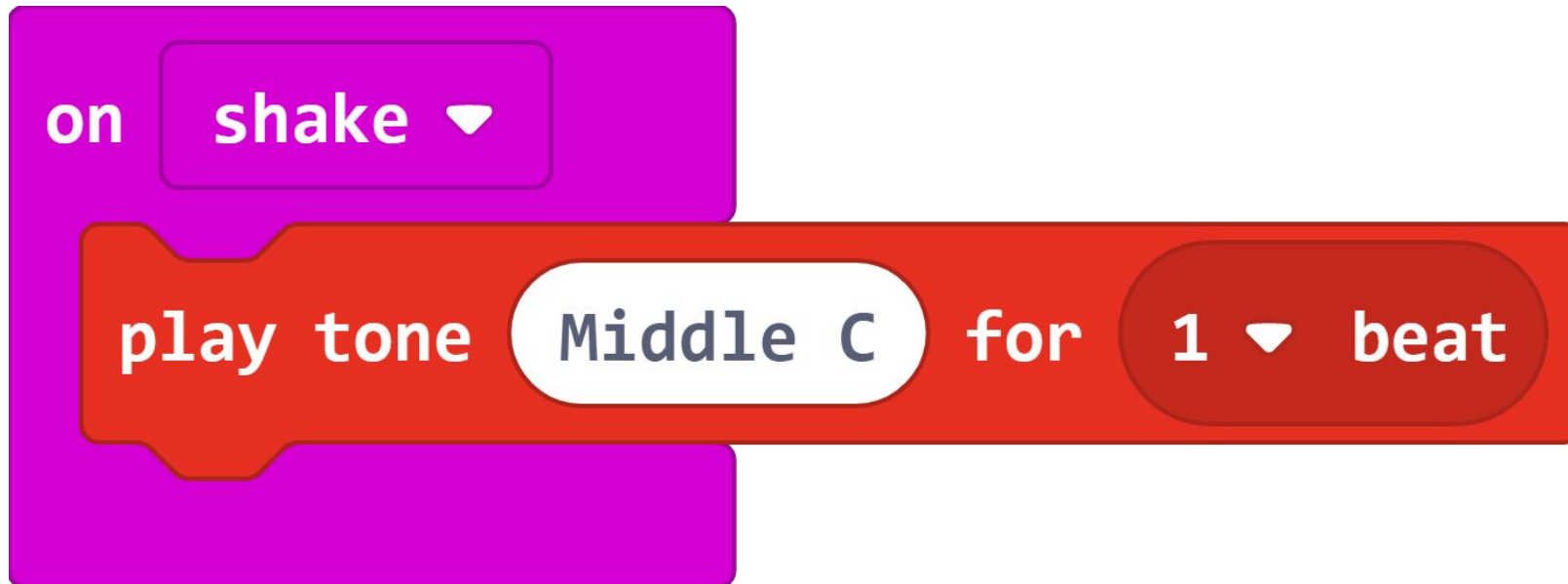


Musical Groups



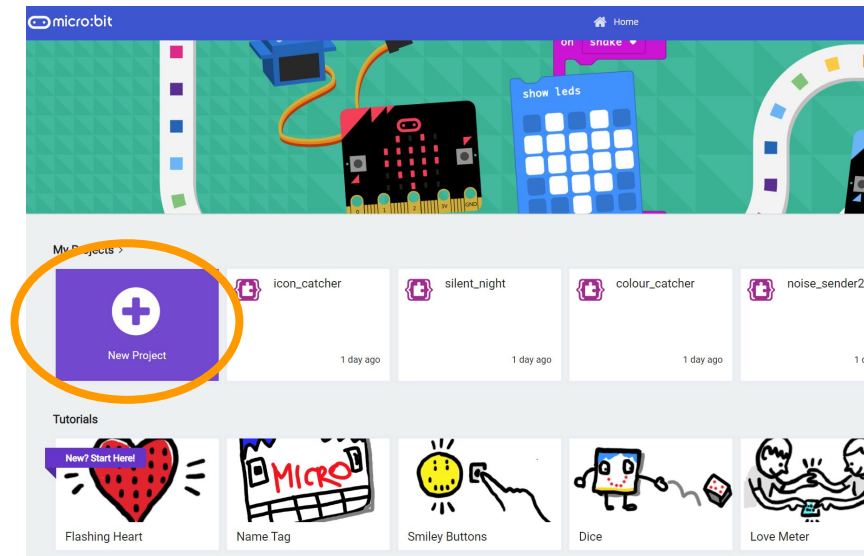
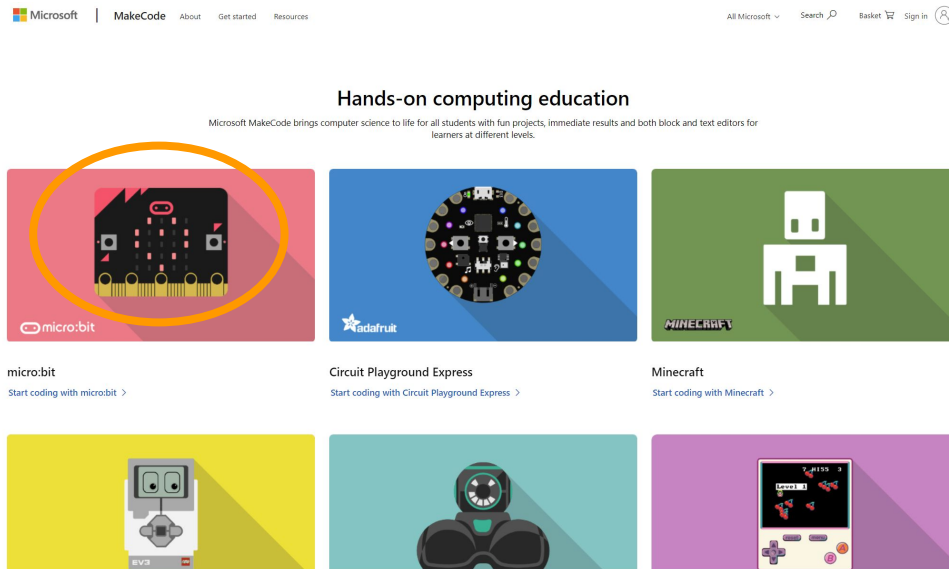
Learn to play musical notes with a micro:bit, and play a tune together

Lesson Plan (45 mins - 1hr)

- Overview:** Use micro:bits to make musical notes, and play a tune together.
- Group size:** Work in pairs, or individually if you have enough micro:bits.
Final tune is written for 5 parts, this can be 5 separate micro:bits, or one micro:bit with a part on each different gesture.
- Preparation:** Print the **code cards** for students.
If wanted, print **task mats** (or use slides provided).
- Differentiation:** Code cards are exactly as per the codeblocks and are colour coded.
Example code acts as scaffolding.
Jigsaw blocks can be used onscreen to help order the code sections.
Visual piano can be used instead of choosing note names.
Process of loading code onto the micro:bit can be supported with demo or step by step instructions.
EAL - at the top right (settings cog) you can choose different languages.
More able students can be asked to combine code to trigger more than one note.
More able students can put all five parts onto one microbit and trigger them as a single performance.
More able students can be asked to compare javascript code to block code.
- Activities:** **Starter:** What is music made of? What do you need to make music?
Discuss structure of music - notes, timing, one note at a time, more than one note, percussion, voice. When is music just noise and when is it a tune? [you could have experimental jazz playing as students enter, as a talking point]
Main: Explain aim of the activity (overview). Show micro:bit and explain an accelerometer in it changes movement into electrical signals, which you can use to trigger things, like when you tilt a phone sideways and the screen changes (demo if poss). Look at the menu on makecode to see what gestures are recognised. Make a simple program that plays a note on a gesture. Try it and see what they notice. Return together and discuss limitations (number of gestures, speed you can gesture at, accidental repeats). Give out code cards, and break out into groups to make “parts” of a song, consisting of several notes.
Plenary: Groups attempt to produce a recognisable tune. Encourage giggling. Discuss improvements that could be made, and praise achievements.

