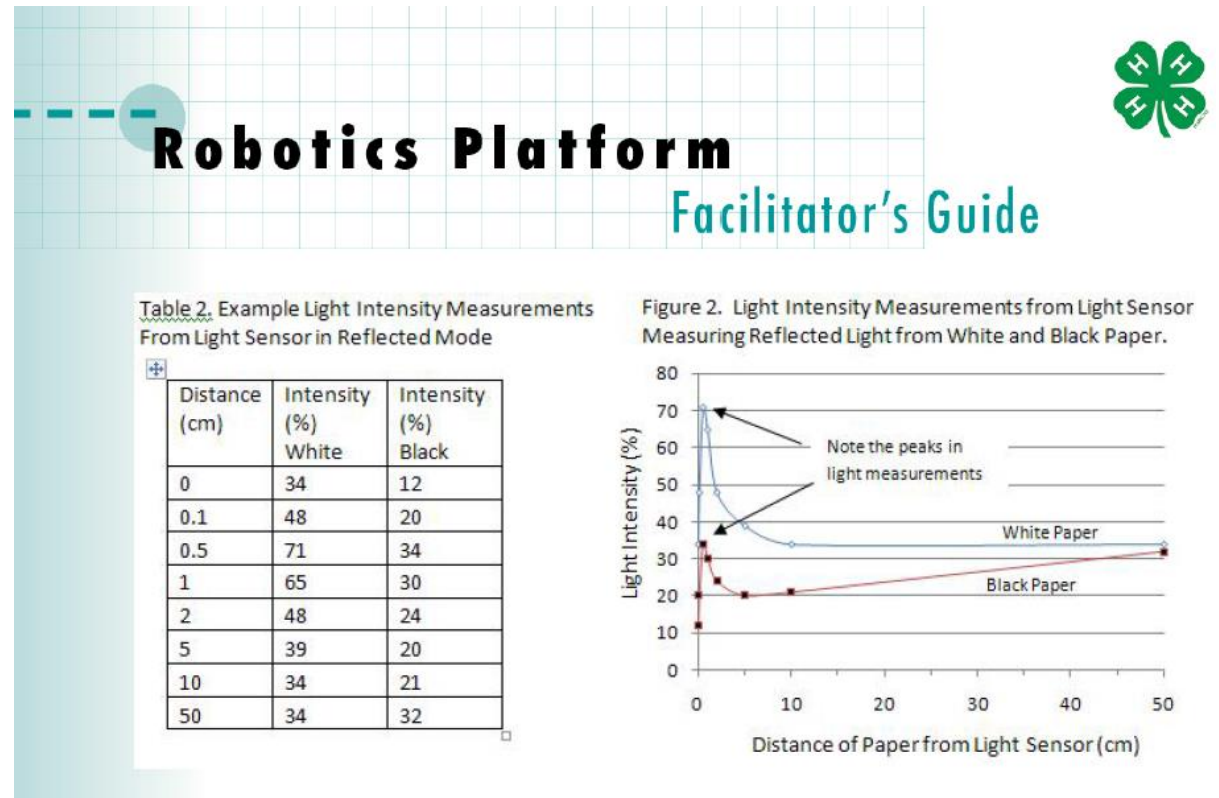


## Module 7 – Light sensors

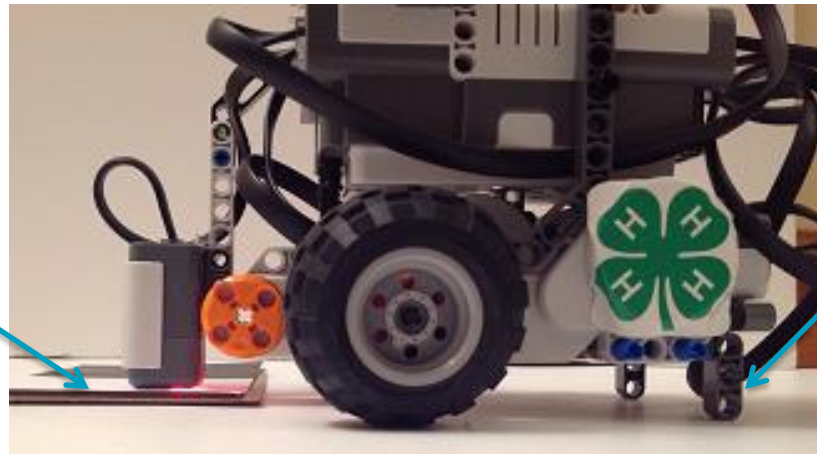
- Two modes
  - Ambient light
  - Reflected light
- Follow platforms Module 7
  - Then do the additional test on the next slide



