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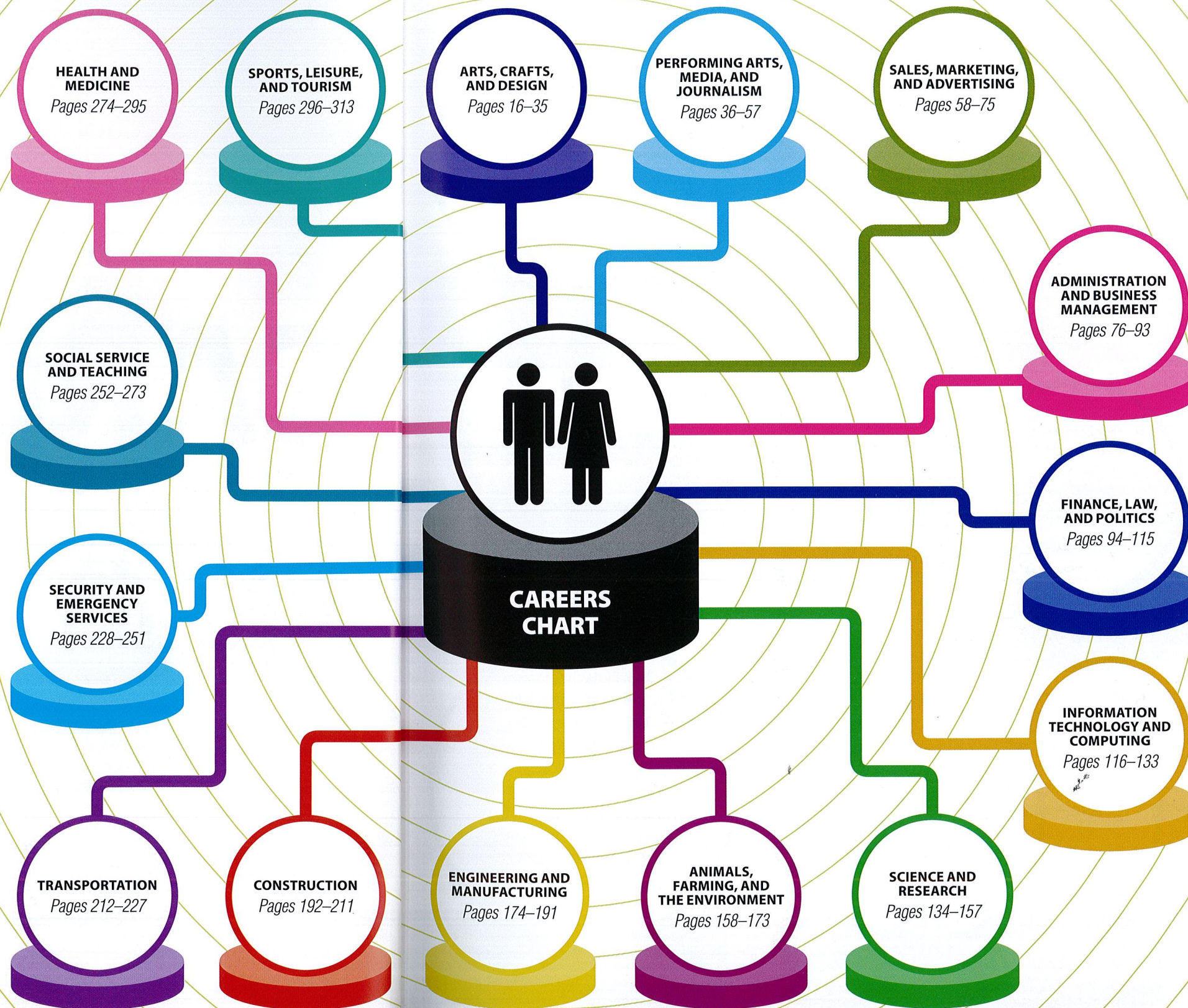
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THE ULTIMATE GUIDE TO PLANNING YOUR FUTURE



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MECHANICAL ENGINEER

JOB DESCRIPTION

As part of a production team, mechanical engineers design, build, test, and repair machinery that operates in many products, from dishwashers to automobiles to power stations. They use computer software—and increasingly 3-D printers—to create and test working prototypes of mechanical devices.



SALARY

Junior mechanical engineer ★★★★★
Lead mechanical engineer ★★★★★

INDUSTRY PROFILE

Broadest engineering discipline, covering hi-tech areas to everyday technologies • Excellent job opportunities overseas • Focus on sustainable designs

CAREER PATHS

Once qualified, a mechanical engineer is expected to join a professional engineering body and continue learning throughout their career. They may choose to specialize in one area of engineering or work on large-scale projects. Opportunities in sales and marketing, or a role in an independent consultancy, offer a path into the business side of the profession.

