

My Robotics Book

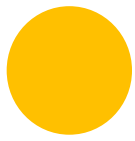
Name: _____



Forward Movement



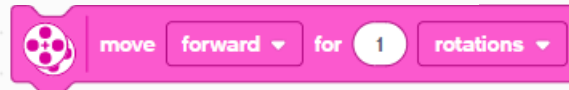
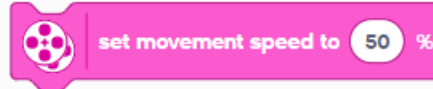
Ports: B & C



Events



Movement



Control

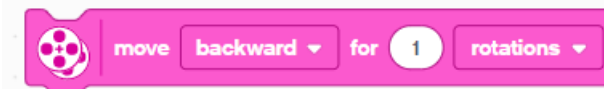
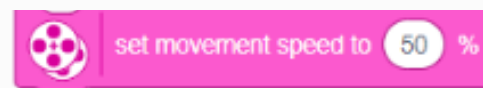
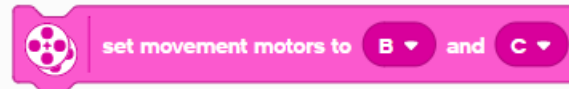
Backward Movement



Events



Movement



Control



How to measure a wheel rotation

1. Program your robot to move 1 rotation.
2. Test your program.
3. Measure the distance in centimeters (cm).

* Note: Circumference of a wheel can be calculated using the formula: $C = \pi \times r$

Example: 17.58 cm (circumference) = 3.14 x 5.6

My Robot traveled _____ centimeters (cm) for one wheel rotation.

* Average measurement- Tire: 17.5 cm = 1 rotation

Formula

$$\frac{\text{Distance to travel}}{\text{Distance of 1 rotation}} = \# \text{ of rotations}$$

Example:

$$\frac{27 \text{ cm}}{17.5 \text{ cm}} = 1.54 \text{ rotations}$$



CLOSE SHAVE ACTIVITY

Formula

$$\frac{\text{Distance to travel}}{\text{Distance of 1 rotation}} = \# \text{ of rotations}$$

Measurement #1: _____

Measurement #2: _____

Measurement #3: _____



How to measure a 360° pivot turn

Formula

$$\frac{2\pi \times \text{Radius}}{\text{Distance of 1 rotation}} = \# \text{ of rotations}$$

Example:

$$2 \times 3.14 \times 5.5 = 1.97 \text{ rotations}$$

17.5 cm

Left Turn

45° = _____ Rotations

90° = _____ Rotations

180° = _____ Rotations

270° = _____ Rotations

```

when program starts
  set movement motors to B and C
  set movement speed to 25 %
  move left: -60 for 1 rotations
  stop moving
  stop and exit program
  
```

Right Turn

45° = _____ Rotations

90° = _____ Rotations

180° = _____ Rotations

270° = _____ Rotations

```

when program starts
  set movement motors to B and C
  set movement speed to 25 %
  move right: 60 for 1 rotations
  stop moving
  stop and exit program
  