## Light sensor

- Light and color sensors are most useful for finding and following lines
- Mount light sensor on front of robot facing down
- Use reflected light mode over a test sheet of paper with white and black regions.

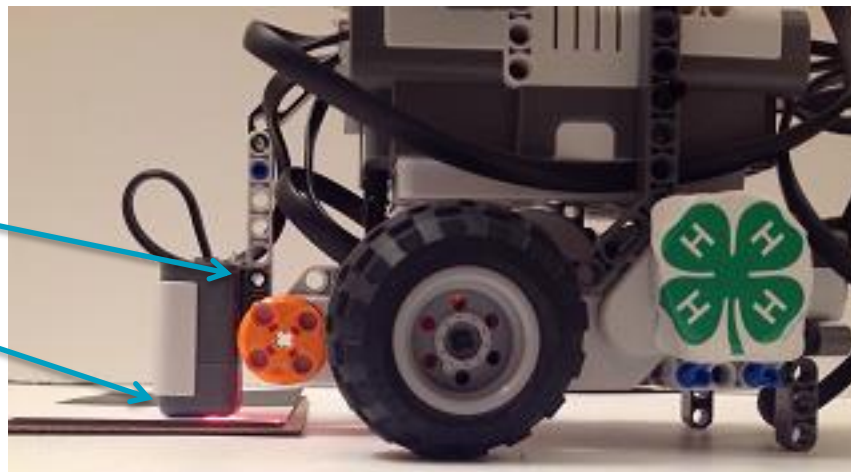
May require shimming white / black color sheet to get "0" height



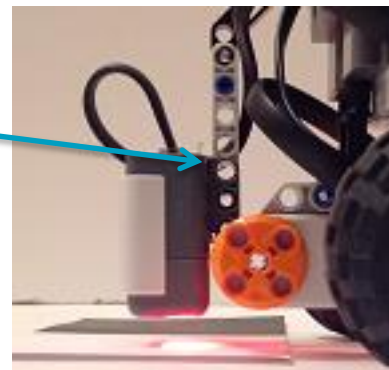
Remove rear wheels only on NXT robots

## Light sensor

Note where sensor is connected  
Light sensor touching sheet of paper.



Position 1 – Move sensor up one hole. Continue moving up one hole and take measurements at each location



## Light sensor measurements– reflected light mode

Distance from surface	Sensor reading over BLACK	Sensor reading over WHITE	Difference
<b>0</b> (Touching)			
<b>1</b>			
<b>2</b>			
<b>3</b>			
<b>4</b>			
<b>5</b>			
<b>6</b>			

Distance measured in LEGO® units – distance between holes=height of beam = width of beam

