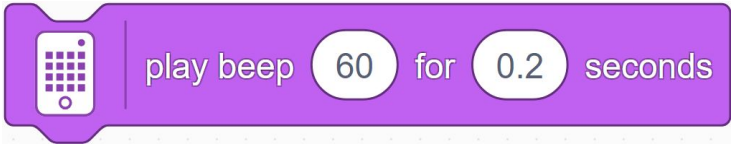
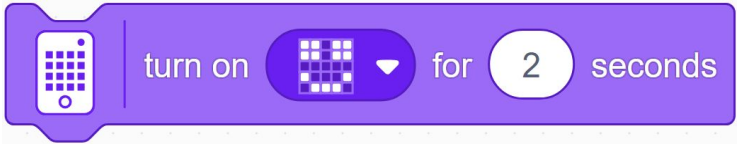
Task #1 - The Sound of Music!

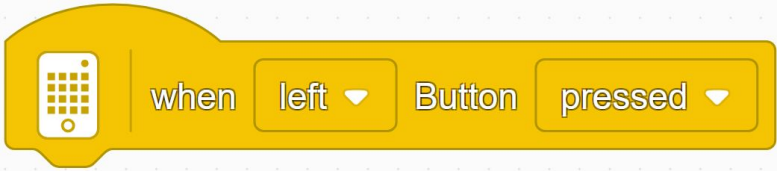
A. Have your robot make a beep (it doesn't have to be this specific pitch or length)



B. Have your robot display a face on the LED display (it doesn't have to be a smiley face)



C. Wait until you push a button on the SPIKE Prime hub then make a beep (it doesn't have to be the left button)



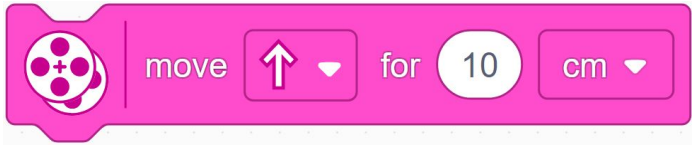
CHALLENGE

D. Using a series of **beeps** at different tones and timing intervals, create part of a song. Have it play when you press a certain button.

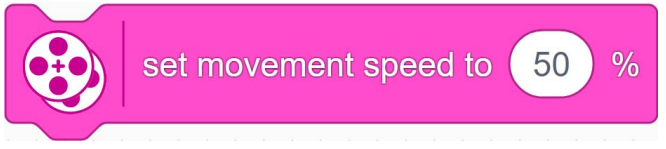
Task #2 - Let's get moving!

A. Get your robot ready to **move** (use the set movement motor block shown to indicate what motors are being used).

B. Have your robot drive **Forward** for 5 seconds



C. At 100% speed, drive **forward** for 3 rotations, then **backwards** for 3 seconds
(which one goes farther?) _____



CHALLENGES

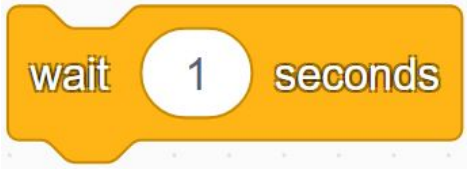
D. At 10% speed, drive **forward** for 3 rotations **then backward** for 3 seconds (which one goes farther?) _____

E. Move **forward** when you press the LEFT button and **backward** when you press the RIGHT button on the SPIKE Prime hub

Task #3 - One Good Turn Deserves Another

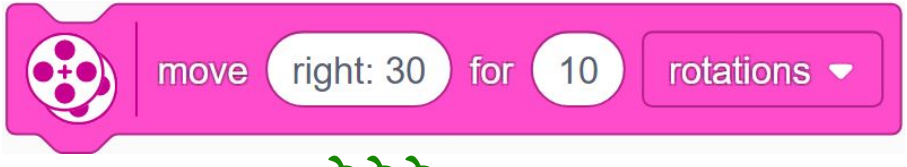
A. Have your robot make the following turns:

- **TANK turn** (One wheel forward & one backward at the SAME speed.
- **PIVOT turn** (One wheel forward or backward & the other wheel stopped.
- **ARC turn** (Both wheels forward or backward but at DIFFERENT speeds.



