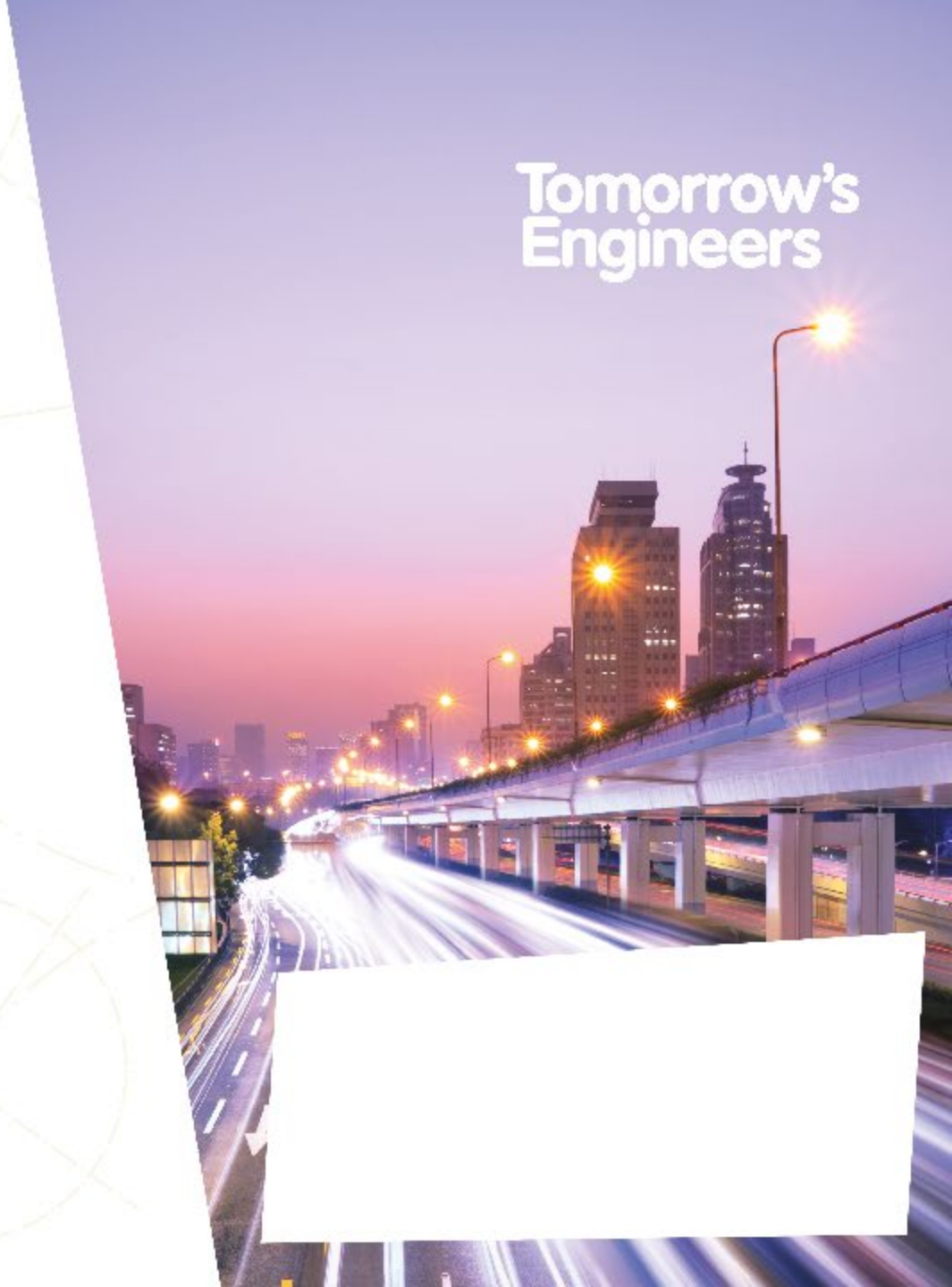
Tomorrow's Engineers

Engineer your future

Name: _____

Date: _____

Organisation: _____



What is Engineering?

