

Curriculum Links: PSHE: KS3/KS4/KS5

Focus: Inspiring students in Science, Technology, Engineering and Mathematics

TEACHER'S NOTES giving information about each individual case study with key points of the interview and information to ensure the clips are relevant to your students, can be printed from the DVD.

CASE STUDY	CAREER PROFILE	INDUSTRY	SUBJECT LINKS
Liz, 27	Chartered Civil Engineer	CONSTRUCTION	Technology Engineering Mathematics
Jake, 17	Apprentice Plant Maintenance Engineer	MANUFACTURING	Engineering Mathematics
Liza, 26	Technical Director	PRODUCT DESIGN (Snowboards)	Science Technology Engineering Mathematics
Lisa, 25	Aseptic Manufacturer	PHARMACEUTICAL MANUFACTURING	Science Mathematics
Giles, 29	Inventor	AERONAUTICS	Science Mathematics Technology Engineering
Philippa, 25	Conservation Scientist	MUSEUMS	Science Engineering History Textiles
Julia, 27	Species Research Officer	WILDLIFE	Science ,Geography
Abdul, 26	Vehicle Breakdown Engineer	MOTOR	Technology Engineering Mathematics
Muhammad, 26	Materials Engineer Metallurgist	HEAVY INDUSTRY	Science Technology Mathematics
Andrew,25	Assistant Auditor/ Trainee Accountant	FINANCE	Mathematics

For further information and related case studies please go to www.careers4u.tv

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APPRENTICE MAINTENANCE ENGINEER 4'39"

We talk to Jake who is 17 and currently undertaking an electrical and mechanical engineering apprenticeship with City and Guilds. As part of his daily role Jake contributes to maintenance and repair work within the factory. Jake's main priority is to assist a fully qualified engineer in the event of a machine breakdown. This involves diagnosis of the problem and repairing it efficiently to allow shop floor production to resume. He chats to us about the qualities that he thinks are essential for an engineer and the benefits of training to be a multi-skilled engineer.

KEY POINTS IN THE INTERVIEW

- Description and responsibility of the role
- Conditions of the City and Guilds apprenticeship
- Typical day
- Advantages of working the weekend
- Benefits of being a multi-skilled engineer

SUBJECTS

- Engineering
- Mathematics
- Design and Technology

MIGHT APPEAL TO STUDENTS INTERESTED IN...

- How and why things work
- Making and constructing things
- Machinery
- Solving problems
- Manual work
- Working within a team

SKILLS NEEDED FOR THIS CAREER

- Ability to work quickly and under pressure
- Logical thinking skills
- Self-discipline
- Technical skills
- Practical skills

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ASEPTIC MANUFACTURER 6'51"	
<p>Lisa (25) tells how she began studying for A levels in biology and chemistry with the intention of becoming a pharmacist. However, realising this wasn't for her she applied for a job at Bath ASU, manufacturing pharmaceutical drugs. She talks to us about the rewards of the job and the sense of achievement she receives when she has created the end product. We learn more about the strict quality checks that occur and how Lisa has progressed to a role with more responsibility including preparing worksheets and checking the drugs. Lisa is currently studying with the Open University and hopes to progress to managerial level.</p>	
<i>KEY POINTS IN THE INTERVIEW</i>	<i>SUBJECTS</i>
<ul style="list-style-type: none"> • How Lisa began working in this role • Typical working day • Responsibilities of the job • Importance of safety checks • Professional development • Career progression 	<ul style="list-style-type: none"> • Science • Mathematics
<i>MIGHT APPEAL TO STUDENTS INTERESTED IN...</i>	<i>SKILLS NEEDED FOR THIS CAREER</i>
<ul style="list-style-type: none"> • Pharmaceutical science • Scientific practical work 	<ul style="list-style-type: none"> • Basic understanding of science • Diligence • Accuracy • Consistency • Awareness of strict quality regulations

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ASSISTANT AUDITOR 6'32"	
<p>We meet Andrew who is 25 and after completing a degree in politics and economics chose to begin a career in accountancy. He is working for the National Audit Office as an assistant auditor, whilst also studying for his exams in chartered accountancy. Within the role, Andrew's priority is to ensure public funds are spent wisely. We discover the rewards and travel opportunities available to Chartered Accountants, and Andrew talks about his chance to work on international development projects and his involvement in the financing of new aircraft carriers. Andrew also discusses the advantages and disadvantages of working in the public sector.</p>	
<i>KEY POINTS IN THE INTERVIEW</i>	<i>SUBJECTS</i>
<ul style="list-style-type: none"> • National Audit Office • Qualifications and accountancy • Benefits of the role • Working within the public sector • Benefits of having an accountancy qualification • Career progression and opportunities to travel abroad • Private Sector vs Public Sector 	<ul style="list-style-type: none"> • Mathematics
<i>MIGHT APPEAL TO STUDENTS INTERESTED IN...</i>	<i>SKILLS NEEDED FOR THIS CAREER</i>
<ul style="list-style-type: none"> • Public spending • Working as part of a team • Combining work with study • Leadership 	<ul style="list-style-type: none"> • Self- confidence • Communication and interpersonal skills • Numerical skills • Analytical skills • Organisational and time management skills • Methodical • Intuitive

