

Design and Technology GCSE Subjects

AQA Design and Technology;

Product Design

Wood/ Plastics or fabrics

Course Examination Year 11:

50% 2hr Exam

50% 35hr NEA Project

What is Design and Technology

...and why choose to study it?



"Design and Technology is a phenomenally important subject. Logical, creative and practical, it's the only opportunity students have to apply what they learn in Maths and Science."

Sir James Dyson, Founder and Chairman of Dyson and Patron to the D&T Association



What will you be doing?

Understanding users

- Who your product is for and their needs
- How the product will be used



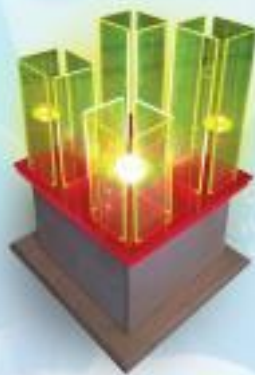
Learning about materials

- Including traditional, smart and modern materials
- Selecting the best materials for making your designs

Designing:

including Computer Aided Design (CAD)

- Taking risks to create more imaginative ideas
- Clearly communicating your design ideas to others



Making:

including Computer Aided Manufacture (CAM)

- Working safely with tools and equipment – including 3D printers
- Making high quality working prototypes



Design and Technology is purposeful, as well as being fun and exciting! Studying GCSE Design and Technology will build on what you learn about designing and making in Key Stage 3. You will use your knowledge and skills to design and make new and better solutions to real problems - on your own and with others - working with materials you choose.



Learning how things work

- Using mechanics, electronics and computers to control things, including robots
- Designing and making products that don't fail in use



Analysing products

- Understanding how everyday products have been designed and made
- Learning about the work of past and present designers, makers and engineers

Evaluating your own and others' work

- Expressing your opinions about products and services, to inform...
- ...the development of better solutions to real-life problems



What will you be doing in D & T?

Understanding users

- who your product is for
- what their needs and preferences are
- how the product will be used

Sustainable design

- including sustainability in every design
- awareness of all aspects of sustainability, from source to material processing and manufacture to the end product and end of life

Knowing about materials

- learning about smart and modern materials
- considering their working properties
- selecting and using the best materials to make your design solutions

Designing

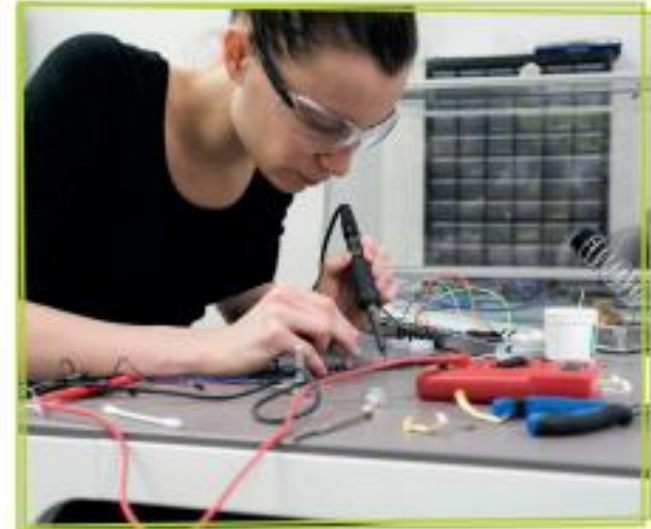
- taking risks to create more imaginative ideas
- taking ideas forward stage by stage, with CAD and prototype models
- clearly communicating your design ideas to others

Making

- working safely with tools, equipment and machinery – including CAD/CAM 3D printers
- making high quality working prototypes
- considering the costs and implications of commercial production

Knowing how things work

- using mechanisms, electronics and computers to control products, including robots
- designing and making products to withstand forces and not fail in use
- knowing how energy can be stored and used



Analysing products

- understanding how products have been designed and made
- considering the suitability, and sustainability, of everyday items
- learning about the work of past and present designers, makers and engineers.

Evaluating your own and others' work

- expressing opinions and challenging assumptions about products and services
- making informed decisions and judgements, and in doing so...



Employment skills

Employment skills

6

Being Analytical

Embrace new knowledge.
Process information.
Apply experiences from other subject areas.
Make informed decisions based on knowledge acquired.

5

Good Teamwork

Value the skills of others.
Value diversity and difference.
Understand how to work with others and get a task done.
Know the value of negotiation and be able to work fairly with others.