Help sheets - for those new to putting code onto a micro:bit

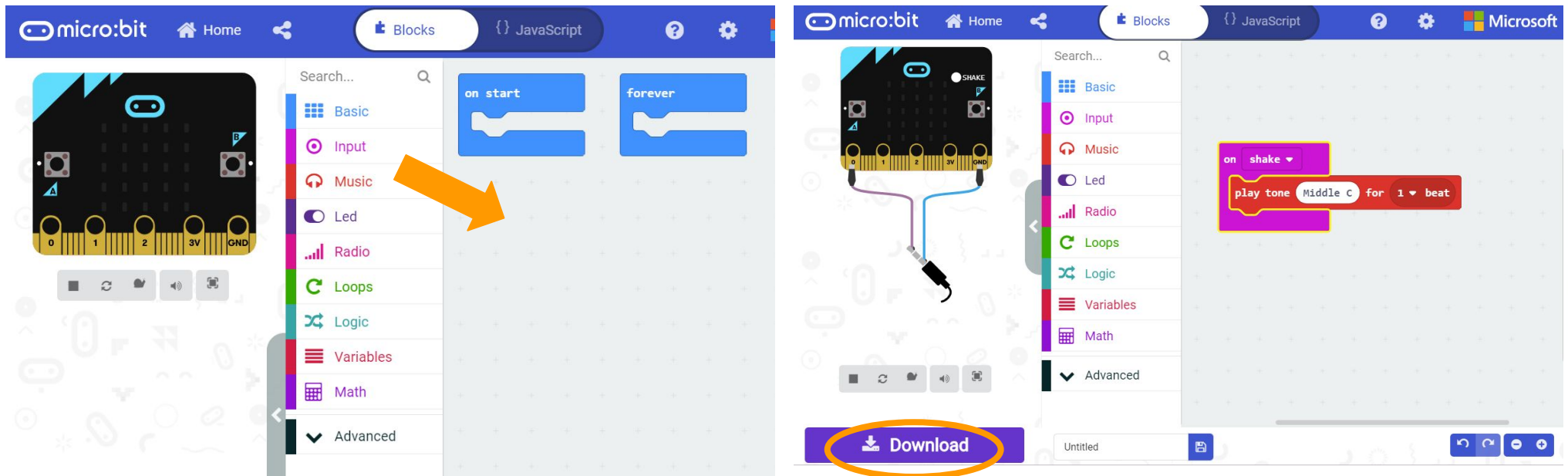
How to: load a program onto your micro:bit



