Design and Technology Programmes of Study: Key Stages 1 to 3

National Curriculum in England

Key messages, advice and explanatory notes for schools

Design and Technology Association
National Curriculum Expert Group for D&T

www.data.org.uk

the design and technology association

Introduction

The Design and Technology Association and the National Curriculum Expert Group for D&T are positive about the new programmes of study and believe they provide a sound basis for teaching and learning D&T from KS1 to 3. We recommend that all primary and secondary schools in England, including academies, free schools and independent schools, use the new programmes of study as a basis for their curriculum planning.

The new programmes of study are slimmer and set out only the essential, core knowledge, understanding and skills that all pupils should learn from KS1 to 3. Schools will need to consider wider aspects of D&T not included in the National Curriculum which they would like to teach as part of their own school curriculum. This will depend, in part, on the local resources, teacher expertise and interests of pupils at the school.

This publication has been written to help primary and secondary schools interpret words and phrases in the programmes of study that need further explanation. It also provides initial advice on how the new requirements can be implemented effectively to ensure good quality teaching and learning. Additional guidance is available on the Design and Technology Association's website.

Richard Green
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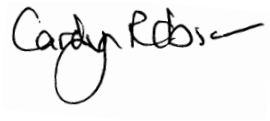
Design and Technology Association



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Key messages

Building on best practice

The new programmes of study are consistent with and build on best practice in primary and secondary schools. This will ensure that current resources are fully utilised and that the new requirements can be integrated into existing good quality curriculum planning.

New content

In order to move practice in the subject forward, there are some new elements to consider. Some of the requirements for each key stage are more technically demanding than the previous programmes of study. Some place a greater emphasis on the relevance of D&T to the wider world and some encourage schools to modernise the curriculum they provide.

Holistic approach

Everything in the new programmes of study is important and the document should be treated as a whole. Planning and practice over the course of a term, year or a key stage needs to pay attention to the purpose of study, aims and subject content.

Continuity and progression

For the first time in many years, the programmes of study set out the curriculum in both primary and secondary schools within one coherent document. This will help teachers to consider the year groups they teach in the context of the whole National Curriculum, promoting continuity and progression.

Cumulative progression

Pupils' learning from previous key stages should be revisited in teachers' planning and practice and used in a more sophisticated way in subsequent key stages. It is not sufficient for planning and practice to focus only on the subject content specified in an individual key stage. Some aspects of learning are only mentioned once but would need to be revisited, developed and extended in later years.

Safety and hygiene

The new programmes of study do not include references to safety and hygiene. Schools should continue to ensure that practice in the subject is healthy, safe and hygienic, and that risk assessments are carried out prior to undertaking D&T projects.

Design and Technology programmes of study

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.

Advice and explanatory notes

purpose of study – this is a rationale for teaching D&T from KS1 to 3. It explains what the subject is and why it is an important part of pupils' learning. The purpose of study should be reflected in curriculum planning in a way that is appropriate to pupils' ages.

real and relevant problems – design problems presented to pupils as a starting point for their projects should be credible, authentic and relevant to their ages and interests. They should be open-ended and encourage pupils to create a range of products and solutions. Some projects should be initiated in response to design opportunities.

needs, wants and values – pupils' consideration of the user or users for their products should be wide ranging. As well as thinking about their specific requirements, including needs, wants, interests and preferences, pupils should also think about users' values e.g. aesthetic, technical, environmental, cultural or economic.

subject knowledge – this is an 'umbrella' term that refers to the subject-specific D&T knowledge, understanding and skills that pupils develop over the course of KS1 to 3. It includes, but is not limited to, the technical knowledge listed in the subject content for each key stage.

mathematics, science, engineering, computing and art – the key message here is that as well having its own body of knowledge, D&T is inherently a multi-disciplinary subject. Whilst the list of disciplines provided includes those which are often linked to D&T, it is not an exhaustive list. Knowledge, understanding and skills can be drawn from across the curriculum to support pupils' designing and making (e.g. spoken language and writing from the English programmes of study).

