

**Simple Machine Investigation**  
**Build and Measurement Instruction for the Screw**

**NOTE:**

THERE ARE TWO BUILD OPTIONS

ONE POE KIT VEX KIT

HAS THE PARTS TO BUILD

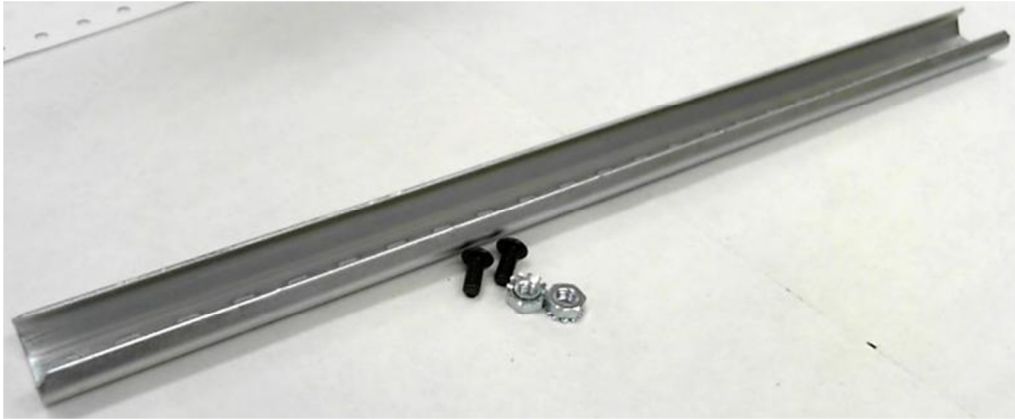
ONE OF EACH

OF

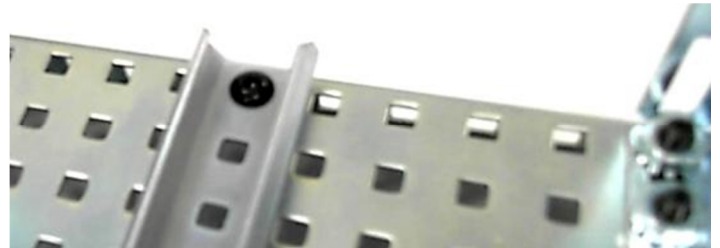
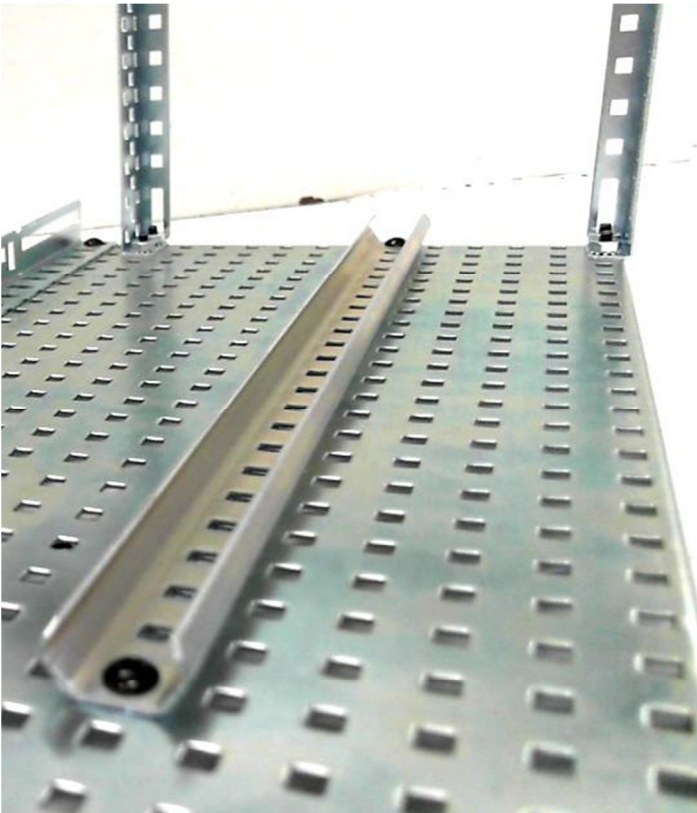
THESE SCREW BUILD OPTIONS

## SCREW ASSEMBLY (Option 1)

1. Gather parts



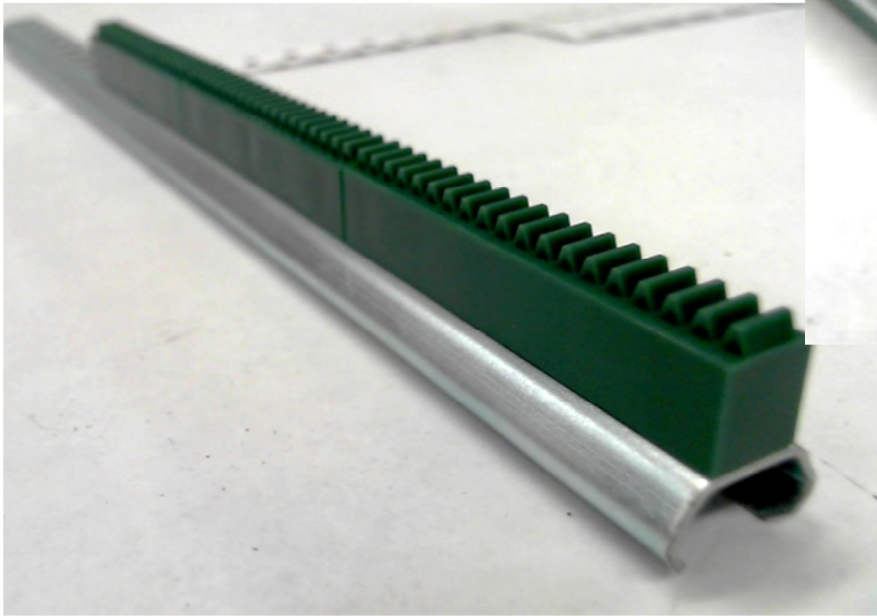
2. Attach to base



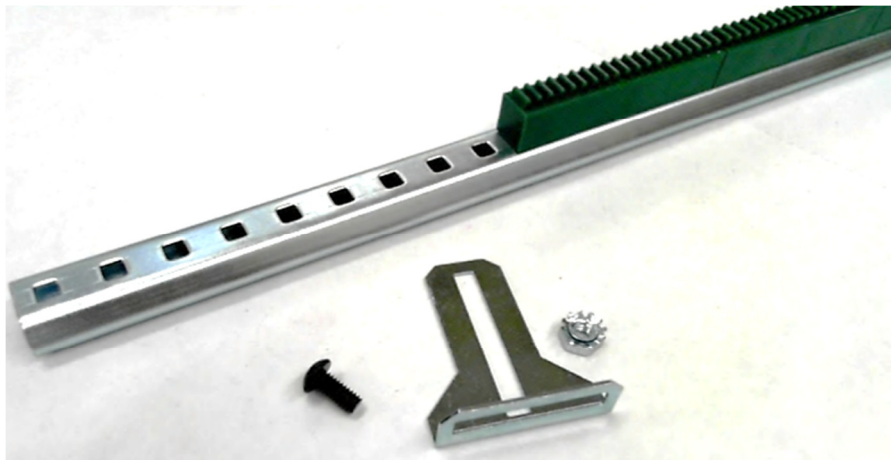
3. Gather parts (*IMPORTANT NOTE: These screws are the small 6-32 screws, not the normal 8-32*)



