

Compass Worksheet

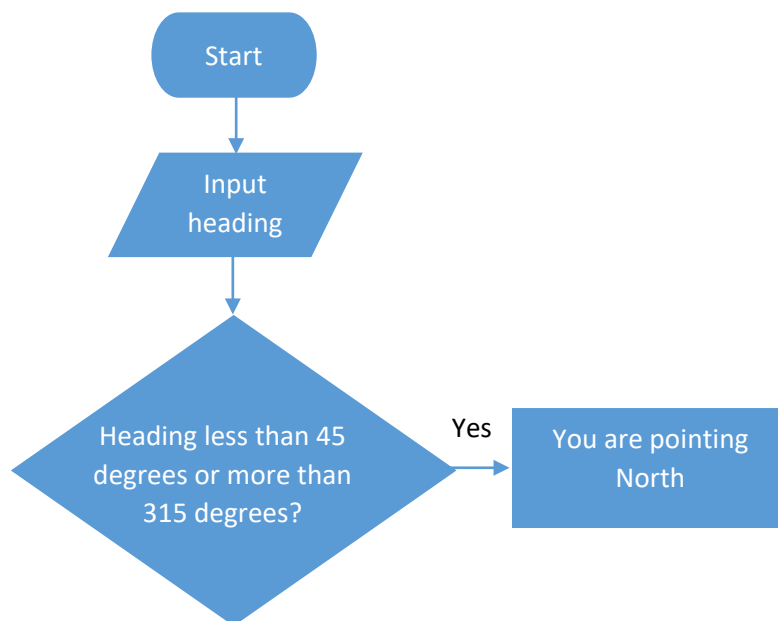
The first step in building your compass is to plan the algorithm. You will use a flow chart to do this. Use the following rules to help you:

- **If** the compass heading is less than 45 degrees or more than 315 degrees **then** you are pointing North
- **If** the compass heading is less than 135 degrees **then** you are pointing East
- **If** the compass heading is less than 225 degrees **then** you are pointing South
- **Else** you are pointing West

You should use a parallelogram to represent the input which is the compass heading.

You should then add in any decisions using a diamond shape.

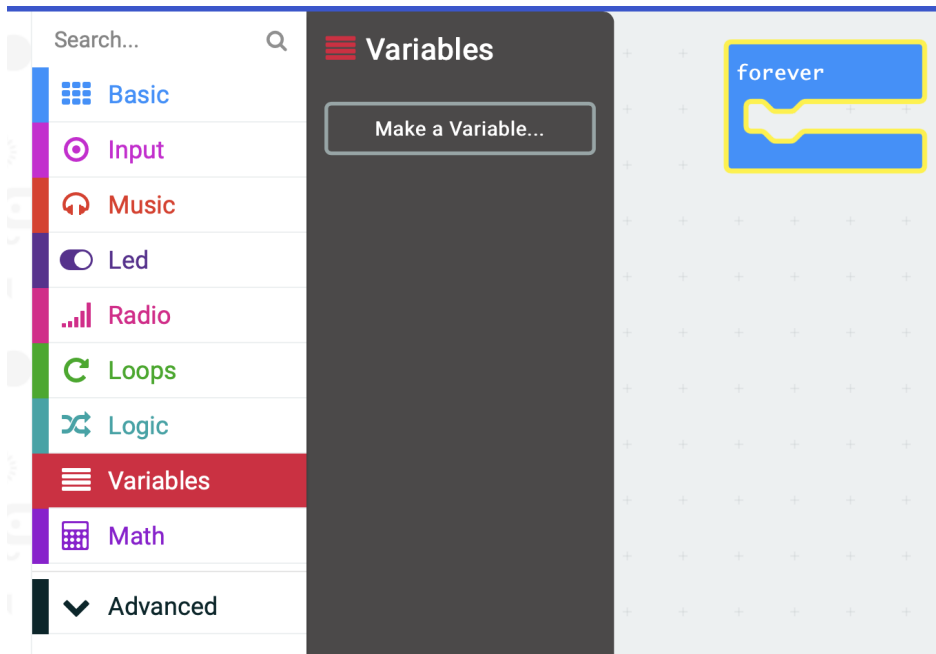
You should use a process to display the direction that you are heading. The first steps have been completed for you.



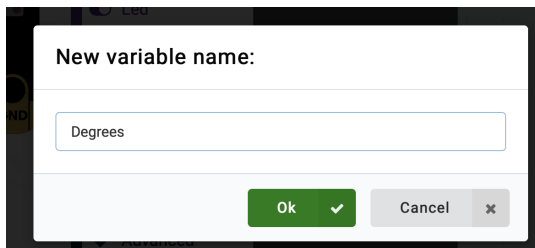
Now that you have planned your algorithm you can now program your micro:bit.