take risks – this refers to pupils taking creative risks, operating outside their 'comfort zone', learning from mistakes and daring to do things differently when making design decisions.

resourceful – being effective at selecting or generating strategies to solve problems.

innovative – being original, imaginative, creative and taking risks for a purpose.

enterprising – recognising opportunities, taking the initiative and setting up a new venture.

past and present design and technology – pupils' investigation and evaluation activities should raise their awareness of the importance and impact of D&T in the wider world, now and in the past.

impact – this provides an opportunity for pupils to critically evaluate the impact, both positive and negative, of technological innovations on the quality of their daily lives, the lives of others and the wider world.

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.

Subject content

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

aims – these describe the goals for pupils' learning across Key Stages 1 to 3. They should be reflected in curriculum planning in a way that is appropriate to pupils' ages.

creative, technical and practical expertise – this aim emphasises that to participate effectively in the world, pupils need a breadth of D&T-related expertise. For example, within each project they should learn how to generate a range of imaginative and purposeful design ideas, acquire the technical know-how to translate their ideas into workable solutions and employ the practical skills and techniques needed to construct high quality products that fulfil users' needs.

repertoire – the range of D&T-specific knowledge, understanding and skills pupils develop over time which they select from with increasing independence and use when designing and making products.

critique, evaluate and test – pupils should be encouraged to scrutinise the effectiveness of ideas and products from the perspective of both the designer and the consumer.

principles of nutrition – taught initially through the NHS Choices *The eatwell plate* and *Eight tips for healthy eating*, progressing to energy and nutrients, diet and health, and nutritional needs throughout life.

learn how to cook – pupils should be taught a range of food preparation and cooking skills and techniques, which develop in complexity over time.

attainment targets – schools should assess pupils' performance by judging the extent to which they have learnt the subject content set out for their key stage.

subject content – sets out the requirements for what should be taught at each key stage. This should be read in conjunction with the purpose of study and aims.

example content – although there is no requirement for schools to teach example content, it provides a helpful guide to the pitch, focus and range of pupils' learning at each key stage.

Subject content
Key Stage 1

Through a variety of **creative and practical activities**, pupils should be taught the knowledge, understanding and skills needed to engage in an **iterative process** of designing and making. They should work in a **range of relevant contexts** [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- design **purposeful, functional, appealing** products for **themselves and other users** based on **design criteria**
- generate, develop, model and communicate their ideas through **talking, drawing, templates, mock-ups** and, where appropriate, **information and communication technology**

creative and practical activities – through these activities pupils are equipped with the knowledge, understanding and skills to engage successfully and with increasing independence in the process of designing and making. They include focused tasks where pupils are taught specific technical knowledge, designing skills and making skills, and investigative and evaluative activities where they learn from a range of existing products.

iterative process – when carrying out a design, make and evaluate assignment, pupils should engage in an iterative process. Through this process pupils' ideas are communicated and clarified through action. As opposed to a formulaic linear or cyclical process, during an iterative process thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities.

range of relevant contexts – pupils should carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning. Engaging with contexts may involve visiting locations and people outside school, inviting experts into school and using media to enable pupils to explore less familiar surroundings. The list of examples illustrates the breadth of contexts in each key stage. They do not prescribe content to be taught, but a range of authentic situations which provide starting points for designing and making. Schools may choose to work in contexts that are not listed. For example, in KS1 pupils may also work in contexts that are imaginary or story-based.

when designing and making – pupils' learning within Design, Make, Evaluate and Technical Knowledge should be developed as a connected, coherent whole when they are designing and making products.

purposeful, functional, appealing – when designing, pupils should always think about what their products are for, how they will work and whether they will be liked by intended users.

themselves and other users – pupils should always think about who their products will be for. In KS1, users might include themselves, imaginary or story-based characters.

design criteria – pupils should think about what their product must do to be successful and use these criteria to inform their evaluation throughout the designing and making process.

talking, drawing, templates, mock-ups – pupils should be taught a range of ways to develop their ideas. The techniques chosen should be appropriate for the product they are designing and making and the needs of the individual pupil. Some pupils may initially find it difficult to develop and communicate their ideas through drawings and may find it easier to develop this technique retrospectively by drawing their product when it has been completed.

information and communication technology – when designing, KS1 pupils could, for example, use a basic paint program to draw the design for a coat for Teddy.