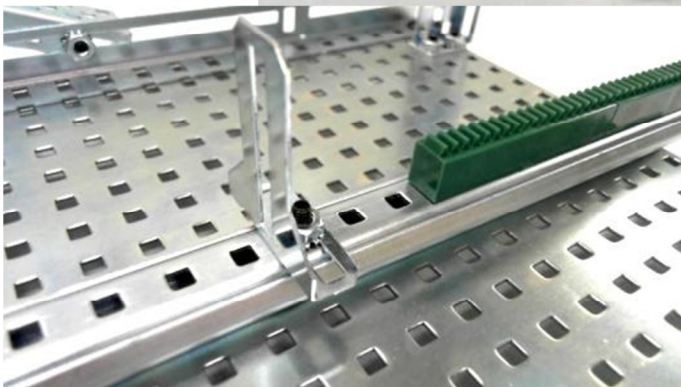
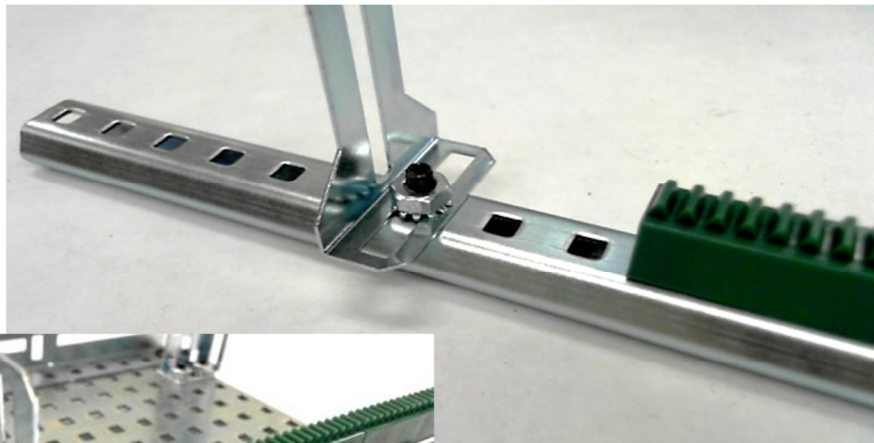
#### 4. Assemble



#### 5. Gather parts

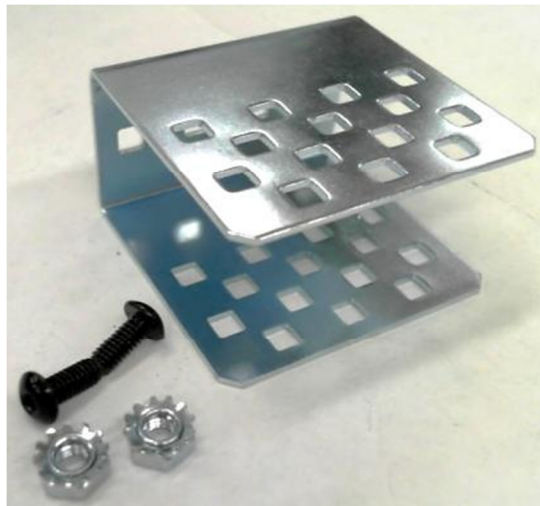


#### 6. Attach and put on base

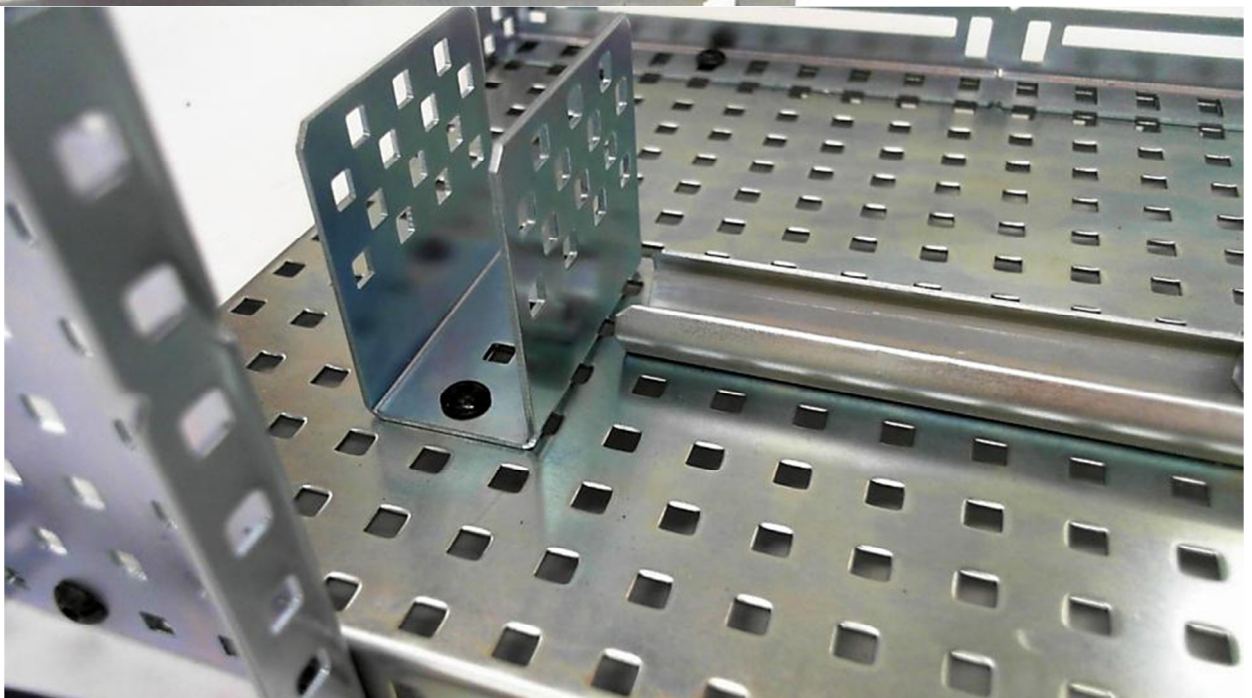
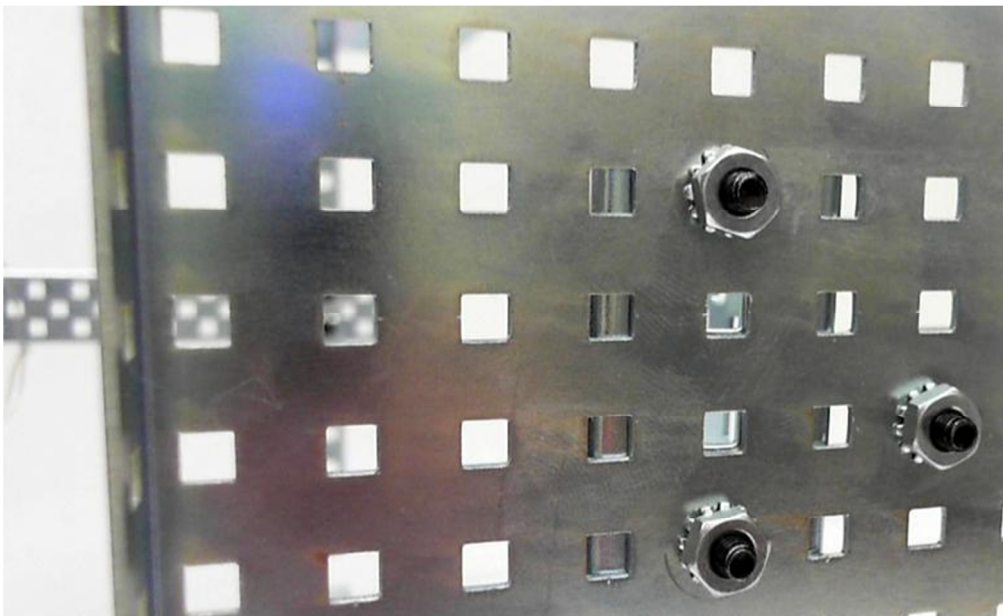




