others Make Assembling accurately Creating different movements (up, down, along and around) Evaluate Testing a finished product Technical Knowledge Understanding what a mechanism is | Designing for others Make Assembling different components to work together to create motion Assembling accurately Cutting neatly Evaluate Testing a finished product Technical Knowledge | Design Designing for others Make Selecting suitable equipment Sequencing steps for construction Evaluate Reflecting on their finished product Technical Knowledge | Designing mechanisms Make Adapting Mechanisms Measuring and cutting accurately Following a design brief Working to scale Identifying materials commonly used for wheels Evaluate Researching and testing mechanisms |

| Curriculum coverage | Understanding the difference between fruit and vegetables | Understanding how to create different movement | Developing awareness of different structures for different purposes Understanding how to turn 2D nets into 3D structures Understanding what mechanisms are | Knowing the different ways fabric can be joined Understanding how to prepare fabric for joining | Technical Knowledge Understanding how an axle works |
|------------------------------|---|--|--|---|---|
| Cross curricular links | Science | | Maths | English | Maths |

| Year | Food: A Balanced | Mechanisms: Moving | Structures: Baby Bear's | Textiles: Pouches | Mechanisms: Ferris |
|------|---|---|--|--|---|
| 2 | Diet (4 lessons) Pupils explore what makes a balanced diet and taste test combinations of different food groups before designing and making a wrap Go to topic | Monsters (4 lessons) Pupils analyse existing levers and linkage systems to identify components that they can use to plan, design and develop a mechanical monster Go to topic | Chair (4 lessons) Pupils experiment with different shapes and manipulate materials to explore and evaluate a range of structural properties. They apply this knowledge to their own design, make and test task Go to topic | (4 lessons) Children design and make their own wallet or purse, learning to use running stitch to join two pieces of fabric together Go to topic | Wheel (4 lessons) Pupils explore existing mechanisms in order to design, test and make their own big wheel style ride Go to topic |

Design Design Design Design Design Designing packaging for their Creating and using design criteria, Designing for others, using criteria and Designing mechanisms Considering purpose in the design applying their knowledge of structures smoothie generating ideas Planning for process Make design and manufacture Make Make Make Curriculum coverage Measuring and cutting accurately, Make working to scale and following a Preparing food safely and Cutting and assembling accurately Threading a needle hygienically Cutting and assembling accurately Sewing a running stitch design brief Evaluate Chopping safely using the Selecting appropriate equipment Preparing fabrics for sewing Evaluate Examples of natural & manmade and materials bridge grip Evaluate structures Testing and adapting mechanisms Evaluate Evaluate Testing and evaluating Discuss the making process and Researching mechanisms the finished product Conducting product research Carrying out primary research and Technical Technical Evaluating a design applying to design Knowledge Technical Knowledge Technical Technical Knowledge Understanding the definition and Understanding how an axle works Knowledge Knowledge importance of strength, stability and Identifying parts of a needle (point Know materials commonly used for Understanding how fruit and Learning mechanical components stiffness and eye) wheels Understand the alternative ways of vegetables grow Identifying input and output Knowing that different shapes can Knowing the food groups strengthen or weaken structures and joining fabrics and embellishments Understanding what makes a that materials can be manipulated to balanced diet improve strength and stiffness Maths Maths Maths Cross curricular Science links

Structures: Castles **Food: Eating Textiles: Cushions Electrical Systems: Mechanisms: Pneumatic** Year (4 lessons) Static Electricity Seasonally **Systems** Pupils learn more advanced construction Pupils learn to sew cross 3 (4 lessons) (4 lessons) (4 lessons) techniques and plan for complex stitch and appliqué and Pupils learn about seasonality and Pupils examine pneumatic systems Pupils are introduced to static arrangements of structures with continual then apply this to the how the climate a food is grown using syringes and balloons then electricity and observe the emphasis on evaluating throughout design and creation of a effects of it on different objects in can alter the way it tastes and apply their understanding of cushion Go to topic make a crumble and tart using mechanical systems to create their before designing and making a Go to topic seasonal ingredients own pneumatic toys simple game which uses static Go to topic Go to topic electricity Go to topic