Make

- **select** from and use a **range of tools and equipment** to perform practical tasks [for example, cutting, shaping, joining and finishing]
- **select** from and use a **wide range of materials and components**, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- **explore and evaluate** a range of existing products
- evaluate their ideas and products against **design criteria**

Technical knowledge

- **build structures**, exploring how they can be made stronger, stiffer and more stable
- **explore and use mechanisms** [for example, levers, sliders, wheels and axles], in their products.

select – when making design decisions, pupils should have the opportunity to select from a range of tools, equipment and materials provided by their teacher.

range of tools and equipment – the range of tools and equipment used should be determined by the school. They should build on the Early Years Foundation Stage (EYFS), match the fine motor skills of all pupils and enable the projects scheduled in the long-term plan to be carried out successfully.

wide range of materials and components – during KS1 pupils should design and make with all the materials specified. 'Ingredients' means food ingredients. Construction kits should be added to the list to help pupils design and make structures and mechanisms.

explore and evaluate – pupils need opportunities to handle collections of existing products related to their projects. Teachers and pupils should learn how to ask questions such as who the products are for, what they are for and how they work.

build structures – the structures pupils build in KS1 should be predominantly freestanding, including walls, towers and frameworks. Through exploring and assembling they should learn how to make structures stronger, stiffer and more stable.

explore and use mechanisms – to ensure progression to KS2 it is advisable for pupils to use wheels and axles, and levers and sliders in KS1.

Subject content
Key Stage 2

Through a variety of **creative and practical activities**, pupils should be taught the knowledge, understanding and skills needed to engage in an **iterative process** of designing and making. They should work in a **range of relevant contexts** [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- **use research** and **develop design criteria** to inform the design of **innovative, functional, appealing** products that are **fit for purpose**, aimed at **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**

creative and practical activities – through these activities pupils are equipped with the knowledge, understanding and skills to engage successfully and with increasing independence in the process of designing and making. They include focused tasks where pupils are taught specific technical knowledge, designing skills and making skills, and investigative and evaluative activities where they learn from a range of existing products and about D&T in the wider world.

iterative process – when carrying out a design, make and evaluate assignment, pupils should engage in an iterative process. Through this process pupils' ideas are communicated and clarified through action. As opposed to a formulaic linear or cyclical process, during an iterative process thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities.

range of relevant contexts – pupils should carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning. Engaging with contexts may involve visiting locations and people outside school, inviting experts into school and using media to enable pupils to explore less familiar surroundings. The list of examples illustrates the breadth of contexts in each key stage. They do not prescribe content to be taught, but a range of authentic situations which provide starting points for designing and making. Schools may choose to work in contexts that are not listed. For example, in KS2 pupils may also work in contexts such as sustainability.

when designing and making – pupils' learning within Design, Make, Evaluate and Technical Knowledge should be developed as a connected, coherent whole when they are designing and making products.

use research – this could include the use of secondary sources, relevant websites, questionnaires, surveys and interviews.

develop design criteria – pupils should develop and prioritise their own criteria and use these to evaluate the their ideas and products throughout the designing and making process.

innovative, functional, appealing – when designing and making, pupils should always be given scope and encouraged to be original with their thinking, create products that are required to work in some way to be successful, and think about the features of their products that will be interesting and engaging for intended users.

fit for purpose – when designing and making, pupils should always think about the tasks that their products should perform.

individuals or groups – when designing and making, pupils should always create products with a specific client, consumer or a target group in mind.

annotated sketches – refers to pupils' use of sketching techniques with related notes to develop, record and communicate their thinking.

cross-sectional and exploded diagrams – cross-sectional drawings are an effective technique when pupils want to show what their products will look like inside, for example the parts of a torch. Exploded diagrams enable pupils to communicate the components that will be used to build their products and the order of assembly, for example when designing battery-powered vehicles.

computer-aided design – simple computer-aided design software enables pupils to draw shapes accurately, for example the nets for packaging. With the addition of text and graphics it can also help to ensure pupils' products have a high quality finish.