1. Go to makecode.com and pick the micro:bit.

2. Start a new project.

How to: load a program onto your micro:bit

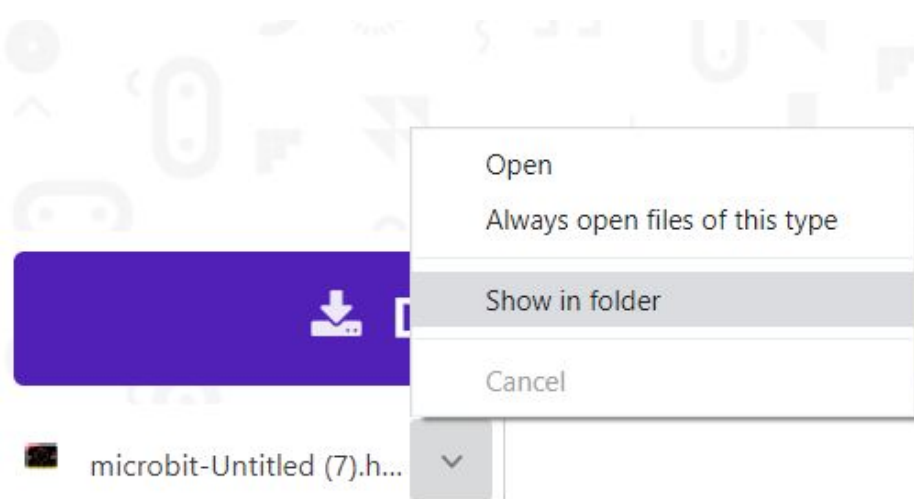


3. Drag blocks to the grey part to make a program.

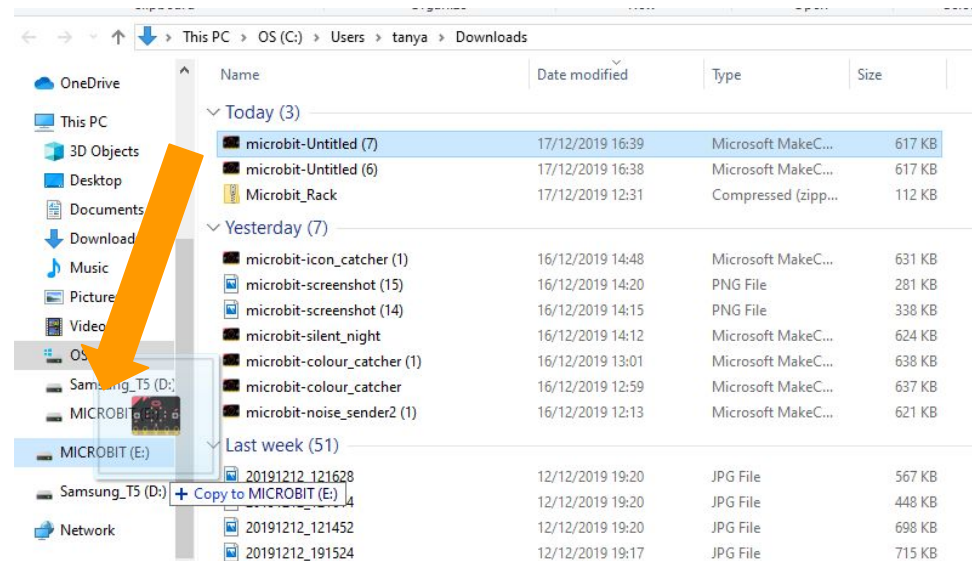
You can drag blocks you don't need to the bin.

4. Press the download button to save the program.

How to: load a program onto your micro:bit



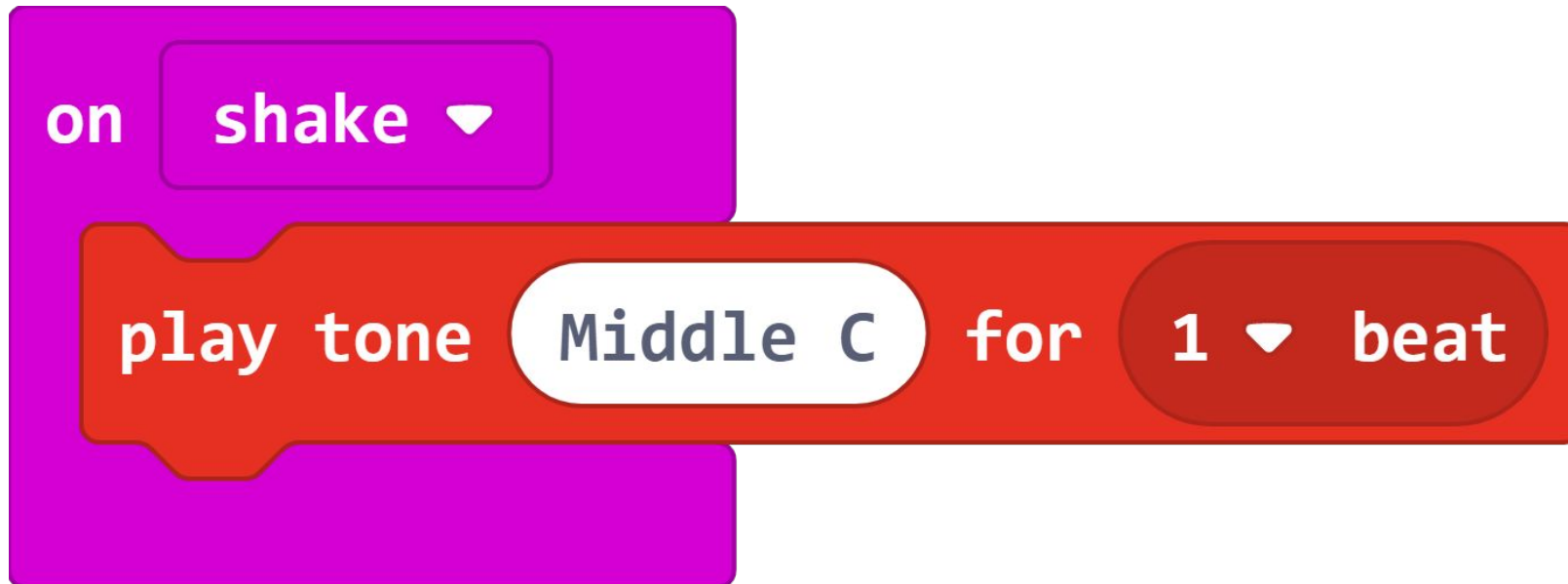
5. Click the arrow and show your program in a folder on the computer.