1

Using Initiative

Being able to adapt to changing circumstances.
Self-motivation towards completing a task.
Identifying when independent research is required.
Working through a problem and solving it

2

Being Organised

Managing own time in order to plan work schedules.
Review and revise own schedule to stay on time and meet deadlines.
Planning when limited equipment available,

3

Good Communication

Explain and present ideas clearly and effectively.
Use as appropriate verbal, written and graphical methods of communication. Listening and responding to others views.

4

Being Innovative

Challenge existing ideas.
Generate new ones.
Question existing thinking.
Solve problems to make peoples lives better.

TRANSFERABLE SKILLS GAINED BY STUDYING DESIGN AND TECHNOLOGY

Where could D&T take you?

For everyone

GCSE D&T opens the door to a wide range of careers in the creative, engineering and manufacturing industries. It is also excellent preparation for careers in many other fields e.g. medicine, law and computer science. Whatever career you choose, the knowledge and skills you learn, particularly those concerned with rapidly developing technologies, will be extremely valuable. You will also develop skills, such as teamwork and time management which are highly prized by employers.



Dualit.

Alex uses his D&T skills every day!

"I couldn't see how I could get here now, which is designing products that are sold internationally, without that first step of design and technology."

Alex Carr-Saunders
Designer for Dualit

Abbie designs spacecraft!

"D&T was my favourite subject at school – the one time that I got to apply my creativity and problem solving skills to the creation of new products, and see my ideas become reality."

Abbie Nutty Ming-Hoang Giang
15Acht 1987
Lead Specialist Structures Engineer,
EuMax Rover Project
Airbus Defence and Space



Yewande says that D&T is global!

"I have found that the design skills I learnt in school and at university have helped me become a 'global citizen' – able to develop solutions to problems in very different parts of our world."

Yewande Abiodun
Design Engineer, ARUP

ARUP



D&T supports a wide range of careers!

"Design and Technology teaches young people to 'think with their hands.' The ability to use tools and materials to solve problems is vital, and is as important in medicine and surgery as in the jeweller's workshop or the sculptor's studio. Now more than ever, D&T is a crucial subject for every young person."

Professor Roger Sambone Professor of Surgical Education and Engagement Science, Imperial College London

Paul says D&T is important!

"In a world which is so over-supplied, one way to succeed and stand out is to have a creative and lateral way of thinking about things. Creativity makes business, careers and futures for people and this is why subjects like Design and Technology are so important."

Sir Paul Smith Fashion Designer



Holly says I earned as I learned!

"The mix of practical and theoretical learning in D&T suited me and so I looked for career routes with the same approach. I started with the Higher Apprenticeship engineering scheme at JCB which provided valuable on-the-job experience whilst earning at the same time. Having completed my Mechanical Engineering degree I am now a Design Engineer at JCB."

Holly Broadhurst Design Engineer, JCB

JCB



Career prospects

As well as job satisfaction the rewards will include a good salary and good promotional prospects. The average salary for designers is growing much faster than the UK average and engineers typically earn £25,000 to £40,000 more than the national average. Alternatively, you may decide to be an entrepreneur and start your own company or business.

Why choose Design and Technology or Food and Nutrition as a subject?

STEM = SCIENCE – TECHNOLOGY – ENGINEERING – MATHS

- STEM qualifications – employers look for **STEM** on CV's
- 72% of all UK businesses rely on people with **STEM** skills
- 58% of all new jobs will be **STEM** related
- For industry demands – there needs to be a 40% increase in **STEM** qualifications and skills
- Universities prefer GCSE / A level subjects that have strong **STEM** links
- Technology is the practical application of Maths and Science!!
(We show you **how** to use/do/understand what you learn in Math and Science)

Design and Technology could lead to a career as;

DESIGN

Product design
Robotics
Industrial
Automotive
Carpet manufacture
Fashion/haut couture
Interior design
Packaging
Games industry
Advertising
Marketing
Digital media
Publishing
Film and media

FASHION and TEXTILES

Hosiery
Footwear
Clothing
Menswear/womenswear
Materials development
Furniture
Accessories
Sportswear
Aerospace
Automotive
Carpets
Fashion/haut couture
Interior design

ELECTRONICS and SYSTEMS & CONTROL

Robotics
Computing
Digital media
Transport
Broadcasting
Security
Armed forces
Electronics
Aerospace
Automotive
Services & infrastructure

Salaries
Over
£35,000



Woods / Plastics



Fabrics

