My Learning
My Future

Where can studying Engineering take you?

Highlighting the relevance of Engineering to future careers and opportunities

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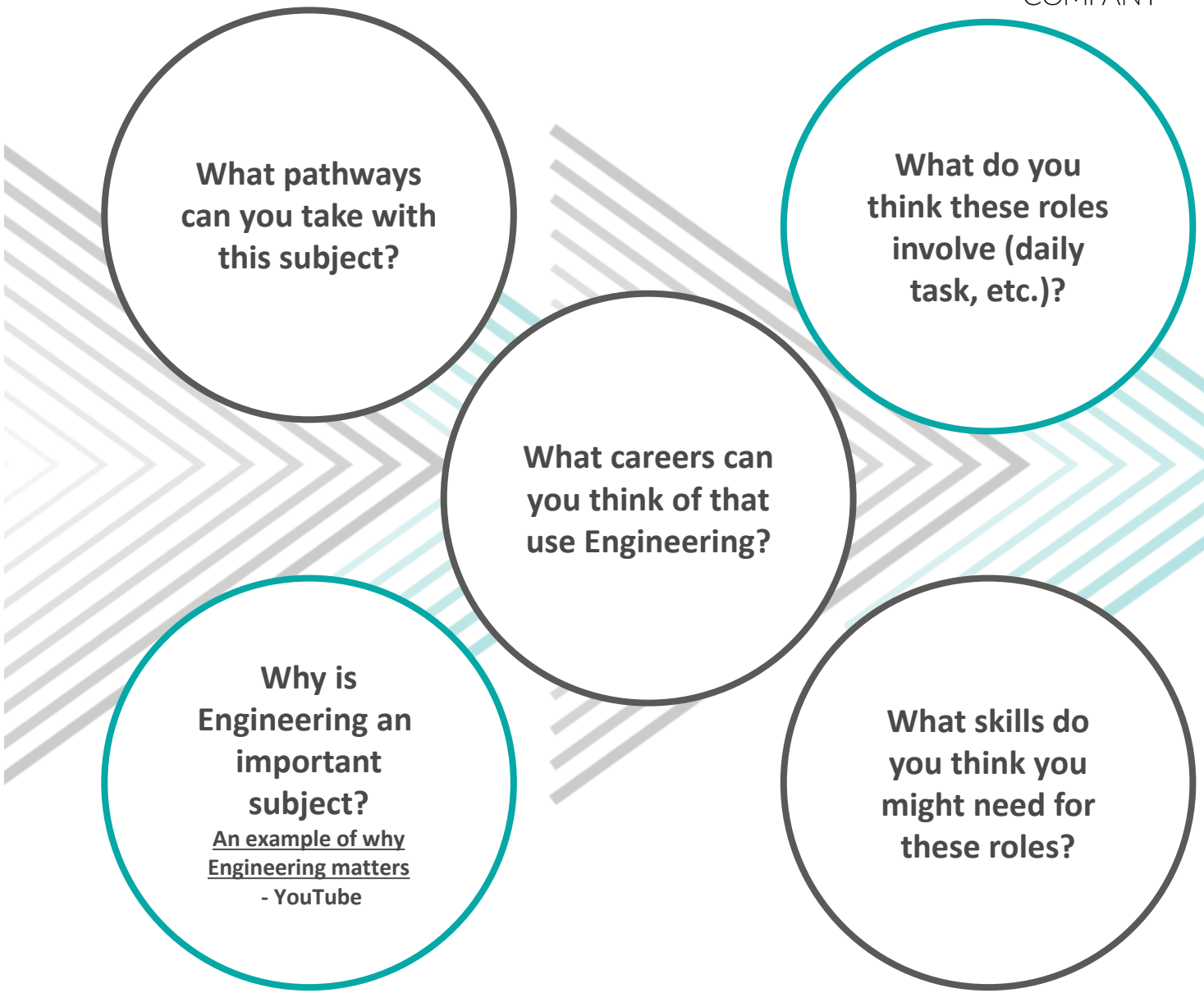
Why Engineering matters

Have you ever considered where studying Engineering can take you?

Today, we'll be exploring some of the career opportunities that are available to you, as well as the various pathways you can take to get there.