```



Events



Movement



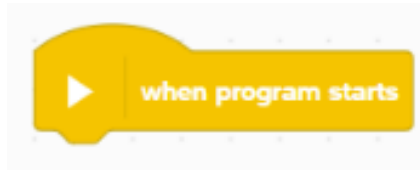
Control



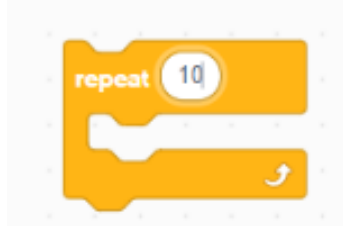
Making a Loop



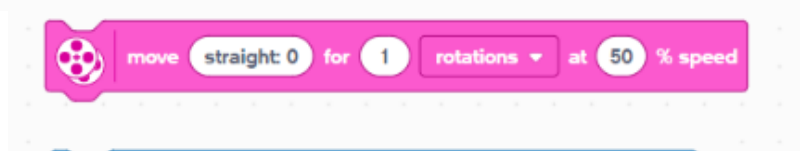
Events



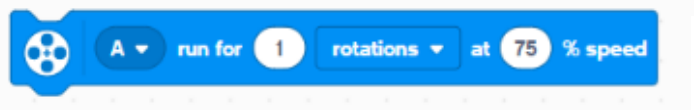
Control



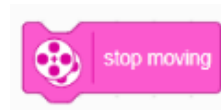
Move-



Motors



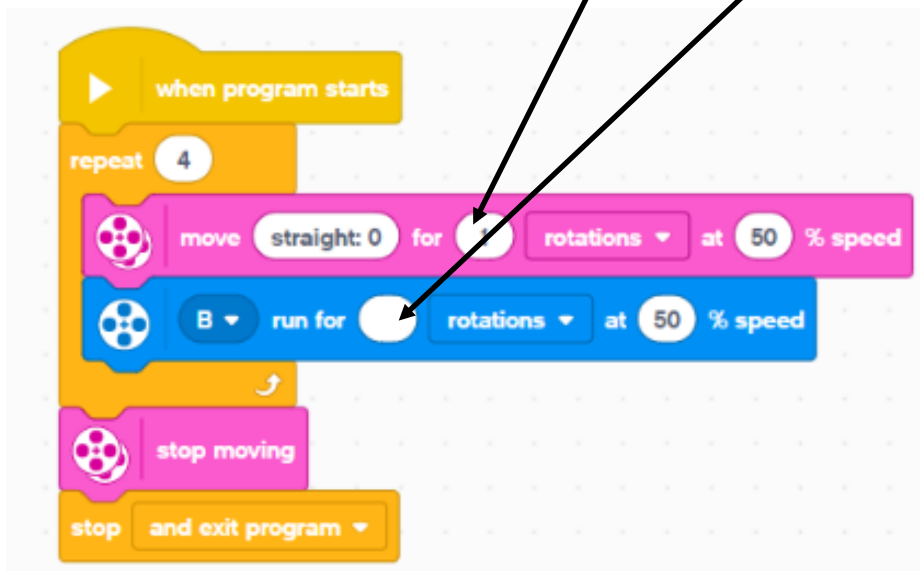
Movement



Control



Sample program for a square.. Adjust the rotations to complete the square challenge.



Wait Block Sequence

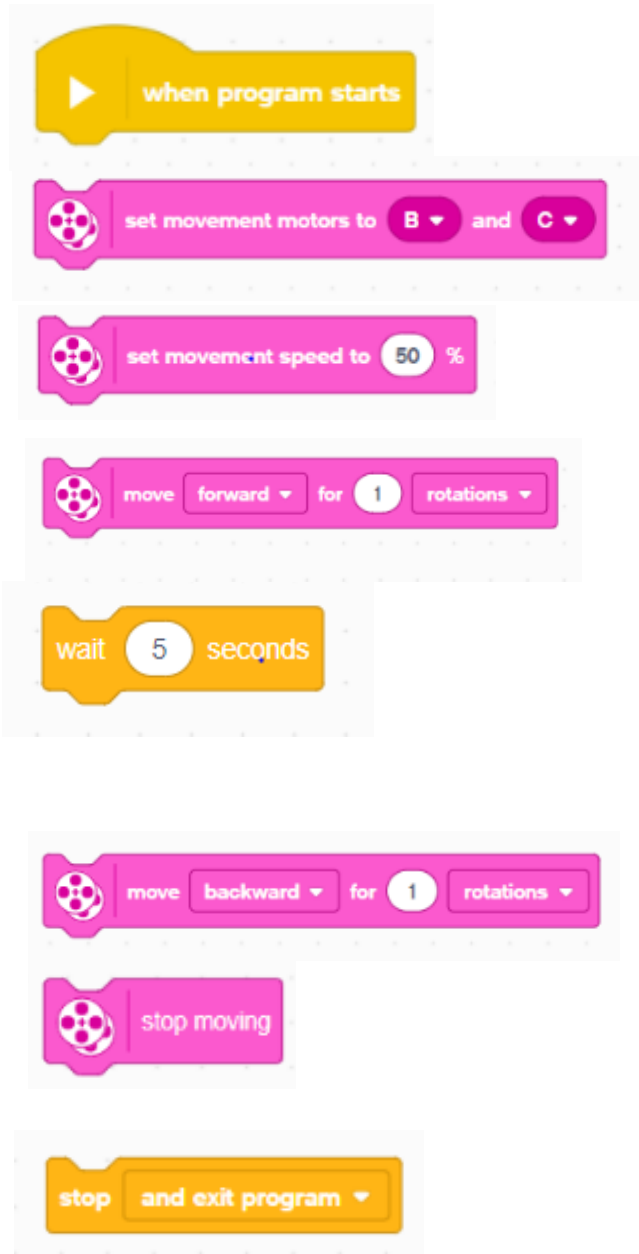
 Events

 Movement

 Control

 Movement

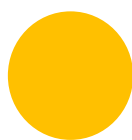
 Control



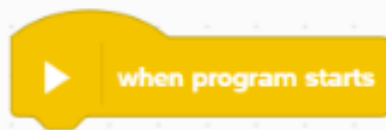
Touch Sensor Sequence



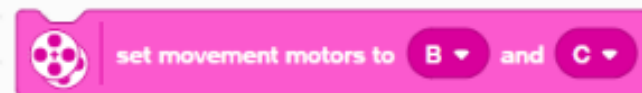
Port: 1



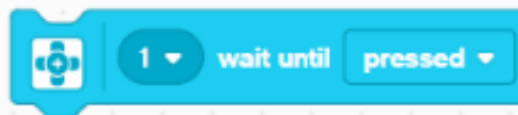
Events



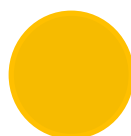
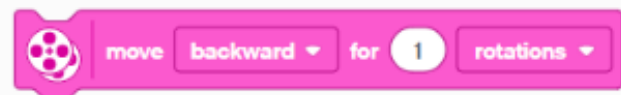
Movement



