

**DESIGN &
TECHNOLOGY
ASSOCIATION**

D&T Primary Planning Links



Essential and supportive resources that link to 'Projects on a Page' for delivery in the primary classroom.



Because design and innovation matter



Planning resources

This document lists and has links to the main resources you need for planning and delivering primary design and technology in your school.

The resources on these pages, many of which are free to download, are tied to the project planners in Projects on a Page and provide additional support and guidance. Some offer alternative ways of delivering units in new ways that may be more suitable and stimulating to your children's needs. Click the links to find out more about each resource.

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General planning guidance

Projects on a Page

An innovative scheme of work for Primary developed by the D&T Association's Primary Working Group comprising 21 project planners covering Mechanisms, Structures, Food, Textiles and Electrical Systems.

Are you really teaching D&T? and D&T Principles guidance

To help you decide whether the projects you are teaching are really D&T and help you evaluate your planning in relation to each of the 'D&T principles': User, Purpose, Functionality, Design Decisions, Innovation and Authenticity.

Annotated Programme of Study – Key messages, advice and explanatory notes for schools

The Association's detailed advice and support to help members implement the new NC requirements.

Designer's Toolkit for Children

A guide to applying designing tools and prompting pupils to ask the right questions during the creative process of designing.

Example Long-Term Plan

An editable version of an example D&T long-term plan. It suggests both the aspect to be taught and the age-related focus for pupils' learning.

Minimum requirements for effective practice in KS1 and KS2

A set of twelve minimum requirements for KS1 and KS2 which schools may wish to consider when they are reviewing and developing their provision in D&T.

Formative Assessment – Initial Guidance

Includes commentary from DfE and some guiding principles to inform the development of schools' individual approaches to assessment.

Primary Subject Leaders File

A comprehensive set of materials addressing all the major aspects which subject leaders are expected to address in their work.

Primary D&T Food Guidance

Produced in association with the British Nutrition Foundation to help primary schools implement the requirements for food within the National Curriculum.

Are you Teaching Food in Primary D&T?

Two presentations that explain the skills and teaching tips for those working with children aged 7-11 years and how to teach a selection of food skills.

Primary D&T National Curriculum 2014 – Myths and Facts

A useful set of FAQs to dispel any myths and misunderstandings that teachers may have about the NC's content and implementation.

A to Z of D&T

A pictorial dictionary of D&T terminology presented as PowerPoint presentations which may also be printed as classroom display cards.

Working with Materials

A guide to a wide range of tools and materials in use in primary schools.

Butterflies in My Tummy

Helps children develop the skills and attitudes needed for risk taking and innovation.

Applying Computing in D&T at KS2 and KS3

Explains how computing and design and technology are related and focuses on programming and control of physical systems in KS2 and KS3.

Technical Vocabulary Cards

A set of 96 illustrated cards for textiles, food and workshop

Recording Children's Progress in D&T KS1 and KS2

A simple way of recording children's progress in designing, making, evaluating, technical knowledge and cooking and nutrition.

Primary Progression posters

Five posters outlining progression from Key Stage 1 through Early Key Stage 2 and Late Key Stage 2.

Key Stage 1 project planners and additional resources
Years 1/2

Mechanisms

Wheels and axles

Key learning

- Generate ideas and simple design criteria.
- Develop and communicate ideas through drawings and mock-ups.
- Select a range of tools and equipment and materials to perform practical tasks.
- Explore wheels and axles and evaluate their ideas and products against original criteria.



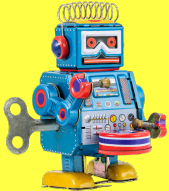
Resources

- **Wheels - working with wheels and axles**
Step by step approach to creating moving vehicles involving fixed and moving axles and wheels; for Y5 but contains useful guidance.



EYFS Resources

- **Let's Look at Vehicles**
PowerPoints with a range of wheels with discussion prompts and 'design a vehicle for an alien' activity and lesson planning.
- **Toys**
Activities and goals for teaching about toys, including building a toy collection and practical skills.



Textiles

Templates and joining techniques

Key learning

- Design a functional, appealing product for a chosen user and purpose.
- Generate, develop, and communicate ideas.
- Use a range of textiles, tools and equipment to perform practical tasks.
- Explore and evaluate existing textile products and their own ideas and products.
- Understand how 3-D textile products are made, using joining, templates and finishing to create two identical shapes.