TECHNICIAN As a high school graduate, you may be able to find work as a trainee technician. This may involve installing and maintaining mechanical systems, but you will normally need to study part-time for a degree if you wish to qualify as a mechanical engineer.

GRADUATE After completing an engineering degree, you can join a graduate training program at a large company or take an entry-level position in a smaller firm.

BUSINESS MANAGER

Manages people and commercial activities in the engineering sector. These engineers usually have an interest in business, leading them to more corporate roles.



MECHANICAL ENGINEER You will have many choices in this field, from working on the design of aircraft engines to developing wind turbines or improving the performance of cutting-edge medical technologies, such as prosthetic limbs or artificial hearts.



SKILLS GUIDE



Excellent communication skills for collaborating with colleagues on a range of projects.



The creativity and innovation necessary to find working solutions to engineering problems.



The ability to handle pressure while maintaining good working relationships.



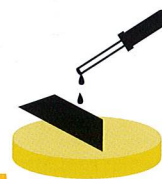
Good computer skills to work with Computer-aided Design (CAD) programs.



A strong eye for detail and the ability to build and test working prototypes.

MATERIALS ENGINEER

Develops and tests the properties of materials, such as their strength or resistance to corrosion, to see if they're fit for a specific purpose.



INDUSTRIAL PRODUCTION MANAGER

Refines mechanical systems and deals with on-site problems that may arise at manufacturing facilities and production lines.



MINING ENGINEER Manages the safe operation of mechanized wells and mines for the efficient extraction of oil and minerals.



RELATED CAREERS

- ▶ **PRODUCT DESIGNER** *see pp. 18–19*
- ▶ **AEROSPACE ENGINEER** *see pp. 190–191*
- ▶ **AUTOMOTIVE ENGINEER** Works in production plants, designing and manufacturing road vehicles. An automotive engineer may also build race cars or other specialized vehicles.
- ▶ **MECHATRONIC ENGINEER** Develops products by combining mechanical, electronic, and computer components. These products include home appliances, cameras, and computer hard drives.
- ▶ **ROBOTIC ENGINEER** Plans, builds, and maintains robots for use in a variety of sectors, from drilling engineering to motor vehicle manufacturing.

AT A GLANCE



YOUR INTERESTS Engineering • Science • Mathematics • Physical sciences • Design • Computers



ENTRY QUALIFICATIONS A degree in mechanical engineering is usually required, although a higher degree may also be useful.



LIFESTYLE Regular hours are the norm, though engineers in some sectors may need to travel or work overnight to meet project deadlines.



LOCATION Although the work is mainly office based, engineers may need to make frequent visits to manufacturing and testing sites.

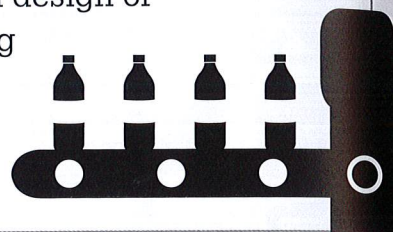


THE REALITIES Higher education in mechanical engineering is notoriously tough. Ongoing learning is essential to keep up to date with new technologies.

FOOD SCIENTIST

JOB DESCRIPTION

Food scientists research and develop a wide range of food-related products, making sure they are safe and palatable for consumption. They develop new ingredients, test the quality of food items, check labeling for accurate nutritional information, and design or improve food manufacturing machinery to find ways of producing food more safely and efficiently.



SALARY

Junior scientist ★★★★★

Experienced scientist ★★★★★

INDUSTRY PROFILE

Many job opportunities worldwide • Primary employers include food manufacturers, retailers and supermarket chains, and government research establishments

CAREER PATHS

A food scientist may find work with large food- and drink-manufacturing companies, retail chains, government food-inspection departments, public health laboratories, and academic research organizations. To gain seniority and responsibility, you can advance within large companies or move between organizations.

LABORATORY TECHNICIAN

You can start your career as an intern or part-time lab technician and train on the job while studying for a degree in a relevant subject.



GRADUATE To become a food scientist, you need an undergraduate or graduate degree in food science, food technology, or another related science subject.



FOOD DEVELOPMENT TECHNOLOGIST

Specializes in creating and developing new food products for manufacturing companies, supermarkets, and other food retailers.



FOOD SCIENTIST Once you are qualified as a food scientist, you can move into many different areas—such as food production, research, quality, and environmental health

SKILLS GUIDE



An innovative approach to researching new food products and production techniques.



Good analytical skills to assess products for quality and to develop new processes.



Strong computer skills for recording and analyzing research and development.



The perseverance to conduct multiple experiments and produce numerous sample products.



Attention to detail and precision in handling tasks, such as labeling food and checking hygiene.