Sensors



Movement



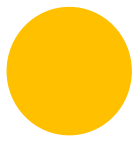
Control



Ultrasonic Sensor Sequence



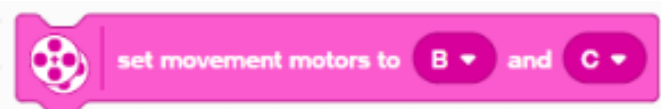
Port: 4



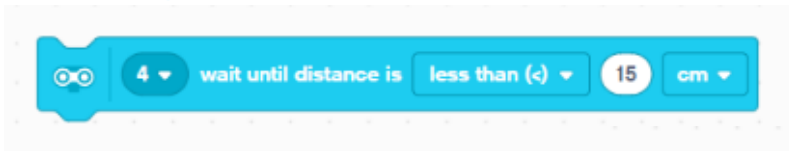
Events



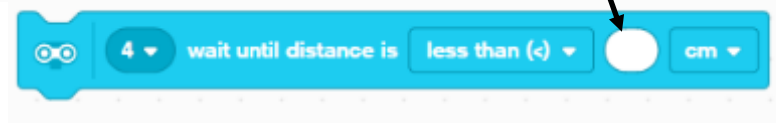
Movement



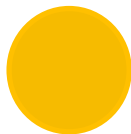
Sensors



Change the distance



Movement



Control



Color Sensor Sequence

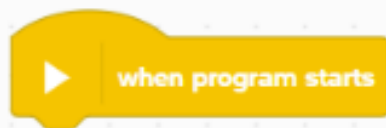
Stopping on a Line-Black



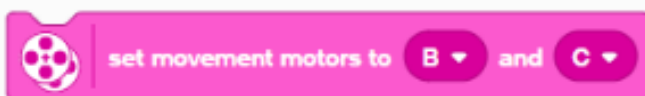
Port: 3



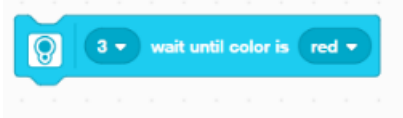
Events



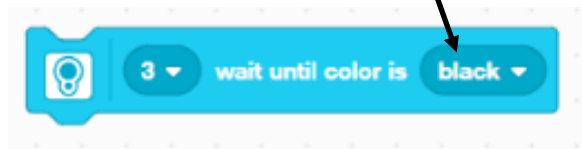
Move-



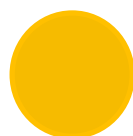
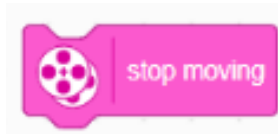
Sensors



Change the color



Movement



Control



Color Sensor Sequence

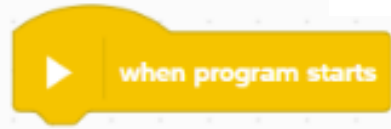
Follow the Line-Black



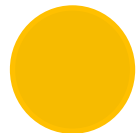
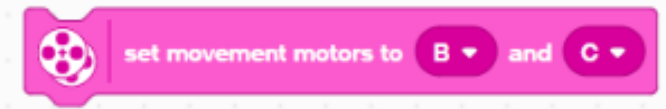
Port: 3



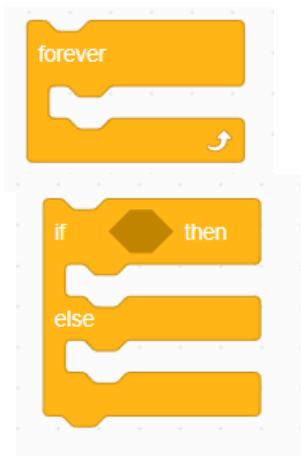
Events



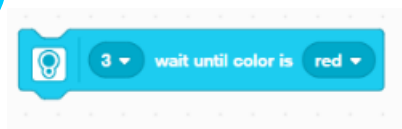
Movement



Control



Sensors



Movement



Need 2

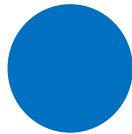


Move the Attachment



Port: A

LEFT



Motors

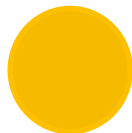
```
Motor A set speed to 75 %
```

```
Motor A run counterclockwise for 1 rotations
```



Movement

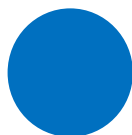
```
Motor stop moving
```



Control

```
stop and exit program
```

RIGHT



Motors

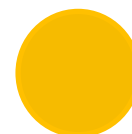
```
Motor A set speed to 75 %
```

```
Motor A run clockwise for 1 rotations
```



Movement

```
Motor stop moving
```



Control

```
stop and exit program
```

