C4

Generating Sound and Music

CHAPTER ASSIGNMENT

Name _____ Class _____ No. _____ Date _____

> Answer every question in the space given. Show your working. You may use the chapter page to help you.

Questions from the Guru Jazzy micro:bit chapter page.

Activity · until done, or in the background

1. Build the program below and press A, then press B. Write what you hear each time.

```
on button A pressed:
    play sound mysterious until done
    play sound happy until done
on button B pressed:
    play sound mysterious
    play sound happy
```

2. Explain, in your own words, why button B sounds like a robot.

3. Add `show icon (Heart)` after the two sounds in each event. On which button does the heart appear straight away, and why?

Activity · Tunes

4. Build the Star Wars theme at 120 bpm on button A, with `repeat 4 times` around it. How long does the whole thing take? Time it.

5. Put `start melody wedding repeating once` on button B. What is the difference between this block and `play melody`?

6. On A+B, play the scale `C D E F G A B C5` and then the same notes backwards. Write the second melody string.

7. Change the tempo from 120 bpm to 60 bpm and then to 240 bpm. Fill in the table.

Tempo (bpm)	Length of one beat (ms)	How it sounds
60		
120		
240		

Activity · Sound on a gesture

8. Put the Pink Panther theme on `on shake` and try it. Why is a gesture a better trigger than a button for this tune?

9. Clip headphones or a buzzer to pin P0 and GND, then use `set audio pin P0`. What happens to the onboard speaker?

Check yourself

1. What does `set tempo to (bpm)` change, and what does it leave alone?

2. Work out how long a `1/4 beat` note lasts at 120 bpm. Show your working.

3. What does `rest (ms)` do, and why does a tune need it?

4. Write the first four notes of a song you know as `play tone` blocks, with the length of each note.

5. Where would a micro:bit alarm be useful at home? Say which sound you would use and what would set it off.

Chapter quiz

1. Where is the built-in speaker located on the micro:bit V2 board?

A	B	C	D
On the front between buttons A and B	On the rear side, directly below the MEMS microphone	Inside the USB port	On pin P0 only

2 What is the key functional difference between `play sound ... until done` and `play sound ...`?

A	B	C	D
`until done` plays louder	`until done` waits for the sound to end; `play sound` does not	`until done` only plays musical notes, not sound effects	`play sound` can only be called once

---

3 How many notes and octaves are visualised in MakeCode's interactive Melody Composer grid?

A	B	C	D
3 notes in 1 octave	8 musical pitches (C5 down to C4) across 8 time steps with distinct colors	88 grand piano keys	Only 1 single beep tone

---

4 You connect headphones to pin P0 and want the onboard speaker silent. Which block does it?

A	B	C	D
`turn off volume`	`set built-in speaker to off`	`stop all motors`	`disconnect P0`

---

5 Which gesture plays the Pink Panther theme in the Section 4.2 project?

A) `on pin P0 pressed` B) `on shake` C) `on face up` D) `on light dark`

---

6 What does `set tempo to (bpm) 120` change?

A	B	C	D
How long one beat lasts	How loud the speaker is	The pitch of every note	Which pin the sound leaves by

---

7 At 120 bpm, how long does one beat last?

A) 250 ms B) 500 ms C) 1000 ms D) 120 ms

---

8 Which block plays a ready-made tune such as the wedding march?

A) `play melody` B) `start melody` C) `play tone` D) `rest (ms)`

End of assignment · Check your answers against the chapter at gurujazzy.com/subjects/microbit/chapter-4-sound-and-speaker/