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], **accurately**
- 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**

Evaluate

- **investigate and analyse** a range of existing products
- evaluate their ideas and products against their own design criteria and consider the **views of others** to improve their work
- understand how **key events and individuals** in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce **more complex structures**
- understand and use **mechanical systems** in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use **electrical systems** in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to **program, monitor and control** their products.

accurately – the expectation by the end of KS2 is that pupils should be using appropriate tools, equipment and techniques with accuracy.

wider range of materials and components – during KS2 pupils should design and make with all the materials specified, adding to those used in KS1. 'Ingredients' means food ingredients. Construction kits should be added to the list to help pupils design and make structures and mechanical systems.

functional properties – characteristics of materials and components that enable products to work effectively, for example strength, flexibility and electrical conductivity.

aesthetic qualities – characteristics of materials and components that make products pleasing to the user, for example, colour, pattern and texture.

investigate and analyse – through asking a range of questions pupils should investigate, analyse and evaluate a range of existing products related to the product they will be designing and making.

views of others – when seeking the views of others, wherever possible pupils should ask for feedback on their ideas and products from intended users.

key events and individuals – opportunities for pupils to research famous designers and inventors, and ground-breaking products should be integrated into investigative and evaluative activities.

more complex structures – these include shell structures which have an outer skin to provide strength (e.g. packaging) and frame structures (e.g. tent frame) which are constructed using an arrangement of thin components.

mechanical systems – pupils should think about the related components that make up mechanical systems, for example the levers, linkages and pivots in a moving picture. They should also think about the input movement used to operate the mechanism, the output movement produced by the mechanism and the process – how the mechanism changes the input movement into the output movement.

electrical systems – pupils should think about the related components that make up electrical systems, for example the switch, bulb and batteries. They should also think about what type of input device, for example a toggle switch or push-to-make switch, they will use to control their product, what output device will be operated, for example a bulb or buzzer, and the process that causes input devices to control output devices.

program, monitor and control – pupils should have opportunities to use a computer to operate electrical products they design and make, for example creating a sequence to make an illuminated sign flash on and off in a repeating pattern. As they progress through KS2 they should also use switches or sensors to monitor products, for example a delayed reaction burglar alarm they have created and programmed.

Subject content
Key Stage 3

Through a variety of **creative and practical activities**, pupils should be taught the knowledge, understanding and skills needed to engage in an **iterative process** of designing and making. They should work in a **range of domestic and local contexts** [for example, the home, health, leisure and culture], **and industrial contexts** [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion].

When designing and making, pupils should be taught to:

Design

- use research and exploration, such as the study of **different cultures**, to identify and understand **user needs**
- identify and **solve their own design problems** and understand how to **reformulate problems** given to them
- develop specifications to inform the design of **innovative, functional, appealing products** that respond to needs in a variety of situations
- use a **variety of approaches** [for example, **biomimicry** and **user-centred design**], to generate creative ideas and avoid stereotypical responses
- develop and communicate design ideas using annotated sketches, detailed plans, 3-D and **mathematical modelling**, oral and digital presentations and **computer-based tools**

creative and practical activities – through these activities pupils are equipped with the knowledge, understanding and skills to engage successfully and independently in the process of designing and making. They include focused tasks where pupils are taught specific technical knowledge, designing skills and making skills, and investigative and evaluative activities where they learn about D&T in the wider world, including existing products, materials and processes.

iterative process – when designing and making, pupils should engage in an iterative process. Through this process pupils' ideas are communicated and clarified through action. As opposed to a formulaic linear or cyclical process, during an iterative process thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities.

