

# WHY STEM CAREERS?

It can be hard to make the link between what you study in the classroom and what opportunities there are in the world of work. This briefing provides information on three important points about where studying STEM subjects can take you in life:

- 1 There is a huge variety of exciting career paths open to people with STEM based skills.**
- 2 Young people with STEM qualifications are in demand in the job market and have good long term career prospects.**
- 3 People with STEM skills can make a big contribution to many of the big challenges facing society today.**

## 1. A huge variety of exciting career paths are open to people with STEM based skills.

It is often a surprise to people just how many different careers are based on STEM skills.

There are jobs to suit all personalities and all skill levels – including entry level opportunities with good GCSEs right up to PhD level. There are opportunities to work in a range

of different environments from field work to manufacturing plants, from offices to laboratories, from schools to hospitals, from deep in the oceans to outer space.

A wide variety of industries rely on people with STEM skills. Here are just 10 examples:

### 1 Entertainment

– from the design of video games, to special effects for films, to sound engineering for the music industry.



### 6 Sport and fashion

– from inventing new high performance sports equipment, to physiotherapy for athletes, from new textiles to computer aided design of new fashion ranges.



### 2 Aerospace and transport

– from making travel easier for people whether on the roads, rail or in the air, through to helping goods be transported around the world for trade and humanitarian relief.



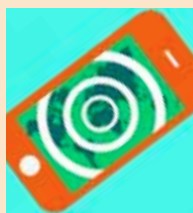
### 7 Health

– from hospitals and healthcare professionals caring for patients, to inventing new high tech life-saving equipment such as scanners, to pharmaceutical companies researching new medicines.



### 3 Telecoms and information technology

– from the technology used in our mobile phones, to software designs which give us access to the internet, to managing international communications networks.



### 8 Energy and environment

– from inventing new technologies to reduce carbon emissions, to developing new energy sources such as wind, waves and sun, to protecting rare species of animals.



### 4 Finance and accountancy

– from the smallest charity through to the largest international businesses, from universities and hospitals to manufacturing plants and shops, every organisation needs people who can manage the finances and balance the books.



### 9 Construction and the built environment

– from architecture and design, to civil engineering of everything from bridges, railways and roads, to homes and parks, from constructing buildings to planning towns.



### 5 Space

– recognised as delivering some of the most advanced technologies in the world, working on satellites, global positioning systems (GPS) and military surveillance.



### 10 Food and agriculture

– from developing new high yielding plant varieties to feeding more people around the world, to cooking up new recipes for supermarkets, to farming the land.



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In addition, almost every organisation today relies on people with STEM qualifications – including technology skills to run their IT systems and maths skills to manage their accounts:

- **72% of all UK businesses rely on people with STEM skills.**<sup>1</sup>
- **58% of all new jobs will be STEM related.** There will be significant growth in new jobs but also massive replacement demand. Economically valuable skills will matter most (intermediate and higher STEM skills).<sup>2</sup>

Most industries offer opportunities at all qualification levels from technicians to graduates up to PhD level.

- Employers in the chemicals, pharmaceuticals and energy industries have identified a shortfall of 40,000 technicians and operators by 2022.<sup>3</sup>
- The number of those studying for degrees in science, engineering and technology must increase by over 40% on current levels if demand is to be met.<sup>4</sup>

*The world of science and engineering is open to everyone – and there is a great variety of jobs all over the UK, at all levels and in lots of surprising environments. There's no one type of scientist and no single type of engineering.*

Diana Garnham, Chief Executive of the Science Council.

## 2. Young people with STEM qualifications are in demand in the job market.

**People with STEM qualifications are very employable.**

Choosing science, technology, engineering and maths subjects opens up options later in life. The CBI (the Confederation of British Industry) estimates that:

- Between 2008 and 2014 the UK will need 2.4 million more people working in science and technology based jobs.<sup>5</sup>
- 59% of employers expect to find difficulty recruiting enough people with STEM qualifications in the next 3 years.<sup>6</sup>

**STEM careers lead to good salaries later in life:**

- Graduates earn £160,000 more than non-graduates in their working life time, and STEM graduates tend to earn nearly £250,000 more.<sup>7</sup>
- Chemistry and physics graduates will earn on average over 30% more during their working lifetimes than other A-level holders.<sup>8</sup>
- Many large businesses offering STEM based apprenticeships pay for apprentices to go on to take a university degree – eg: in telecoms BT, in aerospace Rolls-Royce, in energy British Gas, in accountancy KPMG.

**STEM careers offer good prospects for the long term:**

- Most science and engineering companies provide training opportunities and map out long term career paths. There is a demand for people with STEM skills globally, careers can often include the opportunity for international travel.

So young people who study STEM subjects are likely to be valuable and in demand in the employment market.

*The evidence is clear – growth in Science Engineering and Technology industries is forecast to require 600,000 professionally skilled staff by 2017. .... A failure to increase the number of SET graduates – to one in five of all degrees – risks jeopardising growth in the sectors that hold the key to economic recovery.*

Set for Growth, Business priorities for growth, CBI Report, August 2010.

*High-tech manufacturing and services sectors such as those that we represent have a large number of skilled people approaching retirement age. To avoid losing business overseas in what are highly-competitive global industries, in which the UK is number one in Europe and second only to the US globally, we need more high-calibre young people studying science, technology, engineering and maths. The future economic prosperity of the country depends on us securing a continuous flow of such well-qualified young people.*

Matthew Knowles, spokesman for the UK's aerospace, defence and security trade organisation ADS, a CBI member.

## 3. People with STEM skills can make a big contribution to many of the big challenges facing society today.

Many of the great challenges we face in the 21st century need science and technology based solutions – for instance:

- You could be developing crops which provide greater yield to farmers – in a world where one billion people don't have enough food to eat.<sup>9</sup>
- You could be reducing the number of people who don't have clean water to drink – in a world where demand for water will exceed supply by 40% in the next 20 years.<sup>10</sup>
- You could be designing safer cars – because almost 3,000 people a year are killed on UK roads alone.<sup>11</sup>
- You could be working on a cure for cancer – because over 300,000 people are diagnosed with cancer each year in the UK.<sup>12</sup>
- You could be creating educational software to help children with dyslexia – because 1 in 10 children suffer from some level of dyslexia in the UK.<sup>13</sup>

One of the great challenges of our age is the search for new energy solutions. We have to reduce our dependence on fossil fuel and find new sources of energy, from wind to solar to wave power. Rising to this challenge is creating many new STEM based jobs for the future – for example:

- There is expected to be a 48% increase in demand for physical environmental science graduates in the next eight years.<sup>14</sup>
- The UK government estimates that the renewable energy sector alone could create 500,000 jobs by 2020.<sup>15</sup>
- The UK wind industry has the potential to create 60,000 new jobs over the course of the next 10 years – effectively expanding the current workforce in this sector tenfold.<sup>16</sup>

Sources:

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