Computer Science - EduBlocks

Year 9 Term 1

Logical Thinking - Comparative Operators

==	Equal to
!=	Not equal to
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Arithmetic Operators

+	Addition
—	Subtraction
*	Multiplication
/	Division
/ /	Integer division
%	Remainder
* *	Exponent

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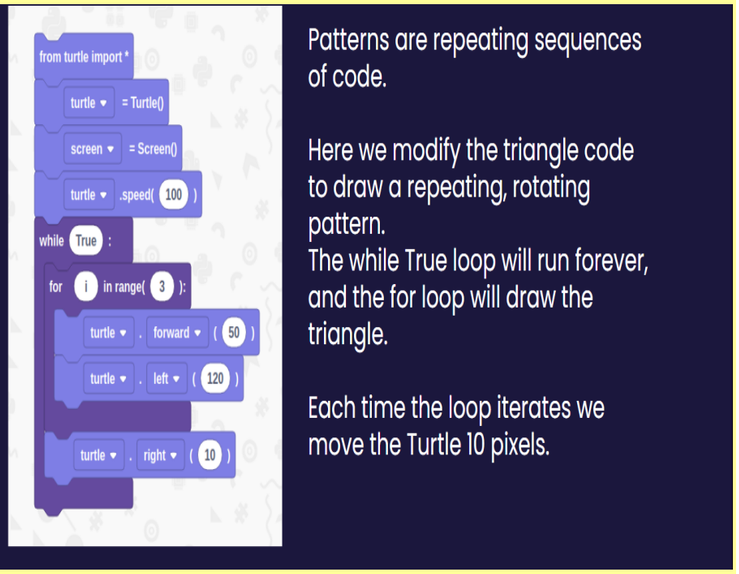
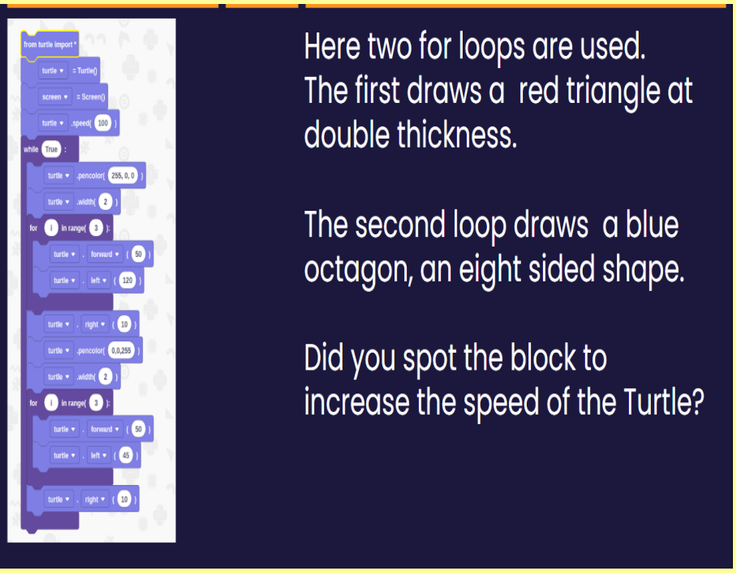
Key Terms

EduBlocks	A visual block based programming tool that helps to introduce text based programming languages.
Python	A text based programming language.
Programming Code	The process of writing computer programs. The instructions that you write to program a computer.
Algorithm	A set of rules / instructions.
Sequence	Parts of the code that run in order and the instructions for our code.
Selection	Using logical tests to change the flow of the sequence.
Iteration	Using loops to repeat sequences of code. Code is repeated (looped) while something is true or for a number of times.
Variable	A value that can be changed (speed, lives, score). Function Inbuilt code that performs a specific task.
Data Type: String	A sequence of characters that can include letters, numbers, symbols.
Data Type: Integer	Whole numbers, no decimal point.
Data Type: Float	Decimal Numbers.
While Loop	A **"While" Loop** is used to repeat a specific block of code an unknown number of times, until a condition is met.
For Loop	For **loop** is a programming language conditional iterative statement which is used to check for certain conditions and then repeatedly execute a block of code as long as those conditions are met.
IF, Else, Elif	The **if/else statement** executes a block of code **if** a specified **condition** is true. **If** the **condition** is false, another block of code can be executed.
Functions	A function is a command which contains the steps needed to perform a task.
Subroutines	A set of instructions designed to perform a frequently used operation within a program.