7. Gather parts



8. Assemble to base





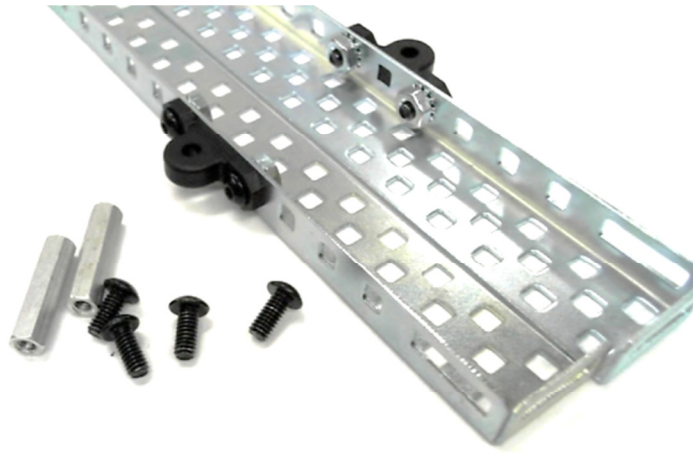
## 9. Gather Parts



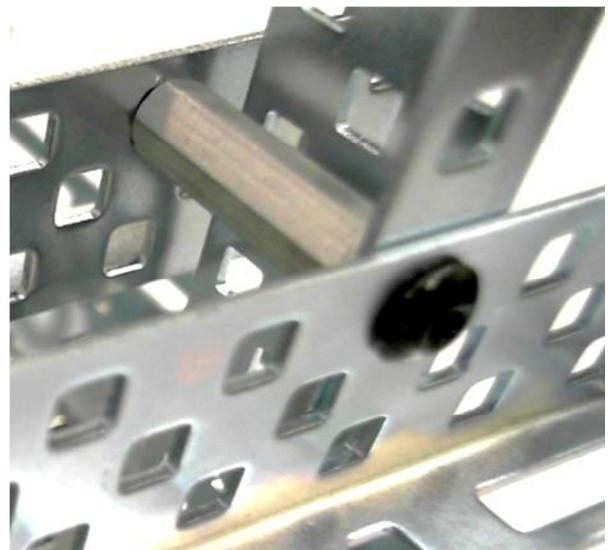
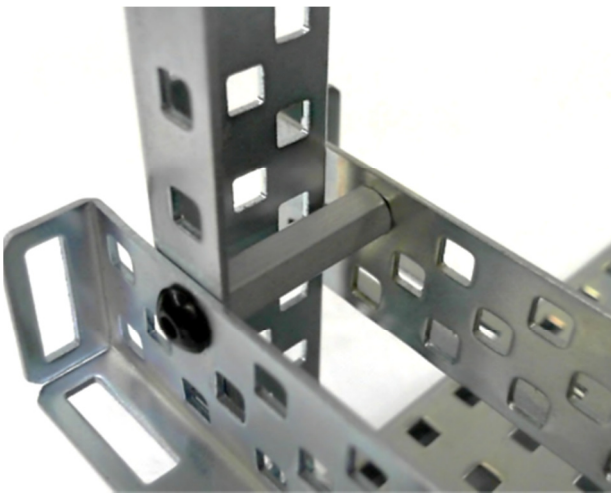
## 10. Assemble



