

Computing Ambassadors

supporting teaching in secondary computing

STEM Ambassadors can support schools by bringing relevant expertise, experience and context to the curriculum. Whether you specialise in graphic design, programming, computational thinking and problem solving, web design and SEO, animation, embedded computing, audio editing or app development, we've made it easy to engage with teachers.

Many schools in England adopt the Teach Computing Curriculum, an NCCE resource that supports teaching from Year 1 through to Year 11.

By offering help using the template text below, you can make teachers aware of the valuable ways you can help them to achieve our shared goal of *a world-leading computing education for every child, in every school, in England*.

Simply copy the text, amend it as appropriate, and provide it as an offer through the STEM Ambassador platform at stem.org.uk/dashboard.

Support students' skills and knowledge in digital media

I am a brand manager/graphic designer located in **#geographic location#** working for **#company name#**.

I can provide **face to face / remote sessions (delete as applicable)**. I am available to provide hands on support over a series of lessons to support your students understanding of the brand and design process.

I can provide guidance on using software such as **xxxxxxx** and provide students with an understanding of the principles of branding and clear messaging when creating digital media products.

I can provide students with a realistic brief that is suitable for their age range which will allow them to explore the themes of effective design, consistent layout, use of images and design ideation.

I am willing to watch student's final presentations and give them constructive feedback to further develop their understanding of the branding and messaging process.

This session can support your teaching of the Year 7 curriculum unit "[Clear messaging in digital media](#)".

A day in the life of a computer programmer

I am a programmer working in the **xxxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I am available to give students an overview of a day in the life of a programmer through using age-appropriate examples of real-life projects I have developed.

I can focus on specific programming constructs to support the students learning in the classroom such as sequencing, selection and iteration and through this allow students to draw links between their own work and that of a professional programmer.

My end goal is to engage and motivate students in developing an excitement for programming through the real-life examples I can showcase to them.

This session can support your teaching of the Year 7 curriculum units **"Programming essentials in Scratch (parts 1 and 2)"**.

Computational thinking and decomposition in the real world

I am a programmer working in the **xxxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I can provide sessions that cover computational thinking techniques including decomposition.

I can show students real examples from my field of work which highlight how computers understand instructions and how breaking larger problems down into subproblems allows programmers to create programs more efficiently.

Using your curriculum content, I can draw comparisons between the students work and that in a professional programming environment.

This session can support your teaching of the Year 7 curriculum units **"Programming essentials in Scratch (parts 1 and 2)"**.

Programming masterclass 1 (1 of 2 sessions)

I am a programmer working in the **xxxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. Are your students starting their programming journey? If so I can help to demonstrate how the concepts they are learning relate to projects that I have worked on in the **xxxxxxx** industry.

I can provide a masterclass demonstrating how to define variables, define conditions, create selection statements using both comparison and logic operators and show students how

count-controlled iteration works.

Through an engaging and inspirational session, I can work with students to create simple programs to solve problems.

This session can support your teaching of the Year 7 curriculum units “**Programming essentials in Scratch** ([parts 1](#) and [2](#))”.

Programming masterclass 2 (2 of 2 sessions)

I am a programmer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. Following on from masterclass 1 I can help to demonstrate how the concepts that students are learning relate to projects that I have worked on in the **xxxxxxx** industry.

I can provide a masterclass demonstrating how to define subroutines and apply decomposition by breaking problems down, also building on from the masterclass 1 I can give students examples or where condition-controlled iteration can be used in programs and provide guidance of how to implement it.

I can demonstrate how lists can be defined, using a real-world example from the **xxxxxx** industry. I can work with students in an engaging and interactive way to give them the skills to independently design and apply the programming constructs I have demonstrated to solve a particular problem.

This session can support your teaching of the Year 7 curriculum units “**Programming essentials in Scratch** ([parts 1](#) and [2](#))”.

A day in the life of a web designer

I am a web designer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I am available to give students an overview of a day in the life of a web designer through using age-appropriate examples of real-life projects I have developed.

I can focus specifically on how I use HTML to create websites to support the students learning in the classroom such as how to structure simple web pages, apply formatting, effectively use images and explain what CSS is and how it can be used to make the process of web design more efficient. My end goal is to engage and motivate students in developing an excitement for web design through the real-life examples I can showcase to them.

This session can support your teaching of the Year 8 curriculum unit “**Developing for the Web**”.

Web developer masterclass

I am a web designer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I can provide a masterclass to showcase basic web development techniques that students need to create simple websites using HTML.

Using examples from my industry area of **xxxxxxx** I can demonstrate how to use HTML tags to structure websites, include effective navigation and change formatting to create attractive web pages.

I can also explain to students the benefits of using CSS and the importance of image placement and issues around using images such as file loading and image tags. I can work with students in an engaging and interactive way to give them the skills to independently design and apply web design skills to help them create their own functioning websites.

This session can support your teaching of the Year 8 curriculum unit "[Developing for the Web](#)".

What is search engine optimisation?

I am a SEO professional working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I can explain to students in an engaging way how searching the web works using real life examples from my area of work.

I can breakdown how search engines work and how results are ranked and selected. In this session I will cover the concepts of web crawlers, ranking, indexing and how algorithms are used to narrow down search results.

I will demonstrate to students and engage them in activities that allow them to explore how to use operators to refine their searches. I can work with students in an engaging and interactive way to give them the knowledge of what search engine optimisation is and how it works.

This session can support your teaching of the Year 8 curriculum unit "[Developing for the Web](#)".

What does an app developer do?

I am an app developer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I am available to give students an overview of a day in the life of an app developer through using age-appropriate examples of real-life projects I have developed.