Lesson 2 - Drawing Patterns



Lesson 2 - An example Pattern



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Lesson 3 - User Inputs Data Types

In this sequence of code we use logic to draw one of two shapes on the screen.

If the user input is square, then a for loop is used to draw the shape on the screen.

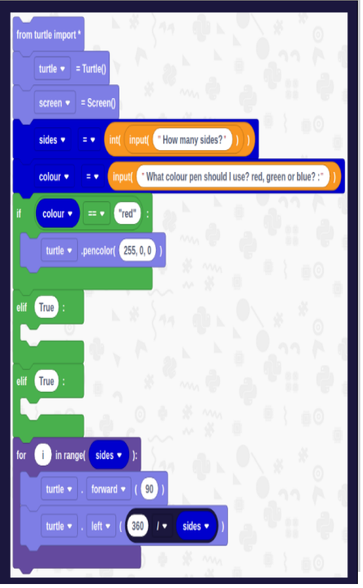
Else If the user input is circle, then a circle is drawn.

If we type in something else, then the else condition will activate and apologise to the user.

Lesson 4 - Variables

We have captured the users colour choice. But how we do we use it?
We need to use conditional tests and logic to make this work.
The green blocks are found in Logic!
We've created the test for red, can you finish the code?
Red: 255,0,0
Green: 0,255,0
Blue 0,0,255

Run the code, what happens?



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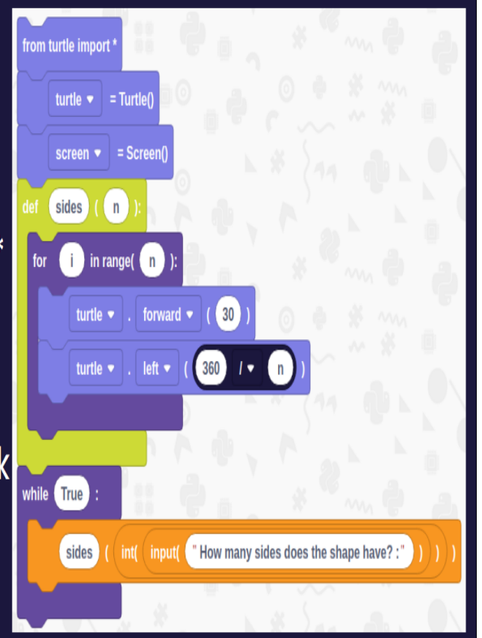
Lesson 5 - Functions

- From the Turtle blocks we need to drag:
- from turtle import *
- turtle = Turtle()
- screen = Screen()

Your code should look like this.
Click Run to test!



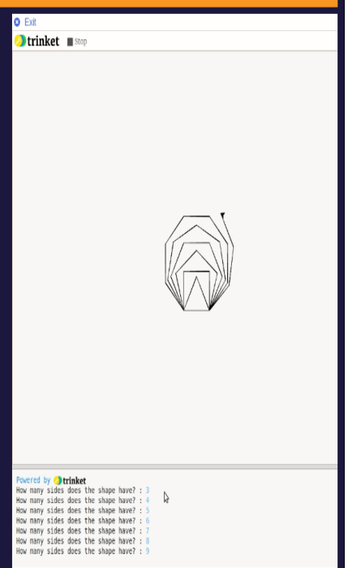
Lesson 5 - Why are Functions Useful

Why are functions useful?