## 11. Gather Parts



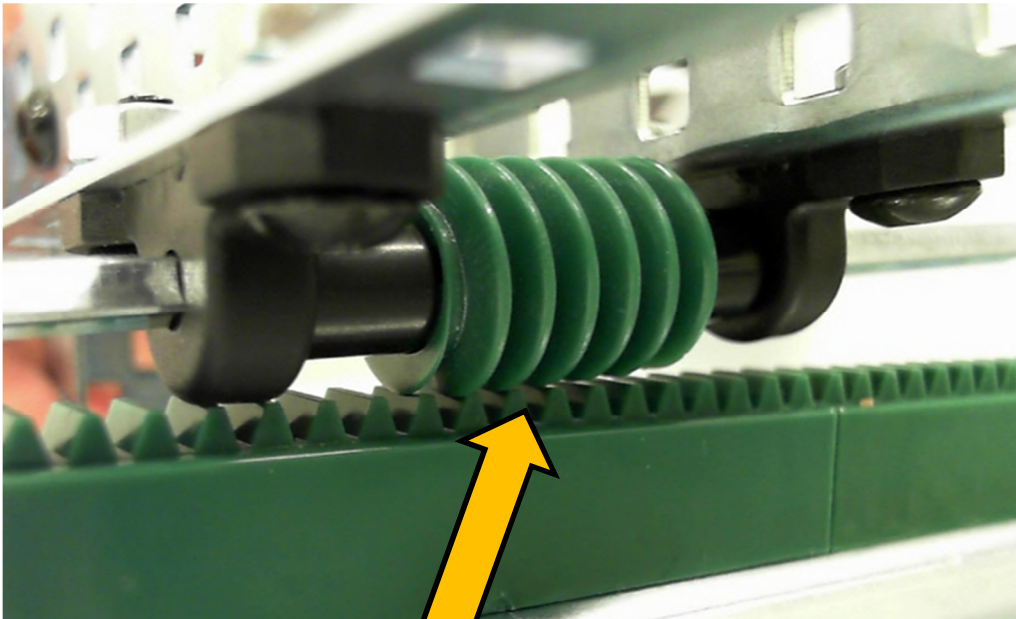
## 12. Assemble



### 13. Gather Parts



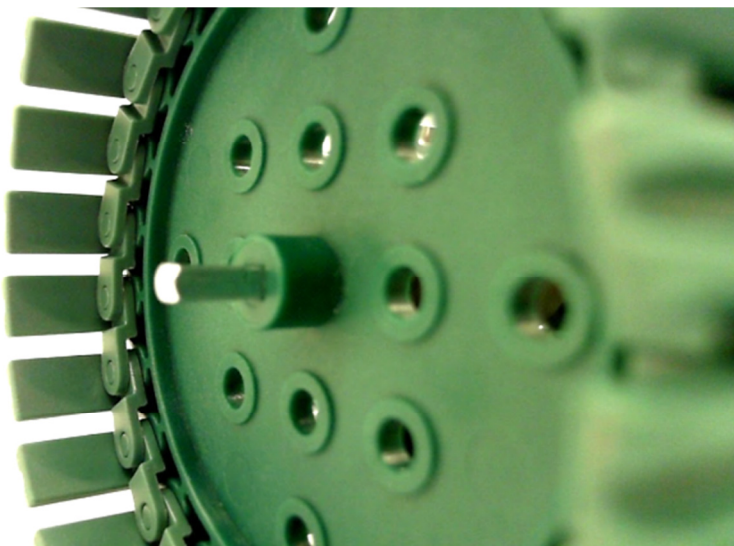
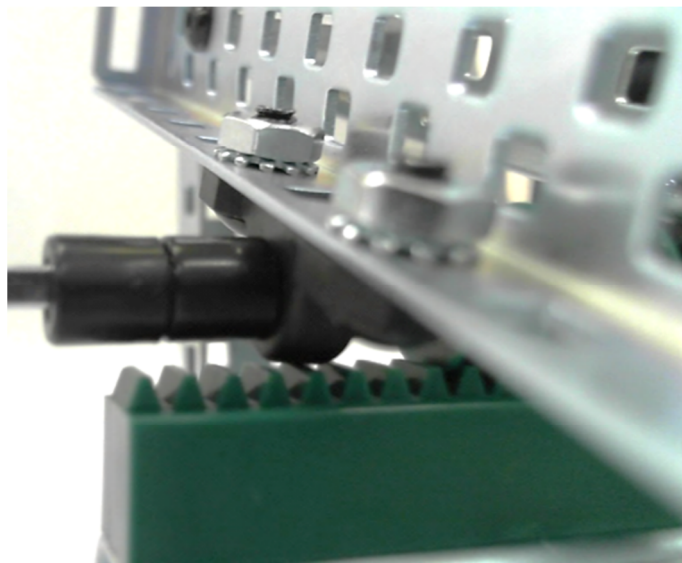
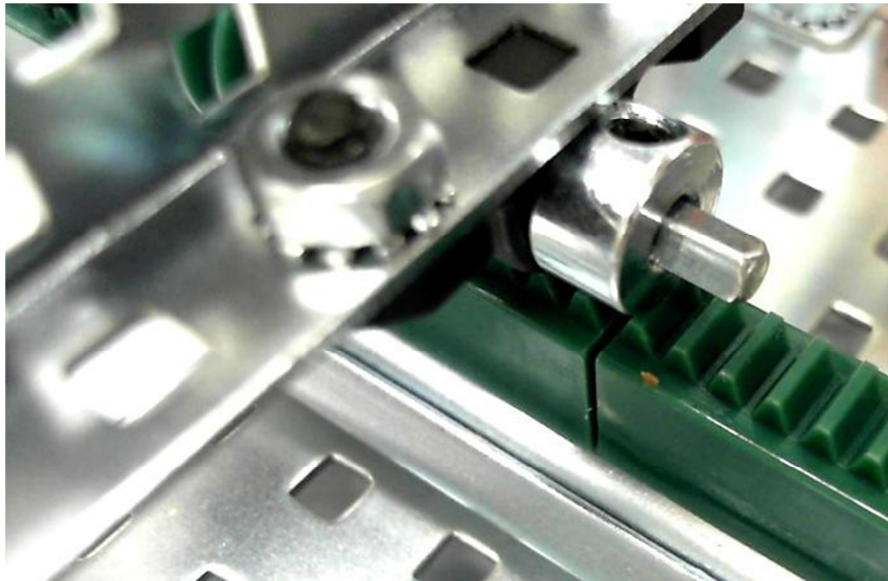
### 14. Assemble