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CIVIL ENGINEER 4'31"	
<p>We meet Liz (27) has worked as a Civil Engineer for the last five years. She is currently working on an embankment stabilisation scheme adjacent to a railway. We discover how varied the role can be, and learn more about the type of tasks that are part of managing the daily running of construction sites for civil engineering works. Liz talks us through the different stages of a project from when a need has been identified, to a design solution and through to a complete build. She tells us about construction drawings, design specifications, materials and budgets.</p>	
<i>KEY POINTS IN THE INTERVIEW</i>	<i>SUBJECTS</i>
<ul style="list-style-type: none"> • Current project • Typical day • Process of design concept through to build • Reasons to choose Civil Engineering • Rewards and qualities of the job 	<ul style="list-style-type: none"> • Science • Engineering • Mathematics • Technology
<i>MIGHT APPEAL TO STUDENTS INTERESTED IN...</i>	<i>SKILLS NEEDED FOR THIS CAREER</i>
<ul style="list-style-type: none"> • How and why things work • Re-designing things • Experimentation • Working within a team • Making and constructing things 	<ul style="list-style-type: none"> • Good communication skills; written and oral • Excellent application of maths and science. • Strong analytical skills • Ability to problem solve • Leadership skills

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HERITAGE CONSERVATION SCIENTIST 5'12"

In this clip we meet Philippa (25) who is studying for a PHD as part of the Science and Heritage programme. We discover how Philippa's love for science and history led her to this alternative career within science. The collaboration, which involves Historic Royal Palaces (based at Hampton Court Palace, London) and the School of Material Sciences at the University of Manchester, requires Philippa to investigate the mechanical and physical properties of tapestries. We see Philippa working alongside the conservation team at London, undertaking practical techniques to help preserve a large tapestry. While doing this she tells us how they will take into account the age and strength of the fibres before deciding on a course of action for conservation of the textile pieces.

KEY POINTS IN THE INTERVIEW

- Work location and environment
- PHD study and research
- Practical textiles; Sampling, Weaving testing
- Theory; fabric and fibres
- Rewards of the job

SUBJECTS

- Science
- Engineering
- History
- Textiles

MIGHT APPEAL TO STUDENTS INTERESTED IN...

- Heritage
- Science and History
- Independent working
- Problem solving
- Detailed work
- Conservation and Preservation
- Research

SKILLS NEEDED FOR THIS CAREER

- Attention to detail
- Committed to further Study
- Good communicational skills
- Analytical and problem- solving skills

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INVENTOR 6'11"	
<p>Giles is 29 and founder of Parajet, a company which designs and makes personal aircrafts. He tells us how his early passion for anything mechanical, designing aircrafts and a trip to Japan led to the production of his first paramotor. Giles tells us how with enthusiasm and dedication he overcame the challenges that came with being a young entrepreneur. We discover the benefits for working within a smaller company and how this allows Giles to be more creative and innovative as a designer. We also learn about his Everest adventure with Bear Grylls and how this led to interest from the British MOD and other international military forces.</p>	
KEY POINTS IN THE INTERVIEW	SUBJECTS
<ul style="list-style-type: none"> • Financing a new business • Setting up the production line • The challenges of being a young entrepreneur • Managing a company • Advantages and disadvantages of running your own company • Expansion of the business 	<ul style="list-style-type: none"> • Science • Engineering • Mathematics • Technology • Enterprise
MIGHT APPEAL TO STUDENTS INTERESTED IN...	SKILLS NEEDED FOR THIS CAREER
<ul style="list-style-type: none"> • Innovative design • Making things • How and why things work • Problem solving • Building and developing things • Mechanics • Starting a business 	<ul style="list-style-type: none"> • Ability to problem solve • Good practical skills • Entrepreneurial skills • Creativity • Business management skills • Communication and networking skills

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MATERIALS ENGINEER- METALLURGIST 4'16"

Muhammad (26) talks to us about his early days as a graduate trainee at Tata Steel and how he spent time in many different areas of the company and most enjoyed his experiences within the ironworks. He now manages the refurbishment of vital industrial equipment used within the plant. Much of Muhammad's work is office based but he enjoys the opportunity to be 'hands on'. Muhammad talks of the various job opportunities within engineering and how he became to enjoy working with metals the most.

