

## **STEM - Some Myths Exploded**

Widely held yet mistaken beliefs can do considerable harm, and many young people today are vulnerable to this danger because of their misconceptions about 'STEM' (Science, Technology, Engineering and Maths). This article seeks to puncture the most common myth, by examining seven concerns often expressed by those contemplating a STEM career. The fallacies (or partial truths) on which these are based are addressed, followed by relevant advice in light of this. The first two points are aimed at young women, many of whom, despite ample evidence to the contrary, see themselves as unsuited to this field, or unequal to its demands.

### **1) I'LL BE THE ONLY FEMALE STUDYING..... (ANY STEM SUBJECT(S) YOU CAN NAME).**

This is very unlikely. The A-level subject in which the proportion of girls in a class will probably be smallest is Physics; however, Chemistry and Maths are typically quite balanced, gender-wise, while many Biology groups are predominantly female. Most girls opting for vocational Technology/Engineering courses post-16 (such as BTEC diploma or equivalent) will already be committed to a specific STEM occupation, usually one with a strong practical content. Attending a Sixth Form/College open day would offer your daughter an opportunity to ask about how many girls take STEM courses there, and their opinions of them - she may well come away considerably reassured.

### **2) FEW 'STEM' ORGANISATIONS WANT TO RECRUIT WOMEN.**

This is certainly not true, and within such areas such as Medical and Life Science organisations, women are often actually in the majority. In addition, so many have by now proved their worth, even within traditionally male fields like Engineering, that once-sceptical employers now accept that any prejudice will act only to their own disadvantage. The high-profile STEM organisations liaising with universities to offer women placements, and jobs with good prospects confirms this. If at all possible, your daughter should obtain some relevant work experience or visit at least two STEM employers to see this for herself.

### **3) ALL MY A LEVELS (etc) WILL HAVE TO BE SCIENCES.**

Probably not, as few STEM degree courses or apprenticeships require more than 2 of any set of A-levels to be Sciences. Those which do insist on three science subjects may be very specialised degrees. However, Chemistry and Biology together will open nearly the whole medical field, and Maths with Physics almost the entire Engineering one. There are exceptions, though - Chemical Engineering places, for instance, can demand Chemistry, Maths, plus either Physics or Biology. Your son/daughter should therefore always 'read the small print' in good time and with great care.

### **4) 'STEM' JOBS DEMAND A 'STEM' QUALIFICATION - EVEN TO START.**

Some do, but many don't. If your son/daughter likes STEM subjects, but still lacks career direction, a broad, relevant degree (like Chemistry, IT, or Maths) provides a sound academic foundation which can be built on. Many vocational postgraduate qualifications are offered both full- or part-time. An employer normally pays when the latter is part of an advanced programme relating to a particular job and will sometimes fund 'one-off' study if they and their employee see it as beneficial. Some 'homework' on areas of possible appeal is recommended.

### **5) A 'STEM' FIRST DEGREE COURSE WILL BE FULL-TIME.**

For lengthy courses requiring well-appointed premises, (like medicine and dentistry) this is generally true. However, part-time first-degree study is often possible (where not essential) within an apprenticeship. In preparing for a career in Engineering, for instance, this is normally advantageous, since study linked to actual job activities becomes more meaningful. The full-time first-degree route, though, remains customary for those needing to offer a master's degree or doctorate when applying for research opportunities. Your son/daughter should, early on, appraise honestly for how long they would enjoy full-time study.

## **6) A 'STEM' DEGREE IS GOOD ONLY FOR A 'STEM' JOB.**

Not at all. In any one year, between a third and a half of graduate-level opportunities are open to applicants from any academic discipline. If your son/daughter is undecided about their career, they might consider selecting a course largely or purely on subject interest, postponing further decisions until at university or after graduation. Some students increase their employability by choosing a course linking an academic discipline with a vocational one. This is termed a joint, or combined, degree, and most universities offer a healthy range of such pairings, useful examples of which might include Chemistry with IT, Maths with Business Studies, or Engineering with German.

## **7) I'LL BE STUCK INDOORS, PROBABLY IN A LABORATORY.**

There's no need to be. It is true that the analytical side of many STEM jobs require stable conditions within a sheltered environment, but a high percentage of data-gathering is done outdoors. Observing animal behaviour, plant development, or weather conditions, digging on an archaeology site, checking progress on a civil engineering one, or collecting samples of aquatic life are just a few of countless instances. However, the outdoor aspects can be challenging, both physically and mentally, and shadowing a professional engaged in fieldwork would be an excellent way for your son/daughter to check out its rigours.

These seven assumptions are not the only aspects of STEM careers to question or treat with caution. Sometimes courses with similar titles differ greatly in content or emphasis; some firms or institutions expect commitment to a specific career, and evidence of related work experience as proof. Occasionally geography may be a factor (is any university far from the sea likely to offer a degree in Marine Biology?) However, bearing in mind the points relating to the main concerns above should help your son/daughter avoid some of the misunderstandings which often result in confused career choices.

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