

Coding Designs with Rotation Symmetry

Designs found in nature as well as those created by artists sometimes have rotation symmetry. We will use coding to create neat designs that have rotation symmetry.

1. Let's start with some code that creates a design of a circle of squares.

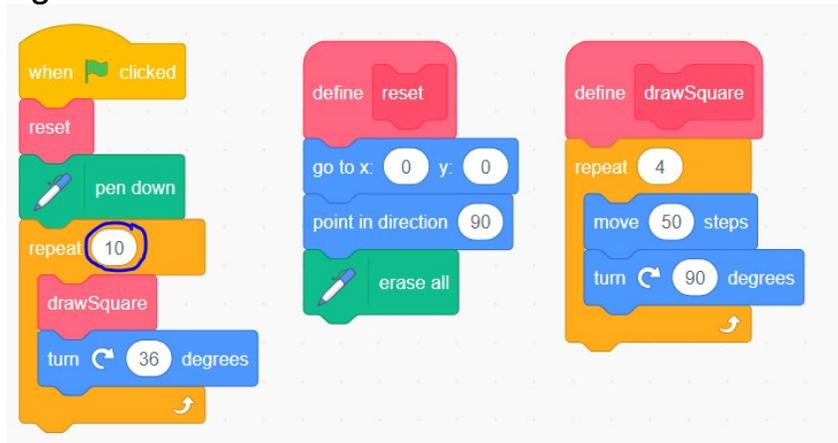
- Click the link to access Scratch: Designs and Rotation Symmetry.

<https://scratch.mit.edu/projects/879197398/editor/>

Click on the green flag.

- What is the rotation symmetry of this circle of squares design?

The code gives us a hint!



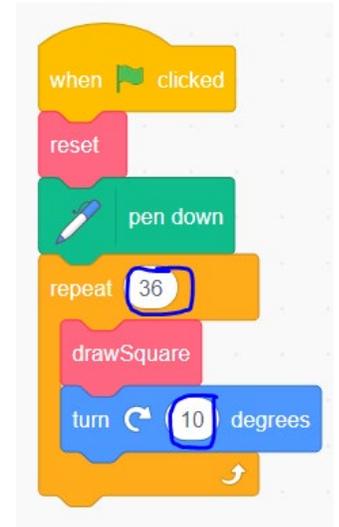
Coding Designs with Rotation Symmetry (cont'd)

2. Let's alter the code to create a design that has a rotation symmetry of 36, rather than 10.

We need to change two values to do this:

- Change the value of the repeat block to 36.
- Change the rotation angle after each square is drawn.
The product of the repeat block and turn block must be 360° . So, since the repeat is now 36, we divide 360° by 36:
 $360^\circ \div 36 = 10^\circ$
So, the new turn value is 10 degrees.

Try it out! Does it draw 36 squares in a full circle?



3. Alter the code to create other designs with a circle of squares by changing the order of rotation. Remember that the product of the value of the repeat block and the turn block must be 360° .
- Share your designs with your classmates.