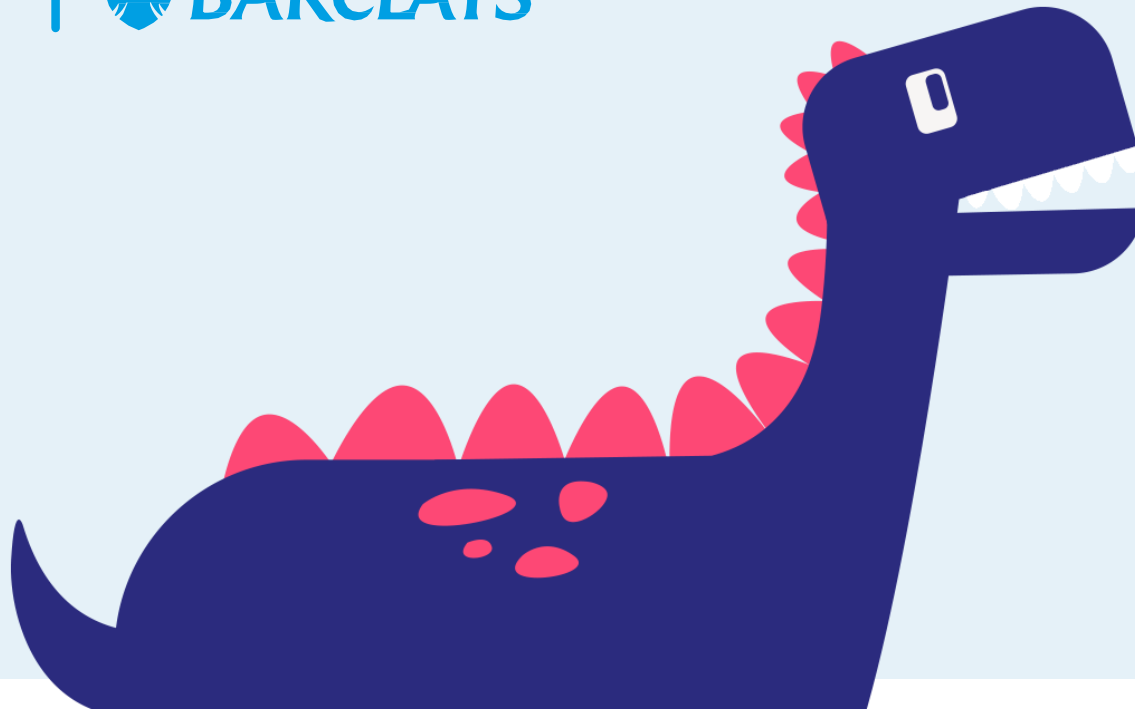
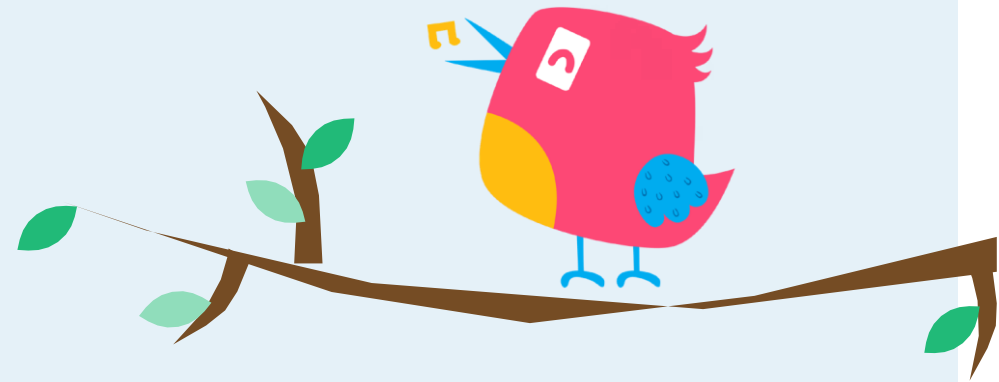


Student workbook

# Sequencing with VEXcode VR

Code Playground



# Sequencing with VEXcode VR


## VEXcode VR project

In this session, we will investigate sequencing by coding the VEXcode VR robot to complete various challenges. By completing these challenges you will learn to –

- be able to draw with the VR robot using the pen tool
- plan your code by using ‘pseudocode’ to test your ideas
- create more complex sequences of instructions to solve specific challenges

This project is designed for the VEXcode VR system, you can access it here - <https://vr.vex.com/>

Hope you enjoy the project!

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11		13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

# Sequencing with VEXcode VR

VEXcode VR project

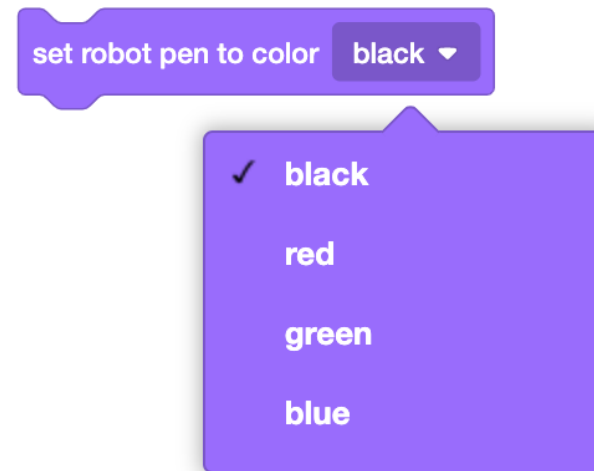
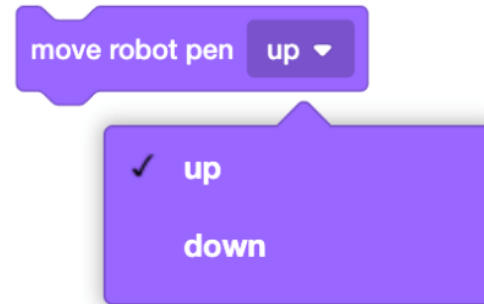
## Step 1

The VEXcode VR robot has a pen that can be used to draw lines.