range of domestic, local and industrial contexts – pupils should carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning. Engaging with contexts may involve visiting locations and people outside school, inviting experts into school and using media to enable pupils to explore less familiar surroundings. The list of examples illustrates the breadth of contexts in each key stage. They do not prescribe content to be taught, but a range of authentic situations which provide starting points for designing and making. Schools may choose to work in contexts that are not listed. For example, in KS3 pupils may work in contexts such as the circular economy or sustainable development.

when designing and making – pupils' learning within Design, Make, Evaluate and Technical Knowledge should be developed as a connected, coherent whole when they are designing and making products.

different cultures – pupils should study a range of cultures that are less familiar to them, providing opportunities to research and understand a variety of values, needs and wants.

user needs – understanding needs is an essential part of designing for a client or user group. Pupils should be taught how to address the interests, problems and preferences of a wide range of people.

solve their own design problems – pupils are required to identify problems themselves in addition to responding to those they are set.

reformulate problems – this is when, following research and investigation, pupils determine that the original problem or brief requires redefining.

innovative, functioning and appealing products – projects set should always provide opportunities for originality, resulting in products that work in some way in order to be successful. Products should provide an elegant solution that is engaging and aesthetically pleasing for the intended user.

variety of approaches – pupils should be taught to use a range of designing strategies. These strategies guard against otherwise stereotypical responses that can emanate from briefs, tasks and challenges that are set. Two examples are provided in the subject content for KS3 but others should also be used.

biomimicry – involves the techniques of looking at how the natural world solves problems and using this inspiration to develop new ideas for the made world. Pupils should be taught how to investigate nature, for example materials, structures and systems and use this to suggest new product ideas and possible solutions to problems.

Make

- select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- select from and use a wider, more complex **range of materials, components and ingredients**, taking into account their properties

Evaluate

- analyse the work of **past and present professionals and others** to develop and broaden their understanding
- investigate **new and emerging technologies**
- test, evaluate and refine their ideas and products against a specification, taking into account the **views of intended users** and other interested groups
- understand developments in design and technology, its **impact** on individuals, society and the environment, and the responsibilities of **designers, engineers and technologists**

Technical knowledge

- and use the **properties of materials** and the performance of structural elements to achieve functioning solutions
- understand how more advanced **mechanical systems** used in their products enable changes in movement and force
- understand how more advanced **electrical and electronic systems** can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using **programmable components** [for example, microcontrollers].

user-centred design – involves optimising the design of a product around the needs, wants, and values of its intended user. It requires the ability to be able to foresee how specific users are likely to use a product, by involving them at an early stage and in live testing and evaluation.

mathematical modelling – involves pupils modelling functional aspects of their designs using mathematics, to indicate the likely performance before they are realised or constructed. For instance when using a simple motor and gearing system with known ratios, they can predict change in speed of the output relative to the input.

computer-based tools – pupils should use a variety of computer-based tools including computer-aided design (CAD) and computer-aided manufacturing (CAM), for example reverse engineering, creating textiles products, modelling and testing electronic circuits, structural analysis and nutritional analysis.

range of materials components and ingredients – pupils should use a broad range of both traditional and modern materials, including smart materials, and through learning about their properties, make informed choices about which to use in the products they design and make. 'Ingredients' refers to food ingredients.

past and present professionals and others – as part of their designing and making, pupils should investigate the work of others, including design movements and designers, to develop their appreciation of design and to inform their own design thinking.

new and emerging technologies – new materials, processes and technologies are constantly being developed, for example conductive threads in textiles, some of which are transforming the designed and made world. Pupils should be taught to investigate these and, where applicable, make connections with their own designing and making.

views of intended users – pupils should continuously evaluate their products and ideas, putting at the centre of their thinking the views of those who will use their products.

impact – pupils should be taught about both the positive and negative impact of design and technology in the wider world. This could include the responsible use of resources, considering sustainability issues and becoming familiar with a circular economy approach to product lifecycles.

designers, engineers and technologists – pupils should reflect upon the impact of past and contemporary designers, engineers and technologists on the wider world, considering their own responsibilities when developing products.

