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Considering a Career in

STEM

Fuelling industries with four key subjects

LIVERPOOL CITY REGION COMBINED AUTHORITY

METRO MAYOR LIVERPOOL CITY REGION

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STEM

Contents

What is STEM?

STEM is an abbreviation for science, technology, engineering, and mathematics. These skills are vital for driving economic growth and innovation, making STEM professionals highly sought after.

STEM encompasses a wide range of skills, from creativity to logic and problem-solving. Combining these skills with progressive technology and research has the power to transform and modernise the world around us.

From producing zero-emission cars that use renewable energy to saving lives using revolutionary medications and treatments, STEM drives progress and improvement.

STEM is at the heart of many industries, so your career may lead you into healthcare, digital technology, engineering, ecology, renewable energy, manufacturing, or any other field where these core subjects are essential.

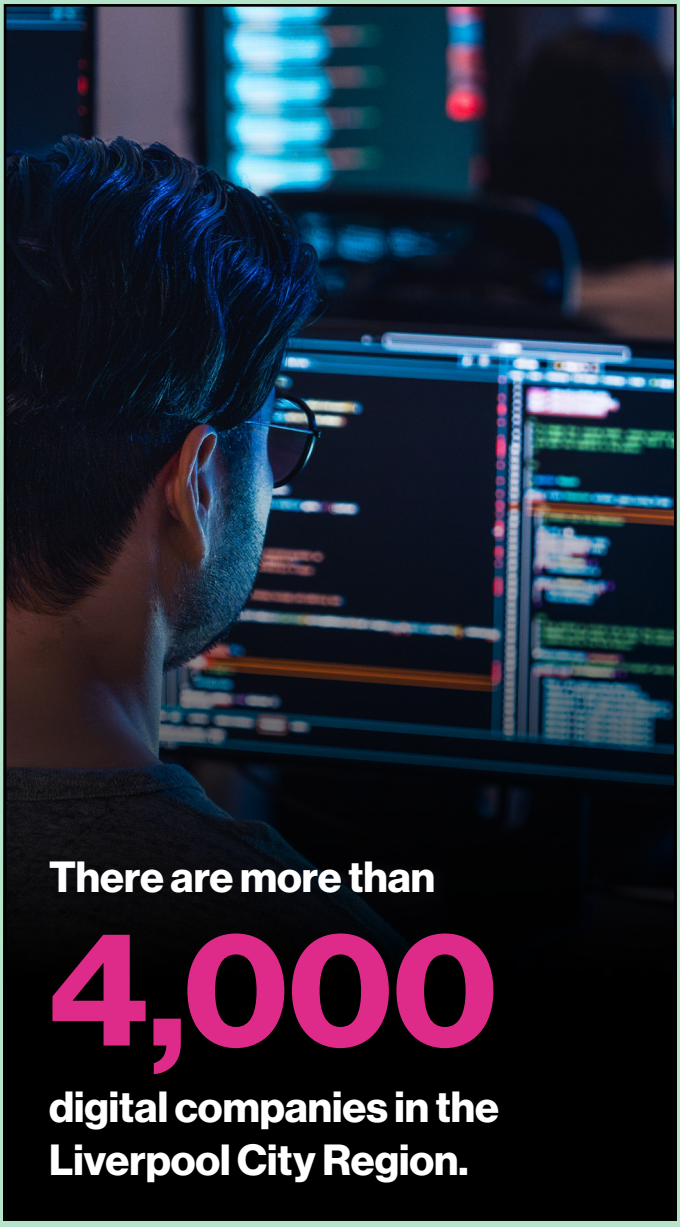
Whether you want to design and launch satellites that investigate our solar system, engineer life-changing prosthetic limbs, or work in a biochemical research laboratory, studying STEM subjects allows you to become a future innovator.

Stats & Facts

Did you know?

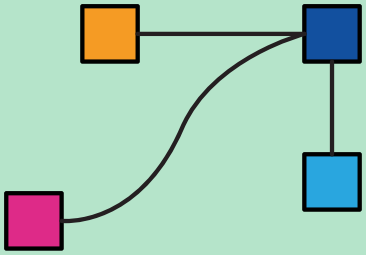
STEM in Liverpool City Region:

- 250,000 cars made annually in the region.
- £4bn invested in energy in the last decade.
- One of the largest biomanufacturing clusters in Europe.
- One of the biggest offshore wind farms in the country.



