**CPU Worksheet:**

Your challenge as the **Central Processing Unit (CPU)** is to execute the following program and tell the other components what they need to do:

1. Math instructions, such as ‘Add 4 to x’ and ‘Subtract 6 from x’, should be sent to the **Arithmetic Logic Unit (ALU)**.
2. Drawing instructions, such as ‘Pot (x,y), should be sent to the **Display**.

**Top tip:** Tick of each instruction once it has been executed.

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* Add 1 to x
* Plot x and y
* Add 2 to x
* Plot x and y
* Subtract 3 from x
* Add 1 to y
* Plot x and y
* Add 2 to x
* Plot x and y
* Add 2 to x
* Plot x and y
* Subtract 4 from x
* Add 1 to y
* Plot x and y
* Add 4 to x
* Plot x and y
* Subtract 3 from x
* Add 1 to y
* Plot x and y
* Add 2 to x
* Plot x and y
* Subtract 1 from x
* Add 1 to y
* Plot x and y

**ALU/Memory Worksheet**

Your challenge, as the ALU, is to perform simple addition and subtraction operations on **x** and **y** coordinates, as instructed by the CPU, and pass these on to the display.

Use the table below to record the values. Initially, both **x** and **y** are set to 0.

|  |  |
| --- | --- |
| **x** | **y** |
| 0 | 0 |
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**Display Worksheet**

Your challenge, as the Display, is to wait until the CPU tells you to plot (shade in) a set of (**x,y**) coordinates stored in the ALU/memory.

Don’t show your image to the rest of your group until the CPU has finished running the entire program.

**y**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3  **x** | 4 |
| 1 |  |  |  |  |
| 2 |  |  |  |  |
| 3 |  |  |  |  |
| 4 |  |  |  |  |