FOOD PRODUCTION MANAGER

Sets and monitors quality standards in processed food and oversees food production, ensuring that the items leaving a factory or processing plant meet the appropriate standards.



FOOD MARKETING MANAGER

Presents and markets food products to the public. The job involves close collaboration with market researchers, packaging designers, and advertising teams.



ACADEMIC FOOD RESEARCHER

Conducts research into areas such as food production, storage, and processing. Academic food researchers may also teach at colleges and universities.

AT A GLANCE



YOUR INTERESTS Food science and technology • Food production • Consumer research • Engineering • Chemistry • Biology



ENTRY QUALIFICATIONS

A degree in a food-related subject, such as food technology, biology, or chemistry, is required.



LIFESTYLE

Food scientists usually work normal hours, but they may also work shifts to check food manufacturing production lines.



LOCATION

As well as working in laboratories, food scientists may have to travel to factories and production lines, and to meet suppliers.



THE REALITIES

As the work involves repetitive quality checks and experiments, food scientists may spend many hours in a laboratory.

RELATED CAREERS

► **BIOTECHNOLOGIST** *see pp. 136–137*

► **MICROBIOLOGIST** *see pp. 138–139*

► **BIOCHEMIST** Conducts scientific research into chemical reactions in living organisms in order to study the effects of drugs, foods, and disease on cells, protein, and DNA.

► **CONSUMER SCIENTIST** Conducts research and advises companies on consumer preferences. Consumer scientists work with industries dealing in food, marketing, advertising, and publishing, and also with government departments.

► **DIETICIAN** Diagnoses and treats diet-related health problems, advising on nutrition, weight loss, and other health-related issues.



CUSTOMER SERVICE MANAGER

JOB DESCRIPTION

The experience of buying products or using services is enhanced by impressive customer support. A customer service manager works for an organization to ensure that its clients are satisfied. Leading a dedicated team, managers handle customer queries, offer product advice, and resolve complaints. Senior managers help develop a company's policies and procedures.

SALARY

Customer service assistant ★★★★★
Experienced manager ★★★★★

INDUSTRY PROFILE

Many opportunities available across a wide range of organizations • More jobs resulting from the growth in online retail • Customer service skills in high demand • Target-driven work



CAREER PATHS

Most people begin their careers as customer service assistants, learning on the job by dealing directly with clients. With experience they can progress into supervisory and then managerial roles. Customer service managers are employed in businesses such as retail, telecommunications, and financial services, as well as in government roles.

ASSISTANT You can begin your career as an assistant without a college degree. Employers will provide training on products and services, as well as on customer service procedures and protocols.



GRADUATE If you have an undergraduate degree in a subject such as business or management, you can start as a trainee customer service manager with a large corporation.



SENIOR CUSTOMER SERVICE MANAGER Develops policies, procedures, and staff training programs to improve customer service standards across the business.



CUSTOMER SERVICE MANAGER Experience is crucial if you want to move up the ladder in your organization. In bigger companies, you can progress into one of several specializations or move up into

SKILLS GUIDE



Communication and motivational skills are necessary to deal with both customers and colleagues.



Good team-working skills, to work closely with customer service agents and keep them happy and driven.



The ability to lead and inspire staff to get the best out of them, and also reflect well on the company.



Genuine understanding and empathy to resolve a range of customer queries and problems.



Excellent organizational skills and the ability to manage staff and high volumes of caller queries.



Great problem-solving skills, as the job depends on effective responses to various customer complaints.



CUSTOMER SERVICE ASSESSOR

Trains and develops staff who are new to the customer service role. Assessors use training techniques to ensure that candidates reach the required standards of work.



BUSINESS MANAGER

Influences strategic business decisions based on customer satisfaction in order to increase sales. They work as part of the senior management team.

AT A GLANCE



YOUR INTERESTS Business studies • Administration • Retail • Customer care • Information Technology (IT) • Psychology • Communications



ENTRY QUALIFICATIONS An undergraduate degree in business or management isn't required but can boost your chances of landing a job.



LIFESTYLE Customer service managers work regular hours. Shift work is sometimes necessary to cover evenings and weekends.



LOCATION You will work mainly in an office. Out-of-town call centers are becoming common as they are cheaper to run than city offices.



THE REALITIES The industry is driven by meeting quality targets. Though irate clients can be frustrating, it is satisfying to resolve their problems.

RELATED CAREERS

► **HUMAN RESOURCES MANAGER** *see pp. 80–81*

► **HOTEL MANAGER** *see pp. 304–305*

► **CALL CENTER MANAGER** Oversees day-to-day running of a call center, where operators answer customer inquiries via telephone, email, or online chat. Managers organize the staff, explain their duties, and set their targets.

