

Student workbook

Drawing shapes with EduBlocks

Code Playground



BARCLAYS



Drawing shapes with EduBlocks

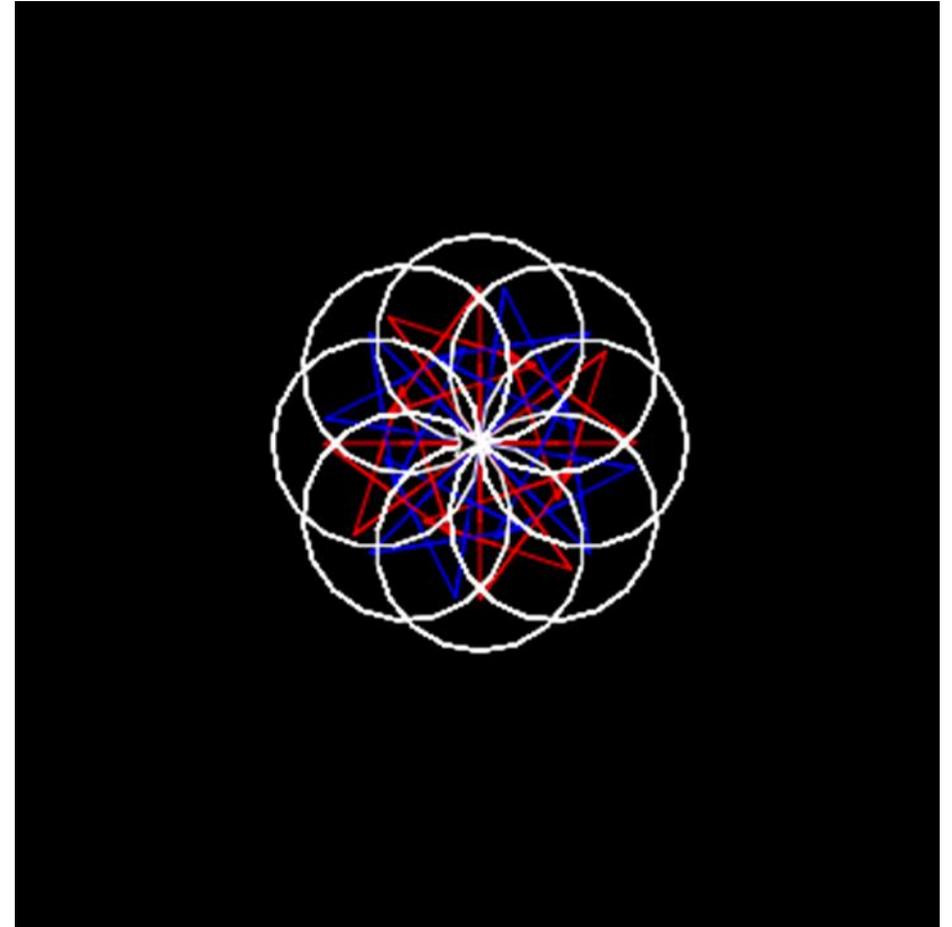
EduBlocks project

EduBlocks is a free tool that helps anyone learn how to code with text-based languages like Python, using familiar block coding as used in Scratch.

This session will allow you to use blocks to create colourful stars and circles and be able to see what block coding looks like in Python coding language.

This project is designed for EduBlocks 4.0 and will allow you to code a simple stars and circles pattern.

Hope you enjoy the project!



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Step 1

“Turtle” is a Python feature like a drawing board, which lets us command a pen to draw and move around the board using set functions.

To get started, we need to build the background for our pen, or turtle as we will now call it.

Import the turtle, then we need to identify the turtle and screen settings.

The numbers (255, 0, 0) in the screen colour block are the Red, Green, Blue (RGB) colour values, so:

255, 0, 0 is Red

0, 255, 0 is Green

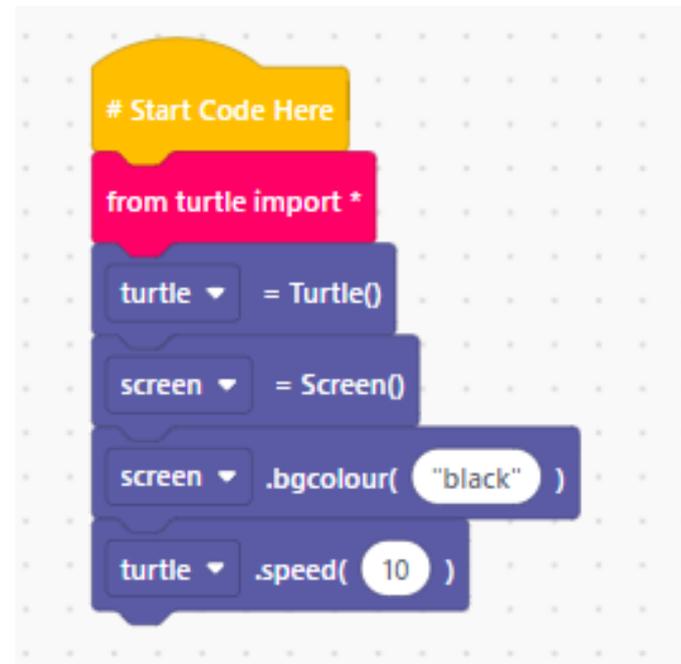
0, 0, 255 is Blue

We have changed the screen background colour to “black.”