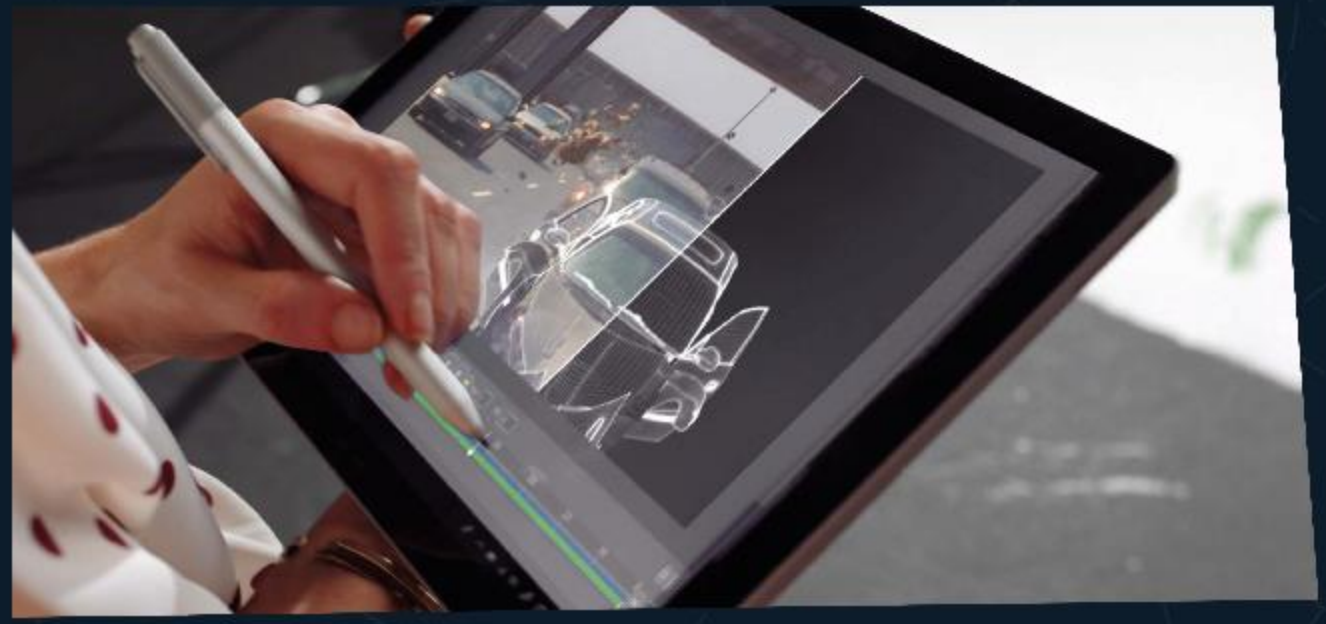
Tomorrow's Engineers

'Engineers make things that work, and they make things work better.' (Professor Bill Lucas).

Engineering is behind everything we use – from apps to bicycles, solar panels to lifesaving medical equipment. Engineering is everywhere.

Engineers design, create, invent and innovate. They help shape the future and make a difference in the world we live in!

Engineering is everywhere



Why is engineering important?

Tomorrow's Engineers

Think about some of the world's most pressing challenges:

- Finding sustainable sources of power
- Producing enough food and clean water for everyone
- Coping with a growing - and ageing - population
- Tackling inequality and reducing poverty
- Cleaning the ocean and protecting wildlife
- Reducing the impact of pandemics, earthquakes and other disasters
- Improving cyber security - for individuals, organisations and countries
- Connecting everyone in the world

What engineers do is critical to the evolution of humanity and our ability to adapt, survive and thrive.

What do engineers do?

Tomorrow's Engineers

- Come up with new ideas and designs
- Improve and modify things
- Make things more efficient, often using new technology
- Think about lots of different elements at the same time (managing projects)
- Use specialist knowledge to offer a unique perspective within a team of other experts
- Think about the implications and impact of different decisions
- Make a case for what they believe is the best solution and present it to others
- Continually review their own work and that of others

Who would make a good engineer?

Tomorrow's Engineers

Engineers are:

- Creative problem-solvers – great at finding solutions and thinking outside the box
- Improvers – who want to make things work better
- Excellent team players – must communicate well and enjoy sharing ideas and tasks
- Logical thinkers – with an eye for detail and ability to think things through
- Difference-makers – who want to make the world a better place
- Connectors – who can see patterns and make connections with the wider world
- Resilient characters – who'll bounce back and keep on trying

Even better if you :

- Enjoy practical, hands-on activities
- Embrace technology
- Can see how tools from maths and science – especially physics - could help you with all the above!

Why choose engineering?

Tomorrow's Engineers

- **Build a great career**
  Professional engineers are well paid. There are excellent opportunities to work in different sectors, with different teams – on varied and exciting projects – developing new skills throughout your career.
- **Work where you like – on site, at home, abroad, in space, underground, in a hospital, in a design studio…** Engineers' skills are also in demand across the world and many get the chance to travel to and work in exciting places
- **Get creative**
  Engineering is a creative process and requires an active imagination
- **The sky's the limit**
  Studying to become an engineer can open doors to many exciting careers: it keeps your options open!