I can explain to students the concept of event-driven programming and demonstrate how decomposition is used when I design apps. I can focus on planning techniques and will discuss how I use success criteria to evaluate and measure the outcomes of my projects and draw comparisons between my work and the work students will be doing in the block-based programming environment.

My end goal is to engage and motivate students in developing an excitement for app development through the real-life examples I can showcase to them.

This session can support your teaching of the Year 8 curriculum unit ["Mobile App Development"](#).

App Development Masterclass

I am an app developer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I am happy to provide students with an app developer masterclass where I hope to give them the skills and knowledge to develop their own apps.

I will start with the basics and show students how incorporate user input into an app, how variables are used to store data and the importance of sequencing their code to order events within the application.

I can develop students' skills by explaining to them the importance of debugging and engage them through creating an app that allows them to pass the value of variables to create a scoring system for their game apps. In addition, I can work with students to evaluate their app and look at ways to improve it, through demonstrating how I do this in the apps that I have created within my field of work.

This session can support your teaching of the Year 8 curriculum unit ["Mobile App Development"](#).

Python Programming Intro

I am a programmer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I am willing to deliver a masterclass to students that introduces them to the basics of text-based programming using Python.

I can showcase the programming projects that I have worked on to allow students to draw similarities between mine and their own projects. I will ensure that students understand and have opportunity to practice how to use expressions, variables, and numerical input. Students will have the opportunity to develop selection statements using comparison, relation operators and random selection techniques.

Also, I can show students how to use condition-controlled iteration and use variables as counters, whilst demonstrating I use the same techniques in the projects I have created. Finally, I will explain to students the importance of understanding syntax errors and how by analysing these they can improve their programming skills.

This session can support your teaching of the Year 8 curriculum unit ["Introduction Python Programming"](#).

What is a graphic designer / animator?

I am a graphic designer / animator working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I am willing to deliver a session to students that gives them an insight into what 3D animation is using examples of my work that they can relate to.

I can talk about my career and the path I took that has allowed me to secure the position I have today. In addition, I can talk about the qualifications, skills and aptitude needed to be successful as an animator/graphic designer and the opportunities that students would have.

I am happy to host a question-and-answer session with students, where they can ask me questions about my career, projects I have worked on and any graphic design/animation related questions.

This session can support your teaching of the Year 9 curriculum unit ["Media Animations"](#).

Animation masterclass

I am a graphic designer / animator working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I am willing to deliver a masterclass to students that introduces them to animation techniques, whilst also drawing comparisons to the animations they will create to real life projects that I have worked on.

I can show them many skills including how move, rotate, scale and colour objects. I will discuss the differences between stop motion and key frame animations. I will then move on to show students how to name and parent objects so that they can work efficiently.

Editing skills that I can demonstrate include proportional editing, subdivision and how to use tools such as the knife, loop cut, extrude, face addition and applying colours effectively.

In terms of composition, I can explain to student the importance of lighting, rendering and camera set up to create sophisticated and professional animations.

This session can support your teaching of the Year 9 curriculum unit "[Media Animations](#)".

Graphic design masterclass

I am a graphic designer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I would like to offer students a masterclass in graphic design with the focus being how digital images are composed and created.

Using examples of my own work I can explain to students how binary digits are used to represent colour elements in an image. I can demonstrate to students how colours are represented using RGB and how the sequence of bits used can influence the intensity of each colour.

In addition, I can demonstrate to students how the size of digital images is calculated through examples of my own work and how the size of images impacts on representation size and quality.

As well as the theoretical knowledge around graphic design I can assist students with basic image manipulation tasks which will lead to a discussion around the benefits and ethical drawbacks of being able to manipulate images.

This session can support your teaching of the Year 9 curriculum unit "[Representation - Going Audio Visual](#)".

Audio / Sound Engineer masterclass

I am an audio / sound engineer working in the **xxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I can work with students to showcase industry stand work within my area whilst demonstrating simple editing techniques. I can explain how sounds are digitised, how microphones/speakers and used to capture and generate sound waves.

I can demonstrate the concept of sampling and explain how sounds are represented as a sequence of bits and how sample frequency and sample size affect the quality and representation size of the media. I can show students how to use audio editing software to

perform basic tasks, how to combine sounds and manipulate them.

Finally, I can discuss with students and demonstrate using examples ways to represent sound and how the choice made would differ depending on the desired end result such as midi files.

This session can support your teaching of the Year 9 curriculum unit "[Representation - Going Audio Visual](#)".

Micro:bit showcase and masterclass 1 (session 1 of 2)

I am a programmer working in the **xxxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. I can deliver an engaging session that allows students to consider how the programming skills they have already developed can be applied to controlling a physical device such as a Micro:bit.

I will draw comparisons between the real-life technology I have developed in my workplace and the projects that students are working on. I can deliver a masterclass that will support students in using input/output buttons, accelerometer functionality and utilise GPIO pins to output, sense touch, create a makeshift switch and play music.

This session can support your teaching of the Year 9 curriculum unit "[Applying programming skills with physical computing](#)".

MicroBit masterclass 2 (session 2 of 2)

I am a programmer working in the **xxxxxx** industry working for **#company name#**. I am located in **#geographic location#**.

I can offer **face to face / remote sessions (delete as applicable)**. Following on from my showcase of physical computing and masterclass 1, I can work with students to help them draft a proposal for a physical computing project.

I can demonstrate to students how this process works in the real world by giving them examples from my area of work. I will explain a variety of planning develop techniques, proposal and feedback.

Alongside the prototype development stage, I will support students to use the skills they acquired in masterclass 1 and encourage them to self-reflect and act on feedback to complete a successful project.

This session can support your teaching of the Year 9 curriculum unit "[Applying programming skills with physical computing](#)".