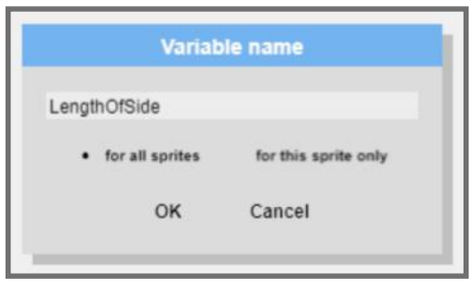
Turtlestitch Skills: Variables

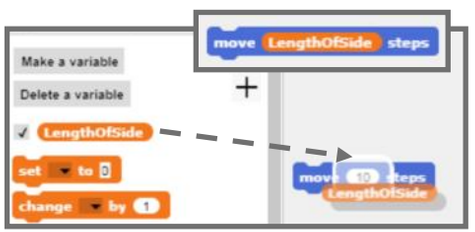
Creating your own variable

A variable is like a labelled box that you can store a value in. (A value could be a number, a letter, a symbol or a string of these.) You can use this value in your instructions. You can also change the value that is in the box. In this example, we will stitch a spiral with a variable that sets how far the turtle moves.



1. Click on the variables tab, then select 'Make a variable'.

2. The variable's name is like a label on a box. Give your variable a meaningful name describing what you will use it for, e.g. 'LengthOfSide' or 'AngleOfTurn'. Click OK.



3. In these blocks, you can click on the black arrow to select the variable whose value you want to set or change.

4. You can drag and drop your variable into blue motion blocks.

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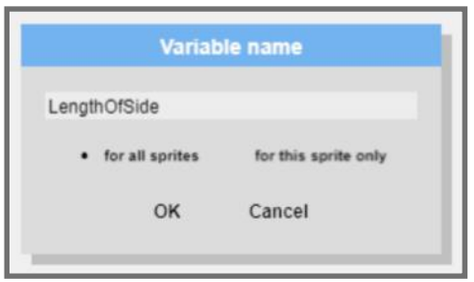

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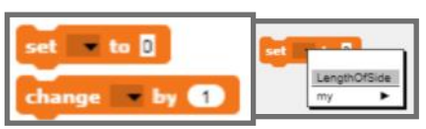

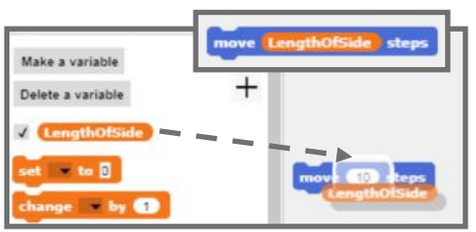

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4. You can drag and drop your variable into blue motion blocks.

Both of these programs produce the same spiral, but with variables, we can use fewer blocks to get the same result.

```
running stitch by 10 steps
move 50 steps
turn ↻ 120 degrees
move 80 steps
turn ↻ 120 degrees
move 70 steps
turn ↻ 120 degrees
move 80 steps
turn ↻ 120 degrees
move 90 steps
turn ↻ 120 degrees
move 100 steps
turn ↻ 120 degrees
move 110 steps
turn ↻ 120 degrees
move 120 steps
turn ↻ 120 degrees
move 130 steps
turn ↻ 120 degrees
```

The value of the variable LengthOfSide is set to 50.

```
running stitch by 10 steps
set LengthOfSide to 50
repeat 9
  move LengthOfSide steps
  turn ↻ 120 degrees
  change LengthOfSide by 10
```

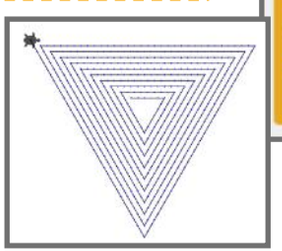
At first, the turtle moves 50 steps.

The value of LengthofSide is increased by 10, so the turtle moves further.

The commands are repeated; the value of the variable continues to increase. It does not go back down to 50 because that command is not in the repeat loop.

It is easy to make a bigger spiral by changing the number of repetitions.

```
running stitch by 10 steps
set LengthOfSide to 50
repeat 30
  move LengthOfSide steps
  turn ↻ 120 degrees
  change LengthOfSide by 10
```



Taking it further...

Think about how using variables can make your code simpler.

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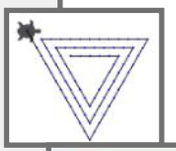

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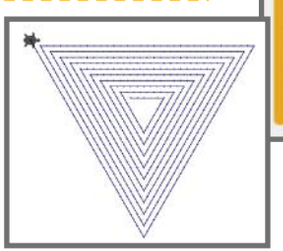

Taking it further...

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www.warwick.ac.uk/wmgoutreach www.warwick.ac.uk/turtlestitch