STEM in action in the Liverpool City Region

- The LCR is home to the award-winning All About STEM, which links education with business and industry experts to inspire the next generation of STEM specialists.
- Kyndryl will lead the development of IT infrastructure and AI technology in the Liverpool City Region, creating 1,000 new jobs and attracting up to £800m of investment to the area.
- More than £1 billion in development is already underway in Knowledge Quarter Liverpool, adding to existing STEM research centres and projects, such as the Life Sciences Accelerator and Sensor City.
- Unilever and All About STEM offer a collaborative programme of activities for schools in Merseyside, Warrington, and Cheshire to help students understand more about the sector.
- The HyNet North West Project will be centred around the Liverpool City Region, reducing carbon emissions across the region and creating up to 5,000 new jobs in sustainable energy roles.
- The Virtual Engineering Centre (VEC) at Daresbury is the leading research centre in the UK for Virtual Engineering (VE) technology, innovating with 3D digital tools to enhance the industrial and commercial sectors.



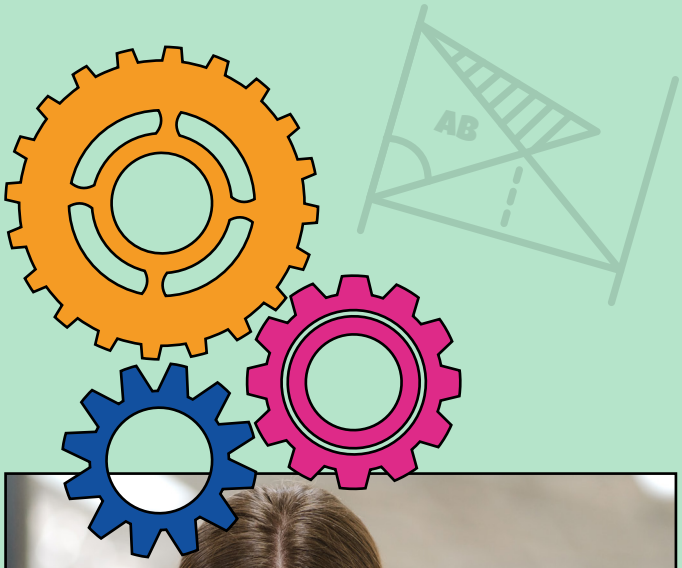
STEM Good to know

Why is STEM important?

The core STEM subjects are key for innovation across industries, from designing and producing new vaccines or designing new websites to developing AI to process huge data sets. Without the four specialist areas, the development of new technologies, products, and processes would be impossible.

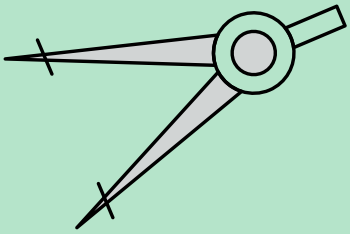
What opportunities are there in a STEM career?

New talent and skills are always highly valued in the rapidly evolving world of STEM, meaning there are many specialist areas in which you can pursue a career. Some groups are underrepresented in STEM industries, so there are additional schemes and support available for individuals from these backgrounds who wish to enter the sector.



STEM
/definition/

abbreviation for Science, Technology, Engineering, and Mathematics (as subjects of study) **(Cambridge Dictionary)**



What are the Career Pathways & Job Roles?

STEM career pathways

In an entry-level job, such as a composites technician or radio network technician, you'll help fix problems and perform technical work, developing practical skills and experience working with a team.

In a mid-level role, you could design products and processes as an engineer in a specialist area, such as robotics. With time, you could learn leadership and management skills, progressing to roles such as process leader or digital community manager.

Experienced individuals with advanced knowledge and practical experience can progress into higher-level roles, such as AI engineer or clinical researcher.


250,000
cars made annually
in the region.