Resources

- **Joining and Fastening Fabrics**
Presentations and poster showing a range of simple joining and fastening techniques with fabrics.
- **Puppets**
This involves marking out, cutting and joining pieces of fabric to design and make a puppet.
- **Bendy Bags**
Pupils make a small bag with a self-closing top using flexible plastic strips.



EYFS Resources

- **Three Bears Picnic Blanket**
Joining fabrics to make a blanket for teddy bears' picnic.



Opportunities for developing D&T in the EYFS framework

The statutory framework for Early Years Foundation Stage clearly identified and strengthened the role of design and technology, enabling pupils to 'safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function' and 'use what they have learnt about media and materials in original ways, thinking about uses and purposes'.

This includes four charts developed to help identify opportunities for D&T: what pupils might learn, what adults could do and notes on effective practice.

Also included is a presentation 'D&T in the new EY framework' which acts as a guide to how the framework operates and how D&T fits and can be effective within it.

Mechanisms

Sliders and levers

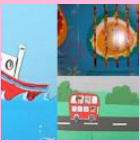
Key learning

- Generating, modelling and communicating ideas.
- Planning making, selecting tools and using finishing techniques.
- Exploring books and products; evaluating own product against original criteria.
- Exploring sliders and levers; understanding types of movement; technical vocabulary.



Resources

- **Working with sliders and levers**
Teacher and pupil PowerPoints with a step by step approach to creating mechanisms involving sliders, levers and linkages.
- **Moving pictures (links to Literacy)**
Teacher planning (including literacy), helpsheet, PowerPoint, worksheets, photographs of literacy and D&T learning walls and examples of pupils' work.



Structures

Freestanding structures

Key learning

- Generating design ideas; developing modelling and explaining using talk, mock-ups and drawings.
- Planning making, selecting tools and new and recycled materials; using finishing techniques.
- Exploring existing freestanding structures; evaluating their own products against original criteria.
- Know about strengthening structures; knowledge of vocabulary.



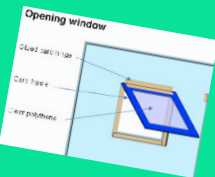
Resources

- **Whose Home?**
Basic construction skills using sheet and reclaimed materials to make freestanding structures stronger, stiffer and more stable, with appropriate joining techniques.



EYFS Resource s

- **Chairs for Three Bears**
Four presentations, vocabulary and full details of how the activities might be realised and fitted into themes.
- **Let's Get Building and Using Construction Kits Effectively**
Two presentations with pictures and questions on building roles, materials, tools, vocabulary and details of how the activities fit into themes in your school.
- **Door hinges Helpsheet**
Six simple methods that children can follow and choose the one that they think is most appropriate for their building.



Food

Preparing fruit and vegetables

Key learning

- Designing appealing products for a user; investigating fruit and vegetables and generating ideas; communicating through talk and drawings.
- Selecting a range of fruits and vegetables; using simple utensils and equipment.
- Tasting and evaluating user's preference; evaluating ideas and finished products against original criteria.
- Understand where ingredients come from and the basis of a healthy and varied diet.



Resources

- **Fantastic Fruit**
Three PowerPoint presentations, scheme and outline of the unit of work, helpsheet, worksheets, fruit bingo activity, vocabulary sheet and two posters.
- **Are you Teaching Food in Primary D&T**
Teacher and pupil PowerPoints and a practical food progression chart with guidance on food skills and equipment.



Early Key Stage 2 project planners and additional resources
Years 3/4

Structures

Shell structures

Key learning

- Generate and develop realistic ideas and design criteria collaboratively and through analysis of existing products.
- Order the stages of making; selecting tools and using with some accuracy.
- Investigate and evaluate shell structures, and construct strong, stiff shell structures.
- Test and evaluate own products against design criteria and intended user and purpose.



Resources

- **Banish broken biscuits! Box them brilliantly!**
Design and make packaging for a fragile food product exploring the relationship between the shape and strength of shell structures.



Food

Healthy and varied diet

Key learning

- Generate ideas and develop design criteria for an appealing product for a user and purpose.
- Plan the main stages of a recipe, listing ingredients, utensils and equipment.
- Select from a range of ingredients to make appropriate food products.
- Carry out and record evaluations of a variety of ingredients and products.
- Know a range of appropriate ingredients, and whether they are grown, reared or caught.



