

## Workshops 2019

As the world changes, new technologies and practices are introduced. We want to give our junior students a chance to develop a passion for scientific and creative subjects. This will strengthen students' understanding of the modern world and help them develop their English language skills through studying topics that really matter today. Two of the essential skills we need to develop are logical and creative thinking.



STEM  
Science, technology, engineering,  
and mathematics

### Junior Summer School

[www.manchesterese.co.uk](http://www.manchesterese.co.uk)

Learning to be ready for the future!



Manchester Central School of English

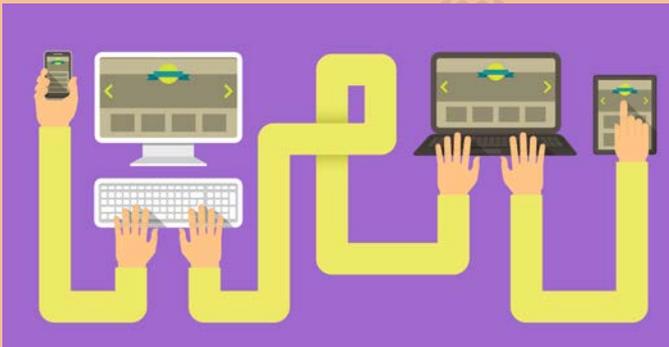
# SCIENCE TECHNOLOGY ENGINEERING AND MATHEMATIC



## STEM



This year, we're incredibly excited to be introducing STEM workshops to our junior summer school programme. This will give students an unforgettable chance to gain valuable skills whilst practising their English.



What is STEM education?

STEM education focuses on teaching skills in science, technology, engineering and mathematics. These subjects have never been more important!

We want to give our junior students a chance to develop a passion for STEM subjects.

This will strengthen students' understanding of the modern world *and* help them develop their English language skills through studying topics that really matter today.

STEM workshops at MCSE summer school will be a fun and inspiring introduction to these key subjects.

Why is STEM so important?

1. Students are surrounded by new technologies which are part of their daily lives. Understanding how they work is an exciting, relevant way to expand their knowledge of science and practice using English.
2. Students can develop skills that help them solve difficult problems in logical ways, whilst also communicating as a team in dynamic and practical situations.
3. The jobs of the future will all require at least a basic understanding

# METHODOLOGY

## How will it be taught?

The STEM course will be taught in 3-4 hour weekly workshops by a specialist teacher. Students will attend a minimum of 2 and a maximum of 6 workshops.

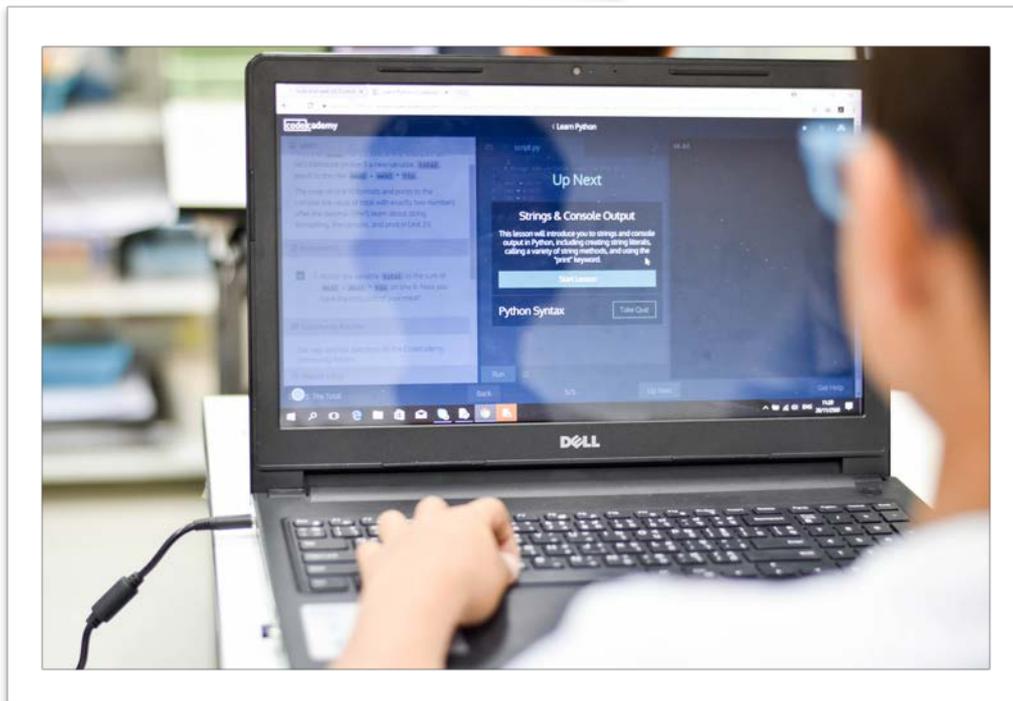
Each workshop will be divided into two parts:

1. The first part will focus on teaching a core principle of programming, logical thinking and the use of basic code. Students will work with a programming language called 'Scratch', which was created specifically to help teach children coding skills.



2. The second part will focus on applying these skills to real world situations. Students will have the opportunity to solve problems and build simple programmes together.

Students who attend multiple sessions will work on projects which ask them to solve more complex problems using the skills they have learnt.





We want our students to get inspired about the world of tomorrow and start their journey to become the innovators of the future!



### **Introductory Activity: Think Like A Computer!**

Students work as a team to give instructions to their teacher for a simple human task, e.g. making a sandwich. Students have fun sharing ideas and thinking about the importance of precise instructions.



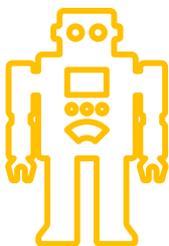
### **Problem Solving: Fixing a 'Bug'**

Students are shown how to fix a simple mistake (or 'bug') in instructions on the coding educational programme 'Scratch'. In pairs, students work to fix their own bug using the programme.



### **Logical Thinking: Rock Paper Scissors**

Students create a sequence of instructions to play the game 'rock, paper, scissors'. They work as a team to think carefully about the correct order and compare their ideas.



### **Project Work: Coding Instructions**

Students, supported by their teacher, can begin to write a simple programme which uses instructions to play a game. Students choose from a range of available project packs and work together to bring their game to life!