Why choose engineering?

Tomorrow's Engineers

- **Make a difference**
  Engineers help improve people's lives and work to find solutions to local problems and global challenges such as improving access to healthcare for all
- **Be happy**
  Engineering regularly features at the top of polls of the happiest jobs!
- **Be in demand**
  The UK needs lots more engineers in the near future
- **Do what you love**
  Wherever your interests lie – space, sport, apps, fashion, film, buildings, robots, the environment – engineering will be a part of it – your job could be your passion

What will engineering jobs look like in the future?

Tomorrow's Engineers

What will engineering jobs of the future look like?

Tomorrow's Engineers

Low Carbon Economy

The government has set out to achieve 'net zero' carbon emissions within the next 30 years. Engineers will be working on low carbon power, transport and heating. The UK is a world leader in renewable energy.

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Creative Digital

Employs a large proportion of the workforce and adds billions to the economy each year. The UK is a world leader in areas requiring software and coding skills, such as special effects in films, games design and digital advertising

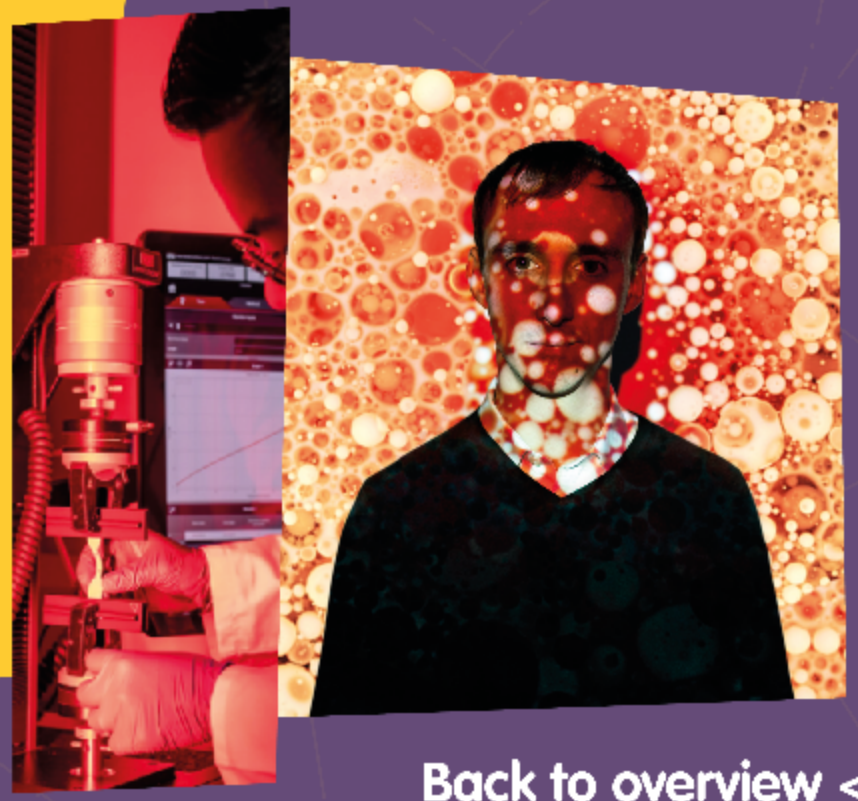
Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Life Sciences

There are over 350 pharmaceutical companies in the UK. The Life Sciences industry employs over 240,000 people in areas such as medical technology and bioengineering which were key in responding to the Coronavirus pandemic



Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Big data

The more apps, platforms and companies that gather our data, the more demand there is for products to analyse and interpret that data. Over the next decade there will be lots of opportunities to build the skills to analyse complex data and turn it into useful information and intelligence.

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Agriculture Technologies

A fast-growing global market driven by population growth. Genetics, nutrition, satellite sensing and precision farming are supported by technological advances

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Construction

Our expanding population has driven significant investment into housing and social infrastructure (such as hospitals, schools, bridges and sporting arenas), generating plenty of opportunities for engineers in this sector.

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Advanced Manufacturing

An area of growth for the UK, influenced by the growing 'computerisation' of products made with new techniques such as 3D printing - from jewellery to cars

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Aerospace and space

Over the next 20 years there is likely to be significant investment into researching and developing greener, quieter, more economical aircraft as well as continuing to develop the technology needed for deep space exploration

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Road and Rail Transport

With billions of pounds being invested in transport projects and programmes across the UK, the number of apprenticeships in the sector is expected to treble

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Automotive

Connected and autonomous vehicles are a key focus for the future, providing an additional 300,000 jobs by 2030, enabling vehicles to talk to each other and the wider world

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Oil and Gas

Provide more than two thirds of the UK's total primary energy and are expected to do so until at least 2035.