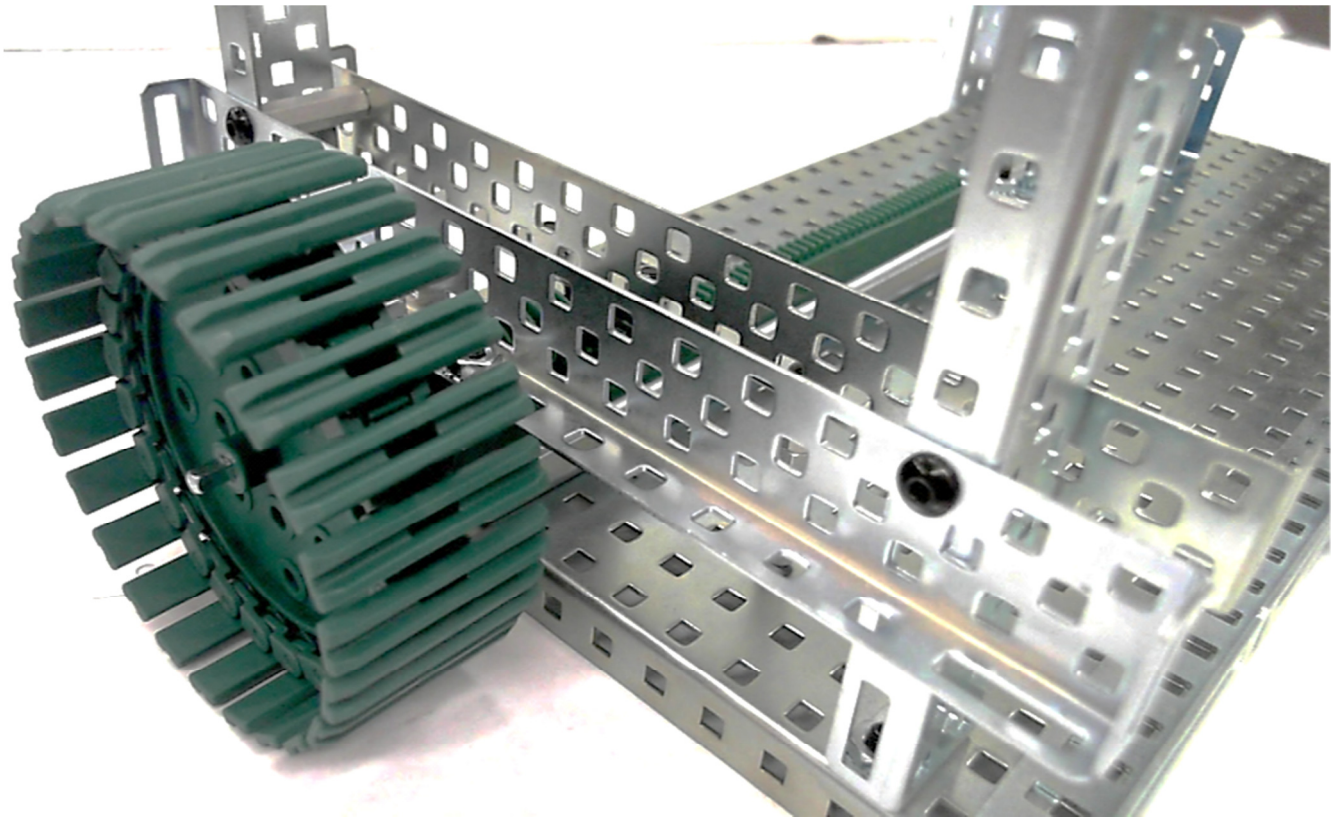


NOTE: This is what it needs to look like between the bearings.





