Newsletter posted on classrooms every Friday

MGGS CAREERS DEPARTMENT

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Mrs. Culbreth
Aspiration and Careers Leader

Career Spotlight

Engineering

Thank you to my prefects for putting this together.

Interview with Neha Y12

1)How did you first learn/ find out about Engineering?

During my time at MGGS we had many different careers talks and most of them introduced me to the world of engineering. I still feel that I don't know everything about this sector however I think this is a really interesting sector to go into.

2)Did you know Engineering was the sector you were interested in the first time you heard about it?

When I first heard about it I wasn't one hundred percent sure it was for me but as I started to look into the sector more, I thought that this would be the best route for me.

3)How did you know what specific type of Engineering you wanted to specialise in?

I've always been really interested in computing so I knew that Software Engineering was something I might specialise in, in the future. Recently over the last two years, I've really enjoyed watching the F1 races and realised the aerodynamics and tech used in F1 is really interesting so I thought that Aerospace/Aeronautic Engineering would be nice to specialise in as well.

4)How did this influence the subjects you picked for GCSE/A-Level?

For GCSE and A-Level I picked Computer Science as it has always interested me and as I took to my liking of Aerospace I decided to pick Physics as well for A-Level.

5)When did you realise Engineering was the job for you?

The idea of creating new technologies and helping design or program items that could eventually be used everyday in the future has always fascinated me so I knew that Engineering would be the perfect fit for me.

6)What would you say to people who are considering going into Engineering?

Having a lack of artistic skills myself, I would say just having ideas and being able to simply sketch out your ideas are great starting points for thinking about going into Engineering. Also having a true passion for Engineering and experimenting would really help you get far but it is also okay to not be fully devoted to it.

7)What could be some benefits/challenges to this job?

Engineering offers the opportunity to leave a positive impact on the community locally as well as globally, and it is a large sector so you won't have a limited options to choose from and you can find something that is suited best for you. However, having said that, you need to have a lot of technical skill and be able to work under pressure and to strict deadlines which could come as a challenge to some.

Interview with Divyaa Y13

1. How did you first learn/ find out about Engineering?

I found out about engineering from the people around me, especially my parents and my friends' parents. It was also open as an option during sixth form and was promoted through events such as Girls into Electronics and UKSEF.

2. Did you know Engineering was the sector you were interested in the first time you heard about it?

No, I was not interested immediately, but I always kept it as one of my options. However, I had never considered it as a career until sixth form and based on the subjects I had chosen (Maths, Further Maths, Physics and Computer Science), I was inclined to choose a job linked to STEM subjects. Between engineering and computer science, I settled on electronic engineering.

3. How did you know what specific type of Engineering you wanted to specialise in?

I didn't know at the beginning, but I was certain that I didn't want to do civil engineering because it was not my passion. After having looked at some of the options, I summed my choices down to electronic or mechanical engineering. Since I liked computer science, I decided on electronic engineering. Make sure you choose your careers based on interests and personalities.

4. How did this influence the subjects you picked for GCSE/A-Level?

Since I wasn't initially sure as to what I would like to do in the future, I chose my subjects according to my interests. For A-Levels, I liked Maths and Further Maths and Physics was a suggestion from my parents. I chose Computer Science not only because I liked it
but also because I saw a future in the subject.

5. When did you realise Engineering was the job for you?

Although I wasn't fully certain, I knew that it could become a great opportunity. The event that I attended stood out, I knew that there is a good future in this industry and that I could have a high income from this job. It is also common to have a base degree and with a highly valued degree like electronic engineering, I could then go into a different type of industry. Engineering stood out to me most.

6. What would you say to people who are considering going into Engineering?

Definitely make sure that you enjoy it because it can be quite difficult, especially at university. Don't just choose it because it could be a high-paying job because this won't help you keep on working when things get harder during university. Sometimes, people feel that it's too difficult, but don't give up because if you are truly interested in the sector, you will be able to work through the challenges. It does make a lot of money, so when things get hard, remind yourself that there is a good future in the sector.

In terms of grades, if you aren't doing well in a subject that you need for the job, work hard to improve. However, I would suggest you don't do it at university if you don't see any results even after working to improve your grades. Definitely attend events, if you find the topic interesting, then look into details about the sector afterwards. Don't worry about specialising in a certain area because you will always have opportunities to switch into another one.

7. What could be some benefits/challenges to this job?

A challenge could be that there is a lot of responsibility within the job because if you make a small mistake, it could have detrimental effects. If you don't have a secure foundation, this could impact other people's lives. For example, if you become a project manager, you are depended upon, you must be able to handle the responsibility. It's also not always about the money, as getting a job could be difficult, but even if you don't get a job immediately, there is a future if you keep on working hard with passion for the subject.

