Useful Computer Science Terms

Algorithms
An algorithm is a sequence of instructions or a set of rules to get something done. A recipe is an algorithm. Algorithms are written for a human, rather than for a computer, to understand.

Decomposition
Breaking down a problem into smaller manageable parts is known as decomposition. A large school project is usually decomposed into different manageable parts.

Abstraction
Abstraction is about simplifying things; identifying what is important without worrying too much about the detail. Abstraction helps to manage complexity. A tube map is an example of abstraction.

Computational Thinking
Computational thinking is about looking at a problem in a way that a computer can help us to solve it. This is a two-step process: First, we think about the steps needed to solve a problem. Then, we use our technical skills to get the computer working on the problem.

Pathways to Careers in ICT

There are varying pathways that make a career in the IT & telecommunications industry (ICT) accessible to all.

Studying at university is the best-known route. Subjects such as Computer Science, Electronics, Electronic Engineering, Maths and Physics provide a good foundation for beginning a career in the ICT industry.

Many companies offer **"internships"** that provide real work experience for under-graduates while they are studying their degree.

An alternative to going to university is an **Apprenticeship**. Apprenticeships are work-based training programmes and apprentices work alongside and learn from experienced colleagues to gain job-specific skills. Apprentices also attend college to work towards a nationally recognised qualification, which can include a degree.

Some of BT's most senior managers began their careers as apprentices – the Managing Director of BT's Research & Innovation department started his career as an apprentice at 16!

Anyone over 16, living in the UK and not in full-time education can apply for an apprenticeship. Apprentices do not pay anything towards their apprenticeship as the employer pay for the apprentice's training as well as paying them a salary.

Jonathan Legh-Smith
Head of Education Engagement
BT Technology, Service and Operations

CAS Barefoot
Supported by **BT**

Supporting your child's learning in computing.

ISLINGTON

TEENTECH
inspiring tomorrow's innovators

Scratch has been created by MIT. It has a drag and drop interface and allows programs to be built by connecting blocks together.

Kodu is a simple visual programming language from Microsoft that lets you create games on the PC and Xbox.

Free programming apps

ScratchJr allows young children (aged 5-7) to program interactive stories and games. Available for iPad and Android tablets.

For both iPhone and iPad, this app lets young children move a Bee-Bot around the screen and learn basic programming skills.

Bee-Bot App

Daisy the Dinosaur is a drag and drop iPad app which teaches basic programming to young children as they animate Daisy to dance across the screen.

For excellent online safety advice see www.internetmatters.org/

Helping your child understand digital opportunities

It was only when I started work on **Tomorrow's World** that I had any idea just how many opportunities existed in industry. Today, the careers landscape is fast changing and it's even more important that young people and their parents understand the skills and qualities which will help them succeed.

Every job is a digital job and every company is a digital company. One of my aims with **TeenTech** was to help young people and their parents understand these opportunities as you can't aspire to be something you have never seen.

Formal qualifications are important but so too are those personal qualities like good communication skills, tenacity, a willingness to constantly learn, teamwork, leadership and creativity.

We need to be aware of the many different pathways. University is only one of a number of options open to young people. There are some brilliant digital apprenticeships which are passports to very fulfilling careers - check out the ones offered by BT, Airbus, BBC, O2, Microsoft, Network Rail, National Grid and Google.

As parents we are hugely influential and we need to make sure we are giving the right advice and support. We need to make sure that our own narrow perceptions of what it might be like to work in technology or engineering do not cloud the advice we may be giving to our children.

Far too many young people are missing out on the opportunities open to them in an ever-expanding digital world. We need our children to see technology as a future not which they might benefit from but as one they can create. For those with the right skills and the right attitude, this is a time of real opportunity. Let's make sure our children get the best possible support and advice and do our best to nurture a truly digital generation.

Maggie Philbin

TEENTECH
inspiring tomorrow's innovators