Resources

- **Super Salads**
Pupils learn about the wide variety of different ingredients available to design and make their own salads.
- **Sandwich Snacks**
Basic food preparation techniques and ways of combining ingredients to create simple food products for a particular purpose.
- **Are you Teaching Food in Primary D&T**
Teacher and pupil PowerPoints and a practical food progression chart with guidance on food skills and equipment.
- **Dips and Dippers**
Pupils investigate healthy eating and ways of processing food when designing and making healthy dips and dippers for a party.

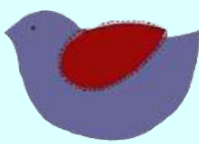


Textiles

2-D shape to 3-D product

Key learning

- Generate design criteria for an appealing, functional product for specific users.
- Produce annotated sketches, prototypes, final product sketches and pattern pieces.
- Select fabrics and fastenings according to their functional characteristics.
- Investigate a range of 3-D textile products.
- Test their product against the original criteria and with the intended user.



Resources

- **Aprons**
A PowerPoint and videos showing sourcing materials, including recycled, classroom management, fastenings, cutting out and stitching and joining methods.
- **Bendy Bags**
Pupils make a small bag with a self-closing top using flexible plastic strips.
- **Fancy a bag?**
Pupils design and make a bag of their own creation for a specific user and purpose.
- **Designing with textiles**
This will help pupils with some experience of textiles to generate and develop practical, functional ideas and make models and mock ups to test their design thinking.



Mechanical Systems

Levers and linkages

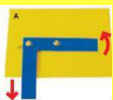
Key learning

- Generate realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas.
- Select and use tools with some accuracy to cut, shape and join paper and card.
- Investigate and analyse their own and others' products with lever and linkage mechanisms.
- Understand and use lever and linkages, and fixed and loose pivots.



Resources

- **Moving history book - levers and linkages**
Uses one of the 'Projects on a Page' planners and inspiration from the visit to the Black Country Museum to devise a scheme on levers and linkages linking History, D&T and English.
- **Levers and linkages Poster and Support Pack**
Includes five templates and full instructions on making the teaching aids and the effect each will have.

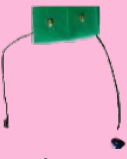


Electrical Systems

Simple circuits and switches

Key learning

- Use annotated sketches, cross-sectional and exploded diagrams to develop and communicate ideas.
- Select and use tools with some accuracy to cut, shape, join and finish.
- Use construction materials and electrical components according to their functional properties and aesthetic qualities.
- Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.



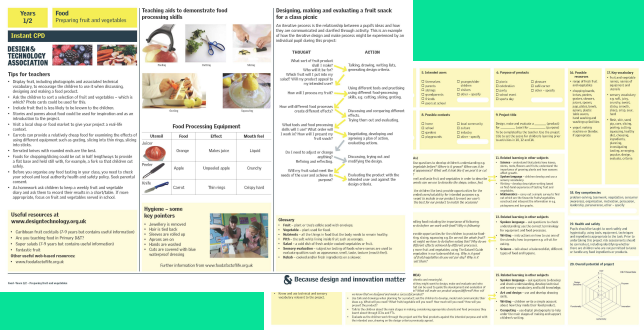
Resources

- **Developing handmade switches**
Presentations and a poster showing techniques for constructing switches.
- **Night lights (links to Literacy)**
Pupils design a battery-powered night light which incorporates a fully working circuit plus a choice of switch.
- **Torches, Lamps and Lanterns**
Pupils design and make a purposeful product using an electric circuit.
- **Alarming vehicles**
This encourages pupils to develop understanding of electrical systems through protecting vehicles using electrical alarms.



Projects on a Page

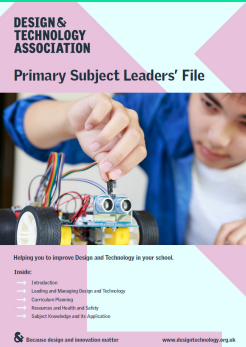
There are now 21 **Projects on a Page** planners covering Textiles, Food, Structures, Mechanisms, CAD/CAM, Computing and programming and Electrical systems across all primary age groups.



Primary Subject Leaders' File

This invaluable guide comes in ring-binder format and contains essential guidance on:

- Leading and managing Design and Technology
- Curriculum planning
- Resources and Health & Safety
- Subject knowledge and its application



See the [website](#) for further details.

