Welcome to the micro:bit – Live Lesson

Date: Wednesday 24th February 2016
Time: 11:00am
Duration: 45 minutes
Location: bbc.co.uk/livelessons
(Note: if you can’t watch the webcast live, you will be able to watch the recording on the Live Lessons website)

Setup

How much space and equipment is needed?

The lesson can be screened in a classroom or computer laboratory with a large screen linked to a decent broadband connection. Good audio equipment is not essential but will make the event more enjoyable.

As we’ll be asking students to get involved with developing their own digital creations during the lesson, students will benefit from ready access to a computer with an internet connection. However, students can also participate in the activities before and after the programme, so this may not be essential if your setup does not allow for it.

If the students already have access to a BBC micro:bit, it would be ideal if they had to hand:

- Their BBC micro:bit
- A PC running Windows 7 of later, or a Mac running OS X 10.6 or later
- Access to the Internet (specifically, www.microbit.co.uk)
- A Male to Micro USB cable to connect their computers to your micro:bit. This is the same cable that is commonly used to connect a smart phone to a computer.

If you or your students are using the BBC micro:bit for the first time, you can find more details about how to run scripts on the BBC micro:bit here.
Don’t worry if you and your students have yet to receive your own BBC micro:bits, as many of the lesson’s activities and outcomes can be replicated on the website’s simulators.

**How many students can participate?**

It’s completely up to you how many students you have participating in the session. We want to get as many students as possible engaged in this Live Lesson. Space and access to computers might be a consideration if you have a very large group.

**How to prepare for the lesson**

**Before the lesson**

Visit the [BBC micro:bit website](https://microbit.org/) to learn more about the micro:bit and its functions and capabilities. If you haven’t yet registered your school or obtained a login code, you can do so [here](https://microbit.org/). There you’ll also find some short videos to get started with the BBC micro:bit and information about the different code editors.

During the lesson we will be using the [Microsoft Block Editor](https://makecode.microbit.org/) and the [Microsoft Touch Develop Editor](https://github.com/Microsoft/TouchDevelop), so it’s advisable for you and your students to briefly familiarise yourselves with how they work prior to the lesson.

Even if you and your students have yet to receive your own BBC micro:bits, many of the basic tutorials, as well as the activities for the lesson, can be carried out on the website’s simulators.

**Creating games on the micro:bit**

This segment of the Live Lesson involves the use of the Block Editor. This is a graphical drag and drop code editor that students can easily get started with.

During the Live Lesson, students will be shown and asked to adapt the code for simple games including a fortune teller game, hot potato and a racing game.

Before the lesson, they can step through the worksheets for the different games and try adapting the code by importing the hex files onto the micro:bit website. *(Refer to Appendix 1 for more information on how to import scripts.)*

All the hex files and worksheets are available on our Live Lessons website.

Export and send the hex files for your students' adapted games to [live.lessons@bbc.co.uk](mailto:live.lessons@bbc.co.uk) and they could be featured during the Live Lesson. Remember to include your student’s first name and your school name in the title of the hex file and the email.

**Making a micro:monster**

This segment of the Live Lesson involves the use of the Touch Develop Editor. This is a text-based programming language.
During the Live Lesson, students will be asked to adapt the code for the micro:monster – a digital pet on the micro:bit.

Before the lesson, students can change the animation and appearance of their own micro:monsters by stepping through the worksheet and adapting the code.

There are two versions of the code for the micro:monster, one basic and one advanced. We will be using the basic version during the lesson, but students who are more confident can try adapting the advanced version. All the hex files and worksheets are available on our Live Lessons website.

As with the games, export and send the hex files for your students’ micro:monsters to live.lessons@bbc.co.uk and they could be featured during the Live Lesson.

**Developing a secret code**

This segment of the Live Lesson involves the use of the Block Editor.

During the Live Lesson, students will be shown and asked to adapt a script that allows them to encrypt messages and pass them to friends.

Before the lesson, they can step through the worksheet and try adapting the code by importing the hex file onto the micro:bit website. All the hex files and worksheets are available on our Live Lessons website.

Export and send the hex files for your students’ micro:monsters to live.lessons@bbc.co.uk and they could be featured during the Live Lesson.

**Create a robot**

*Content in development*

Please note that the order of these segments may change in the programme.

**Contact us**

You can email any questions, comments and adapted hex files before and during the Live Lesson to live.lessons@bbc.co.uk, or use the hashtag #bbclivelessons. We’ll aim to answer as many of your questions as possible.

If you let us know if your school is planning to tune in on the day, your school name could be featured on the programme.

You can also continue sending your questions to us within 24 hours of the lesson ending. A selection of them will be forwarded to our experts and answered by email.

Thanks for your interest in our BBC micro:bit Live Lesson, and we hope you’ll join us on the 24th of February.
**Appendix 1: Curriculum links**

**Key Stage 3 – Computing**

As part of the lesson, students will be encouraged to:

- design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- understand several key algorithms that reflect computational thinking
- use two or more programming languages, at least one of which is textual, to solve a variety of computational problems
- make appropriate use of data structures [for example, lists, tables or arrays]
- design and develop modular programs that use procedures or functions
- understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
- understand how instructions are stored and executed within a computer system
- understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally
- create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability

**Appendix 2: Importing scripts into the editors**

To participate in the activities for the lesson, students must learn to import the hex files they’ve downloaded from the Live Lesson website to the micro:bit website.

**Step 1:** Click ‘My scripts’ on the top navigation bar of the micro:bit website.
Step 2: Select the ‘Import Code’ option.

Step 3: Select the ‘Choose Files’ button and choose the relevant hex file from where it is saved on your computer.

Step 4: Select ‘import’ to import the script.
Step 5: The script from your hex file should now appear on your ‘My scripts’ list. Click ‘edit’ to see your script in the editor and make changes.