properties of materials – pupils should learn about and make use of the properties of materials such as mechanical, thermal, electrical, magnetic, optical, chemical, nutritional and sensory when making an informed choice about the products they are designing. They should develop an understanding of how structures perform and use this to inform decisions related to the shape and size of structural elements.

mechanical systems – pupils should understand and use more sophisticated mechanical systems including gears, gear trains, pulleys, levers and linkages using either kits or components they manufacture themselves.

electrical and electronic systems – pupils should learn how to plan, manufacture and populate their own electronic circuits and build these into products they design. Some of these products should incorporate the use of sensing and control components which receive input signals, process them, resulting in outputs such as sound, movement and light.

programmable components – the operation of these can be programmed, modelled and tested using either icon based software or programming code.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key Stage 1

- use the **basic principles** of a healthy and varied diet to **prepare dishes**
- **understand where food comes from**

Key Stage 2

- understand and apply the **principles of a healthy and varied diet**
- **prepare and cook** a variety of **predominantly savoury dishes** using a **range of cooking techniques**
- understand **seasonality**, and know where and how a variety of ingredients are **grown, reared, caught** and **processed**.

cooking and nutrition – 'Cooking and nutrition' should be taught as part of 'designing and making'. The content in 'cooking and nutrition' indicates knowledge, skills and understanding that underpin high quality designing and making with food. Pupils should only be taught the parts of 'designing and making' that are relevant to food. When working with food use a range of domestic, local and industrial contexts appropriate to pupils' ages, for example health, home, garden, leisure, culture, food industry and agriculture.

basic principles – pupils in KS1 should name and sort foods into the five groups from *The eatwell plate* model. They should be taught that a healthy diet comprises food and drinks from the food groups and that everyone should eat at least five portions of fruit and vegetables every day.

prepare dishes – pupils in KS1 should make a range of simple dishes without a heat source e.g. dips, salads, sandwiches and fruit kebabs/salads.

understand where food comes from – pupils in KS1 should know that all food comes from plants or animals and that food has to be farmed, grown elsewhere (e.g. at home) or caught.

principles of a healthy and varied diet – pupils in KS2 should understand that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in *The eatwell plate*. To be active and healthy, food is needed to provide energy for the body. A variety of food is needed in the diet because different foods contain different substances that are needed for health. These are nutrients, water and fibre.

prepare and cook – pupils in KS2 should create, plan, prepare and cook a range of food dishes, including those which require the use of heat sources.

predominantly savoury dishes – in KS2 the range of dishes should be in line with the principles of *The eatwell plate*.

range of cooking techniques – pupils in KS2 should experience a variety of techniques, e.g. learn how to peel, chop, slice, grate, mix, spread, knead and bake.

seasonality – KS2 pupils should consider how seasons may affect the food available.

grown, reared, caught – pupils in KS2 should know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.

processed – food produced is processed into ingredients that can be eaten or used in cooking, for example grain is milled to produce flour, oil is pressed from olives, butter is made from milk.

Key Stage 3

- understand and apply the **principles of nutrition and health**
- cook a **repertoire of predominantly savoury dishes** so that they are able to **feed themselves** and others a **healthy and varied diet**
- become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]
- understand the **source, seasonality** and **characteristics** of a **broad range** of ingredients.

principles of nutrition and health – pupils in KS3 should be taught about energy, nutrients, water and fibre, diet and health and nutritional needs throughout life.

repertoire of predominately savoury dishes – in KS3 the range of dishes should be in line with the principles of *The eatwell plate*.

feed themselves – KS3 pupils should take into account personal preference, socio-economic aspects, nutritional and health needs.

healthy and varied diet – as depicted in *The eatwell plate* and *Eight tips for healthy eating*.

