

Activity: A micro:bit stopwatch

Subject/s: Computer Science	
Focus: <ul style="list-style-type: none"> Using button events and variables in computer programs Making a useful measurement tool using a micro:bit 	
Ages: 11-14	Time: 60 minutes
Prior Learning: <ul style="list-style-type: none"> Some understanding of computer coding using a blocks type system such as Scratch or Makecode Familiarity with making USB & battery connections and dragging & dropping files Experience of motion sensing technology – smartphones, game controllers, etc. 	
Lesson Objectives: <ul style="list-style-type: none"> Code a simple computer program Make use of button events and variables and change a computer display Use simple mathematical calculations in a computer program 	
Resources: Worksheets, 2x Micro:bits per team (+battery packs and USB connections), Laptops or PCs with internet access.	Vocabulary: code, program, input, button, variable, compile, download
Activities: <ul style="list-style-type: none"> Students will familiarise themselves with micro:bit using the Javascript Blocks Editor coding tool that can be found at www.microbit.org. They will explore the role of variables and button events and how programs can perform algebraic like calculations using variables. If the students have not used micro:bit before they can follow the online tutorials. The worksheet in the resources section contains instructions on how to code a simple stopwatch. 	
Assessment opportunities: Demonstration, discussion and application in project work	
Extension ideas: <ul style="list-style-type: none"> Once the students have created a working stopwatch they can make use of it in some of the other suggested activities. e.g. measure the time taken for a balloon car to travel a short distance. As the program measures in milliseconds students can also have experience of converting milliseconds to decimal seconds. 	