B. Make your robot SPIN exactly 360° (how many degrees will it take?)

C. Turn LEFT for 5 seconds, wait 3 seconds, turn right for 5 seconds (you choose what type of turn (Tank, Pivot, or Arc)



CHALLENGES

D. Drive in the shape of the letter "W"

E. Drive in the shape of a "B" ending where you started

Task #4 - Stay In Touch!

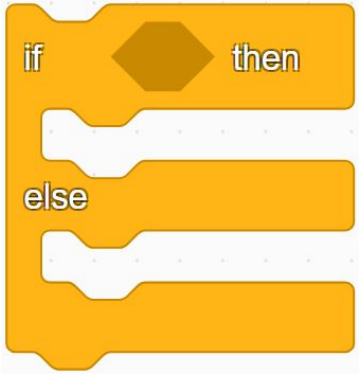
A. Attach a touch sensor onto your bot

B. Have your robot drive forward until it hits something then stop, play a beep, write “SORRY” on the LED Display, and back up for 10 inches.

What kind of movement block will you use to go forward?

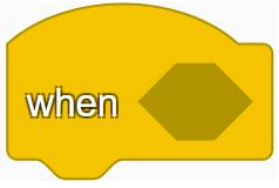
CHALLENGE

C. Drive forward until robot hits something then back up and randomly turn left or right 90° (this should repeat forever)



Task #5 - All About That Ultrasonic!

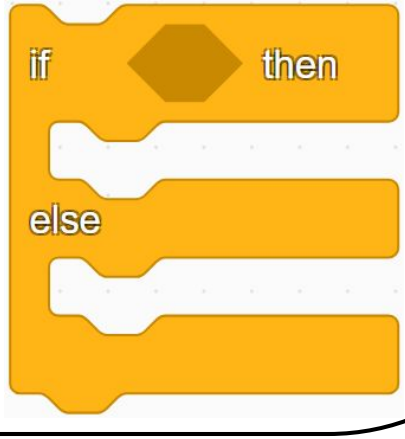
A. Using the ultrasonic sensor, drive forward until you are 12 inches from the wall and stop



B. Start a couple of inches from a wall, back away from a wall until you are 36 inches away, go forward until you are 24 inches away, then stop

CHALLENGE

C. Make a “wall follower” that stays about 12 inches away from the wall as you drive (move away from the wall if you are closer than 12 inches and toward the wall if you are farther than 12 inches)



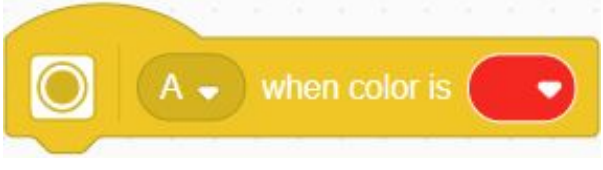
Task #6 - Move Towards The LIGHT!

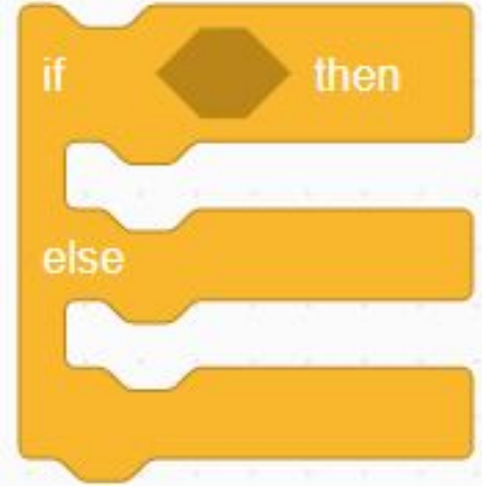
A. Go forward until you see a line then stop

B. Go forward to the first colored line quickly, then drive to the next line slowly, and then stop

CHALLENGE

C. Name the color activity: Have the robot move across a table with colored lines. When the sensor sees each of the colors (whatever the order is of the colors on the tile floor), stop the robot and have the write the name of the color on the LED display grid.





Training Exercise #7
All The Rest
(THE MAZE!!!)

A. Follow the line from start to finish using a color sensor(s).
   Hint: Use reflected light or colors

OR

B. Drive through the maze from start to finish by different methods:

- Ultrasonic sensor
- Touch sensor
- Color sensor (wall colors or following the line)
- Measuring
- Combination of the above