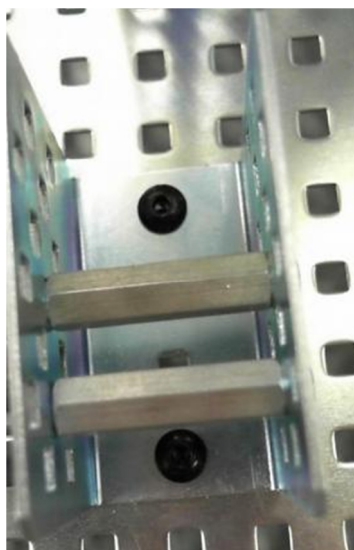




15. Gather Parts



16. Assemble

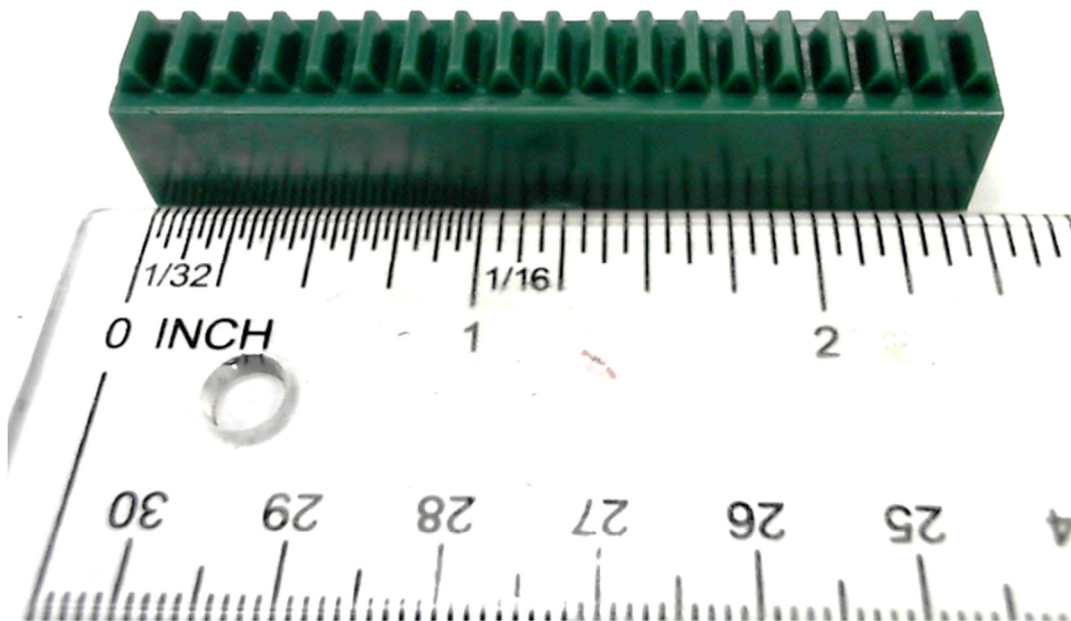




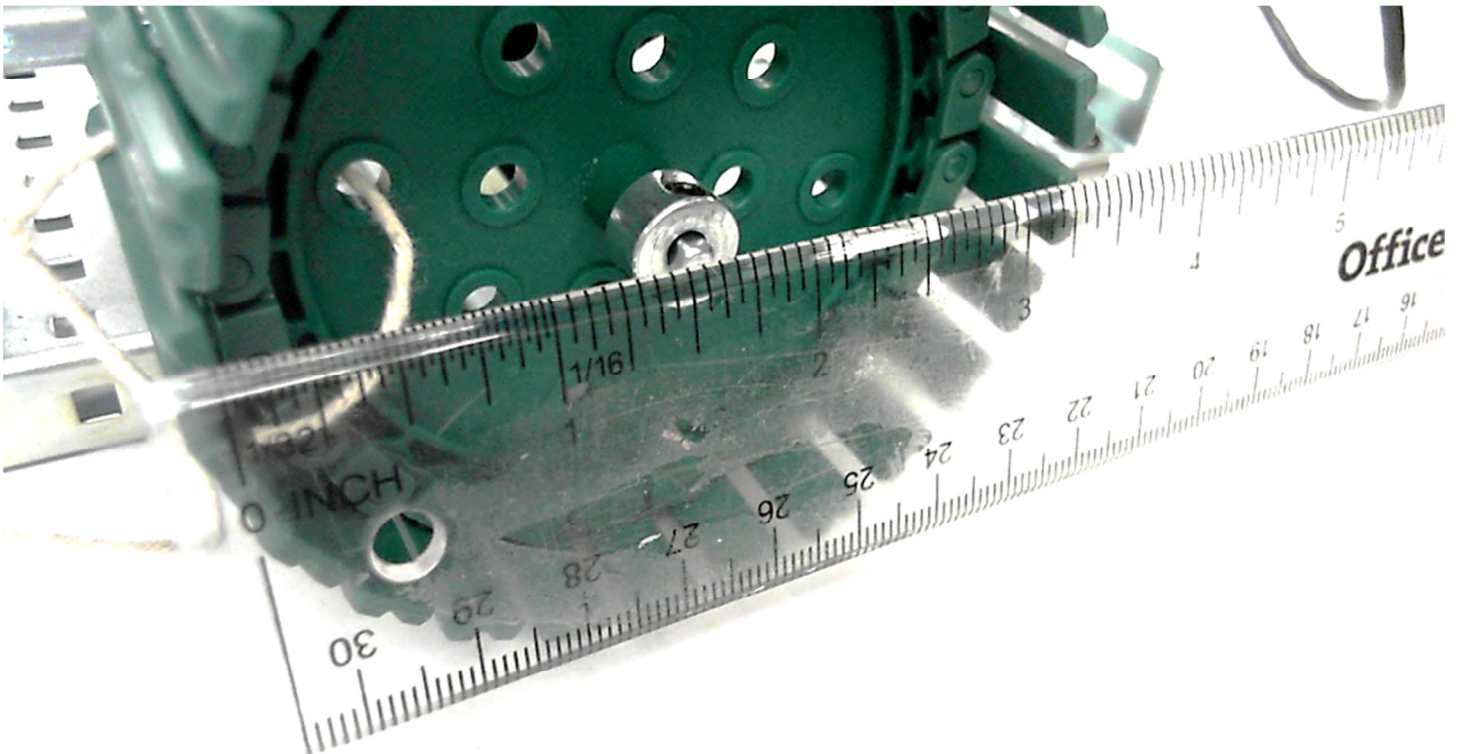
## SCREW MEASUREMENTS AND DATA COLLECTION (Option 1)

*Use these instructions along with your Simple Machine Investigation Data Sheet Part 5-Screws*

1. Measure the length of one of the blocks & count the number of teeth. Use these two values to calculate the pitch of the screw.



2. Measure the diameter or radius of the wheel where the effort force is going to be applied. Use that measurement to calculate the circumference of the wheel.

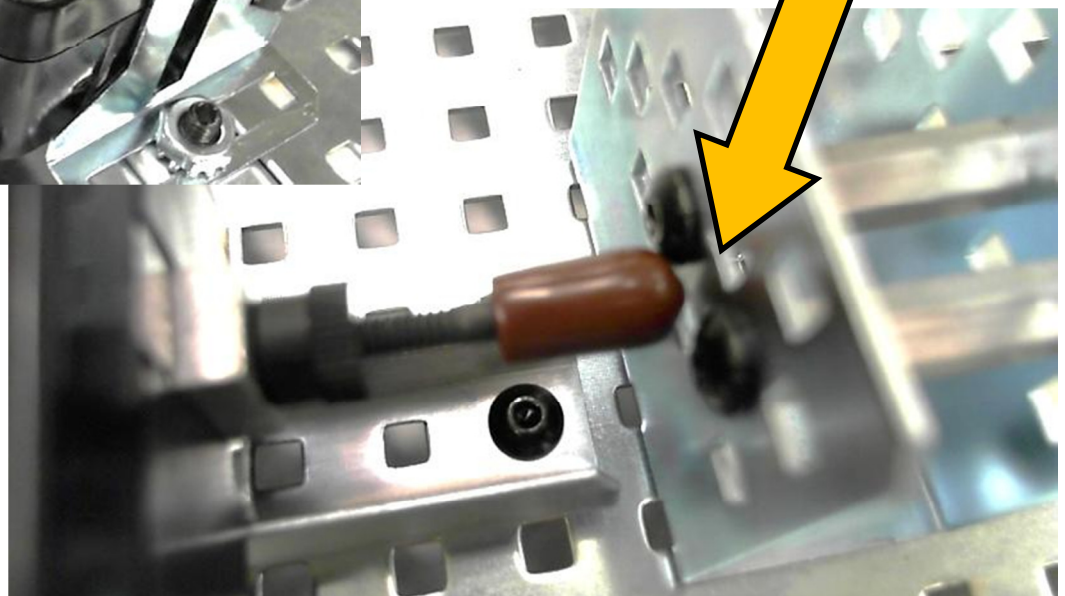




3. Replace the hook on the force sensor with a bumper.



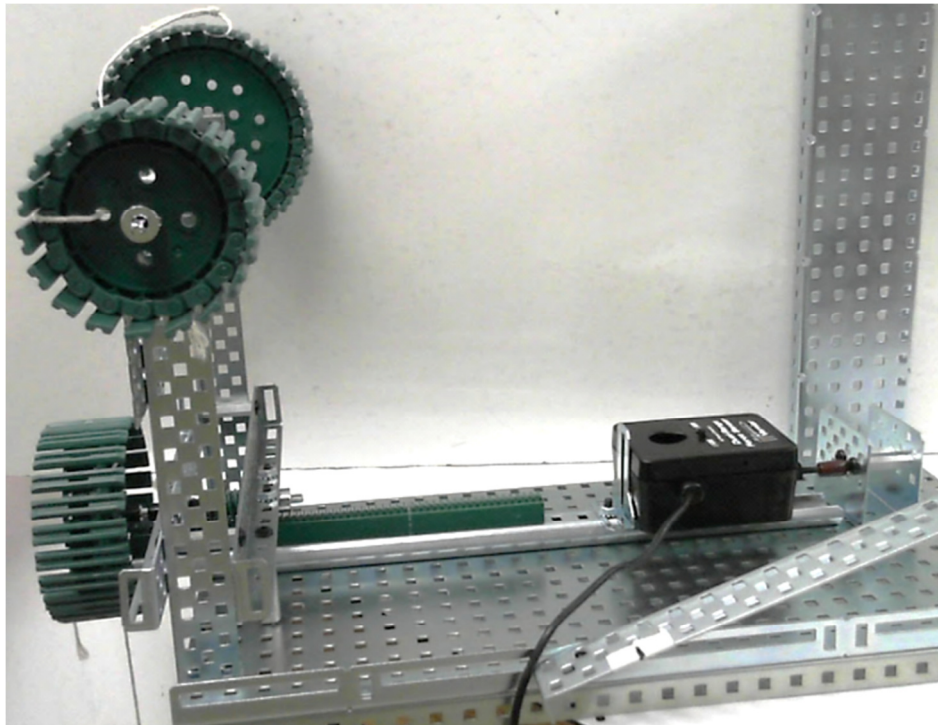
4. Position the force sensor on the rail and adjust the screw until the bumper is almost touch the "wall".



