
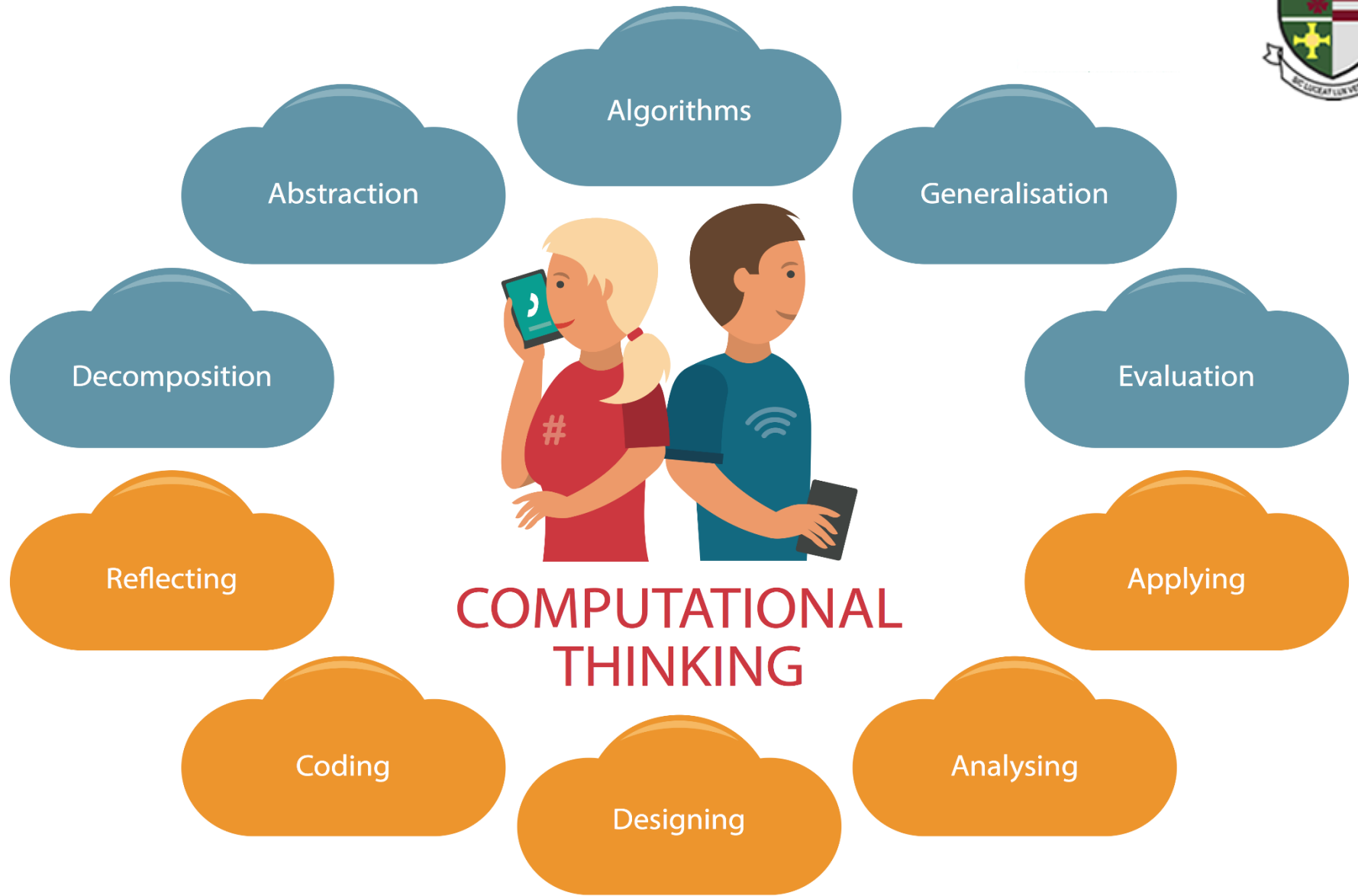




J277 OCR GCSE Computer Science 9-1

A white humanoid robot is shown in profile, facing right. It has a human-like face with eyes, nose, and mouth. The robot's body is highly detailed, showing various mechanical joints, gears, and internal components, particularly in the neck and shoulder areas. The robot is set against a light blue background.

