MAKING MUSIC WITH MICRO:BIT

In this introduction to programming using the micro:bit, you will learn how to create music with their micro:bit.

What you will need:

- Web enabled device (PC, Tablet, Phone) with an up-to-date browser (Internet Explorer, Safari, Chrome)
- BBC micro:bit simulator (www.microbit.co.uk/)
- BBC micro:bit (Optional)
- Speaker or headphones & two crocodile clips (Optional)

Making music with Make Code:

The built-in music library in Make Code allows us to play music on our micro:bit.

To play a note we use the following command

Where Middle C = note and 1 beat = duration.

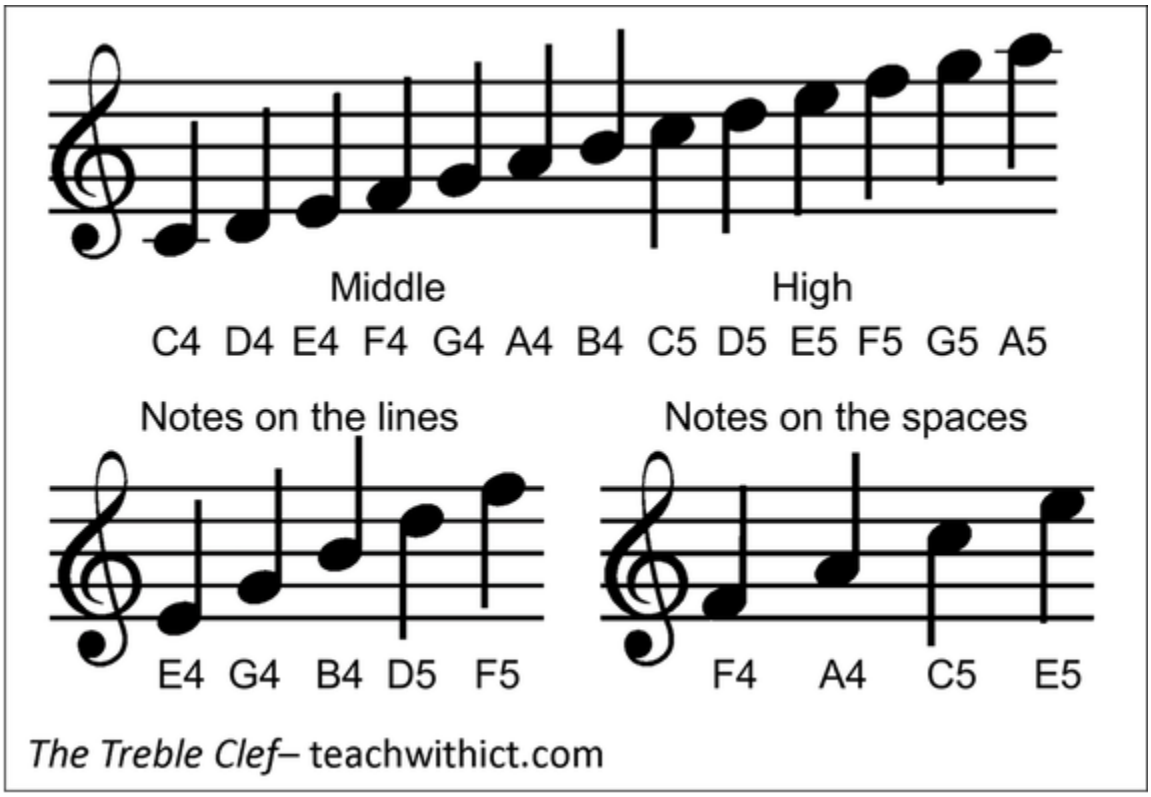
Example

Try the following example:

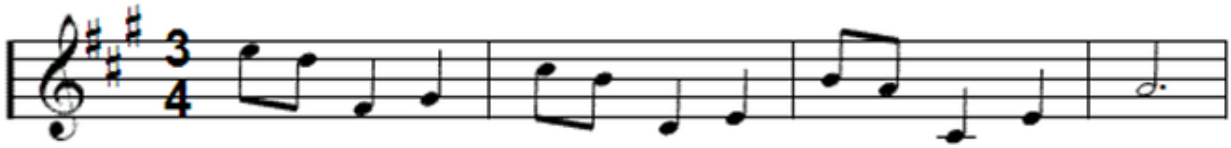
Transcribing songs from sheet music

If we want to re-create our favourite songs on our micro:bit, we first need a basic understanding of sheet music.
Here's a reminder of the most common notes used in a musical score:

The Treble Clef



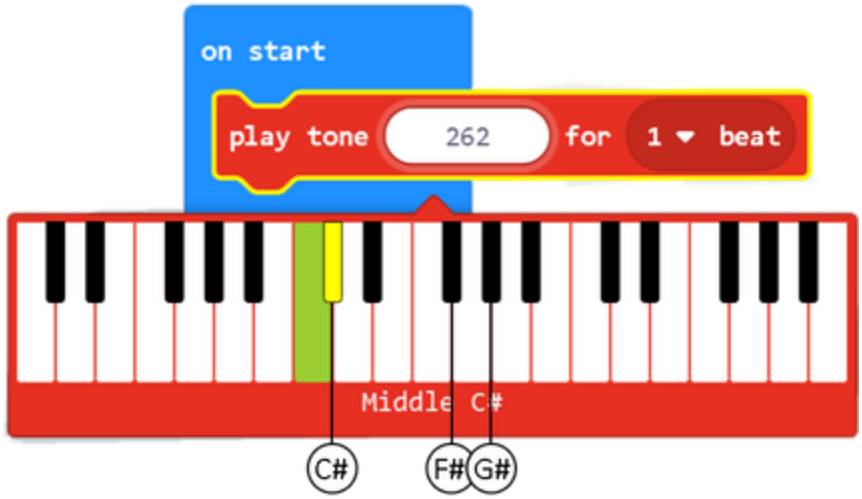
Below is the score for a very popular piece of music - Can you can guess what it is?