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Explore a career as a…

Here are some example roles and careers linked to

Engineering

Aerospace Engineer

BBC Bitesize case study

neon case study

neon case study

Biomedical Engineer

neon case study

neon case study

neon case study

Robotics Engineer

BBC Bitesize case study

neon case study

neon case study

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Explore a career as a…

Here are some example roles and careers linked to

Engineering

Marine Engineer

BBC Bitesize case study

neon case study

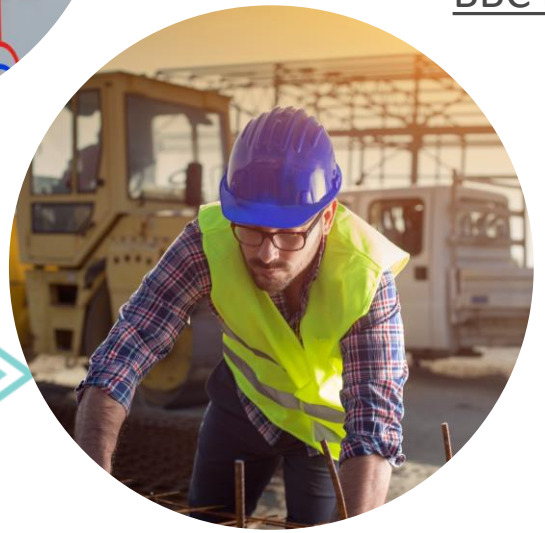
neon case study

Electrical Engineer

neon case study

BBC Bitesize case study

BBC Bitesize case study



Civil Engineer

BBC Bitesize case study

neon case study

BBC Bitesize case study

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Discover more about the role

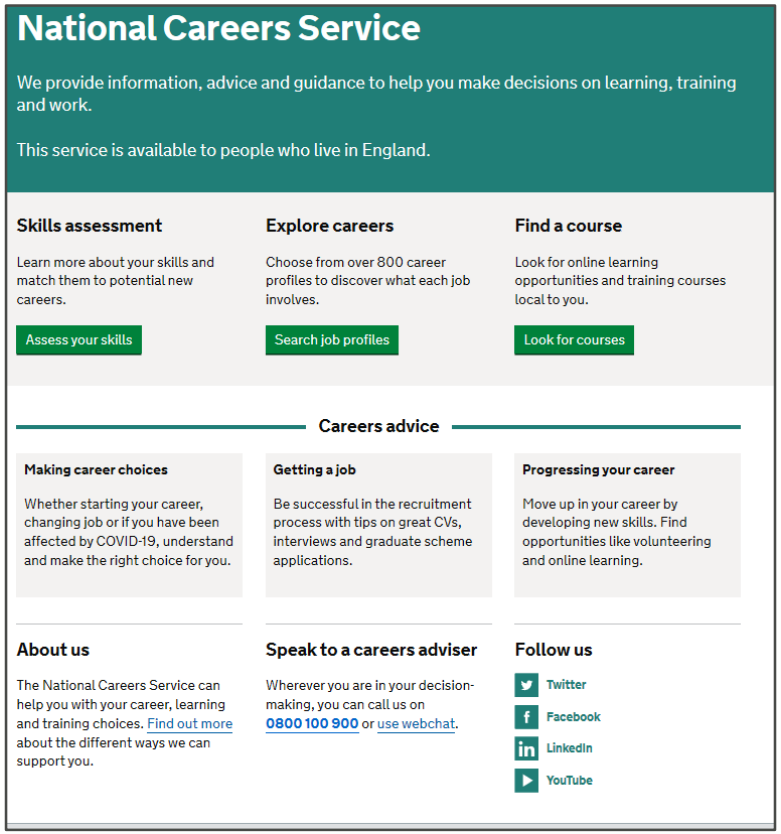
Explore careers using National Careers Service and find out about what jobs involve and how they are right for you

Includes:

- Average salary
- Typical hours
- Work patterns
- Pathways/How to become
- Essential Skills
- Daily tasks
- Career path and progression
- Current opportunities

Research Ideas:

Aerospace Engineer
Biomedical/Clinical Engineer
Robotics Engineer
Marine Engineer
Electrical Engineer
Civil Engineer



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Teaching
Every Lesson Shapes a Life

THE CAREERS & ENTERPRISE COMPANY

Why not teach Engineering?