**Computer Science is
about
much more than
programming**





Some Facts...

At the end of 2020 there were more advertised vacancies for Computer Science professionals than there were candidates to fill them.

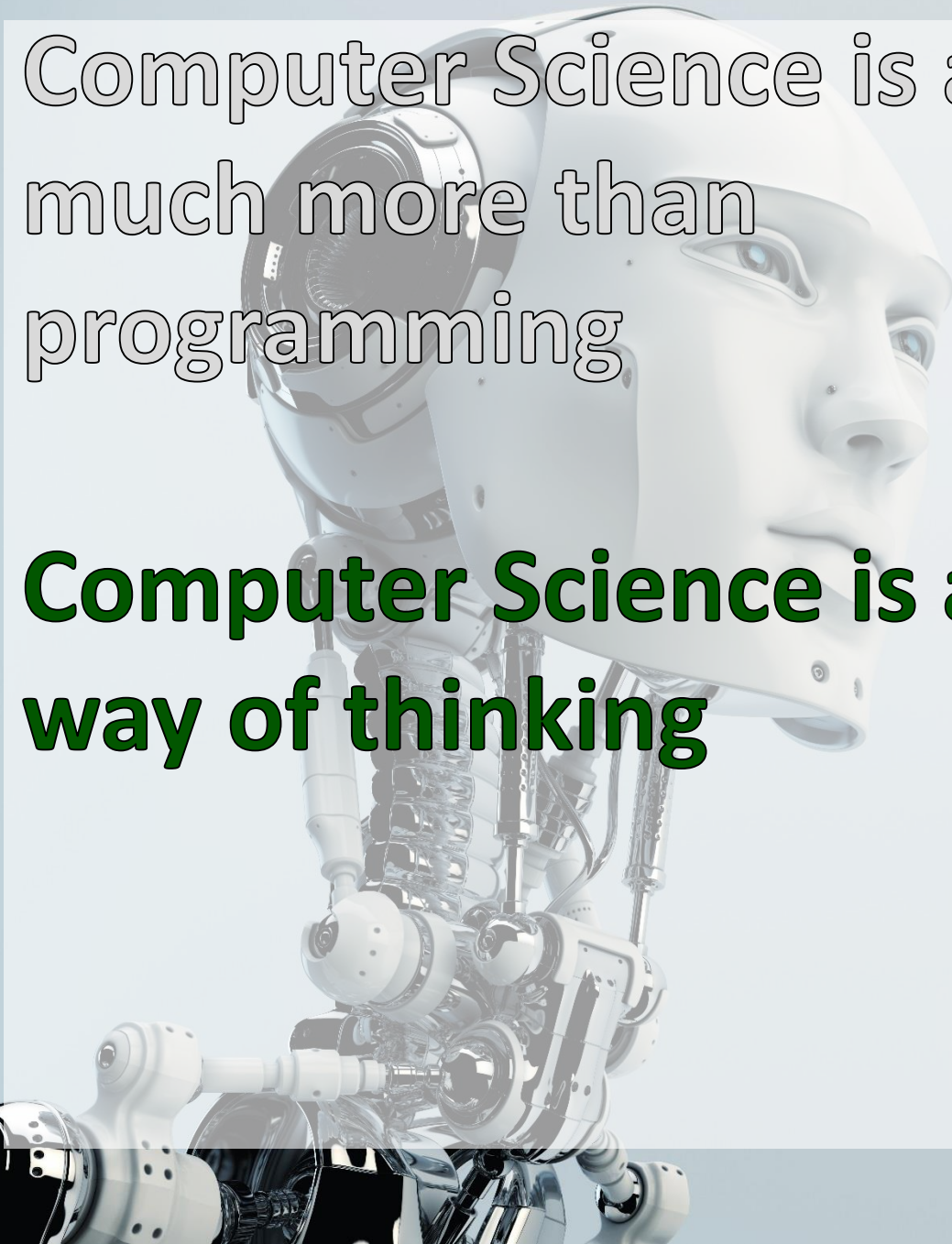
Employment in the Computer Science industry is forecast to grow 5 times faster than the UK average with over half a million new Computer Science professionals needed over the next 5 years.