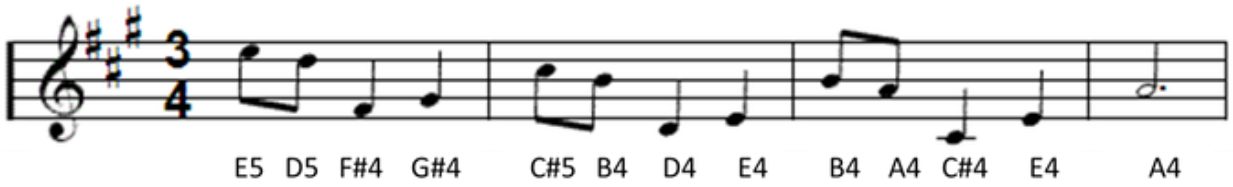
Answer: Grande Valse (You may know it as the 'Nokia Ringtone')

Did you notice the special **#** symbols at the start of the score. This shows that some of the notes are sharps. In this case, the sharp notes are:
F#, C#, and **G#**

In Make Code, sharp notes are selected by clicking on the 'black notes' in the drop-down keyboard:



Below is the music score for the Nokia Ringtone (this time with notes underneath).



It's all about the timing

If we look at the notes in a music score again, you will notice that they're different shapes and colors. These different shapes and colors denote the timings. (See below)

Notes	Name	Value	Code
	**Semibreve** Whole note	4 beat	4 ▾ beat
	**Minim** Half note	2 beat	2 ▾ beat
	**Crotchet** Quarter note	1 beat	1 ▾ beat
	**Quaver** Eighth note	1/2 beat	1/2 ▾ beat
	**Semiquaver** Sixteenth note	1/4 beat	1/4 ▾ beat

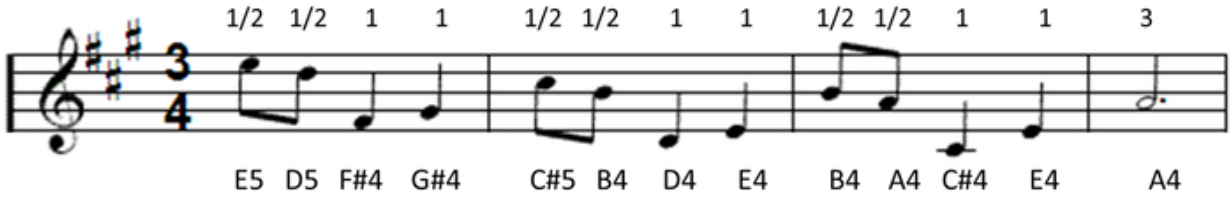
Notes – teachwithict.com

Notice that some of the notes have a dot (or full stop) after them. For these notes, we need to multiply the duration by 1.5.

Notes	Name	Value	Code
𝅝.	**Dotted Semibreve** Whole note	6 beat	4 beat × 1.5
𝅗𝅥.	**Minim** Half note	3 beat	2 beat × 1.5
♩.	**Crotchet** Quarter note	1 ½ beat	1 beat × 1.5
♪ ♫	**Quaver** Eighth note	3/4 beat	1/2 beat × 1.5
𝅘𝅥𝅯.	**Semiquaver** Sixteenth note	3/8 beat	1/4 beat × 1.5

Dotted notes – teachwithict.com

Below is the score again however, this time, with timings (duration).



Rests

Rests are natural pauses or breaks in a piece of music. Rests can be added to your code using the following command:

Rests are identified by the following symbols:

Rests	Name	Value	Code
	**Semibreve** Whole note	4 beat	4 ▾ beat
	**Minim** Half note	2 beat	2 ▾ beat
	**Crotchet** Quarter note	1 beat	1 ▾ beat
	**Quaver** Eighth note	1/2 beat	1/2 ▾ beat
	**Semiquaver** Sixteenth note	1/4 beat	1/4 ▾ beat

Rests – teachwithict.com

Rests	Name	Value	Code
	**Dotted Semibreve** Whole note	6 beat	
	**Dotted Minim** Half note	3 beat	
	**Dotted Crotchet** Quarter note	1 ½ beat	
	**Dotted Quaver** Eighth note	3/4 beat	
	**Dotted Semiquaver** Sixteenth note	3/8 beat	

Dotted rests – teachwithict.com

Challenge

- Program your micro:bit to play the Nokia ringtone.
- Use a loop to repeat the ringtone 4 times (or forever if you want to be really annoying!)
- Modify your code so that the ringtone only plays when you press the 'A' button