C3

Working with Switches and Touch Logo

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 · One pose per button

1. Build the program below, run it, and write what each of the three events does.

```
on button A pressed:  show leds (runner frame 1)
on button B pressed:  show leds (runner frame 2)
on button A+B pressed: clear screen
```

2. Press A and B at exactly the same moment, then press them slightly apart. What is the difference in what you see, and why?

3. Buttons A and B are wired to pins inside the board. Write which pin each one uses.

Activity · Conditions and loops

4. Build the sprint program: inside `forever`, use `if button A is pressed` with `repeat 4 times` around two frames and a 100 ms pause, then a happy face and `clear screen`. Hold A down. How many steps does the figure take each time?

5. Change `repeat 4 times` to `repeat 10 times`. What happens if you let go of A in the middle of the run, and why?

6. Rewrite the same idea with `on button A pressed` instead of `if button A is pressed`. Which version feels better to use, and why?

Activity · The touch logo

7. Build the mood-face switcher: asleep at the start, happy while the logo is touched, sad for half a second when you let go. Write the three blocks you used.

8. Try the logo with a dry finger, then with a finger resting on the GND pin as well. Does it make a difference on a V2 board? Write what you find.

Check yourself

1. Explain the difference between `on button A pressed` and `if button A is pressed`.

2. Why can the V2 logo sense your finger without a wire to GND?

3. Name the two logo events, and say when each one fires.

4. Design a counter: A adds one, B resets to zero. Write the blocks you would use.

5. Give one thing in your home that works like a button event, and one that works like a condition checked in a loop.

Chapter quiz

1. Which button combinations can trigger an event in the `on button ... pressed` block?

A	B	C	D
Button A only	Button B only	Buttons A, B, or both together (A+B)	Any keyboard key

2. What is the main difference between `on button A pressed` and `if button A is pressed`?

A	B	C	D
`on button pressed` is an event; `if` checks the state at that instant	`on button pressed` only works on V1	`if button is pressed` can only be used once in a program	There is no difference

3 Which new hardware input on micro:bit V2 allows touch sensing without connecting to GND?

A	B	C	D
The edge connector pin 0 only	The gold touch logo at the top of the board	The plastic casing	The battery holder

4 Which two event blocks are available specifically for the capacitive touch logo in MakeCode?

A	B	C	D
`on logo touched` and `on logo released`	`on logo rotated` and `on logo dropped`	`on logo heated` and `on logo cooled`	`on logo click` and `on logo double click`

5 If you want an animation frame to repeat exactly 4 times in a loop, which block do you use?

A) `forever` B) `repeat 4 times` C) `while true` D) `pause (4)`

6 Which pin is button A wired to inside the board?

A) P5 B) P11 C) P0 D) P2

7 Which block runs the moment you lift your finger off the gold logo?

A) `on logo touched` B) `on logo released` C) `on button A released`
D) `on shake`

8 Why does the V2 touch logo work without holding a GND pin as well?

A	B	C	D
It senses the charge in your body	A tiny switch sits under it	It reads the light level	It listens with the microphone

End of assignment · Check your answers against the chapter at gurujazzy.com/subjects/microbit/chapter-3-buttons-and-touch/