6. Load the program onto your micro:bit by dragging it over onto the micro:bit like you would to a USB stick.

Supporting slides

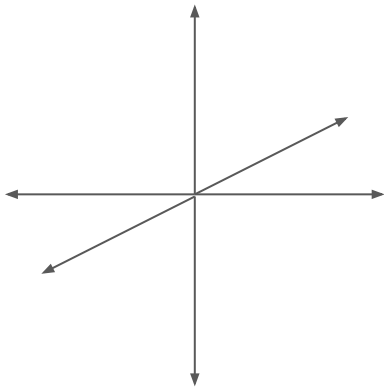
Musical Groups



Learn to play musical notes with a micro:bit, and play a tune together

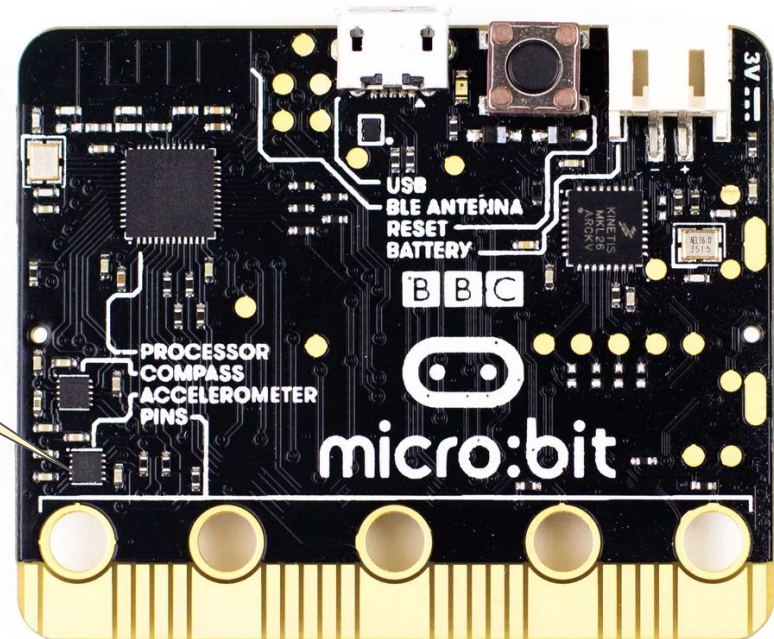
What is music made of?

What's an accelerometer?














Here it is!

An accelerometer measures movement. This one measures up/down, tilt left/right, and tilt backwards/forwards. In maths that's the x, y and z axes.



