

# DESIGN AND TECHNOLOGY

## Key Concepts

*'Design and Technology in primary schools develops children's skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food. It encourages children's creativity and encourages them to think about important issues.'* (The Design and Technology Association)

**Designing** is not just about drawing, it is about thinking. Designing involves drawing on your experience, using your imagination and being willing to adapt your ideas.

**Technology** is about making something for a purpose. It involves putting designs into practice using suitable materials, drawing on creativity and imagination and learning from mistakes.

Design and Technology education involves both:

- *learning about the designed and made world and how things work*
  - *learning to design and make functional products for particular purposes and users.*
- (The Design and Technology Association)

## Specific pedagogical considerations

*There are three core activities children engage with in Design and Technology:*

- *Activities which involve investigating and evaluating existing products*
- *Focused tasks in which children develop particular aspects of knowledge and skills*
- *Designing and making activities in which children design and make 'something' for 'somebody' for 'some purpose'*

*These three activities are combined in sequence to create a Design and Technology project.* (The Design and Technology Association).

Ensure D&T projects are meaningful and relevant e.g. designing and making a picture frame for a relative, designing and making biscuits on a particular theme, designing and making bunting for a Christmas event.

There are six **principles** you can use to guide your planning and assessment of projects (The Design and Technology Association). Children should be able to identify the **user/s** who will use their product, the **purpose** of their product and the **functionality** of the product (how will the product work, what does the product need to do to be successful). They should make their own **design decisions**, be **innovative** and aim for an **authentic** product that will be real and believable for the user. Each of these principles needs consideration when you plan your D&T teaching, although there will be some principles that you might focus on in more depth in different projects. Some projects will require more direction than others and it is important to take time on the first two of the core activities above before children design and make their own products.

Resourcing D&T lessons requires careful consideration and planning so that you can provide children with choices from a range of materials and an appropriate range of tools.

D&T lessons are likely to be interactive, practical and therefore fluid. There will be times when the children are concentrating on designing, planning and evaluating which may be quieter and calmer, but the making stages are likely to be very busy!

## National Curriculum Purpose of Study and Aims

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.

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.

## Further questions for reflection

- What does success look like in D&T? What does quality look like in D&T?
- How as a teacher can I support children to enhance the quality and success of their designs and products whilst still giving the children independence in decision making?

## What might progression look like? What do look out for and emphasise in your teaching

Signing up free to the National STEM Learning Centre will give you access to the progression document from the Design and Technology Association. Based on the National Curriculum expectations, this outlines key points of progression, for example increasing sophistication regarding how the product is designed to meet the needs of the user, with older children carrying out specific research to inform this.

Design and Technology helps you to teach Maths, English, Science, Computing, Art and other subjects in an engaging manner and put these subjects into context, making them easier to understand for children, e.g. measuring in and for a real context and purpose; learning about the properties of materials; use of computing skills; writing an evaluation of a product. Consider carefully the progression of children's learning in the curriculum in these various subjects so that your expectations are appropriate e.g. can the children measure accurately enough for the purpose of their design? Children are likely to be using vocabulary from across the curriculum in their work in D&T.

## Key misconceptions and specific issues to be aware of:

- Children should be given opportunities to make their own decisions and this will inevitably lead to mistakes, but these are an important part of the learning process. Children therefore need to experience the consequences of their decisions, rather than an adult quickly stepping in to show them how to get it 'right' (although this does not override being taught how to use tools safely!).
- Some children will need more encouragement and support to be creative and innovative
- Do challenge gender stereotypes which might limit achievements and aspirations.
- There are many health and safety considerations when teaching this subject and you will need to carry out simple risk assessments. Examples of potential safety issues are the use heating devices (particularly if these are at adult height) and awareness of allergies when cooking and use of resources and tools in the classroom such as hacksaws and glue guns. Children should understand the purpose of the equipment, learn how to use it safely and responsibly and then be given plenty of opportunities to use the equipment. Most accidents in D&T lessons happen because children are excitable and not used to using the equipment.

## Resource links

The **National STEM Learning Centre** has many resources for D&T from a range of sources

The **Design and Technology Association** has a range of resources and support.

### Food - a Fact of Life

Free resources for teaching young people aged 3-16 years about where food comes from, cooking and healthy eating.

## Key questions when observing or teaching this subject

How are the principles of D&T being applied? E.g. Have the children identified a clear purpose of their product for their user? How are children being encouraged to be innovative?

Do the resources enable the children to experience a range of tools and media?

Are children aware of the possibilities and limitations of different materials for their design?

How are the resources appropriate to the needs of the children? (e.g. scissors with sharp blades but rounded ends for Yr R and Yr 1 children).

How are resources managed in the classroom?

## Further reading

Hope, G. (2018) **Mastering Primary Design and Technology**. London: Bloomsbury  
There is an extract available on the Broader reading list

**Ofsted Research Review (2012)** presentation about D&T in primary schools. This is dated but still has relevant points

**Design and Technology Association** website – this is useful to explore and find out if the school is a member to be able to access all the resources