5. Your resistance force (the weight) for the other four simple machines you have built is now going to be used as the effort force. Cut about 3 feet of string and tie it and wrap it to the large gear just as you did for the Wheel and Axle. Then attach your weight to the string and let it go. As it falls it will pull on the string and spin the screw. As the screw spins the force sensor will be pushed into the “wall”.



6. Once the weight stops moving you can record your force values. Your weight of the hanging object is the effort force and the reading on the force sensor will be the resistance force.

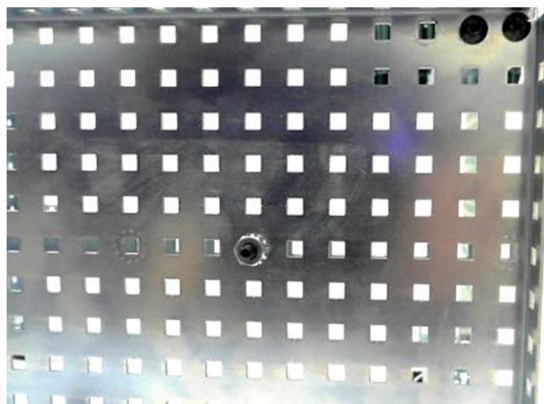
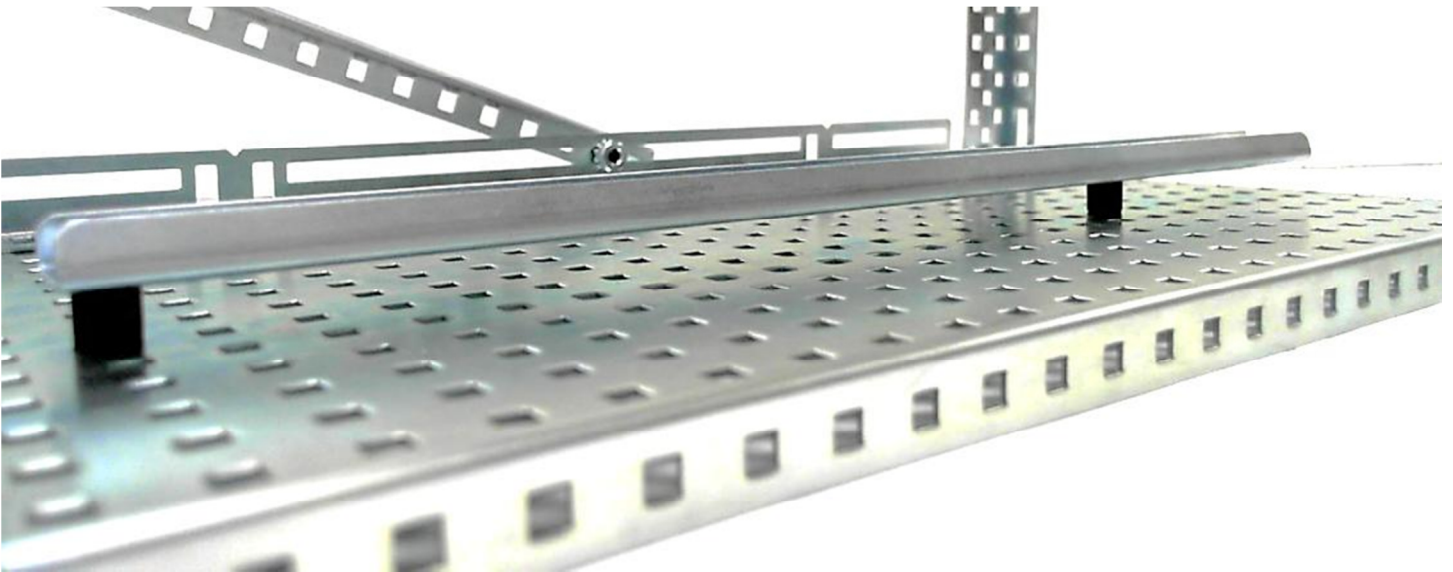


