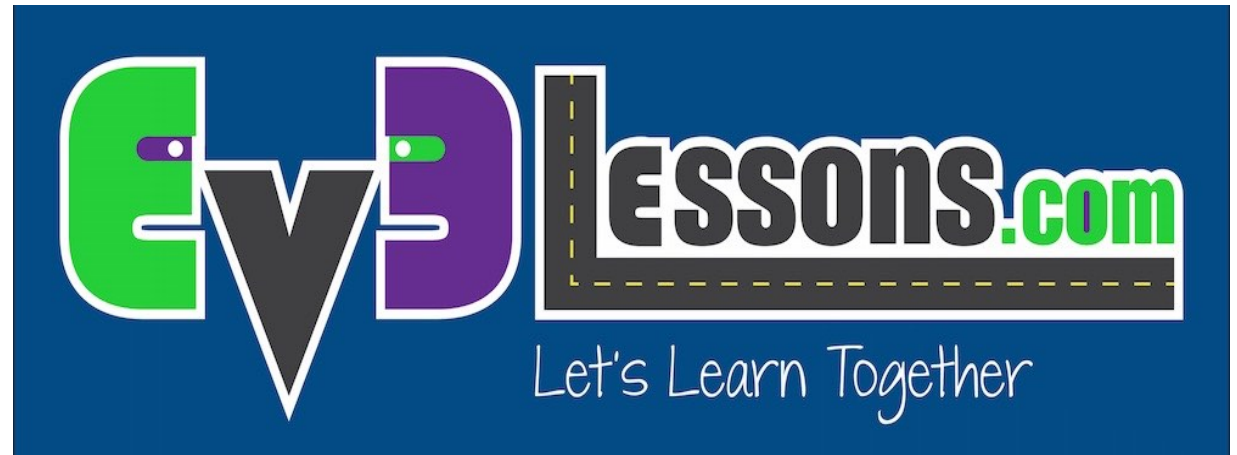


TABLET
LESSONS



MOVING STRAIGHT

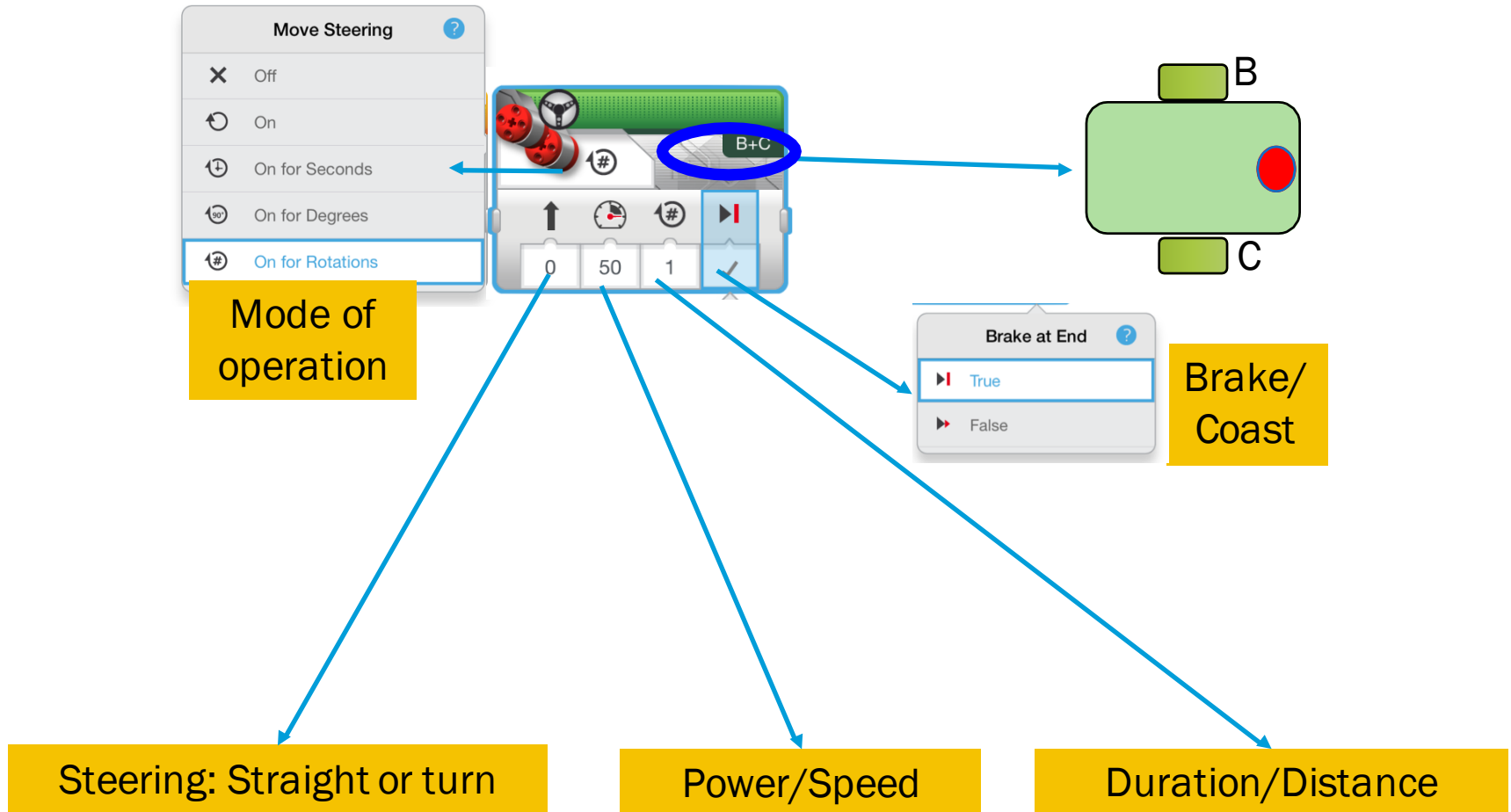
By Sanjay and Arvind Seshan



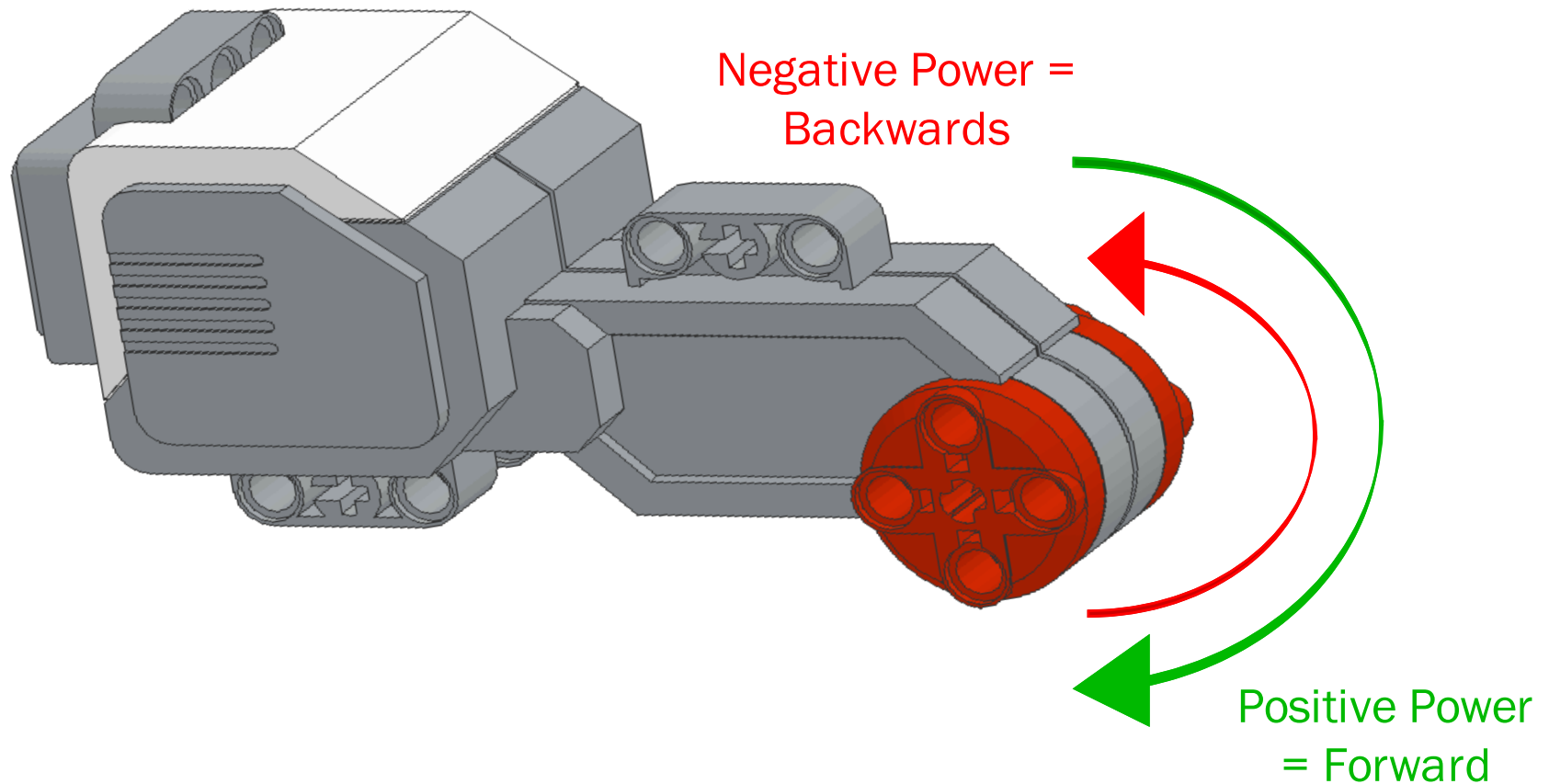
Lesson Objectives

1. Learn how to make your robot go forward and backwards
2. Learn how to use the Move Steering block
3. Learn how to read sensor values using Port View

Move Steering Block



Negative & Positive Power: Backwards and Forwards



How do you Move Straight?

INSTRUMENTS
VIEW™

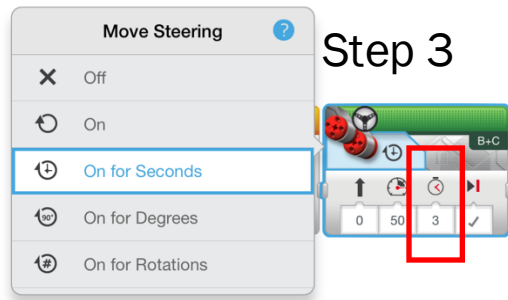