The pen commands can be found under the purple Looks menu in the toolbox. There are two commands that you can use.

The move robot pen block can be set to up or down. Down to make the robot draw when it moves, up to stop it drawing when it moves.

The set robot pen to color block allows you to choose a colour for the pen to draw.

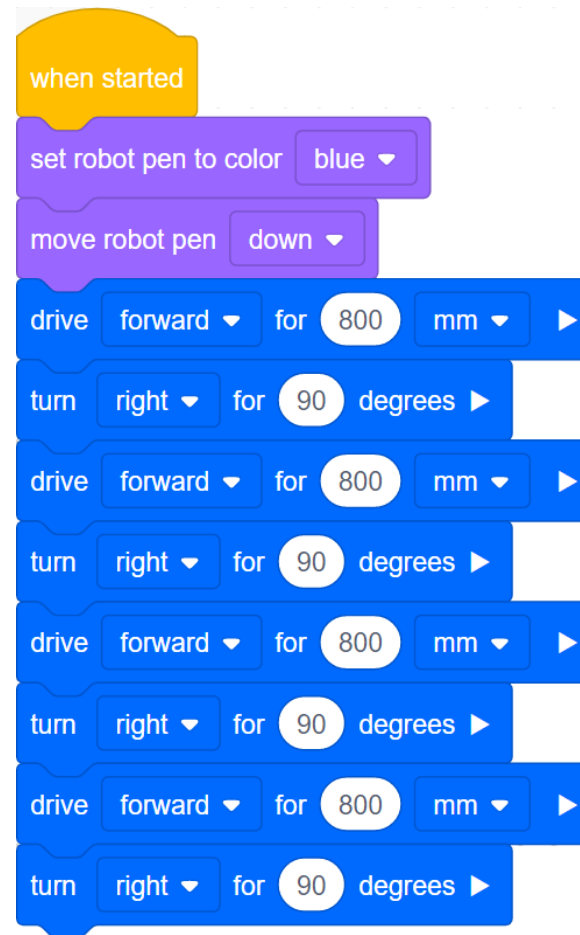


# Sequencing with VEXcode VR

VEXcode VR project

## Step 2

Draw a square using the pen tool with this code.



# Sequencing with VEXcode VR

VEXcode VR project

## Step 3

For an extra challenge, see if you can make each line of your square a different colour.



# Sequencing with VEXcode VR

VEXcode VR project

## Step 4

Code is the very specific instructions that we give a computer or robot to perform tasks. These instructions need to be written in a way that the computer understands otherwise it will not work.

We can use pseudocode to help us plan our code for the robot. The word pseudo means something that looks like or imitates something.

This means jotting down the instructions in a way that is easy to read for humans, but not for the robot.

Here is some pseudo code and the real code for making the robot draw a blue square

```
make pen blue  
put pen down  
drive forward 4 squares  
turn right 90 degrees  
drive forward 4 squares  
turn right 90 degrees  
drive forward 4 squares  
turn right 90 degrees  
drive forward 4 squares  
turn right 90 degrees
```



# Sequencing with VEXcode VR

VEXcode VR project


## Step 5

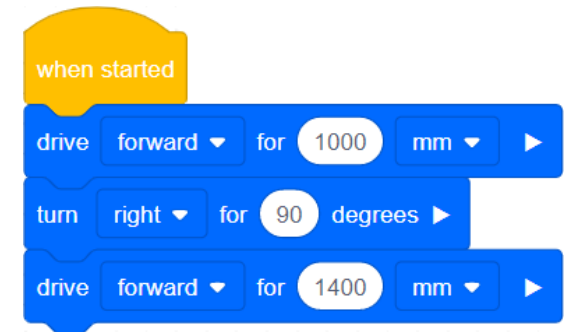
Now we are going to make the robot drive to a specific place on the playground.

Create a new blocks project and choose the Number Grid Map Playground.

Your first task is to make the robot drive to the number 58 on the number grid. You can use pseudocode to plan your movements before creating your code.

\*\*Top tip - Remember, the squares are 200mm each. This can help you plan how far you need to drive.

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
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31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
	2	3	4	5	6	7	8	9	10



# Sequencing with VEXcode VR

VEXcode VR project

## Step 6

Now, drive to number 58 first, and then to number 72. Draw a line behind the robot as you go to show the route that you took.






# Sequencing with VEXcode VR

VEXcode VR project

## Step 7

For your final task, choose 4 numbers between 1 and 100 at random and write some code to make the robot drive through all 4 of the numbers.

Draw a line behind the robot as you go and change the colour of the line each time you arrive at one of your numbers.

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11		13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

```

when started
  move robot pen down
  set robot pen to color black
  drive forward for 600 mm
  turn right for 90 degrees
  drive forward for 1400 mm
  turn left for 90 degrees
  set robot pen to color red
  drive forward for 800 mm
  turn left for 90 degrees
  drive forward for 1000 mm
  turn left for 90 degrees
  set robot pen to color green
  drive forward for 600 mm
  turn left for 90 degrees
  drive forward for 600 mm
  set robot pen to color blue
  turn right for 90 degrees
  drive forward for 600 mm
  turn right for 90 degrees
  drive forward for 800 mm
  
```

# Sequencing with VEXcode VR

VEXcode VR project

## Level up!

- Can you write one of your previous projects using pseudocode
- Can you draw a line through 10 different numbers
- Can you make your code more efficient?

# Notes

## Code Playground

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