► **OFFICE MANAGER** Organizes and supervises administrative and IT tasks to ensure the smooth running of an office.

► **RETAIL MANAGER** Runs shops and department stores, while also managing staff. They have strong commercial skills and use displays and pricing methods to maximize revenue.



CARPENTER

JOB DESCRIPTION

A carpenter makes and installs the wooden elements of a building. These include its large structural pieces, such as the roof beams, floor supports, and wall partitions, as well as the internal fixtures, such as staircases, kitchen cabinets, doors, and baseboards. Carpenters follow drawings and blueprints, and ensure that their work meets safety and quality standards.



SALARY

Apprentice carpenter ★★★★★
Experienced carpenter ★★★★★

INDUSTRY PROFILE

Self-employment is common • Building of new homes is expected to increase as the population grows • Many experienced carpenters take on contracting roles in construction

CAREER PATHS

There are many opportunities for carpenters in the construction industry. While working, you can study for further vocational qualifications if you wish to specialize in areas such as cabinet making or building conservation.

TRADE SCHOOL STUDENT

If you have an interest in carpentry, you can study for a certificate in carpentry or joinery in college to help you find employment. You can then study for higher diplomas if you wish to specialize.



APPRENTICE Some larger construction or kitchen fitting companies may employ you as an apprentice straight from high school, allowing you to learn on the job.



FURNITURE MAKER

Makes pieces of wooden furniture, such as chairs, tables, and cupboards. Some also carry out restoration work on antique items and properties.



CARPENTER You may focus on one area of construction, such as making the frames of buildings, but most carpenters provide a wide range of services to their clients.



SKILLS GUIDE



Ability to work in a team with site manager and coworkers, and strong multitasking skills.



Creativity to make decorative elements of furniture, unique trims, and fittings.



Good numerical skills for taking accurate measurements and making calculations.



Manual dexterity for using a wide range of hand and power tools to cut, shape, and join materials.



Physical strength for lifting heavy items and holding them in place while fixing them into position.

RELATED CAREERS

- ▶ **PRODUCT DESIGNER** see pp. 18–19
- ▶ **BOAT BUILDER** Builds new boats or carries out repairs on existing vessels using a range of carpentry, engineering, and plumbing skills.
- ▶ **PAINTER AND DECORATOR** Applies paint, wallpaper, and other coatings to walls and surfaces of a building to improve its appearance.
- ▶ **ROOFER** Repairs and builds roofs on houses and commercial properties, using materials such as slates, tiles, and wood.
- ▶ **THEATER SET DESIGNER** Creates the sets that are used for stage shows. They use their artistic skills and knowledge of lighting and costumes to create the right visual setting for the production.

AT A GLANCE



YOUR INTERESTS Woodwork • Engineering • Design technology • Construction • Mathematics • Art and design • Health and fitness



ENTRY QUALIFICATIONS College courses in carpentry or joinery are not essential, but will help you find work. Apprenticeships are important.



LIFESTYLE Working hours are regular, but early starts are common. Carpenters may need to work overtime on some projects.



LOCATION Some jobs require work on site in harsh weather. Carpenters may need to work away from home for long periods on jobs located far away.



THE REALITIES Carpentry can be physically demanding. Building construction slows down in the colder months, leading to a scarcity of jobs.

INFORMATION TECHNOLOGY AND COMPUTING

Today's business world depends on the availability and flow of high-quality data. Information Technology (IT) and computing are key, so the range of careers in this field—from maintaining computer networks to designing websites—is increasing all the time.



SOFTWARE ENGINEER

Page 118

Computerized devices are the tools of the electronic age. Software engineers provide the link between user and machine, writing the code that brings devices to life.



SYSTEMS ANALYST

Page 120

Virtually every business or organization relies upon the efficient flow of data, so the systems analysts who examine and improve IT systems are critical to today's economy.



DATABASE ADMINISTRATOR

Page 122

Working across every industry and sector, database administrators ensure that electronically stored information is accurate and protected from hackers.



NETWORK ENGINEER

Page 124

Computer and communications systems rely on electronic networks. Engineers in this field work on a range of computer networks, such as fiber-optic or wireless systems.



IT SUPPORT EXECUTIVE

Page 126

Drawing on a detailed knowledge of computer systems and software, IT support executives offer help and advice to users who encounter technological problems.



WEB DEVELOPER

Page 128

Shaping the look and feel of the Internet, web designers and developers use their skills to bring websites to life for businesses, organizations, and individuals.



GAME DEVELOPER

Page 130

Growing in popularity year by year, the computer gaming industry relies on innovative and creative developers to produce the code that drives the games.



CYBERSECURITY ANALYST

Page 132

As IT security threats become more frequent, cybersecurity analysts are the guardians of computer systems, using technical skills to protect against data attacks.