Micro:bit gestures

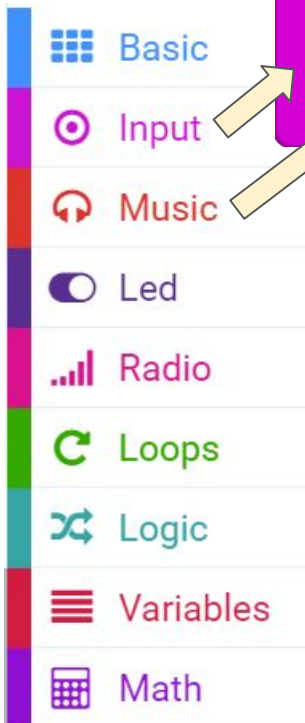
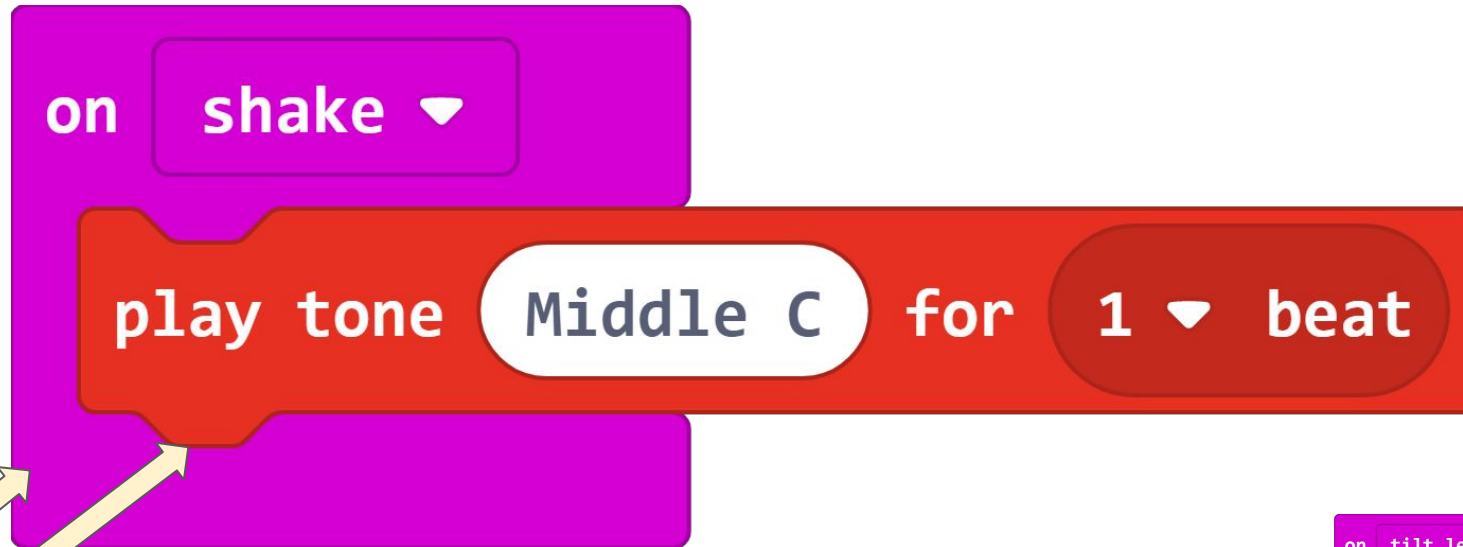
on shake ▾

 shake	 logo up	 logo down	 screen up
 screen down	 tilt left	 tilt right	 free fall
 3g	 6g	 8g	

This is about the force of a single clap.

This is great if you wrap your micro:bit in bubble wrap and do science experiments, but not great for music.

TASK: Use a gesture to trigger a sound



1. Start with the sound here.
2. Change the sound.
3. Can you do more than one gesture?
4. Can you make a tune?

You can use these gestures to play a tune from a famous film about the dark side vs the light side.



Jingle Bells (trad)

E	Jin	E	gle	E	Bells		E	Jin	E	gle	E	Bells		
E	Jin	G	gle	C	all	D	the	E	way			[rest]		
F	Oh	F	what	F	fun	F	it	F	is	E	to	E ride		
E E	On a	E	one	D	horse	D	op	E	en			D sleigh		
E	Jin	E	gle	E	Bells		E	Jin	E	gle	E Bells			
E	Jin	G	gle	C	all	D	the	E	way			[rest]		
F	Oh	F	what	F	fun	F	it	F	is	E	to	E	ride	
E E	On a	G	one	G	horse	G	op	D	en			C sleigh		

Middle C	Middle D	Middle E	Middle F	Middle G
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What could we do next?