STEM

Job Roles

There are hundreds of different job roles in STEM.
Here's just a sample:

Position	Role & tasks	Salary
Manufacturing production worker	Assembles, inspects, and packages products in a factory or plant setting. Operates machinery, monitors production lines, ensures quality control, and follows safety procedures.	Up to **£28,000**
Accounting technician	Prepares financial records, such as invoices, tax returns, and payroll reports. Manages budgets, processes transactions, ensures accuracy, and follows financial regulations.	Up to **£34,000**
Geospatial technician	Collects and analyses geographic data, such as maps, satellite images, and surveys. Uses software, processes spatial information, ensures accuracy, and maintains databases.	Up to **£32,000**
3D printing technician	Makes different products, such as medical implants, car parts, aircraft parts or fashion accessories. Creates models and prototypes, operates 3D printers and scanners, ensures quality control and maintains equipment.	Up to **£38,000**
Ecologist	Studies ecosystems, such as forests, rivers, and urban environments. Conducts field research, collects samples, analyses data, writes reports, and advises on conservation.	Up to **£42,000**

Earn up to £70,000 per year

Position	Role & tasks	Salary
Wind turbine technician	Installs, inspects, and repairs wind turbines. Climbs towers, tests electrical and mechanical systems, ensures safety, and maintains renewable energy equipment.	Up to **£47,000**
Robotics engineer	Designs, builds, and programmes automated machines for industries such as automotive, aerospace, and pharmaceuticals, ensuring efficient and precise operation to address complex industrial challenges.	Up to **£54,000**
Astronomer	Studies celestial objects, such as stars, planets, and galaxies. Uses telescopes and computer models, collects data, analyses observations, and develops theories about the universe.	Up to **£60,000**
Chemical engineer	Develops processes to make products, such as fuels, medicines, or plastics. Designs equipment, improves efficiency, ensures safety, and follows environmental regulations.	Up to **£65,000**
Computer games developer	Creates video games for consoles, PCs, or mobile devices. Designs gameplay, writes code, tests for bugs, improves graphics, and collaborates with artists and designers.	Up to **£70,000**

Getting into STEM

At entry-level

You can train for an entry-level role with a college course leading to a certificate, diploma, or T-level in engineering and manufacturing or applied sciences. If you want to train while you're working, you can do a level 2 or 3 apprenticeship, such as laboratory technician or digital solutions technician.

At mid-level

For mid-level technical or specialised positions, you can gain further technical training with a higher technical qualification (HTQ) in space engineering. Alternatively, you could complete a foundation degree in engineering or mathematics or a degree apprenticeship, all of which provide expertise in areas like sustainability, design, and innovation.

At senior level

For more complex roles that require specialist knowledge, such as senior healthcare professionals or engineers, you will typically need a university degree or degree apprenticeship in a relevant subject, such as aerospace engineering. At this level, courses will combine practical skills with deeper theoretical knowledge.

Subjects to study at school & beyond

- Design & technology
- Electronics
- Engineering
- ICT
- Maths
- Science

Core skills and knowledge to build

- AI technology
- Attention to detail
- Critical & analytical thinking
- IT skills
- Problem-solving
- Project management
- Sustainability knowledge
- Teamwork
- Thinking outside the box

Test Your Knowledge

(Answers on back page)

Q1. What is STEM?

A. An abbreviation of Science, Technology, Engineering, and Mathematics.
B. Producing goods through physical labour.
C. Just engineering careers.
D. A sector that only includes technology.

Q2. Which industries are driven by STEM? (Choose as many as you wish)

- Engineering
- Healthcare
- Hospitality
- Law

Q3. The Liverpool City Region produces 250,000 cars per year. True or false?

Q4. How many digital companies are there in the Liverpool City Region?

Q5. Which of these organisations has teamed up with All About STEM to promote the sector?

A. Kyndryl
B. Unilever
C. Arête Investments
D. Liverpool Angel Network

Q6. Which of the following roles could a career in STEM find you in? (Tick as many as you wish)

- Robotics engineer
- Hotel manager
- Ecologist
- Lawyer

Q7. Give an example of an apprenticeship or training course that could prepare someone for a role in a STEM role.

Q8. What are the skills necessary for STEM careers? Name three.

Q9. What role does a chemical engineer play in STEM?

A. Designs and makes new products.
B. Operates factory equipment.
C. Package and label products.
D. Develops cures for illnesses.

Q10. £____ billion has been invested in energy in the last 10 years.

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Quiz Answers

Q1. A
Q2. Engineering, healthcare
Q3. True
Q4. More than 4,000
Q5. B
Q6. Robotics engineer, ecologist
Q7. Level 2 or 3 apprenticeship, such as laboratory technician or digital solutions technician.
Q8. Attention to detail, critical thinking, problem-solving (or any other from the brochure content).
Q9. A
Q10. 4

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