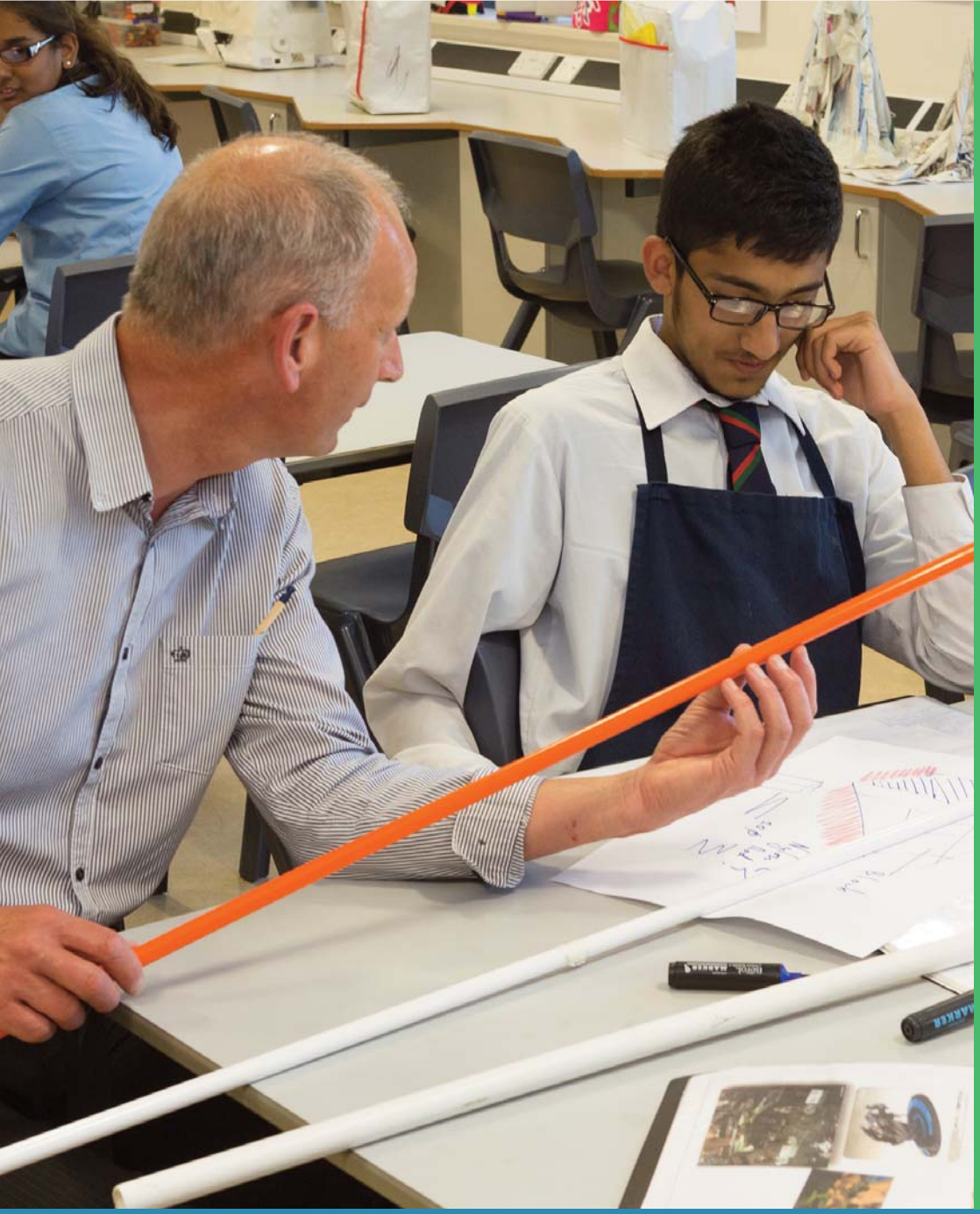
source – KS3 pupils should explore the origin and production of food products and ingredients.

seasonality – KS3 pupils should consider how seasons may affect the food available.

characteristics – KS3 pupils should consider the function, nutrient profile and sensory attributes of ingredients.

broad range – KS3 pupils should study and use a range of food commodities, e.g. cereals, fruit, vegetables, meat, fish, eggs, fats/oils, milk/dairy food products.

National Curriculum in England: design and technology programmes of study, Department for Education, September 2013



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