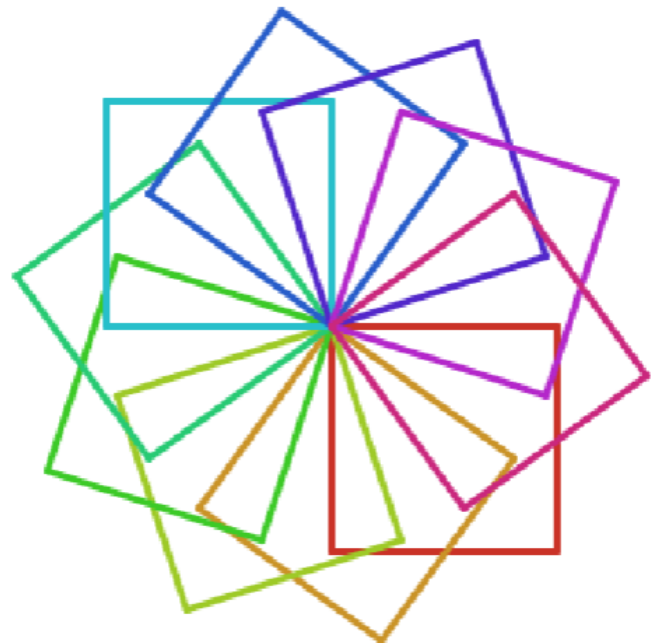
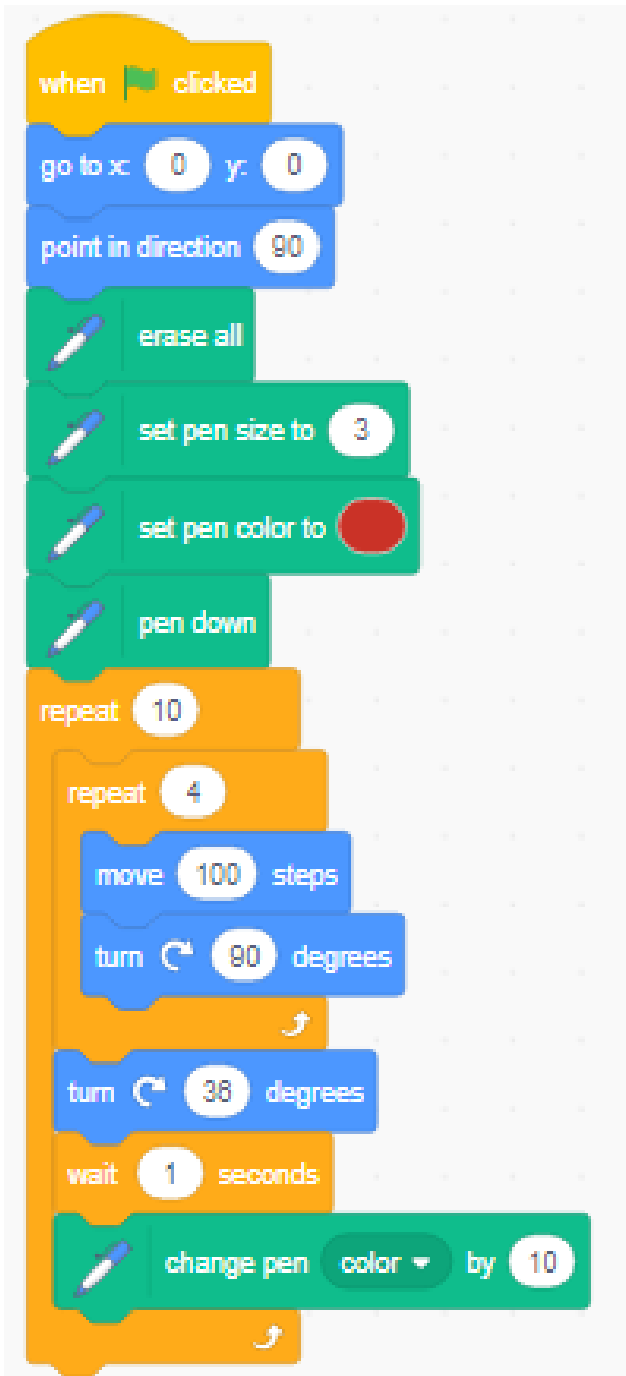


Coding Using Scratch – Geometric Designs – Quadrilaterals

1) In this challenge you will create a series of squares which will create geometric designs.