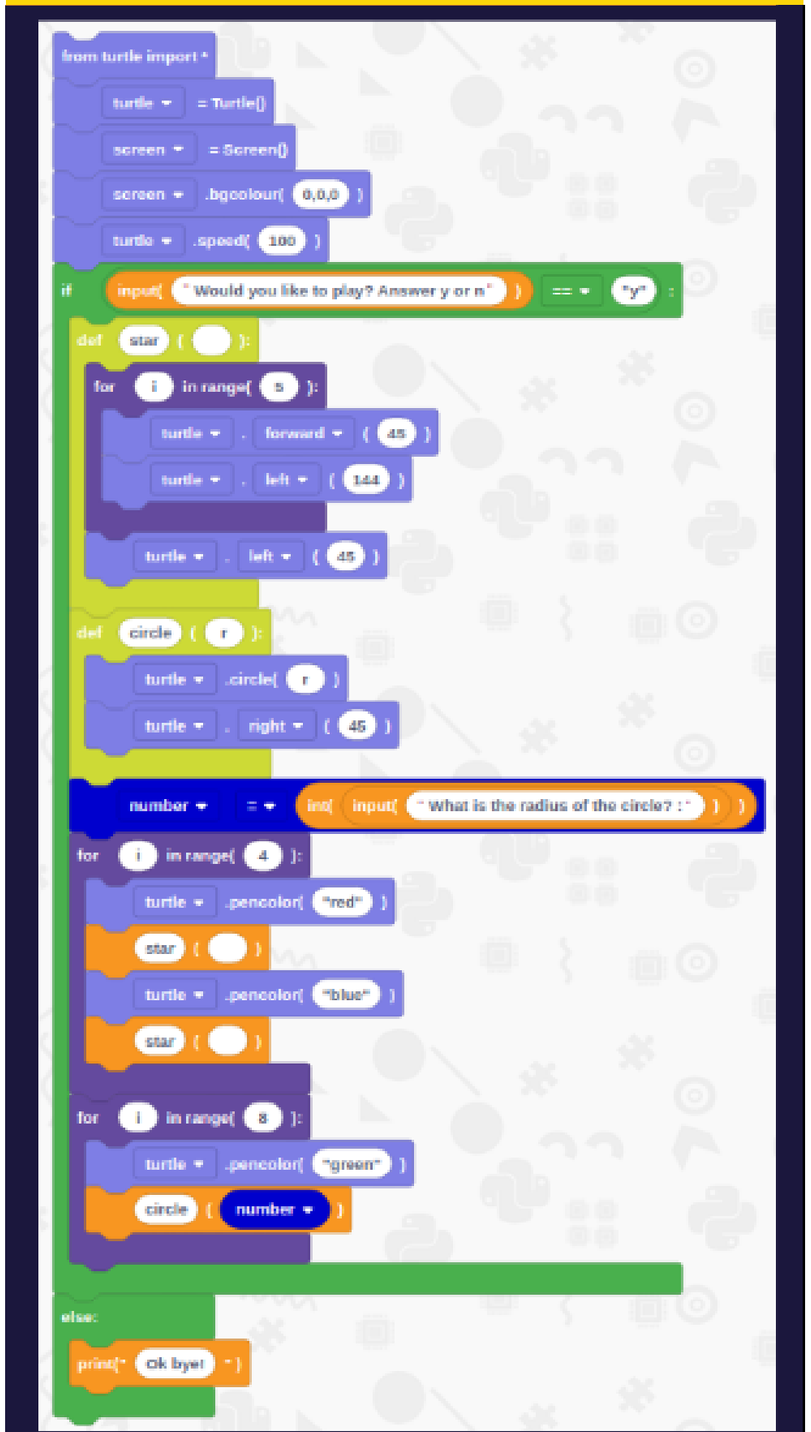
Functions are powerful tools.
They are subroutines, small sequences of code inside the main code.

We can call the function, and come out of the main code, do the function, then come back to the code.

They enable us to reuse sections of code.
They keep our code tidy, and with fewer lines to write.
In our code we can draw any shape using one section of code.



