Compass

micro:bit

https://makecode.microbit.org

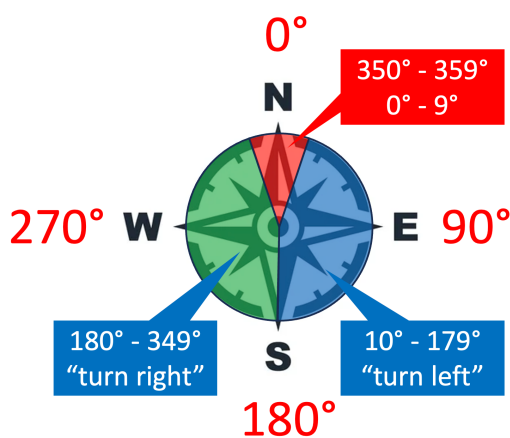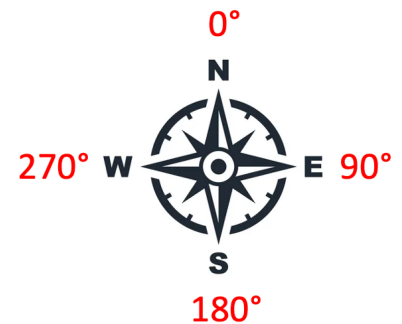*The micro:bit has a built in compass – which way is North?*

1) Open **https://makecode.microbit.org**
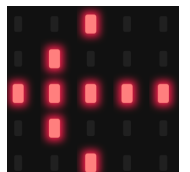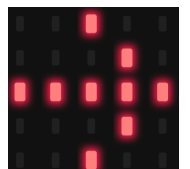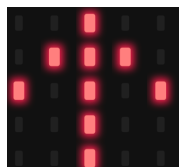2) **+New Project**

*There are 360 degrees in a circle. The micro:bit measures the compass **heading** from 0 to 359 degrees with its **magnetometer**.*

When the compass heading is zero it's pointing towards the North Pole. Allow around 10 degrees each side.
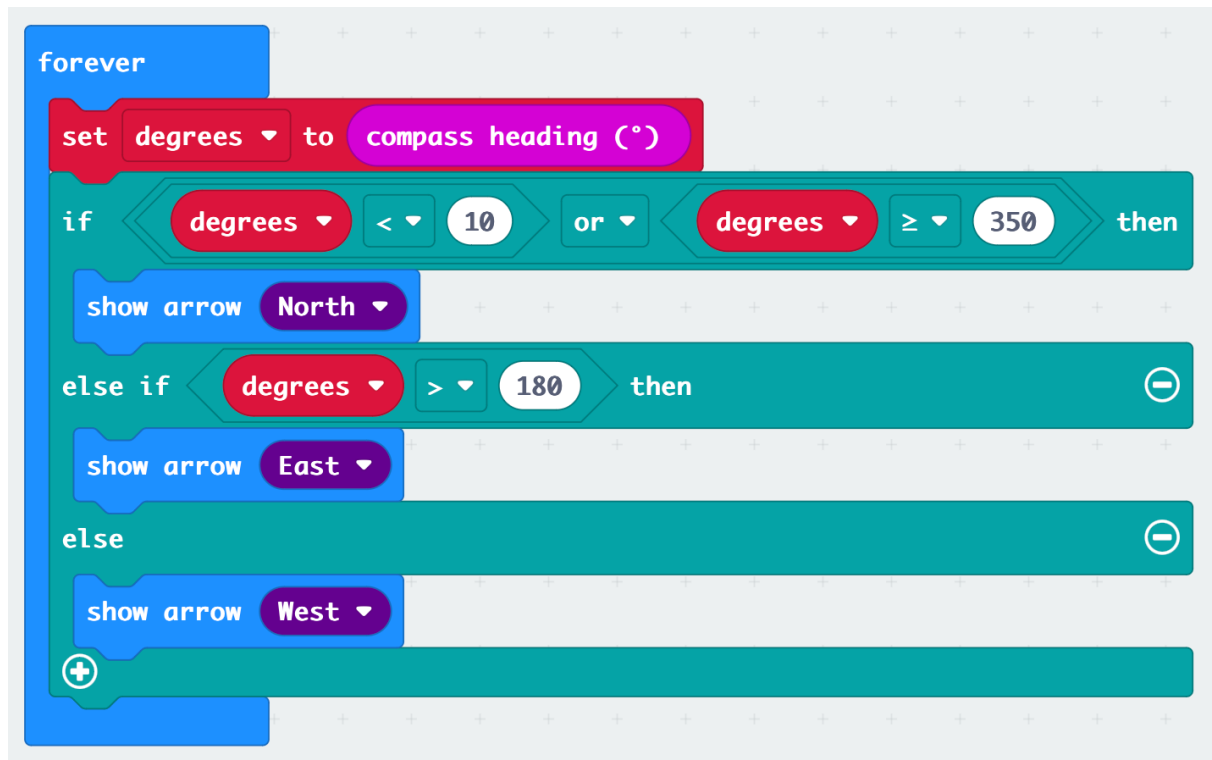
3) Create a variable, **degrees**.
4) **Set degrees to the compass heading**
5) **Show** an upward **North** arrow **if** you're in the red segment above.
6) Put the **OR** in first.
7) On one side of the **OR** put **degrees<10** (less than 10).
8) One the other side put **degrees≧350** (greater than or equal to)
9) Add more slots to the if block by pressing the + button at the bottom of the block.

The if block now only has to distinguish between less than or greater than 180 degrees.

10) Show an arrow pointing to the right (**show arrow East**) if you're in the green segment above, **else if degrees>180**
11) The *only* remaining case is the blue segment, so you don't need another if, **else show arrow West** telling you to turn left.

The code is over the page…

```
forever
  set degrees ▾ to compass heading (°)
  if  < degrees ▾ < ▾ 10 > or ▾ < degrees ▾ ≥ ▾ 350 >  then
    show arrow  North ▾
  else if < degrees ▾ > ▾ 180 >  then ⊖
    show arrow  East ▾
  else ⊖
    show arrow  West ▾
  ⊕
```

12) Download the code to the micro:bit.

Can you find the North Pole?

Save your code on a USB drive.