| Curriculum coverage | Designing to criteria Make Safely preparing fruit and vegetables Following a recipe Evaluate Tasting and evaluating their dessert Technical Knowledge Knowing what foods are in season and when Understanding the benefits of foods by their colour Knowing how climate alters the sweetness of food | Generating and communicating ideas using sketching and modelling, using the views of others to improve their designs Make Selecting appropriate materials and equipment for functional and aesthetic purposes Evaluate Assessing how well their product works and if it matches their design Technical Knowledge Understanding how pneumatic systems work | Planning for manufacture Establishing and using a design criteria to help focus and evaluate their work Make Using more demanding practical skills (paper engineering/paper folding techniques) Evaluate Evaluating as they work Evaluating their own and other's final product Technical Knowledge Application of prior knowledge and increasing knowledge of nets | Designing for a purpose Make Sewing cross stitch and using applique Evaluate Compare to designs Technical Knowledge Construction of cushions Understanding that fabrics can be layered for effect Knowing different stitch types | Using design criteria to develop ideas Make Using electrostatic energy to move objects in isolation as well as part of a system Evaluate Evaluate and adapt designs Technical Knowledge Understanding what static electricity means and how to generate it Knowing what a target audience is |
|------------------------------|--|---|---|--|--|
| Cross curricular links | Geography | Science | Maths | | Science |

Food: Adapting a **Structures: Pavilions Textiles: Fastenings Electrical Systems: Mechanisms: Slingshot** Year 4 (4 lessons) (4 lessons) Recipe **Torches** Cars In an introduction to pavilion architecture, Pupils research different types (4 lessons) (4 lessons) pupils experiment with frame structures of fabric fastenings before Pupils adapt a recipe by Pupils are introduced to Pupils use kinetic energy to before designing their own landscape and deciding which they want to use adding or altering the electricity and electrical safety power slingshot cars, designing pavilion, using a wider range of materials in their design for a book sleeve ingredients and then work in before making a simple electric and making their own and then and construction techniques Go to topic groups to create a final circuit to create a functioning testing their effectiveness in time Go to topic design that falls within a set trials budget and design brief **Go to Topic** Go to topic Go to topic

| Curriculum coverage | Working within a design brief Make Following but adapting a recipe Preparing food hygienically Evaluate Discuss flavours identified Technical Knowledge Understanding the costs behind professional food preparation Understanding the factors that contribute to product design | Exploring and designing within a given context/theme Make Using a range of materials and equipment to create frame structures Evaluate Discuss existing pavilions Technical Knowledge Knowing what a pavilion is Building on prior knowledge of net structures and broadening knowledge of frame structures Knowing that architects consider light, shadow and patterns when designing | Design Designing for others and planning production Make Selecting suitable tools Evaluate Researching existing products Technical Knowledge Understanding stitches and their benefits Knowing how to use templates | Designing for others Make Creating neatly presented work Making an electrical circuit Evaluate Evaluating to improve their work Testing their final products Technical Knowledge Electricity is energy Batteries are used to store electricity Know terminology of: insulator, conductor, L.E.D., battery, coin cell batteries | Design Developing designs using the views of others to improve them Using nets and tabs to design and make the car body Make Measuring, marking, cutting and assembling accurately Evaluate Testing products in time trials Technical Knowledge Component names (chassis, axle etc.) Car body shape can impact speed (air resistance) |
|-------------------------------|--|--|---|--|--|
| Cross curricula r links | | Maths | | Science | |

Year 5

Food: What Could Be Healthier?

