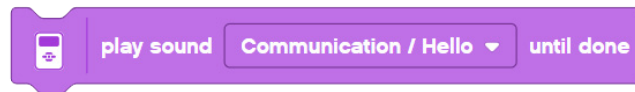


## task #1 - the sound of music

A. have your robot make a noise



B. have your robot make a face on the screen



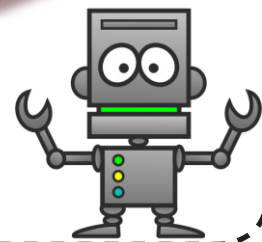
C. wait until you push a button on the EV3, then make a noise



D. make a different noise for each button on the EV3 brick

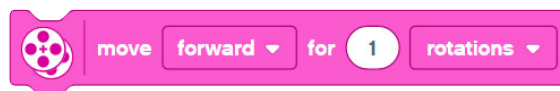


E. assign each button play a different musical note from C to A - then play "OLD MACDONALD"  
( F F F C D D C A A G G F )



## task #2 - let's get moving

A. make your robot move



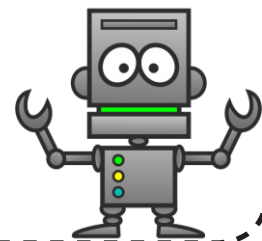
B. have robot drive forward for 5 seconds



C. at 100% speed, drive forward for 3 rotations then backward for 3 seconds  
(which one goes farther?)

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

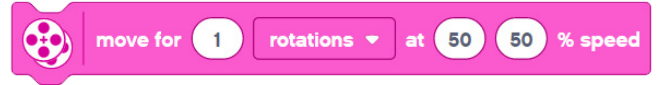
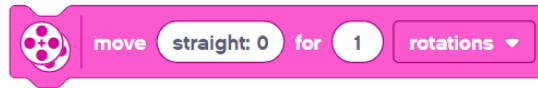
E. move forward when you press the UP button and backward when you press the DOWN button on the EV3 brick



## task #3 - one good turn deserves another

A. have your robot make a SPIN turn, a PIVOT turn, then a GRADUAL (arc) turn

B. make your robot SPIN exactly 360°

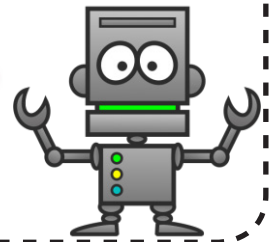


C. turn LEFT 5 seconds, wait 3 seconds, turn right 5 seconds



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

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

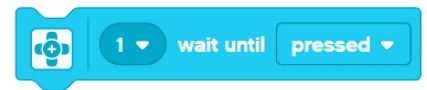


F. drive to form the logo: **EV3**

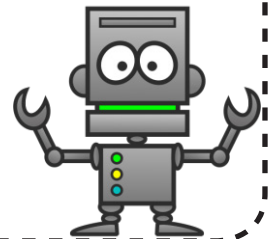
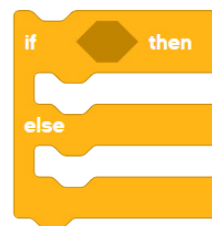
## task #4 - stay in touch

A. attach a bumper (with touch sensor) onto your bot

B. have your robot drive forward until it hits something then stop, say "SORRY," and back up



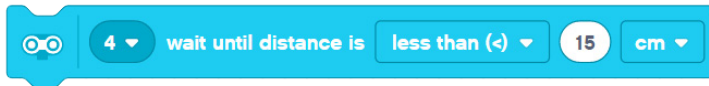
C. drive forward until robot hits something, then back up and randomly turn left or right 90° (this should repeat forever)



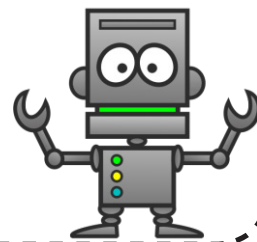
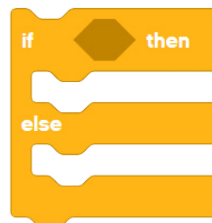
## task #5 - all about that ultrasonic

**A.** using the ultrasonic sensor, drive forward until you are 12 inches from the wall

**B.** back away from a wall until you are 1 meter away, go forward until you are 2 feet away, then stop

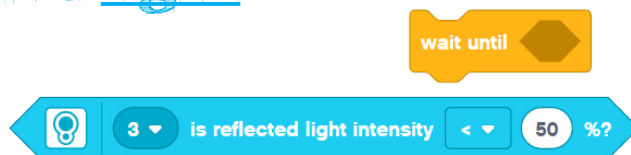


**C.** make a "wall follower" that stays about a foot away from the wall as you drive (move away from the wall if you are closer and toward the wall if you are farther than 12 inches)



## task #6 - walk towards the light

**A.** go forward until you see a line, then stop



**B.** go forward to the line quickly, then drive to the next line slowly, then stop



**C.** name the color activity:

when the sensor sees each of the colors (black, white, green, yellow, blue, and red) it should say the name of the color out loud



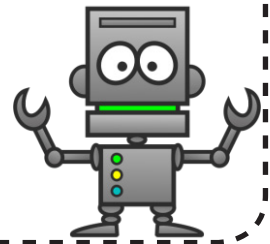
## task #7 - do the wave



**A.** this is a whole-group challenge:



- \* robots wait for a bright light before they begin moving
- \* move forward then backward (middle bots move faster than outer bots)
- \* odd # bots move forward then backward while even # bots move backward then forward
- \* start a wave from right to left
- \* play a musical chord



## task #8 - all the rest (do them in any order)

**A.** follow the line from start to finish, use a sensor (touch or ultrasonic) to see when you reach the end, and display your time on the EV3 display



**B.** complete the off-road course driving over (not around) all of the obstacles



**C.** drive up the ramp, over the top, and back down the ramp IN CONTROL stopping at the bottom (your bot cannot slide or fall off the ramp)



**D.** drive through the maze from start to finish without crossing any "walls"