Start in the classroom, where you go from there is up to you. Bring your passion for your subject, keep learning, and pass your knowledge onto others

- No two days are the same – and neither are the pupils
- Once qualified you can teach throughout your life
- You could teach abroad
- Progress your career into leadership and management
- Bring your outside interests into the classroom and your subject

Why is STEM important?

- It boosts essential skills such as problem solving and curiosity
- It helps you see and understand the wider world around you
- It helps young people become future entrepreneurs

Explore teaching

Vjendra's Story

Every Lesson Shapes a Life

The right skills to teach?

Love to keep learning?

Love to nurture imagination?

What makes a great teacher?

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Teaching
Every Lesson Shapes a Life

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GCSE

While there are different routes you can take to be a teacher there are a few essential things that you will need:
• A minimum GCSE Grade 4 or above in English and maths (plus science if you want to teach primary)
A degree or equivalent qualification

A level

A levels are 2 years of study

T Level

T Levels are nationally recognised, technical qualifications for 16–19-year-olds. Designed by leading employers, one T Level is equivalent in size to 3 A levels

Vocational/Technical Qualification

These include BTEC, Applied General Qualifications (AGQ) and Vocational Technical Qualifications (VTQ) – all at Level 3

Apprenticeship

Apprenticeships are jobs which combine practical work and study. Intermediate is Level 2, Advanced is Level 3

Degree

Complete a degree course

It is possible to get QTS as part of an undergraduate degree, for example:

- Bachelor of Arts (BA) with QTS
- Bachelor of Education (BEd) with QTS
- Bachelor of Science (BSc) with QTS

Level 4/5 qualifications

Complete a L4/5 course and top up to a degree – L4/5 includes Certificate of HE, Diploma of HE, Higher Technical Qualification (HTQ), HNC, HND and Foundation degrees

Top up to a degree (Level 6) in a year of full-time study

Higher apprenticeships

Higher level apprenticeship (foundation degree / Level 5)

Degree apprenticeships

Degree apprenticeship
(Level 6-7). There is a Level 6 Teaching apprenticeship programme

Initial Teacher Training (ITT) with qualified teacher status (QTS)

Teacher

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Why not teach activity?

Teaching
Every Lesson Shapes a Life

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- Pick a topic in Engineering you think you would like to try and teach
- Agree your choice of topic with your teacher and the length of session (and with which group)
  (It may be the perfect opportunity to try this with a younger class lower down the school, or as a transition activity for Y6)
- Plan a short activity to cover the topic in a way you feel will be engaging and memorable for your peers as part of a lesson starter, main activity or plenary

Consider:

- What are you trying to achieve (teach)? Be clear what information you intend to impart
- How will you make it fun? How will you make it 'stick'? How long will this take?
- What type of activity will you plan for? (written/practical)
- How will you know others have learned it?
- How will you make sure everyone is stretched and challenged?
- What will the end-product be?

Once you have checked it with your teacher, try the lesson with a small group (as agreed by your teacher)
Try and get feedback during and after the session from those in the lessons and from the teacher

After, consider:

- What you enjoyed about the experience
- Whether this is something, with training, you would enjoy
- How you felt when others learned from you

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5 | Non-obvious jobs using Engineering: Ever thought about..?

- How to become a Formula 1 Engineer: Amy's story
- How to become a Wing Designer: Zuzanna's story
- How to become an Apprentice Welder: Billy's story

BBC Bitesize https://www.bbc.co.uk/bitesize/articles/zhst2sg

- Careers ideas and information - Engineering

icould

Everyone Can Be Creative

- Agricultural Engineer | Explore careers | National Careers Service
- Broadcast Engineer | Explore careers | National Careers Service
- CNC Machinist | Explore careers | National Careers Service

National Careers Service https://nationalcareers.service.gov.uk/explore-careers

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MYPATH Job of the week (Engineering)

- Disaster Manager
- Furniture Designer
- Games Tester

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Engineering careers in a changing world: How can I future-proof my career pathway?

Sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs.
(UN definition)

The world will be changing drastically in the next few years to cope with the impacts of climate change and nature loss, and the need to lower greenhouse gas emissions and unsustainable practices. How might this steer your choice of career path using your Engineering skills?