KEY POINTS IN THE INTERVIEW

- Job description- explanation of Muhammad's role
- Benefits of **Science** and **Maths** at school
- How Muhammad made the decision to study engineering
- Job opportunities within engineering
- Typical working week
- Various fields within the plant
- Career progression

SUBJECTS

- Science
- Engineering
- Mathematics
- Technology

MIGHT APPEAL TO STUDENTS INTERESTED IN...

- How and why things work
- Re-designing things
- Experimentation
- Working within a team

SKILLS NEEDED FOR THIS CAREER

- Good communication skills; written and oral
- Excellent application of maths and science.
- Strong analytical skills
- Ability to problem solve
- Decision making skills

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SPECIES CONSERVATION RESEARCH OFFICER 5'41"

Julia (27) works within the research department at the Wildfowl and Wetlands Trust. She tells us about the environmental charity and how she helps protect the wetlands for both wildlife and people. As a research officer it's Julia's job to monitor the wild population of Buick Swans that visit Slimbridge every winter. She explains how they sketch the swan's beaks for identification purposes. Julia explains how voluntary work during her holidays gained her valuable skills and experiences within the field and increased her employability. She talks of the rewards that come from working within conservation.

KEY POINTS IN THE INTERVIEW

- Job description
- Importance of the Buick Swan project
- Practical aspects of the job
- Qualifications
- Benefits of voluntary work
- Variety within the job

SUBJECTS

- Science
- Geography

MIGHT APPEAL TO STUDENTS INTERESTED IN...

- Environmental conservation
- Wildlife conservation and welfare
- Working outdoors
- Working as part of a team

SKILLS NEEDED FOR THIS CAREER

- Eye for detail
- Accuracy
- Critical skills
- Creative
- Organisational skills
- Research and analytical skills

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TECHNICAL DIRECTOR 5'45"	
<p>Careers4u meet Liza (26) who is the technical director of True Snowboards Ltd. We learn about Liza's interest in science and design technology at school and how her failure at AS Level maths led her to study for a National Diploma in engineering. It was while studying for her dissertation her interest in snowboard design began. She explains how her mathematical research into the way snowboards are designed is breakthrough technology and how that makes her the world expert! Liza talks us through the various materials that are used to make a snowboard and the theory behind them.</p>	
<i>KEY POINTS IN THE INTERVIEW</i>	<i>SUBJECTS</i>
<ul style="list-style-type: none"> • Work related learning • Dissertation • The materials from which a snowboard is made • Prototyping and Testing • Benefits of having an engineering degree and academic progression • Ways of testing a product 	<ul style="list-style-type: none"> • Science • Technology • Engineering • Mathematics
<i>MIGHT APPEAL TO STUDENTS INTERESTED IN...</i>	<i>SKILLS NEEDED FOR THIS CAREER</i>
<ul style="list-style-type: none"> • Science experiments • How and why things work • Problem Solving • Making things • Building and developing things 	<ul style="list-style-type: none"> • Academic • Applied Mathematical skills • Committed to further study • Research and analytical skills

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VEHICLE BREAKDOWN ENGINEER 3'43"	
<p>Meet Abdul (26), who works for AA Roadside Assistance. His job involves meeting new people every day and requires him to have strong motor mechanical skills. We learn about his average working week and the essential skills that are needed for a career within this trade. We hear how Abdul uses his people skills to manage situations that are stressful to the motorist. Towards the end of the clip he chats about various career options within the motor trade and offers some inspiring advice for school leavers.</p>	
KEY POINTS IN THE INTERVIEW	SUBJECTS
<ul style="list-style-type: none"> • Examples given of possible situations • Hours worked • Work environment • Advice for students if they are thinking of going into the trade • Avenues within motor engineering 	<ul style="list-style-type: none"> • Engineering • Mathematics • Design and Technology
MIGHT APPEAL TO STUDENTS INTERESTED IN...	SKILLS NEEDED FOR THIS CAREER
<ul style="list-style-type: none"> • How things work • Manual work- using tools • Problem solving • Meeting new people every day • Motor vehicles 	<ul style="list-style-type: none"> • Mechanical skills • Good listening and understanding skills • Commitment to customer care • Analytical skills

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