Early Key Stage 2 project planners and additional resources

Years 3/4

Mechanical Systems Pneumatics Key learning - Generate their own realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas. - Select and use tools with some accuracy, cut and join materials and components such as tubing, syringes and balloons. - Investigate and find information on and products with pneumatic mechanisms and evaluate their own products and ideas against criteria and user needs. - Understand and use pneumatic mechanisms. Resources <u>Make a Mascot</u> Children use pneumatics to design and make a mascot suitable for an opening celebration of an event such as a school-based version of the Olympics. This project can be taught as an alternative to the original Projects on a Page ‘Levers and Linkages’. Electrical Systems Simple programming and control Key learning - Gather information and develop and communicate realistic design ideas using annotated sketches and prototypes. - Connect simple electrical components in a series circuit and program an interface to enhance the way the product works. - Investigate and analyse a range of powered products, including programmed, and evaluate their own products and design criteria. - Understand and use computing to program and control products with electrical systems. Resources <u>Developing handmade switches</u> Presentations and a poster showing techniques for constructing switches. <u>Night lights (links to Literacy)</u> Pupils design a battery-powered night light which incorporates a fully working circuit plus a choice of switch. <u>Alarming vehicles</u> This encourages pupils to develop understanding of electrical systems through protecting vehicles using electrical alarms. <u>Crumble Controller Starter Pack</u> A Crumble controller pack to get you started. <u>Applying Computing in D&T</u> Explains the application of computing in design and technology to program and control physical systems in KS2 and KS3. Structures Shell structures using computer-aided design (CAD) Key learning - Generate ideas and designs, developing them through analysis of shell structures and use CAD to model and communicate ideas. - Plan the making and use appropriate tools and software, explaining their choices. Use computer-generated finishing techniques. - Evaluate shell structures and their own products. - Develop knowledge of nets of cubes and cuboids and more complex 3D shapes and how to construct strong, stiff shell structures. Resources <u>Banish broken biscuits! Box them brilliantly!</u> Design and make packaging for a fragile food product exploring the relationship between the shape and strength of shell structures.

Late Key Stage 2 project planners and additional resources

Years 5/6

Mechanical Systems Cams Key learning - Generate a design from research; develop a specification, model and communicate ideas. - Produce lists of tools and materials and plans to make accurately assembled and well finished products within constraints. - Compare final product to the original specification; test products with the intended user and critically evaluate the product, considering the views of others. - Investigate famous manufacturing and engineering companies relevant to the project. Resources <u>Mechanisms with a Message</u> Making a moving message operated by a cam mechanism. <u>Gears and Pulleys</u> Includes the technical vocabulary and key principles including the equipment needed for related focused tasks. <u>Working with Wheels and Axles</u> A step by step approach to creating moving vehicles involving fixed and moving axles and wheels. This can be taught as an alternative to the original Projects on a Page ‘Pulleys or Gears’. Electrical Systems Monitoring and control Key learning - Develop a design specification for a product that responds automatically to environmental changes in the environment. - Generate and communicate ideas through annotated sketches and representations of electrical circuits or circuit diagrams. - Using a step-by-step plan, select and accurately assemble materials, electrical components, to produce a functional product. - Create and modify a computer control program to enable their electrical product to respond to changes in the environment. Resources <u>Crumble Controller Starter Pack</u> A Crumble controller pack to get you started. A <u>Class Pack</u> is also available. <u>Developing handmade switches</u> Presentations and a poster showing techniques for constructing switches. <u>Alarming vehicles</u> Pupils develop understanding of electrical systems through protecting vehicles using electrical alarms. <u>Applying Computing in D&T</u> Explains the application of computing in design and technology to program and control physical systems in KS2 and KS3. Textiles Using computer-aided design (CAD) in textiles Key learning - Generate innovative ideas through research and develop these using mock-ups and prototypes including using computer-aided design. - Design functional, appealing products for the intended user that are fit for purpose based on a simple design specification. - Select and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. - Work within the constraints of time, resources and cost. Resources <u>Fancy a bag?</u> Pupils design and make a bag of their own creation for a specific user and purpose. <u>Designer bags</u> Two posters and PowerPoints looking at designing bags for a variety of users and purposes. <u>Designing with textiles</u> Two PowerPoints aimed at pupils who already have experience of working with fabrics.

Late Key Stage 2 project planners and additional resources

Years 5/6

Structures

Frame structures

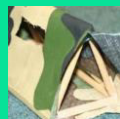
Key learning

- Research user needs and existing products and develop and model innovative ideas into a design specification.
- Formulate a plan with a step-by-step list of tasks and resources.
- Use tools to accurately measure, mark out, cut, shape and join materials to make frameworks.
- Use finishing techniques suitable for the product and critically evaluate their products against a range of criteria.
- Research key events and individuals relevant to frame structures.