SUSTAINABLE FUTURES

WWF | Villiers Park Educational Trust | Founders4Schools

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Engineering careers in a changing world

Every career can be sustainable

1. Use your skills and passion for sustainability to help businesses adapt
2. Work for a company with sustainable values
3. Innovate for a sustainable future

- Engineer (Lush)
- Wind Turbine Engineer
- Environmental Engineer

SUSTAINABLE FUTURES

WWF | Villiers Park Educational Trust | Founders4Schools

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A spotlight on Technicians using Engineering

THE CAREERS & ENTERPRISE COMPANY

6|

Discover here how the technical jobs related to Engineering keep industries moving and the real difference technicians make in our lives.

R007 Air Traffic Controller

R008 Aircraft Maintenance Technician

R012 Automation Engineering Technician

R014 Bike Technician

R020 Bus Engineering Technician

R022 Civil Engineering Technician

GATSBY

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We make the difference

Visit the Gallery here

Find further resources here

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A spotlight on Technicians using Engineering

THE CAREERS & ENTERPRISE COMPANY

6 |

Discover here how the technical jobs related to Engineering keep industries moving and the real difference technicians make in our lives.

R025 Composites Technician

R026 Compressed Air and Vacuum Technician

R034 Telecommunications Technician

R038 Electrical Engineering Technician

R040 Engineering Construction Pipefitter

R041 Engineering Manufacturing Technician

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A spotlight on Technicians using Engineering

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R044 Security System Technician

R059 Land-based Engineering Technician

R060 Lift and Escalator Technician

R062 Maintenance and Operations Engineering Technician

R063 Marine Engineering Technician

R064 Mechanical Fitting Technician

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A spotlight on Technicians using Engineering

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R066 Metrology Technician

R069 Testing Engineering Technician

R072 Munitions Explosives Technician

R074 Plumbing and Heating Technician

R077 Propulsion Technician

R079 Rail Engineering Technician

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R080 Refrigeration Engineering Technician

R081 ROV Pilot Technician

R088 Space Engineering Technician

R100 Wind Turbine Technician

R005 Robotics Technician

R006 CNC Technician

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A spotlight on Technicians using Engineering

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R021 Cardiology Technician

R013 Battery Technician

R033 Dental Technician

R046 Food Packaging Technician

R047 Technician Food Maintenanc e

R052 Healthcare Engineering Technician

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A spotlight on Technicians using Engineering

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Discover here how the technical jobs related to Engineering keep industries moving and the real difference technicians make in our lives.

R055 Electrician

R061 Lighting Technician

R067 Electric Vehicle Technician

R078 Prosthetic and Orthotic Technician

R082 Science Manufacturing Technician

R104 Solar Energy Technician

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A spotlight on Technicians using Engineering

THE CAREERS & ENTERPRISE COMPANY

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Discover here how the technical jobs related to Engineering keep industries moving and the real difference technicians make in our lives.

R050 Gaming Audio Technician

R084 Smart Home Technician

R091 Power Networks Technician

R099 Welding Technician

R102 Agricultural Technician

R004 Design Technician (CAD)

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A spotlight on Technicians using Engineering

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Discover here how the technical jobs related to Engineering keep industries moving and the real difference technicians make in our lives.

R018 Building Systems Technician

R019 Building Design Technician

R030 Crop Technician

R002 Acoustics Technician

R011 Architectural Technician

R029 Creative Venue Technician

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GET THE JUMP SKILLS FOR LIFE

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7| Engineering Pathways

Combine Study and Work

Study

Work

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My Future

7 | Combine Study and Work

Apprenticeships

- Metrology Technician
- Food Industry Technician
- Acoustics Engineer
- Electronic Technical Support Engineer
- Mechanical Engineer
- Manufacturing: Building Services Design and Engineering
- Civil Engineer
- Environmental Engineer
- Railway Engineer
- Nuclear Technician

Find more >

T Levels

T Levels | National Careers Service
T Levels | Building Services Engineering for Construction
T Levels | Design, Surveying and Planning for Construction
T Levels | Digital Production, Design and Development
T Levels | Onsite Construction
T Levels | Science
T Levels | Design and Development for Engineering and Manufacturing
T Levels | Engineering, Manufacturing, Processing and Control
T Levels | Maintenance, Installation and Repair for Engineering and Manufacturing
T Levels | Agriculture, Lane Management and Production

VTQs

Vocational Technical Qualifications (VTQs) | National Careers Service

- Engineering Design and Technology
- Engineering Design
- Engineering
- Creative iMedia
- Digital Media