(4 lessons)

Pupils adapt a bolognese recipe by adding or altering ingredients and learn about the ethical and hygienic issues of food

Go to topic

Mechanisms: Pop-Up Books

(4 lesson

Pupils use a range of mechanisms and construction techniques to create a pop up story book for younger children

Go to topic

Textiles: Stuffed Toys

(4 lessons)

Pupils learn blanket stitch and then design and make 3D stuffed toys

Go to topic

Electrical Systems: Electric Greetings Cards

(4 lessons)

Pupils explore electric circuits and apply this knowledge to design and make their own electric greetings cards

Go to topic

Structures: Bridges

(4 lessons

Pupils explore and experiment with a range of different bridge structures, forces and components involved in bridge building, before designing and making their own to test to destruction **Go to topic**

Design Design Design Design Design Adapting a recipe Applying knowledge to generate Design arch and truss bridges Planning using storyboards and designs, Designing for a purpose communicating through words and design ideas Make Make Make illustrations Identifying target audiences Curriculum coverage Cutting and preparing Accurately cutting and Selecting materials and equipment Make Make vegetables hygienically joining according to functional properties Cooking meat safely Making functional components Making circuits Working with increasing accuracy in Evaluate Using layers and spacers to construct practical tasks Evaluate Evaluate Comparing 3D object to Use triangulation for bracing pages Tasting and adapting the 2D design Experimenting with circuits to Cutting and assembling with accuracy Evaluate dish during cooking process consolidate knowledge of function Technical Evaluate Testing function of product Testing to destruction to evaluate the Knowledge Technical Constantly evaluating progress against successful and unsuccessful properties Knowledge Technical Understand constructions of a design and its materials design Knowledge Know where meat comes methods for 3D shapes Technical Technical from and understand ethical Knowing how to create a Drawing circuit diagrams Knowledge Knowledge issues around beef hidden seam Knowing the function of different Know nutritional values of Understanding the importance of Understand sliders, levers and linkages components packaged food Understand structures and mechanisms Understanding the terminology: compression and tension in bridge insulator, conductor, LED, battery structures Maths English Cross Computing curricul ar links

Year 6

Food: Come Dine With Me

(4 lessons)

Working in groups, children research and prepare a three course meal that will be taste tested and scored as well as researching the journey of their

Mechanisms: Automata Toys

(4 lessons)

Pupils develop their woodworking skills and explore cams to design and make mechanical window displays Go to topic

Textiles:

Waistcoats

(4 lessons)

After drawing a design in accordance with their own criteria, pupils learn how to measure, cut and assemble fabric to create a waistcoat

Electrical Systems: Steady Hand Games

(4 lessons)

Pupils create electromagnetic toys and more complex electronic circuits to create a steady hand game

Go to topic

Structures: Playgrounds

(4 lessons)

Pupils have the opportunity to be creative and experiment with a wide range of materials and equipment, applying prior knowledge of net and frame structures as well as bracing and cladding to design and make a playground

Go to topic

| | | main ingredient ,from 'farm to fork' Go to topic | | Go to topic | | |
|------|---------------------|---|---|---|---|--|
| | | Using recipe books/websites Make Working with food hygienically and safely Working to a timescale Evaluate Tasting and evaluating their own food Technical Knowledge Understanding the risks of meat or fish when not cooked or stored properly Understanding safe storage of meat/fish | Experimenting with cams to make suitable design decisions Make Measuring, marking and cutting woodwork accurately Selecting appropriate equipment Assembling components accurately Evaluate Checking accuracy of work Technical Knowledge Naming types of cam Knowing how cams impacts follower movements | Designing for a process Make Accurate cutting and joining, using running stitch Creating something in a given style Evaluate Evaluate Evaluating work continually Technical Knowledge Knowing how to create hidden seams | Generating ideas through sketching and discussion Modelling ideas through prototypes Make Cutting and assembling with accuracy Evaluate Adapting products to improve functionality Testing finished product Technical Knowledge Creating and using electric circuits in their designs Knowing how to make electromagnetic motors | Establishing and using a design criteria to help focus and evaluate their work Make Increasingly more demanding practical skills Selecting materials for their aesthetic and functional properties Make, strengthen and stiffen a range of structures Evaluate Exploring existing playground structures Technical Knowledge Applying knowledge of construction techniques to realise design ideas Stabilising more complex structures using bracing |
| curr | oss cular iks | PSHE | | | Science | |