STEP 1: Green Block Tab, Click and hold Move Steering and drag to programming area



STEP 2: Drop next to the Start Block (green arrow)

Challenge 1: Move Straight (3 sec)



STEP 1: Green Block Tab, Click and hold Move Steering and drag to programming area

STEP 2: Drop next to the Start Block (green arrow)

STEP 3: Select Options. Move “3 Seconds”

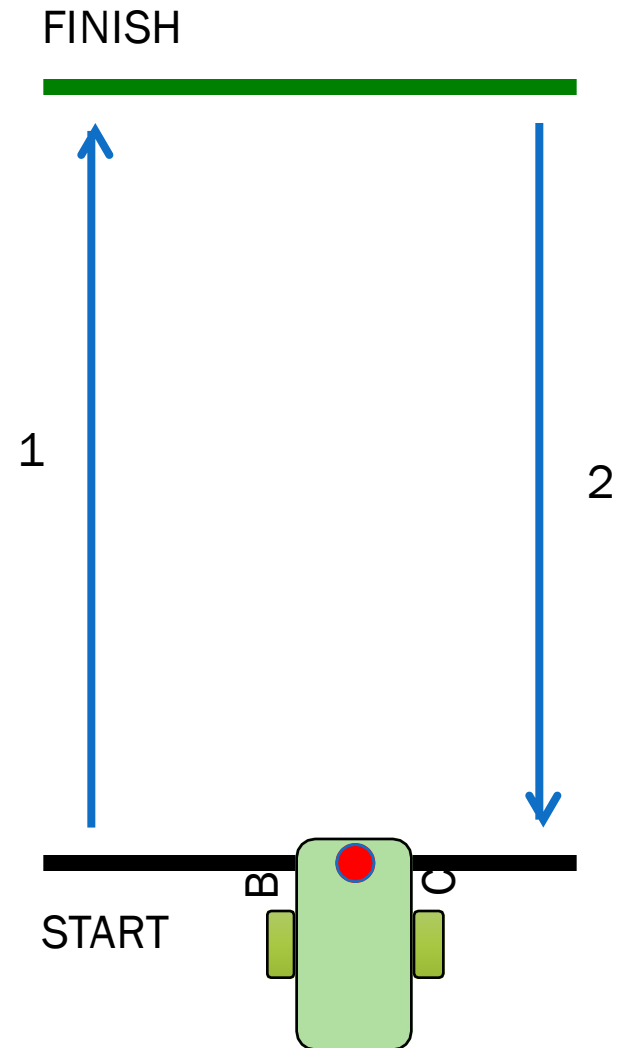
STEP 4: Download to EV3 (Read the Connecting Your Brick Lesson)

Teacher Instructions

- Split up class into groups as need
- Give each team a copy of the Move Straight Challenge Worksheet
- Challenge Details are on Slide 8
- Discussion Page Slide 9
- Challenge Solution on Slide 10
- A Better Way on Slide 11

Move Straight: Seconds vs. degrees vs. rotations

- CHALLENGE: Move your robot forward from the start line to the finish line (1) and back to the start (2).
- Try mode SECONDS, DEGREES or ROTATIONS and adjust duration/distance
- Try different speeds



Move Straight Discussion

Did you guess and check a lot?