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7 | Study Pathways

HTQs (Higher Technical Qualifications)

Higher technical qualifications (HTQs) | National Careers Service

You might find courses in:

- General Engineering
- Civil Engineering
- Electrical and Electronic Engineering
- Aeronautical Engineering
- Embedded Electronic Systems
- Mechanical Engineering
- Computing and DevOps Engineering
- Aircraft Engineering
- Chemical Engineering
- Building Services Engineering
- Mechatronics and Robotics
- Construction Management
- Product Design Engineering

A levels

A levels | National Careers Service

You might find courses in:

- Electronics
- Design and Technology
- Engineering

Higher education

Higher education | National Careers Service
You can explore undergraduate courses in Engineering

You might find courses in:

- Aerospace Engineering
- Agriculture and related Sciences
- Architecture, Building and Planning
- Chemical Engineering
- Civil Engineering
- Electrical and Electronic Engineering
- Engineering and Technology
- Materials Science and Engineering
- Mechanical Engineering
- Medicine and allied subjects
- Radiology and Medical Technology
- Software Engineering

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7 | Work Pathways

Supported internships with an education, health and care plan

Supported internships | National Careers Service

Watch Saul's story

You might read about:

- Access to Work Funding (if you have a disability or health condition)
- Preparing for Adulthood
- Talking Futures (A parents' toolkit for career conversations)

School leaver schemes

School leaver schemes | National Careers Service

You might read about:

- How to fill in an application form
- How to write a CV
- Interview help
- Progressing your career (Careers Advice from NCS)

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Complete University Guide

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7 | University League Tables

See at a glance the university ranking for Engineering

General Engineering Rankings (thecompleteuniversityguide.co.uk)

Filter by:

- Overall score
- Entry standards
- Student satisfaction
- Research quality
- Research intensity
- Graduate prospects

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Discover Uni

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Discover Uni

Have you ever considered if higher education is right for you?

1.Go to https://discoveruni.gov.uk/

2. Search for a course or subject
(You should get a page of search results, you can filter these by university or college, whether you want to study full or part time or perhaps you want to see that courses are near you)

Once you have had a look at a few different courses and subjects now it is time to compare some side by side

3. Check out this video which shows you how to use our comparison tool https://youtu.be/dBFzCQgTp8I - Pick 5 courses and add these as a saved course and then you can compare

4. Once you have your chosen five side by side, try to answer the following questions:

a. What kinds of qualifications do students on the course have when they start the course?

b. How many have a placement year?

c. How many courses let you study abroad?

d. Which has the highest student satisfaction rating? How do you know this?

e. What kinds of job do graduates from this course go on to?

f. Which course has the highest salary after three years? (higher/lower than national average)

g. Choose your favourite course and explain why you chose this course over the others?

discoveruni@officeforstudents.org.uk

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4. Once you have your chosen five side by side, try to answer the following questions:
Is the data I am looking at for a course or a subject?

a. What year, or years, does the data relate to?
b. How many students or graduates is this data based on?
c. Does the data represent all the students on the course or subject area?
d. Does the data include people like me?
e. What factors might impact the data?

discoveruni@officeforstudents.org.uk

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1 |

In 10 years time…

Subject chosen (related to Engineering):

_____

What GCSEs helped you get this job:

_____ _____ _____ _____ _____ _____

What KS5 Pathways choice did you make and what did you study:

Apprenticeship T level A Level other L3 equivalent

_____

Post 18 pathways choices did you make: explain:

Study & Work Study Work

_____

Essential skills used in the job:

_____

Progression route:

_____

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2 |

My local options…

Subject chosen (related to Engineering):

_____

Local college options:	Local apprenticeships options:	Other options:
_____	_____	_____
_____	_____	_____

The pros and cons of these options for me:

Pros:	**Cons:**
_____	_____

Consider how these will apply and explain:

Cost _____

Travel _____

Convenience _____

Aspirations _____

Personal circumstances _____

Other _____

Final choice – justify:

_____

Next steps:

_____

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3 | Prepare a 3 - 5 minute talk to share with a small group on any role that interests you related to Engineering

- What's the role
- Where has the interest come from
- What do you need to do to become one
- Where can you go to study and what level of study
- Where do you need to go to carry out the role
- What's the chances of getting this role
- Who do you look up to in this role
- What might a typical day look like

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4 |

My career path….