Computer Science professionals currently earn 41% more than the national average salary.



Computer Science is about
much more than
programming

**Computer Science is about a
way of thinking**





Skills issues in the Technology Sector

Nine out of ten firms experiencing Computer Science related skills shortages are experiencing delays in the development of new products and services.

In the games industry, difficulty recruiting programmers is by far the biggest skills challenge. Many games employers say these problems are holding back business growth.

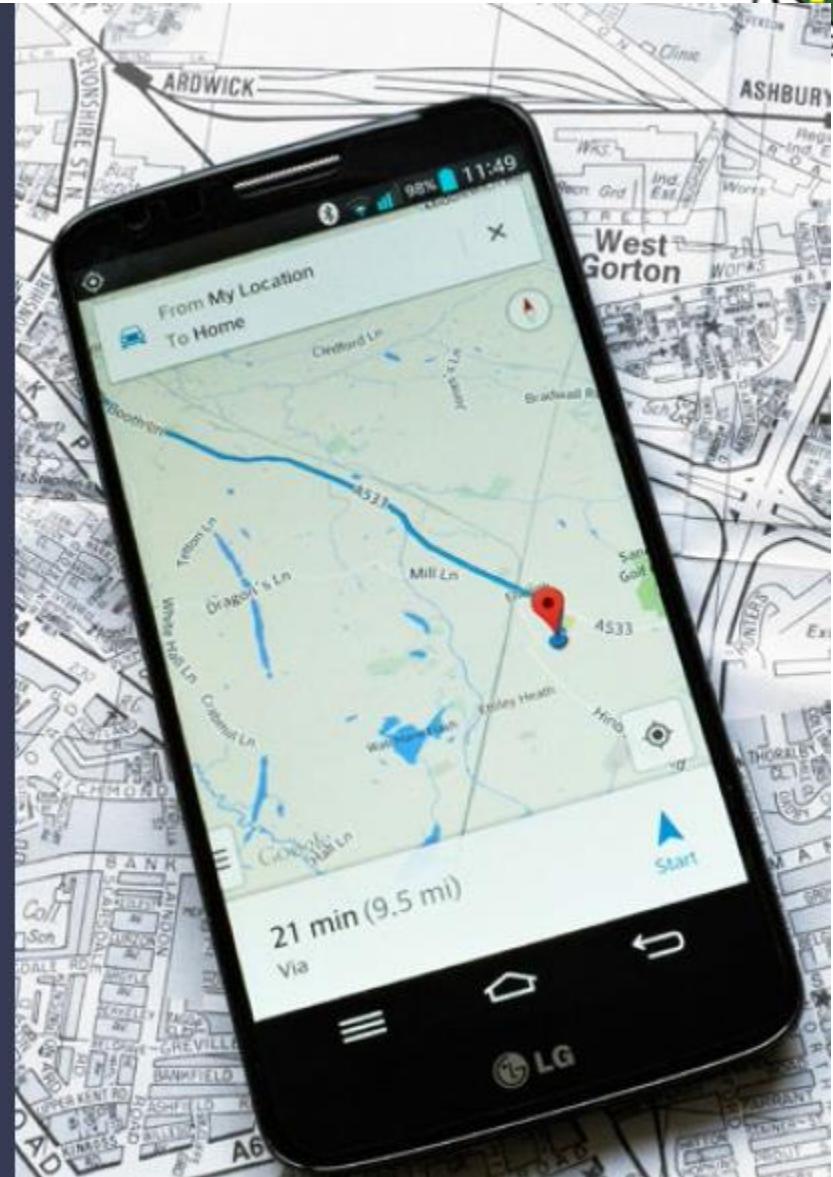


ALGORITHMS MAKE THE WORLD GO AROUND

An algorithm is a precisely defined step by step procedure that, given some input, will produce the desired output. Whenever you give directions to someone, you are constructing an algorithm with the start location as input and the destination as output. It's a very restricted algorithm: it works only for those start and end points.