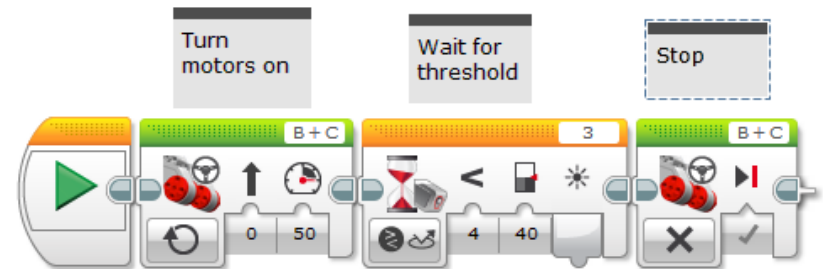
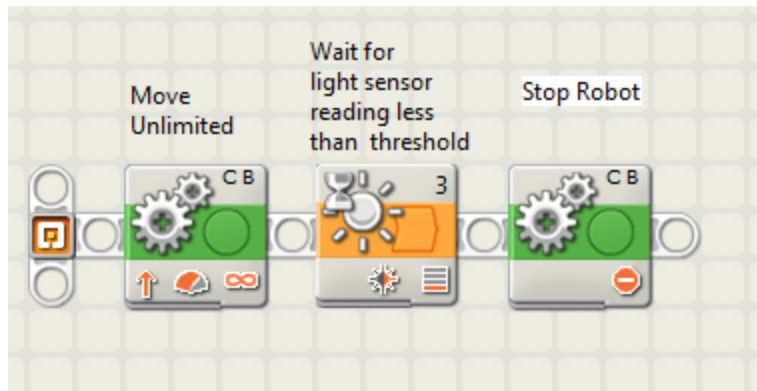




## Stopping on a line

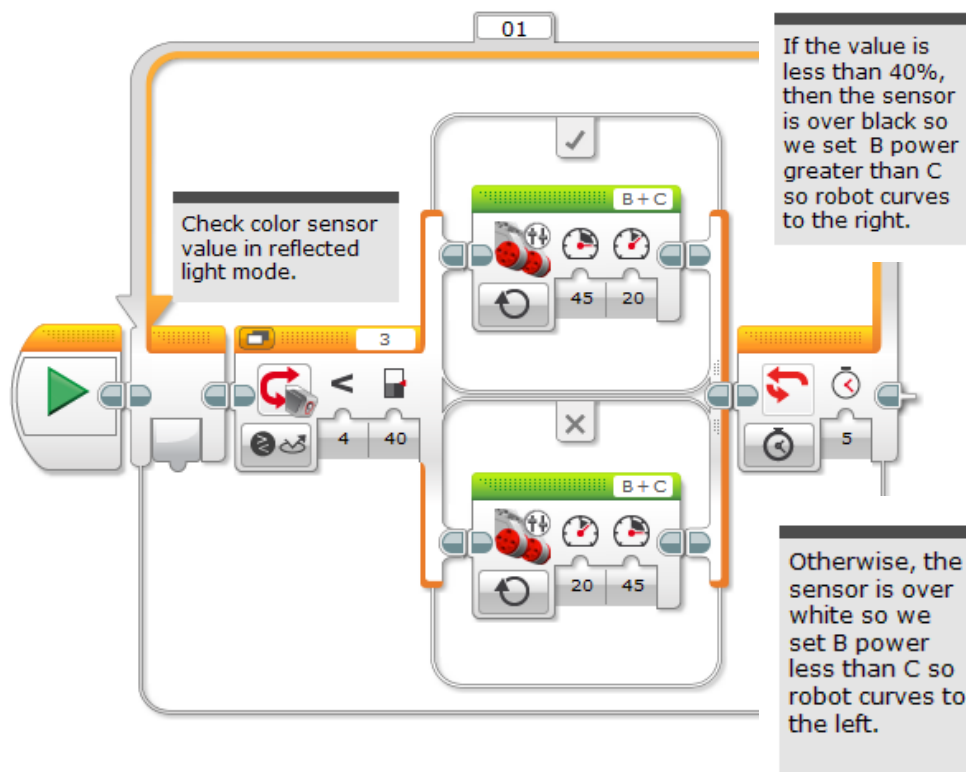
NXT

EV3





## EV3 Line Following





## Using the EV3 software on an NXT

Virtually all of the most used blocks and in the EV3 software can be used on an NXT, including the new Tank move EV3 block. (Blocks specific to EV3 sensors cannot be used on an NXT because the sensors are not compatible).

The EV3 software does not directly support the NXT light sensor, however, to use a light sensor on an NXT using the EV3 software, simply use the NXT sound sensor block using the dBa parameter setting.

EV3 software for having an NXT robot stop on a line

