Project – Musical Instrument

For this project you will need:

- A pair of headphones or a mini speaker + instruction card
- Two crocodile clips

To use music, you first need to **import the music** functions. To do this type the following:

```
import music
```

To start with, you are going to tell the micro:bit to play one of the built-in tunes when you press button A. Check the Inputs/Outputs worksheet if you can't remember how to do this.

To play a tune, type the following code into your **if button A** statement:

```
music.play(music.ODE)
```

Connect your speaker and **test your code** – does your micro:bit play you some Beethoven?

Instead of using just button A and button B, you are going to use the micro:bit's **accelerometer**.

It knows some built in **gestures** (see the sidebar further down the page), and uses this format:

```
accelerometer.was_gesture(“up”)
```

You now want to expand your program to play notes when you move the micro:bit!

To expand your **if statement**, use an **elif**, which is short for else if. For example:

```
if button_a.was_pressed():
    do something if True; otherwise, try the next statement
elif accelerometer.was_gesture(“up”):
    do something if True; otherwise, try the next statement
else:
    do something else (if none of the above statements are True).
```

You can have as many elif statements in between if and else as you want!

Gestures

```
“up”
“down”
“left”
“right”
“face up”
“face down”
“3g”
“6g”
“8g”
“freefall”
“shake”
```

To play a single note, you will use the format:

`music.play(“A1:2”)` *plays the musical note A, in the lowest octave, for 2 beats*

`music.play(“C2:4”)` *plays the note C, in a higher octave (try higher!), for 4 beats*

You can use notes A-G, a # after any of these makes it sharp, and R is a rest (pause).

Expand your elif statement so that the micro:bit plays a note when held upright. Now you can use the other built-in gestures, and a selection of notes, to make a funky musical instrument!

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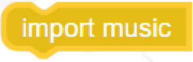
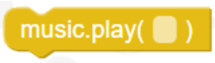
To use music, you first need to **import the music** functions. To do this, add this block from the music menu: 

import music

To start with, you are going to tell the micro:bit to play one of the built-in tunes when you press button A. Check the Inputs/Outputs worksheet if you can't remember how to do this.

To play a tune, connect the following block into your **if button A** statement: 

music.play( )

In the brackets, type: `music.ODE`

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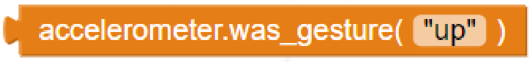
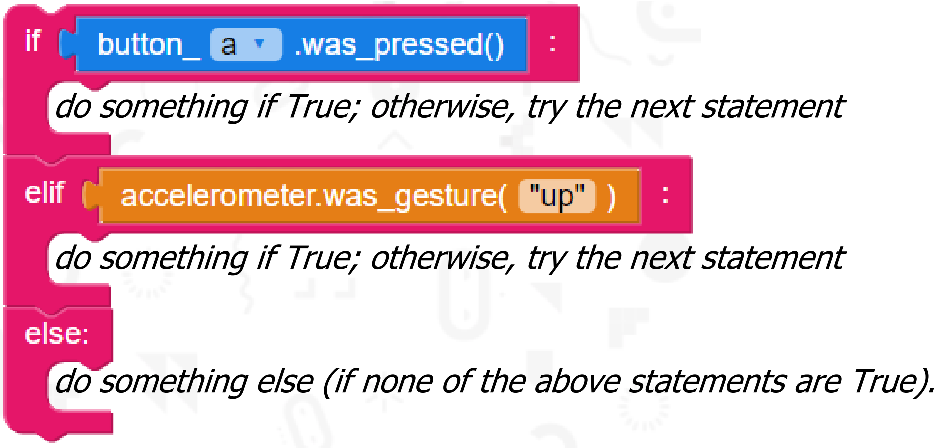


```
accelerometer.was_gesture( "up" )
```

You now want to expand your program to play notes when you move the micro:bit!

To expand your **if statement**, use an **elif**, which is short for else if. For example:



```
if button_ a .was_pressed() :
    do something if True; otherwise, try the next statement
elif accelerometer.was_gesture( "up" ) :
    do something if True; otherwise, try the next statement
else:
    do something else (if none of the above statements are True).
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You can have as many elif statements in between if and else as you want!

Gestures

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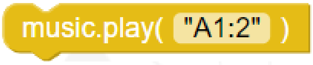
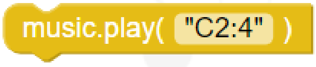


music.play("A1:2") *plays the musical note A, in the lowest octave, for 2 beats*



music.play("C2:4") *plays the note C, in a higher octave (try higher!), for 4 beats*

You can use notes A-G, a # after any of these makes it sharp, and R is a rest (pause).

Expand your elif statement so that the micro:bit plays a note when held upright. Now you can use the other built-in gestures, and a selection of notes, to make a funky musical instrument!