C2

Displaying with the 5×5 LED Matrix

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 · Text and numbers

1. Build the program below and run it. Then move the `show string` block from `on start` into `forever` and run it again. Write what changes.

```
on start:
    show string "Hello!"
```

2. Change the message to your own name, then to your class. Which message takes longest to scroll, and why?

3. Make the board count 1, 2, 3 over and over with `show number`. How long does one number stay on the screen before the next appears?

Activity · Pictures on 25 LEDs

4. Open the `show icon` list and count the icons. Pick three and write what you would use each one for in a program.

5 Draw your own 5×5 picture in the grid below by shading the squares you want lit, then build it with `show leds`.

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6 Write the `plot x y` block that lights the LED in the top-left corner, and the one that lights the bottom-right corner.

Activity · The running stickman

7 Build the two-frame running figure from the chapter, with `pause (ms) 100` between the frames. Then change the pause to 500 and to 0. Work out how long each frame stays on screen each time (remember `show leds` holds for 400 ms), then write what the figure looks like.

8 Add a third frame of your own so the figure also waves. Describe the frame you drew.

Check yourself

1. `show leds` already holds each frame for 400 ms. What does adding `pause (ms) 100` after each frame change?

2. What does `clear screen` do, and when would you need it?

3. Give one job that suits `show icon` better than `show leds`, and one that suits `show leds` better.

4. A message scrolls past before anyone can read it. Write two ways to fix that.

5. The display has 25 LEDs in 5 rows and 5 columns. Write the coordinates of the LED exactly in the middle.

Chapter quiz

1. How many individual red LEDs make up the micro:bit display screen?

   A) 10 LEDs B) 16 LEDs C) 25 LEDs (5 × 5 grid) D) 64 LEDs (8 × 8 grid)

2. What happens if you place a `show string "Hello"` block inside `on start` vs inside `forever`?

A	B	C	D
Both loop forever	`on start` scrolls it once at boot; `forever` repeats it endlessly	`on start` shows text backwards	`forever` disables button presses

3 How many preset graphic icons are included in the MakeCode `show icon` block drop-down?

A) 5 icons B) 12 icons C) 40 preset icons D) 100 icons

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4 Which MakeCode block allows you to toggle individual LEDs on and off to draw any custom pattern?

A) `show number` B) `show leds` C) `plot bar graph` D) `clear screen`

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5 `show leds` then `pause (ms) 100`: how long does each frame stay on the screen?

A) 100 ms B) 400 ms C) 500 ms D) 1 second

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6 What is the purpose of the `clear screen` block?

A	B	C	D
It deletes the compiled hex file	It turns off all 25 LEDs on the matrix	It resets the board clock	It clears browser cache in WebUSB

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7 Which block lights one single LED at a row and column you choose?

A) `show leds` B) `plot x y` C) `show icon` D) `clear screen`

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8 Where is pixel (0, 0) on the 5×5 display?

A) Top left B) The centre C) Bottom left D) Top right

End of assignment · Check your answers against the chapter at gurujazzy.com/subjects/microbit/chapter-2-led-display/