Back to overview <

What will engineering jobs of the future look like?

Tomorrow's Engineers

Nuclear Energy

Nuclear power is likely to form an important part of a 'balanced mix' of generating technologies over the long term, to provide reliable, low carbon and cost competitive electricity

Back to overview <

What type of engineer could you be?

Tomorrow's Engineers

- Aerospace and aeronautical
- Electrical and electronic
- Biomedical
- Chemical
- Energy
- Mechanical
- Software engineering and computing
- Civil and structural
- Marine
- Materials
- Production and manufacturing

Engineers design, create, invent and innovate! They help shape the future and make a difference in the world we live in.

This is Engineering!

Routes into engineering

Tomorrow's Engineers

School

Science (Physics), Maths,
D&T, Computing, Chemistry

Sixth Form/FE

A-levels / T-levels /
Highers / IB / BTEC / TechBacc
/HNC /HND /
Foundation Degree

University Degree

Bachelors BEng / BSc
Masters (MEng)

Apprenticeships

Intermediate / Advanced / Higher /
Degree Apprenticeship
Earn while you learn
e.g. NVQ / SVQ / BTEC

Work

What do engineers do?

Tomorrow's Engineers

Jahangir

Broadcast Hero

Daniela

Wonder Maker

Alan

Walk Wizard

Vinita

Spacesuit Designer

Halvard

Robot Maker

Olivia

Fragrance Finder

Jahangir BROADCAST HERO

Tomorrow's Engineers

About Me

Broadcast Engineer

Jahangir grew up making cardboard cameras and pretending he was behind the scenes. This led to his work keeping the programmes on air for the BBC and Sky.

'Engineering allows me to build a career doing something that I love'

Watch Jahangir describe how apprenticeships bring behind the scenes to life

<< Back

Daniela

WONDER MAKER

Tomorrow's Engineers

About Me

Mechanical Engineer

Daniela is creative, she is an innovator, a businesswoman and an engineer. Art and design was her passion at school, and Daniela realised she could bring her ideas into a new reality through engineering.

'Engineering means magic. You can change how people do things in their everyday lives'

Watch Daniela explain how design engineering turns imagination into reality

<< Back

Alan WALK WIZARD

Tomorrow's Engineers

About Me

Orthotic Technician

I took an apprenticeship in Industrial Applications and I am now a Senior Orthotic Technician. I like working with my hands and being creative, so my job making custom braces and splints for people so they can walk pain free is perfect.

'What I love most about my job is the impact it has and how it can be used to help people'

Watch Alan explain how he uses creativity to help patients

<< Back

Vinita SPACESUIT DESIGNER

Tomorrow's Engineers

About Me

Space Operations Engineer

I have always been fascinated by space and enjoyed tinkering with things as a child. I went on to do a space studies programme at the International Space University. Yes, there is such a place!

'We find and solve real world problems that make a difference to people's lives'

Watch Vinita talk about how she uses creativity to solve problems in space

<< Back

Halvard

ROBOT MAKER

Tomorrow's Engineers

About Me

Robotics Engineer

I grew up surrounded by farms and playing with Lego. As a robotics engineer, I combine my love for nature and putting things together to create robots that will revolutionise farming.

'Engineering is creative. You have to think differently and approach problems in a different way'

Watch Halvard talk about how childhood play led to tackling world hunger

<< Back

Olivia

FRAGRANCE FINDER

Tomorrow's Engineers

About Me

Chemical Engineer

I've always been interested in sustainability and wanted to work for a company passionate about the environment. I decided that being an engineer was the best way to make an impact and contribute to a waste free world.

'The thing I love most about my job is definitely the people I get to work with. Everyone's really different'

Watch Olivia describe how she brings sustainable thinking to cosmetics

<< Back

What next?

Tomorrow's Engineers

- Podcasts, trips to museums and science fairs
- STEM Club, coding club
- Ask your school to organise STEM events like a visit from a STEM Ambassador

  www.neonfutures.org.uk
- Taster days and summer courses
- Work experience
- Talk to people who may be connected to the industry
- Speak to a careers adviser and STEM subject teachers
- Do practical things at home and 'tinker' – like work out how your bicycle parts fit together!
- Take the Meet the future you quiz – find out what type of engineer you could be

Meet the future you

Tomorrow's Engineers

Ever wondered what an engineer does?

Answer a few short questions and find out how YOUR skills and passions could lead to an exciting job in the future.

Whether you're just starting out, or are ready to think about your next steps, this is the quiz for YOU.

Take the quiz and get ready to be inspired...

TAKE THE QUIZ in your browser