

3.3 Open the Time Portal

Intro

So far, Mike has already mastered the method of drawing. Today, he needs to challenge himself to open the Time Portal.



Task

1. The code of passing the Time Portal is an arch made up of 18 five-pointed stars. Mike needs to draw the arch using the knowledge he has. Let's cheer for him!

Start Learning

1. Draw a Five-Pointed Star

Draw a five-pointed star using Pen and Operator blocks.

Block	Explanation	Example
	Subtraction	
	Mixed Calculations	

★ Practice

Try to draw a five-pointed star which is 150 steps on a side.

2. Make a Block



Make a Block is the new function in Scratch 2.0. You can make and name a block which consists often-used script of a sprite.

Block	Explanation	Example
	Choose "More Blocks" under Scripts Module. Click on "Make a Block" and enter the name "Five-Pointed Star".	

★ Practice:




Import the "Time Portal.png" from the local file.

Achieve

Sprite	Program	Effect
 Mike	<pre> when green flag clicked go to x: -157 y: -80 clear set pen size to 3 point in direction 0 repeat 18 move 30 steps turn 360 / 36 degrees Five-Pointed Star point in direction 90 pen up go to x: -13 y: -25 </pre>	

Additional Training

Try to draw a colorful multi-pointed star and a diagram made up of 5 five-pointed stars in 5 different colors.

Sprite	Program	Effect
 Sprite1	<pre> repeat 13 move 150 steps turn 180 - 180 / 13 degrees change pen color by 10 </pre>	
	<pre> repeat 5 Five-Pointed Star turn 360 / 5 degrees </pre>	

Tips

The formula of counting the rotation angle while drawing a multi-pointed star is: $180 - (180 / \text{angle number of the multi-pointed star})$. And the number should be always an odd.

What You've Learnt?

Adventure Diary (Self-Assessment)

Gas Station (Other's Assessment)