



LONDON TECHNOLOGY WEEK - ASSEMBLY PLAN

June 2016

To celebrate London Technology Week, Bloomberg and Code Club are working together to engage pupils' interest in STEM subjects and careers.



Cross-curricular: Computing and careers inspiration

Age range: Year group 5-6

Duration: 15-20 mins

Introduction

To celebrate London Technology Week, Bloomberg and Code Club are working together to engage pupils' interest in STEM subjects and careers. Our vision for the future is one where all children are given the opportunity to learn to code and become digital makers, no matter who they are or where they are from.

Why coding? Children who are given the opportunity to learn to code now will be better equipped to succeed in a world which increasingly requires digital skills. Coding is a skill that children use at school, but it can also play a role in their hobbies and careers, helping them to become doctors, artists, engineers and more.

The aim of this assembly is to celebrate London Tech Week, introduce some computing concepts and engage young people in STEM careers.

Learning outcomes

Pupils will:

- Understand the significance of computer science
- Learn about exciting developments in STEM
- Develop their programming and computational thinking skills



Part 1: Tech inspiration

Think about what inspired you. Think about your own pathway to where you currently are.

Start by introducing yourself. Explain to the pupils how you first got excited by technology: what are your first memories of using a computer? What did you use it for?

How did this lead into your career in STEM? What is the best thing about your job in technology? What are you most proud of achieving? (Give really concrete and specific answers, such as something you have built, to make sure the pupils understand.)

Computers have transformed our lives: from the mobile phone in your pocket, to the car or train in which you came here this morning, to the traffic lights that made the journey safe.

Ask the pupils to put their hands up if they think it is already possible to use a computer to:

- mark essays
- 3D-print human tissue
- go to space as a tourist
- build crash-proof cars.

Explain that all these examples already exist due to advances in computing. The world will look very different in 2020, with many exciting innovations taking shape.

Ask the children to work out how old they will be in 2020, and ask for some of the children to put their hands up and give answers. In 2020 we might look forward to:

- personal DNA sequencing: everyone will have their DNA tested to find out the likelihood of getting diseases such as cancer, so treatment can start earlier.
- 3D bioprinting technology, which will have led the way to printing human organs such as livers, kidneys and even hearts.
- self-driving cars on the road carrying people around as passengers.
- progress towards the whole world having electricity. We are lucky enough to take electricity for granted in the UK, but in many parts of Latin America, Africa and Asia, more than 1.5 billion people still don't have regular access to electric light. Safe, reliable power will have a transformative effect on these countries. This could result in giant leaps forward in educational achievement, health care and quality of life for the people that live there.

Tell the children that when it's time for them to get a job, over half of them will probably work at jobs that don't even exist now. 2020 promises so much to be excited about for us all, especially for pupils.



Part 2: Computing activity - human robots!

This is an activity to help the students develop their programming and computational thinking skills.

Explain that you are going to program a human robot!

1. Place a small collection of blocks or similar objects on a table.
2. Pick an adult (a teacher or your fellow Bloomberg volunteer) to play the role of the robot. The robot can only respond to specific commands, as a computer would. It is the pupils' job as engineers to 'program' the robot to make a tower out of blocks.
3. Choose a pupil volunteer and have them talk the robot through making a tower out of the blocks using instructions such as, "Move your hand to the left," "Pick up the block next to your hand," and so on. If the child gives an instruction that is too complicated (eg "Build the tower of three blocks"), then the robot will not follow it. Encourage the robot to show their confusion by shaking their head, or burying their head in their hands.
4. The task is completed when the tower is built.

Conclude by saying that computers can't think for themselves. They are great at following instructions - but this means that the computer programme telling a computer what to do needs to be as clear and quick as possible.

Even if we are not using a computer, we are all using computational thinking every day.

Next steps

Pupils can complete the Code Club project for London Technology Week <https://codeclubprojects.org/en-GB/scratch/green-your-city> and they can join a Code Club in their school or library.

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