Add the following blocks.



Click the green flag to test your program.

Show Mr. Desmond what you have done.

2) Try the following changes to see how they affect the program.

A) Click the Looks blocks menu.

Add Looks block show at the beginning of the program (below the Event block).

Add Looks block hide at the end of the program (below the Control block repeat 10).

Test your program again.

B) Remove the Pen block change pen color by 10 from the outer loop and test your program again.

C) Remove the Control block wait 1 second from the outer loop and test your program again. Moving forward you can decide whether to use these changes as part of your code for your geometric designs.

3) Notice that multiplying the outer loop repeat and the outer loop turn equals 360.

repeat 10 and turn 36 degrees => $10 \times 36 = 360$

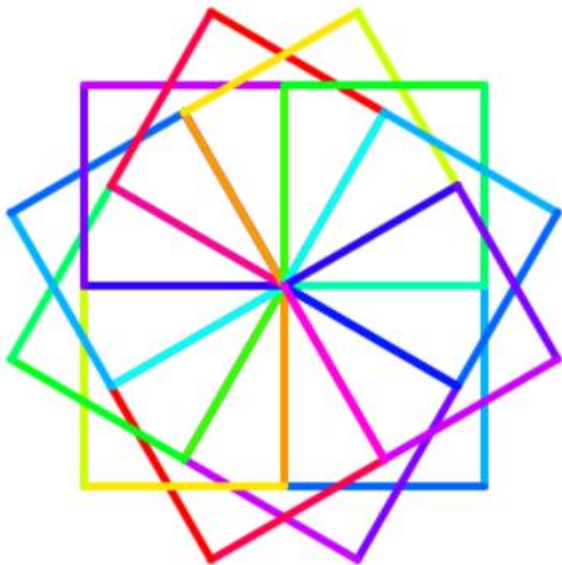
Why do we want this to equal 360?

Multiplying to get 360 is almost exactly the same as multiplying to get 36.

What are some numbers that when multiplied equal 36?

Experiment with different outer loop repeat and turn values that equal 360.

Show Mr. Desmond three different square based geometric designs.



4) In this challenge you will use a rhombus (kite) to create geometric patterns and designs. Use the same blocks as you used above to create your square designs to create a rhombus.

Change the outer loop to repeat 12 and turn 30 degrees.

Choose whether to use a set pen color block or continue to use the change pen color block.

Show Mr. Desmond what you have done.

5) Experiment with different outer loop repeat and turn values that equal 360.

Try five different rhombus based geometric designs.

Show Mr. Desmond your three favourite rhombus based geometric designs.

6) In this challenge you will use isosceles trapezoids to create geometric patterns and designs.

Use the same blocks as you used above to create your rhombus to create an isosceles trapezoid.

Show Mr. Desmond what you have done.

7) Experiment with different outer loop repeat and turn values that equal 360.

Try five different isosceles trapezoid designs.

Show Mr. Desmond your three favourite isosceles trapezoid based geometric designs.

8) Not all quadrilaterals are regular shaped. Some quadrilaterals have four completely different angles and four unequal sides.

Your challenge is to design your own irregular shaped quadrilateral.

Show Mr. Desmond what you have done.

The second challenge is to make geometric designs using your irregular quadrilateral.

Try five different designs.

Show Mr. Desmond your three favourite irregular quadrilateral based geometric designs.

9) Complete the same challenge as in number 8 above but create a different irregular quadrilateral than you created in number 8.

10) You have demonstrated a mastery of geometric designs using quadrilaterals. It is now time to explore what you can do with designs that are based on circles. How many degrees in a circle?

Thinking about that should help you to create a circle. You can then use your base geometric design code to create geometric designs using circles.

Explore to create five different designs.

Show Mr. Desmond your three favourite circle based geometric designs.