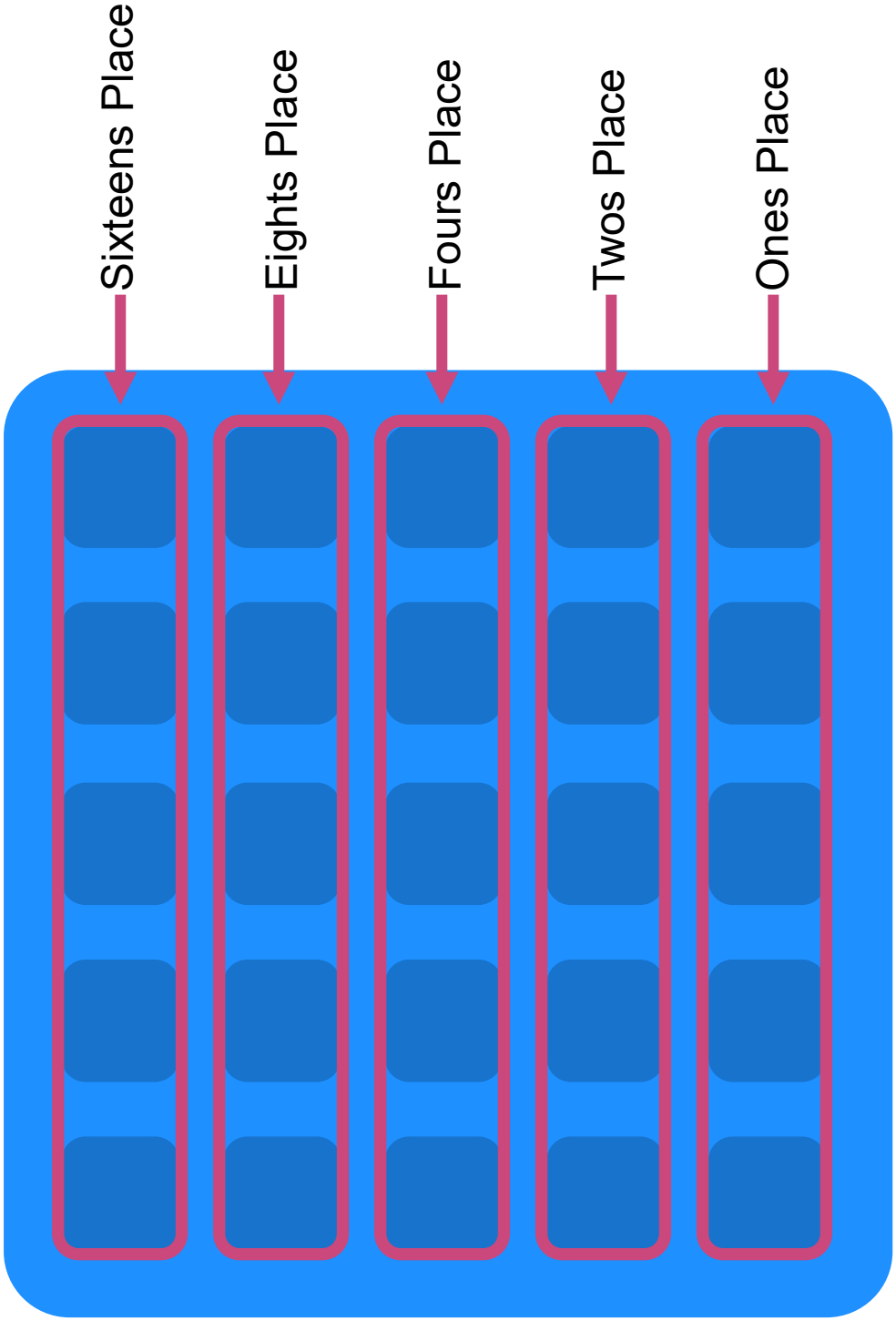
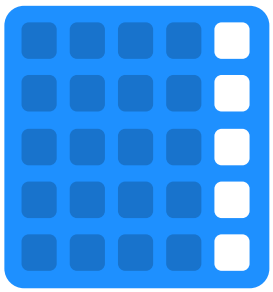
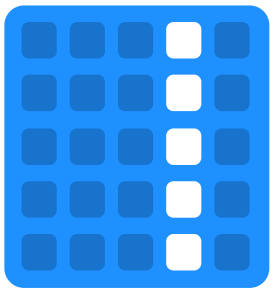
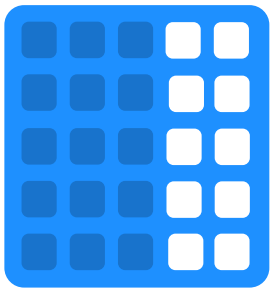
Using the BBC Microbit's dice logic and a bit of customization, we can use binary counting to increase the range of the die. Below is a suggested way to arrange the binary place values on the LED array.

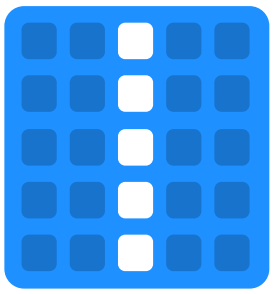


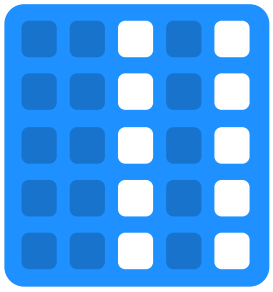
Below is an example of how the numbers 1-20 can be displayed in a random dice roll program using binary numerals.

