Instructions:

Shake the micro:bit and a number will appear for 3 seconds. This is the truth table number. Fill in the table for your truth table number by pressing the buttons on the micro:bit and recording what you see on the screen.

|  |  |  |
| --- | --- | --- |
| Truth table 1 | | |
| **Button A pressed?** | **Button B pressed?** | **What’s on screen?** |
| No | No |  |
| No | Yes |  |
| Yes | No |  |
| Yes | Yes |  |

The next table has the same combinations of button presses, but they’re written as 1 (for yes – the button is pressed) or 0 (for no – the button isn’t pressed)

|  |  |  |
| --- | --- | --- |
| Truth table 2 | | |
| **Button A pressed?** | **Button B pressed?** | **What’s on screen?** |
| 0 | 0 |  |
| 0 | 1 |  |
| 1 | 0 |  |
| 1 | 1 |  |

|  |  |  |
| --- | --- | --- |
| Truth table 3 | | |
| **Button A pressed?** | **Button B pressed?** | **What’s on screen?** |
| 0 | 0 |  |
| 0 | 1 |  |
| 1 | 0 |  |
| 1 | 1 |  |

For the remaining truth tables, you need to write in the 0s and 1s yourself

|  |  |  |
| --- | --- | --- |
| Truth table 4 | | |
| **Button A pressed?** | **Button B pressed?** | **What’s on screen?** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| Truth table 5 | | |
| **Button A pressed?** | **Button B pressed?** | **What’s on screen?** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| Truth table 6 | | |
| **Button A pressed?** | **Button B pressed?** | **What’s on screen?** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Discussion questions

1. What patterns can you spot between the tables?
2. The three main logic gates are called **AND**, **NOT** and **OR**.
3. Which table(s) show a tick when buttons A **AND** B are pressed?
4. Which table(s) show a tick when buttons A **OR** B are pressed?
5. Which table(s) show a tick when button A is **NOT** pressed?
6. Which table(s) show a tick when button B is NOT pressed?

1. AND, NOT and OR gates each have a symbol. Find out which symbol represents each logic gate:

|  |  |
| --- | --- |
| **Symbol** | **AND, NOT or OR?** |
|  |  |
|  |  |
|  |  |