Resources

- **Bird hide challenge**
This explores and extends pupils' knowledge of structures through the brief of designing and making a small scale bird hide.
- **Working with paper straws**
A classroom display poster contains information about using paper straws in a range of activities and structures.



Food

Celebrating culture and seasonality

Key learning

- Generate and explore innovative ideas through research and discussion to develop a design brief.
- Write a step-by-step recipe, including a list of ingredients, equipment and utensils.
- Using appropriate utensils and equipment accurately, make, decorate and present a food product for the intended user and purpose.
- Evaluate a range of relevant products and ingredients and the final product with reference to the design brief and specification.
- Understand seasonality and the source of different food products.



Resources

- **Soups - Celebrating culture and seasonality**
Includes a highlighted planning sheet, lesson plans, worksheets and PowerPoint presentations.
- **Willy Wonka's Fair Trade Cookies**
Contains a PowerPoint, unit of work, helpsheet, worksheets on ideas generation, design criteria, product analysis, planning and evaluation.
- **Christmas Ginger Biscuits**
Two PowerPoints providing a detailed guide to making Christmas ginger biscuits and presenting them in an advent calendar.
- **Are you Teaching Food in Primary D&T**
Teacher and pupil PowerPoints and a food progression chart with guidance on food skills and equipment.
- **Making Bread using the Six Essentials**
A PowerPoint that gives an example of a school using the 'six essentials' in a food project.
- **Caribbean Fruit Cocktails**
Based on a topic about St. Lucia; pupils research the fruits available and the importance of a balanced diet.



Electrical Systems

More complex switches and circuits

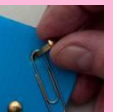
Key learning

- Develop a design specification for a functional product that responds automatically to changes in the environment.
- Formulate a step-by-step plan to making, listing tools, equipment, materials and components.
- Use a computer control program to enable an electrical product to work automatically in response to changes in the environment.
- Test and evaluate the system to demonstrate its effectiveness for the intended user and purpose.
- Know and use technical vocabulary relevant to the project.



Resources

- **Alarming vehicles**
This encourages pupils to develop understanding of electrical systems through protecting vehicles using electrical alarms.
- **Developing handmade switches**
Presentations and a poster showing techniques for constructing switches.
- **Hand-made switches helpsheet**
Simple switches that can be made using scissors, automatic wire strippers and a ruler.
- **Designing and making alarm circuits using inputs with computer control**
A PowerPoint presentation which introduces a range of switches and sensors and using computer control when designing and making alarms.



Textiles

Combining different fabric shapes

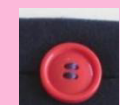
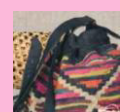
Key learning

- Generate and communicate innovative ideas through research.
- Produce detailed lists of equipment and fabrics and formulate step-by-step plans for making.
- Investigate and analyse textile products linked to their final product and compare the final product to the original design specification.
- Know that a 3-D textile product can be made from a combination of pattern pieces, fabric shapes and different fabrics and that fabrics can be strengthened, stiffened and reinforced.



Resources

- **Designer bags**
Two posters and PowerPoints looking at designing bags for a variety of users and purposes.
- **Designing with textiles**
Two PowerPoints aimed at pupils who already have experience of working with fabrics.



Mechanical Systems

Pulleys or gears

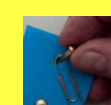
Key learning

- Generate ideas through research and develop and communicate a simple design specification.
- Select use a range of tools and equipment to make products that that are accurately assembled and well finished within the constraints of time, resources and cost.
- Compare the final product to the original design specification and test the quality of the design, manufacture and functionality with the user.
- Investigate famous manufacturing and engineering companies relevant to the project.



Resources

- **Gears and Pulleys**
Two PowerPoint presentations to help develop understanding of how to use gears and pulleys.
- **Developing handmade switches**
Presentations and a poster showing techniques for constructing switches.
- **Frames for motorised projects**
This PowerPoint includes a step-by-step guide through making a framework to house a motor that can be adapted for a range of uses.



Join the D&T Association today

If you or your school are not already members you can join today and get free resources, discounted rates on courses and much more.

Join as an individual or school, and receive your termly D&T Practice magazine and access to the website both of which offer a range of advice and up-to-date news. You'll also get multiple website logins, personalised membership pages and free resources in the shop.