Visit the MakeCode website. <https://makecode.microbit.org/#editor>

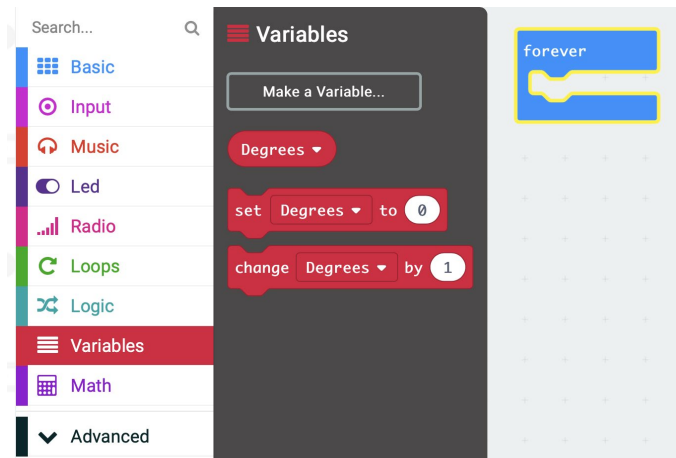
The first step is to create a new variable to store the compass heading. Click on the **Variables** block and then click on **Make a Variable**.



You will see a dialogue box appear where you can type in the name of your variable. Create a new variable called *Degrees* and click on ok.



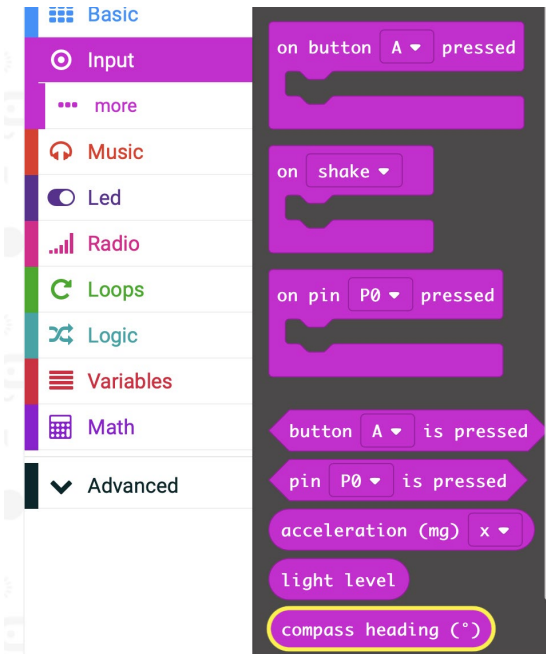
You will then see a number of options appear in the **Variables** group.



Drag the **set degrees** block inside of the **forever** loop.



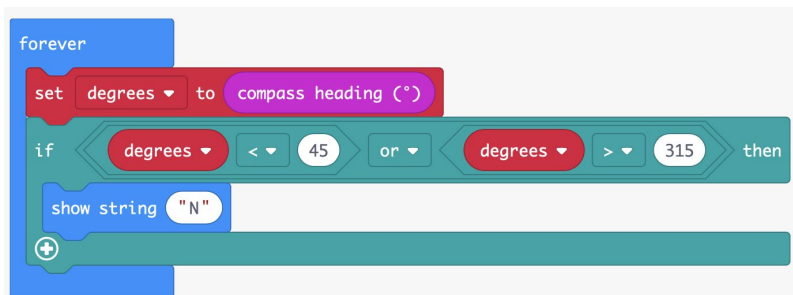
At the moment it will always set *Degrees* to 0. As we want it to read the compass heading you need to click on the **Input** group and then select the **compass heading** option.



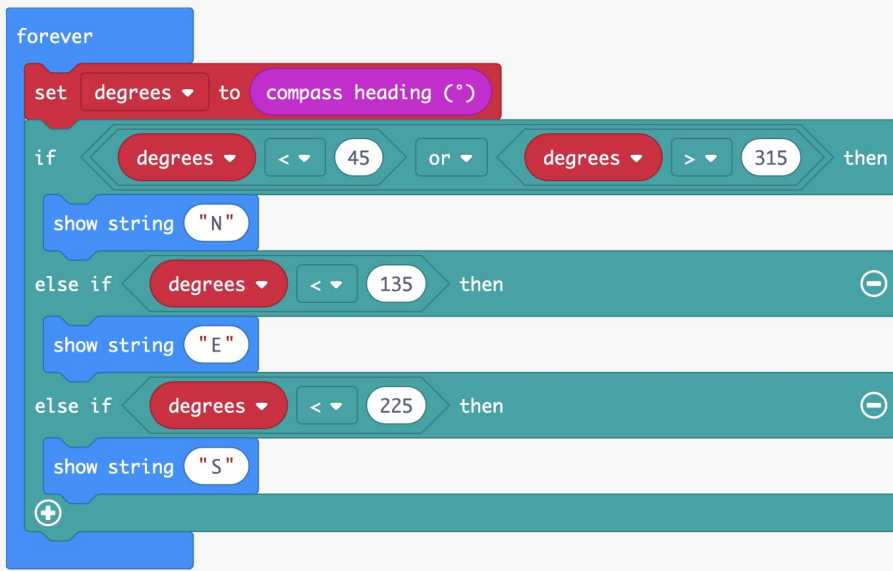
You should then drag the **compass heading** so that it appears instead of the 0.



Using the **Logic** category, you should now build your first **if** statement.



You now need to continue to add additional options for the four directions, North, South, East and West.



Congratulations, you have now developed your own compass using the micro:bit.

Stretch Task

Can you add further options to cover additional directions? Try to develop your code to also include: North East, South East, South West and North West.