A benefit would be that people use this knowledge to help others and although it might not always be as idealistic as you expect, everything will work out if you carry on. You gain a lot of empathy from being able to help others. I would suggest doing Maths and Physics at A-Level and a supporting subject such as Further Maths or another science too.

Year 8 STEAM week experience

On STEAM week, we (year 8) did a workshop as part of 'Engineering'. We started off with a short presentation that showed what you did in a job as a BAE system engineer. We then were to start to build and programme a remote controlled bus/car/moving vehicle. A negative of it was that in my group we had wet pieces and wrong screwdrivers! It was fixed right away and the engineers who visited were very nice and helpful to us! We learnt how fun it was to work as an engineer and what you would do if you decided to work as an engineer. Requirements were something I wouldn't want to choose for my GCSE but it is helpful to those who want a career in engineering.

Engineering Sectors in more detail (not all)

Biomedical engineering
Biomedical engineering involves developing technical solutions for medical issues . Biomedical engineering is a fast growing field that develops technologies to fulfil healthcare needs.

A biomedical engineer's responsibilities include

- Designing and Developing Medical Devices
- Conducting Research and Experimentation
- Collaborating With Healthcare Professionals and Scientists
- Testing and Validation
- Maintaining and Problem Solving

Civil engineering
A civil engineer designs and manages construction projects such as buildings, bridges and transport links

As a civil engineer you will need to-

- work with clients to understand what they need
- map and analyse data using mathematical modelling methods
- create design plans and models with computer software
- assess the risks and environmental impact of projects
- monitor progress at each construction stage

Automotive engineering
An automotive engineer designs and builds vehicles such as cars motorbikes buses etc.

- turn design ideas into blueprints
- research the safety, cost and environmental impact of designs
- move designs into development by building prototypes
- test products using computer simulations and physical models
- assess components' strengths, weaknesses, performance and safety
- plan the production run
- redesign machine tools, equipment and processes to make new parts
- check costs and production schedules
- oversee quality control

Software engineering
Software engineering is a branch of computer science that designs, develops and tests software applications

As a software engineer you will need to-

- analyse user requirements.
- write and test code, refining and rewriting it as necessary and communicate with any programmers involved in the project.
- research, design and write new software programs (e.g. business applications or computer games) and computer operating systems.

Nuclear engineering

Nuclear engineering is the process of researching and developing the processes, instruments, and systems used to derive benefits from nuclear energy and radiation. Engineers in this sector design, develop, monitor, and operate nuclear plants to generate power.

Here is a list of things you will do as a nuclear engineer

- design and build new nuclear plants and equipment
- monitor radiation levels
- plan and carry out maintenance work
- help to decommission old power stations
- research ways to dispose of nuclear waste
- design medical equipment that uses nuclear technology

work on nuclear propulsions systems for ships and submarines

Engineering

An Engineer, or Project Engineer, is responsible for designing, building and maintaining structures or processes. Their duties include drawing up plans for a new design, running quality-control tests on a new product and overseeing construction projects.

Types of engineering jobs :

- mechanical engineer
- manufacturing engineer
- materials engineer
- . electrical engineer
- . chemical (process) engineer
- . biomedical engineer.

Skills you need to be an engineer:

- Problem solving skills
- Teamwork skill
- Working under pressure skills
- Communication skills
- Computer skills (IT)

The average salary for an Engineer is **£38,796 per yea**r in the United Kingdom.

Subjects you could take to be an Engineer:

GCSE: All from a grade 9-4(A*-C)

- Maths
- English
- Science (double or triple)

A LEVELS :

- Maths
- English
- All science
- Computing

If you want to discuss further make an appointment with Mrs. Culbreth

Opportunities

Please share with parents/carers

All Ages- the Army has a lot of opportunities including degree apprenticeships: https://jobs.army.mod.uk/

Year 10-Zeiss Materials Engineering Summer School Imperial College, London. Check the entry requirements before applying: https://www.imperial.ac.uk/be-inspired/schools-outreach/eligibility-criteria/

Year 10- Chemistry Taster Days Imperial College, London: https://www.imperial.ac.uk/chemistry/outreach/#Y10%20and%20Y12%20Taster%20Days

KS4/KS5- I would suggest you sign up for Pathway CTM which has a lot of information to help students with future career paths, apprenticeship help etc etc :https://pathwayctm.com/

Year 12 and Y13- Webinar on those who would like more information about studying in universities in the North of the country: https://forms.office.com/pages/responsepage.aspx?id=yRJQnBa2wkSpF2aBT74-h4MEZ5W7-MxOnt2pewEiFilUNVlSRFQ4VjBPTDMxUURHWlFKUzFUV0U3Si4u

All ages- information on working for Southeastern Railway: https://mcusercontent.com/47a5d98d4332882094237377a/files/dc0fb510-8dd6-065c-4dba-fe37a33577cc/Final_Copy_SER_NEWSLETTER_1_2024.pdf