A sat nav device has a general algorithm that given any origin and destination (the input) will find the route (the output) from one to the other, according to the map it has. The route is itself an algorithm ('turn left in 200m', etc.) for the driver to execute.

The modern world cannot function without algorithms. Shopping, entertainment, scientific discovery, transportation, and many other things all rely on sophisticated algorithms to process payments, buy stock, analyse DNA, stream video, recognise licence plates, and so on.





Computer Science is about
much more than
programming

Computer Science is about a
way of thinking

**Concepts are transferable to other
problem solving contexts**



Opportunities

These days there really isn't such a thing as a 'typical Computer Science role', with so many diverse opportunities in every imaginable field.

Just 18% of Computer Science professionals in 2020 were female.

Over half a million new Computer Science professionals are needed in the next five years.



BUT.....

Only **40% Computer Science professionals** are actually employed in the Computing industry itself, with the remainder spread across every other sector of the economy.....

working in everything from low carbon and advanced manufacturing, to defence, leisure and media, retail or financial services.

AND...

Technology professionals increasingly work in, or manage, dynamic, cross-functional, even multi-national teams at the very centre of an organisation.

They are closely involved with company strategy and with managing change all of which require a strong set of **technical** and **social** skills.

GCSE Computer Science



Focuses on developing your knowledge and understanding, building on KS3 Computing and emphasise the importance of computational thinking as a discipline.

Puts computational thinking at its core, helping students to develop the skills to solve problems, design systems and understand human and machine intelligence.

Allows student to apply the academic principles learned in the classroom to real world systems in an exciting and engaging manner.

Give students a clear progression into further education, as the course was designed after consultation with members of BCS, CAS and top universities.

OCR GCSE (9-1) Computer Science

Content Overview

J277/01: Computer systems

This component will assess:

- 1.1 Systems architecture
- 1.2 Memory and storage
- 1.3 Computer networks, connections and protocols
- 1.4 Network security
- 1.5 Systems software
- 1.6 Ethical, legal, cultural and environmental impacts of digital technology

J277/02: Computational thinking, algorithms and programming

This component will assess:

- 2.1 Algorithms
- 2.2 Programming fundamentals
- 2.3 Producing robust programs
- 2.4 Boolean logic
- 2.5 Programming languages and Integrated Development Environments

Assessment Overview

Written paper: 1 hour and 30 minutes

50% of total GCSE

80 marks

This is a non-calculator paper.

All questions are mandatory.

This paper consists of multiple choice questions, short response questions and extended response questions.

Written paper: 1 hour and 30 minutes

50% of total GCSE

80 marks

This is a non-calculator paper.

This paper has two sections: Section A and Section B. Students must answer both sections.

All questions are mandatory.

In Section B, questions assessing students' ability to write or refine algorithms must be answered using **either** the OCR Exam Reference Language **or** the high-level programming language they are familiar with.





Expert Teaching

Taught by a Computer Science **Master Teacher** as recognised by CAS and DfE amongst others.

Use the latest hardware and software to explore IT & Computer Science in a **practical** and **exciting** way.

Excellent progression into Higher Education and employment, with links to local **universities and businesses.**

IT & Computer Science Careers





Progression

What will this course prepare me for?

Continue studying Computer Science at A-Level at St Robert of Newminster Catholic School.

Employment / apprenticeships within the Technology industry as you will have gained sufficient skills and knowledge which are attractive to employers.



Useful for these degree courses:

Aeronautical Engineering

Biochemistry

Biology

Chemical Engineering

Computer Science

Economic

Chemistry

Civil Engineering

Geology/Earth Sciences

Electrical/Electronic
Engineering

Engineering

Mathematics

Mechanical Engineering

Medicine

Materials Science (including
Biomedical Materials Science)

Physics

Optometry (Ophthalmic Optics)

Orthoptics

Psychology

Sociology