Yes. Programming with seconds, rotations and degrees using guess and check takes a lot of time and effort.

Did changing the speed matter?

Yes. When you move in seconds your speed will matter.

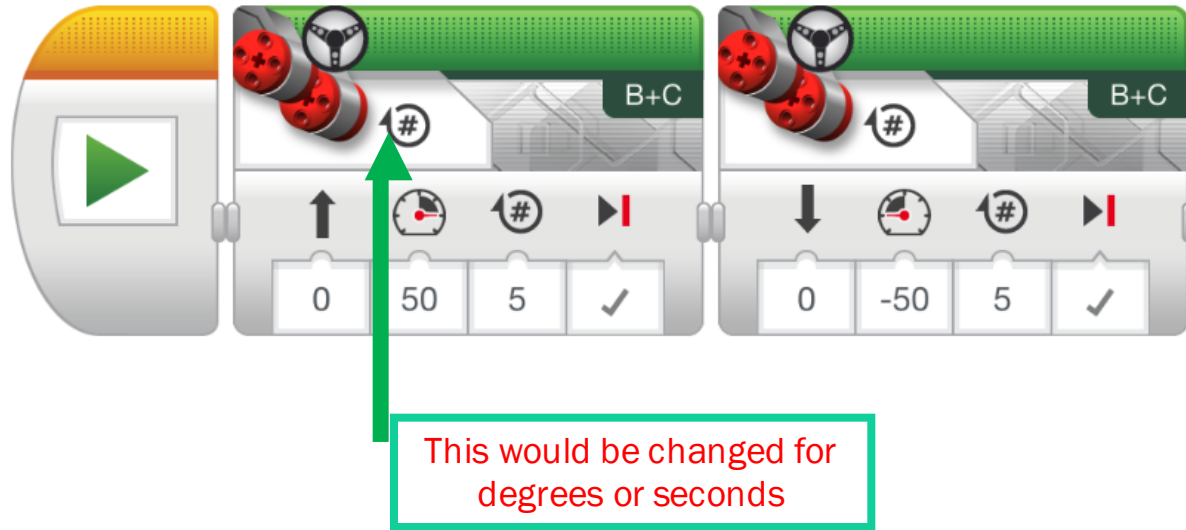
Do you think the wheel size will matter? Why?

Wheel size affects degrees/rotations.

Do you think the battery level will matter? Why?

When you move in seconds, battery levels change the power.

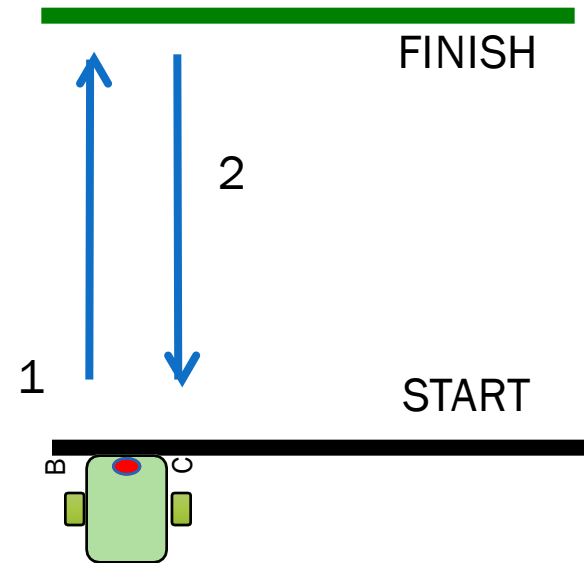
Challenge Solution



- There is a better way (go to slide 11) to solve this challenge

Solution: Use Port View

- CHALLENGE: Move your robot forward from the start line to the finish line (1) and back to the start (2).
- In this lesson, you had to use a lot of guess and check to stop exactly on the second line.
- Now try Port View:
 - Go to one of the rotation sensors (Motor B or C for our robot on the right)
 - Make sure it is on degrees as the mode and that it starts at 0 degrees.
 - Move your robot with your hand from the start line to the end line. Make sure that your wheel turns smoothly and doesn't slip as the robot moves.
 - Read how many degrees your robot moved
 - Use this number in the Move Steering Block to move the correct distance.



Credits

- This tutorial was created by Sanjay Seshan and Arvind Seshan
- More lessons are available at www.ev3lessons.com



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