You can experiment with the different RGB colour values to make your own, or alternatively add the name of the colour in quotation marks. Quotation symbols are used to create a string object in Python which assign it to a variable. In this code, “black” is assigned to the screen background and the list of colours to the colours variable.

The final step here is to add a block to alter the speed of the turtle.

Block code



Python code

```
1 # Start Code Here
2 from turtle import *
3 turtle = Turtle()
4 screen = Screen()
5 screen.bgcolor("black")
6 turtle.speed(10)
```

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Step 2

Now we have coded the background and defined the turtle, we need to add code to tell the turtle where to move to.

First though, we are going to ask the player if they would like to play. If they answer Y, then the code inside the if condition will run.

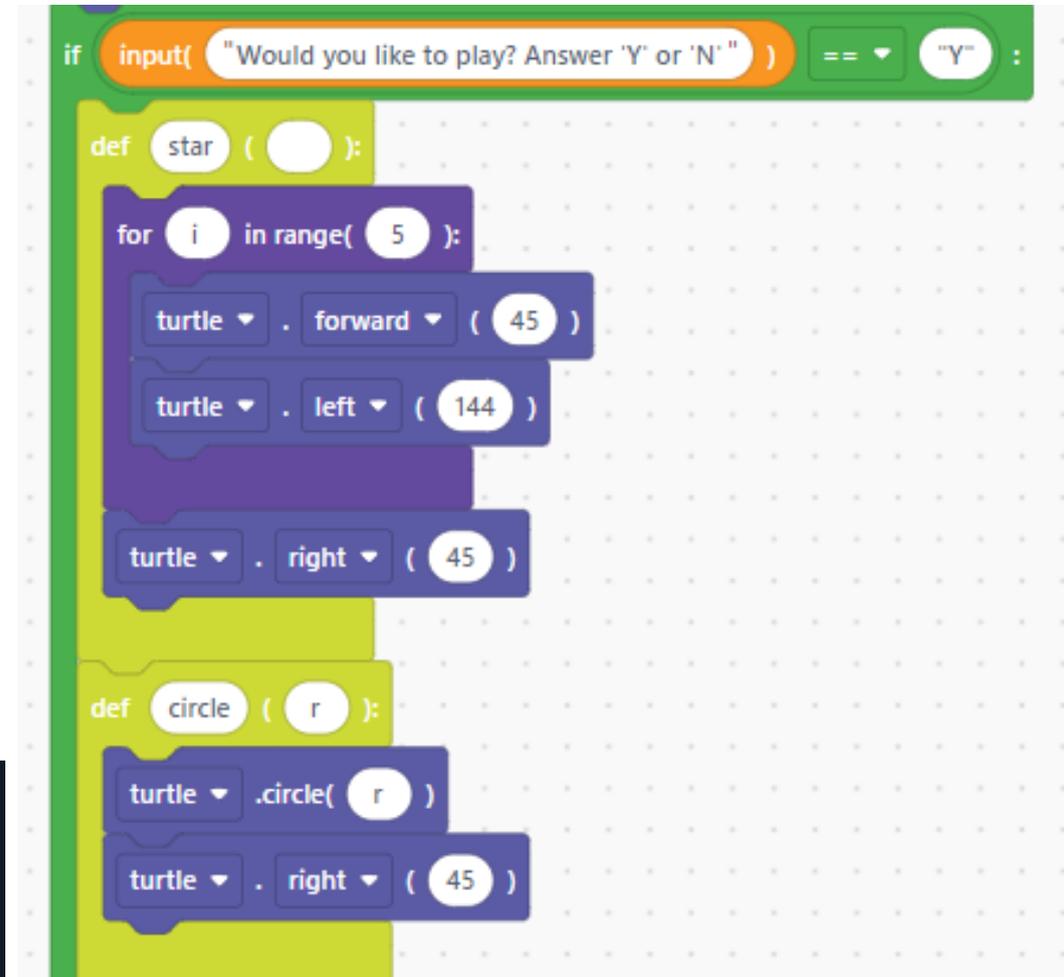
We'll start by adding the code for the stars using definition, loop and turtle movement blocks.