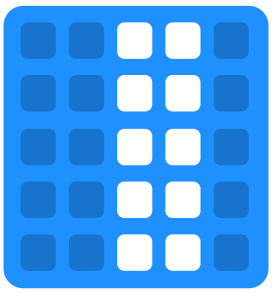
1 

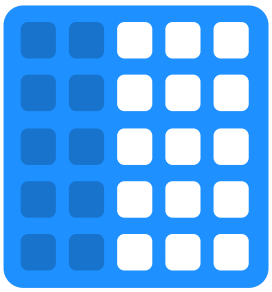
2 

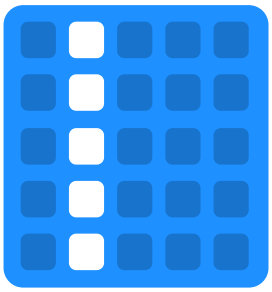
3 

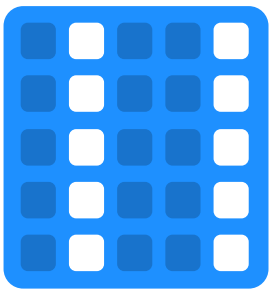
4 

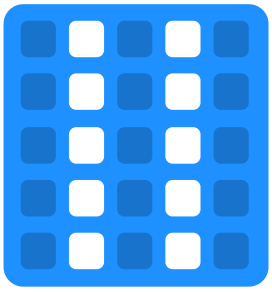
5 

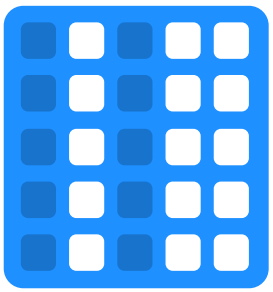
6 

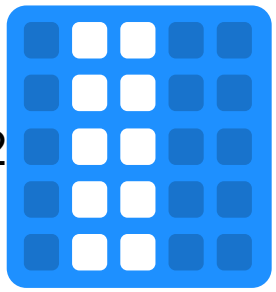
7 

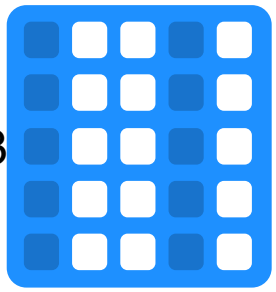
8 

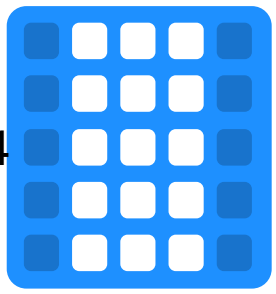
9 

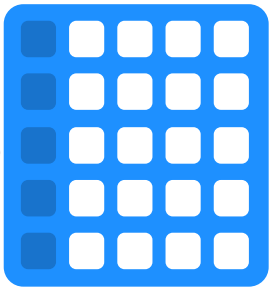
10 

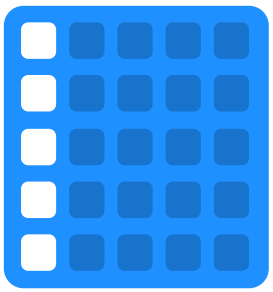
11 

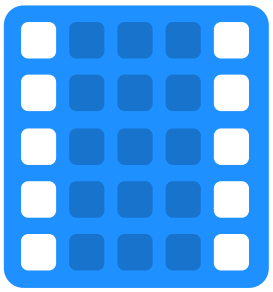
12 

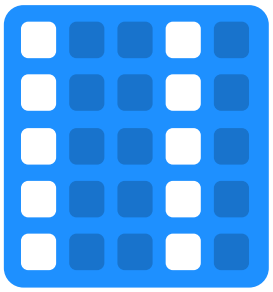
13 

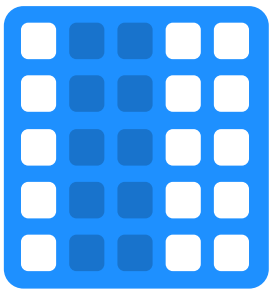
14 

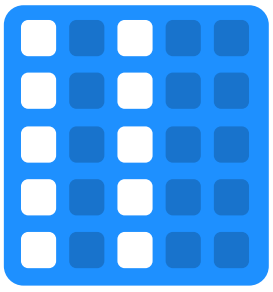
15 

16 

17 

18 

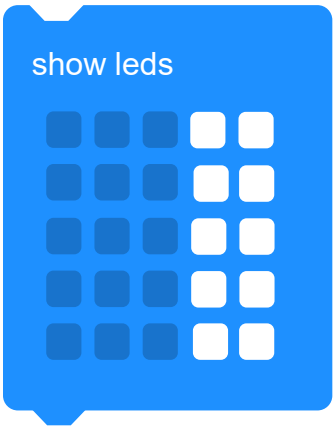
19 

20 

Code a micro:bit to make a binary dice. Use the tutorial on making the decimal dice (1-6), which is shown below, and apply it to the binary dice (1-20).

Make sure to adjust the range of your random number

Replace each of the show number blocks with its replacement from the previous page



Remember to add more else if statements to allow for 20 different dice faces

If you're up for a challenge, you can try to do the same project in either Javascript or Python!

We know that when we roll a 20 sided dice, we can expect that each side has a 1/20 chance of coming up. Let's run the program and roll the dice 100 times and see what our data form this experiment gives us. What if we combine all the data from everyone in the class? Use the data table below to collect your results.

Digital 20-Sided Dice Roll		
DICE SIDE	NUMBER OF TIMES ROLLED	CLASS TOTALS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
TOTAL NUMBER OF ROLLS		