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8 |

Essential Skills

Here are three key skills needed for a career that uses

Engineering

	Video	Skills Builder Resource KS3	Skills Builder Resource KS4	Skills Builder Resource Post 16
The use of imagination and the generation of new ideas	Watch here	Short Lesson Creativity Step 6-8	Short Lesson Creativity Step 8-10	Short Lesson Creativity Step 10-12
The ability to find a solution to a situation or challenge	Watch here	Short Lesson Problem Solving Step 6-8	Short Lesson Problem Solving Step 8-10	Short Lesson Problem Solving Step 10-12
Working cooperatively with others towards achieving a shared goal	Watch here	Short Lesson Teamwork Step 6-8	Short Lesson Teamwork Step 8-10	Short Lesson Teamwork Step 10-12

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Skills Builder PARTNERSHIP

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8 |

	Creativity	Tick which apply
Step 6	I use creativity in the context of work	
Step 7	I use creativity in the context of my wider life	
Step 8	I develop ideas by using mind mapping	
Step 9	I develop ideas by asking myself questions	
Step 10	I develop ideas by considering different perspectives	
Step 11	I innovate effectively when working in a group	
Step 12	I innovate effectively by seeking out varied experiences and stimuli	

My Strength (s)	My area (s) of Development

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Skills Builder PARTNERSHIP

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	Problem Solving	Tick which apply
Step 6	I explore complex problems by identifying when there are no simple technical solutions	
Step 7	I explore complex problems by building my understanding through research	
Step 8	I explore complex problems by analysing the causes and effects	
Step 9	I create solutions for complex problems by generating a range of options	
Step 10	I create solutions for complex problems by evaluating the positive and negative effects of a range of options	
Step 11	I analyse complex problems by logical reasoning	
Step 12	I analyse complex problems by creating and testing hypotheses	

My Strength (s)	My area (s) of Development

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Skills Builder PARTNERSHIP

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	Teamwork	Tick which apply
Step 6	I contribute to group decision making	
Step 7	I contribute to group decision making, whilst recognising the value of others' ideas	
Step 8	I contribute to group decision making, encouraging others to contribute	
Step 9	I improve the team by not creating unhelpful conflicts	
Step 10	I improve the team by resolving unhelpful conflicts	
Step 11	I improve the team by building relationships beyond my immediate team	
Step 12	I influence the team by reflecting on progress and suggesting improvements	

My Strength (s)	My area (s) of Development

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Homework

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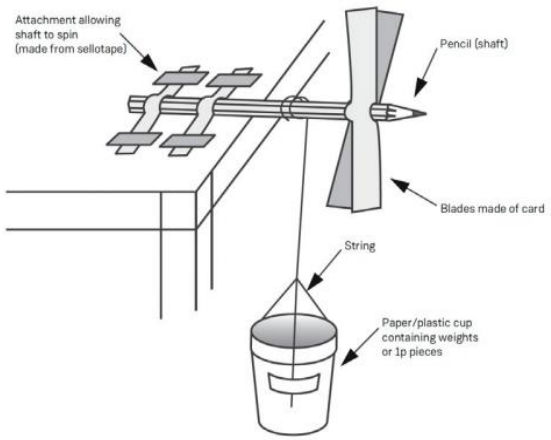
Name: Tutor group:

Design a simple wind turbine capeable of lifting a cup off the floor up to bench height

Possible design



What you'll need:

- Scrap Card
- Sellotape
- Masking tape
- Pencils
- Scissors
- String
- Paper/platic cup
- Weights (Gram weights or Pennies)

You will also need at least one hairdryer. Ensure all hairdryers are of the same power rating

These are jobs where Engineering would be really useful!

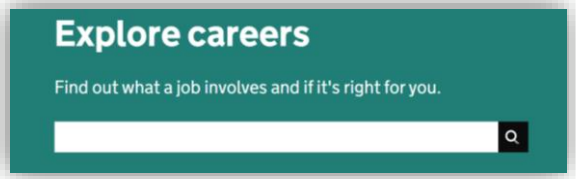
Can you research each job and tell us what you would do for them?

A: Aerospace Engineer

B: Software Engineer

C: Marine Engineer/Naval Architect

D: Civil Engineer



Use the National Careers Service Explore careers tool to research for this homework

Explore here

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