Lesson 6 - Project



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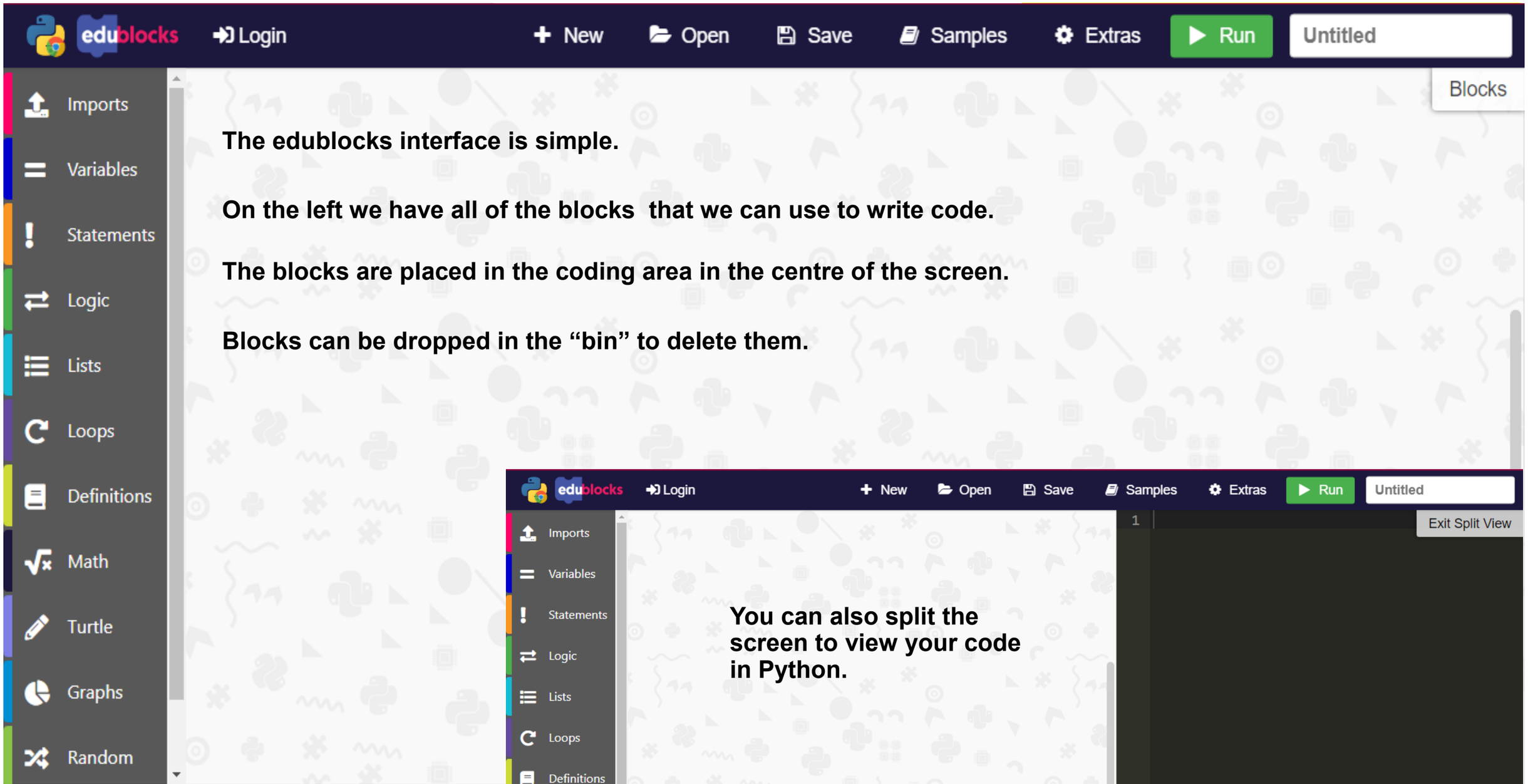

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