Then we do the same for the circles.

Python code

```
7 if input("Would you like to play? Answer 'Y' or 'N'") == "Y":
8     def star():
9         for i in range(5):
10            turtle.forward(45)
11            turtle.left(144)
12            turtle.right(45)
13     def circle(r):
14         turtle.circle(r)
15         turtle.right(45)
```

Block code



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Step 3

We now need to add code to tell the turtle what colours we would like to use. First though, we are going to ask the player what size circles they would like drawing, by using an input block and assigning the integer to a new variable called number.

Add a loop to draw 4 stars in each colour, set their colours, then add another loop to draw the 8 circles.

The number variable in the circle code will draw the size circle that the user has chosen.

We now need a separate piece of code if the player chooses N (or anything else).

By adding an else condition, we can then add some text to be printed instead.

Python code

```
16 number = input("What is the radius of your circle?")
17 for i in range(4):
18     turtle.pencolor("red")
19     star()
20     turtle.pencolor("blue")
21     star()
22 for i in range(8):
23     turtle.pencolor("white")
24     circle(number)
25 else:
26     print("OK, Bye!")
```

Block code

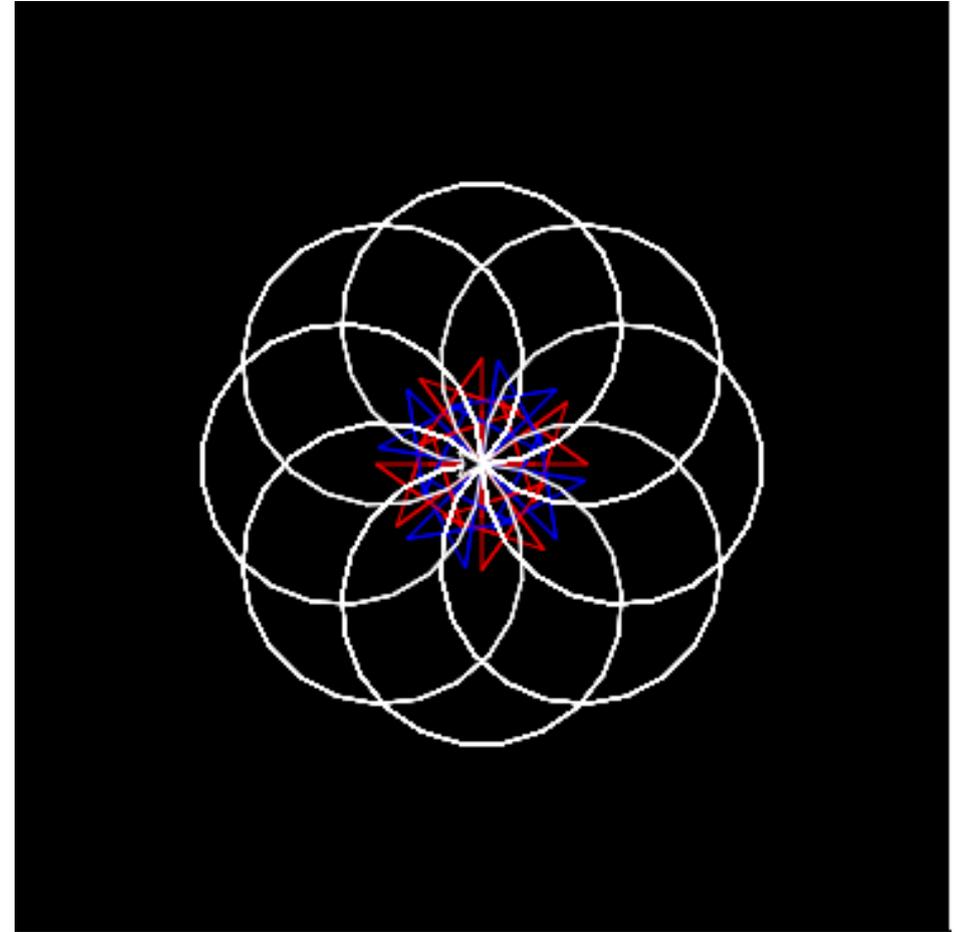
```
number = input("What is the radius of your circle?")
for i in range(4):
    turtle.pencolor("red")
    star()
    turtle.pencolor("blue")
    star()
for i in range(8):
    turtle.pencolor("white")
    circle(number)
else:
    print("OK, Bye!")
```

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Step 4

That's it! You have coded the shapes! Now run your code to see what it looks like!



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```
Would you like to play? Answer 'Y' or 'N' Y  
What is the radius of your circle? 60
```

Notes

Code Playground

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