Silent Night (trad)

Gently rocking

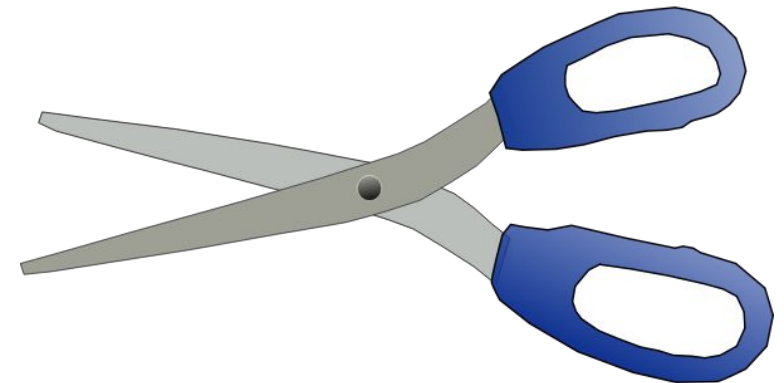


Oh no!

We have cut up the song into 5 pieces!

You need to help put it back together.

Use your part of Silent Night and find out with the others which order the pieces go in.



Silent Night (Trad.)

```
on start
  set tempo to (bpm) 180
```

```
on button A pressed
  play tone Middle G for 2 beat
  play tone Middle A for 1/2 beat
  play tone Middle G for 1 beat
  play tone Middle E for 2 beat
  rest(ms) 1 beat
```

1. Add this code to the micro:bit.
2. Choose a gesture instead of the button if you like.
3. Find out what order your group goes in.

Silent Night (Trad.)

```
on start
  set tempo to (bpm) 180
```

```
on tilt left
  play tone High D for 2 beat
  rest(ms) 1/4 beat
  play tone High D for 1 beat
  play tone Middle B for 2 beat
  rest(ms) 1 beat
  play tone High C for 2 beat
  rest(ms) 1/4 beat
  play tone High C for 1 beat
  play tone Middle G for 2 beat
```

1. Add this code to the micro:bit.
2. Choose a gesture instead of the button if you like.
3. Find out what order your group goes in.

Silent Night (Trad.)

on start

set tempo to (bpm) 180

on button B pressed

play tone Middle A for 2 beat

rest(ms) 1/2 beat

play tone Middle A for 1 beat

play tone High C for 2 beat

play tone Middle B for 1/2 beat

play tone Middle A for 1 beat

play tone Middle G for 2 beat

play tone Middle A for 1/2 beat

play tone Middle G for 1 beat

play tone Middle E for 2 beat

rest(ms) 1 beat

1. Add this code to the micro:bit.
2. Choose a gesture instead of the button if you like.
3. Find out what order your group goes in.

Silent Night (Trad.)

on start

set tempo to (bpm) 180

on button A+B ▼ pressed

play tone High D for 2 ▼ beat

rest(ms) 1/2 ▼ beat

play tone High D for 1 ▼ beat

play tone High F for 2 ▼ beat

play tone High D for 1/2 ▼ beat

play tone Middle B for 1 ▼ beat

play tone High C for 2 ▼ beat

rest(ms) 1 ▼ beat

play tone High E for 2 ▼ beat

1. Add this code to the micro:bit.
2. Choose a gesture instead of the button if you like.
3. Find out what order your group goes in.

Silent Night (Trad.)

on start

set tempo to (bpm) 180

on tilt right ▾

play tone High C for 1 ▾ beat

play tone Middle G for 1 ▾ beat

play tone Middle E for 1 ▾ beat

play tone Middle G for 2 ▾ beat

play tone Middle F for 1/2 ▾ beat

play tone Middle D for 1 ▾ beat

play tone Middle C for 2 ▾ beat

play tone Middle C for 1 ▾ beat

1. Add this code to the micro:bit.
2. Choose a gesture instead of the button if you like.
3. Find out what order your group goes in.