

## 3.2 Polygon with Fun

### Intro

Mike No.1 has transformed to a car which is going to enter into the Time Portal. However, before it enters, it needs a code. Now, let's help Mike No.1 to enter the portal!





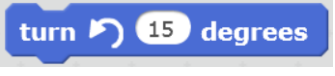

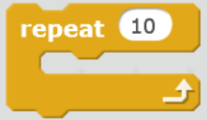
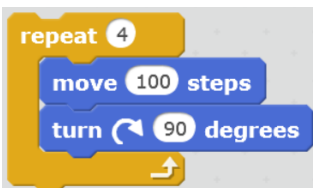
### Task

1. Get Mike familiar with all pen blocks. Use blocks like "Operators" to draw a polygon in order to get ready for the opening of the Time Portal.

### Start Learning

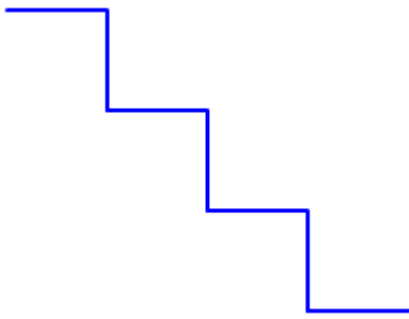
#### 1. Draw a Square

Use pen with "Turn..degrees" block under Motion Module to draw interesting figures.

Block	Explanation	Example
	Rotate the sprite 90 degrees to the right. Or you can input any value of rotation.	
	Turn the sprite 15 degrees to the left.	
	Repeat script contained for 10 times. Or you can input the times of repeating you want.	

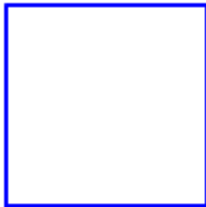
#### ★ Practice

Set the size of the pen to 3, then draw a ladder.




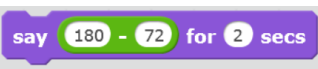




☆ Explore

Try to draw a square which is 100 steps on a side.

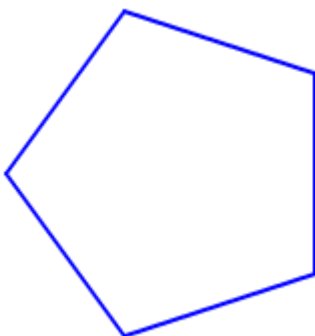


**2. Draw a Regular Polygon**

Block	Explanation	Example
	Division. You can input the equation directly into the numeric boxes.	
	Subtraction	
	Mixed calculations	

★ Practice

Draw a regular pentagon.


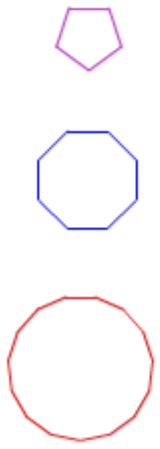


☆ Explore

Set the pen size to 5 and draw a red regular dodecagon which is 20 steps on a side.

**Achieve**

Sprite	Program	Effect
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 <p>Sprite1</p>	<pre> when clicked go to x: 0 y: 0 clear set pen color to red set pen size to 5 pen down repeat 5   move 10 steps   turn 72 degrees </pre>	
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## Tips

- Repeat time equals to the sides of the regular polygon.
- The length of the sides represents the moving steps.
- With the sum of exterior angles of a polygon being 360 degrees, you can calculate the rotation angle of your sprite by dividing 360 by the number of sides.

## Additional Training

Let's draw the following colorful circle!

Sprite	Program	Effect
 <p>Sprite1</p>	<pre> pen down repeat 36   move 10 steps   turn 10 degrees   change pen shade by 10 </pre>	

## Homework

Now you've learnt how to draw a circle, but do you know how to draw a semi-circle? Come on and have a try!

## What You've Learnt?

Adventure Diary (Self-Assessment)

Gas Station (Other's Assessment)