## SCREW ASSEMBLY (Option 2)

1. Gather parts



2. Assemble





3. Gather Parts (*IMPORTANT NOTE: These screws are the small 6-32 screws, not the normal 8-32*)



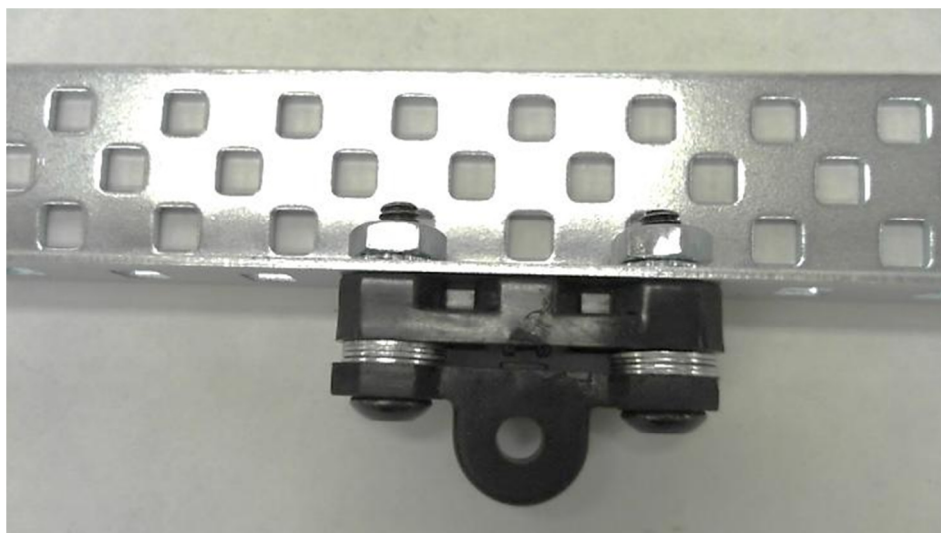
4. Assemble



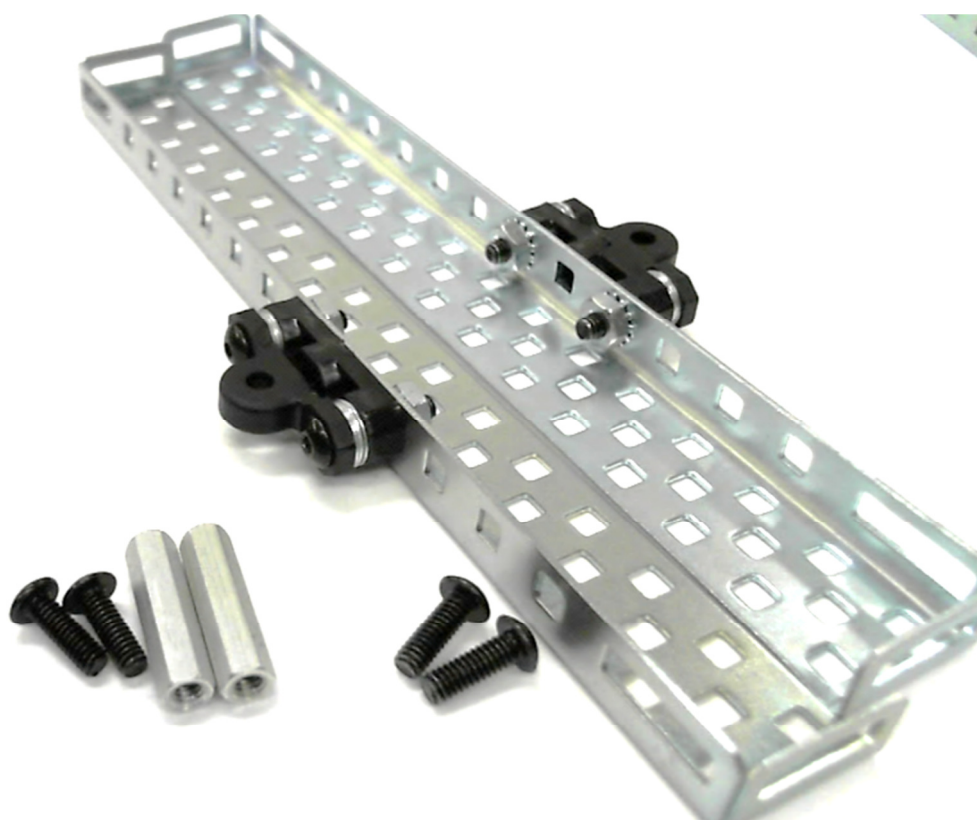
5. Gather Parts



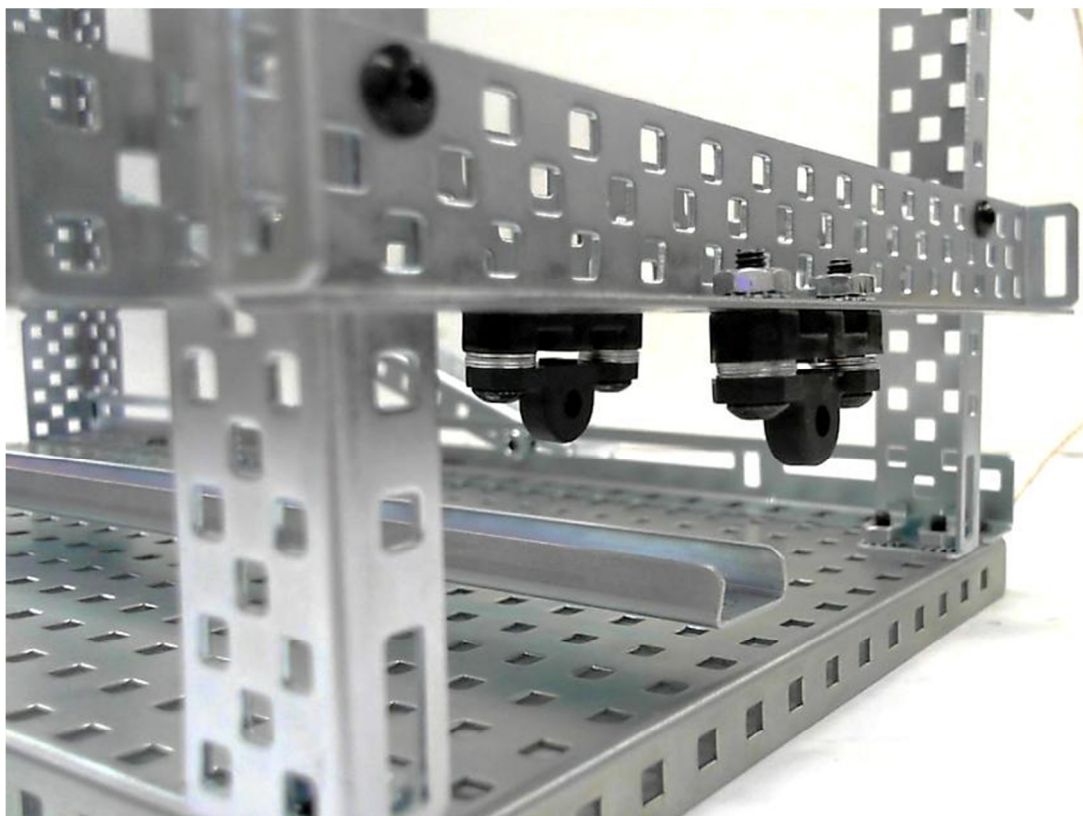
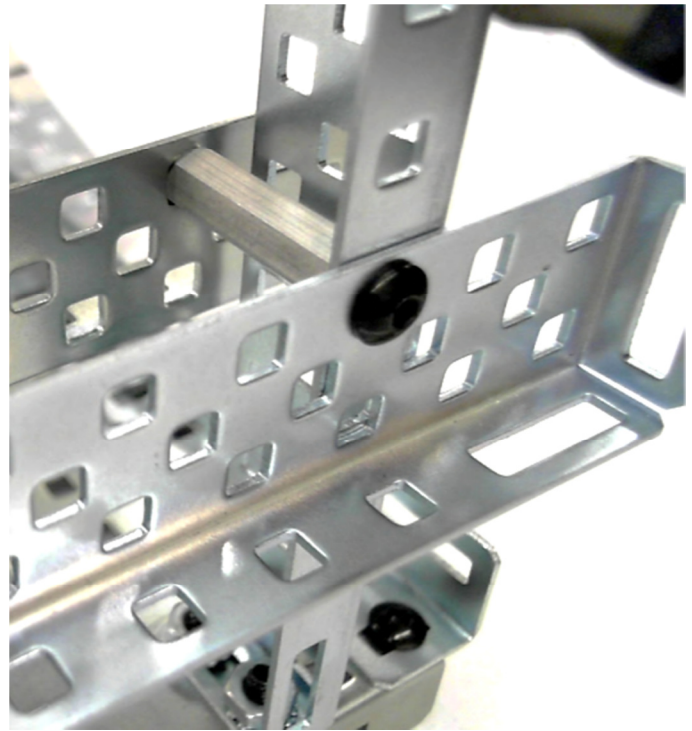
6. Assemble (look at picture for next step also to make sure you place them properly)



7. Gather parts

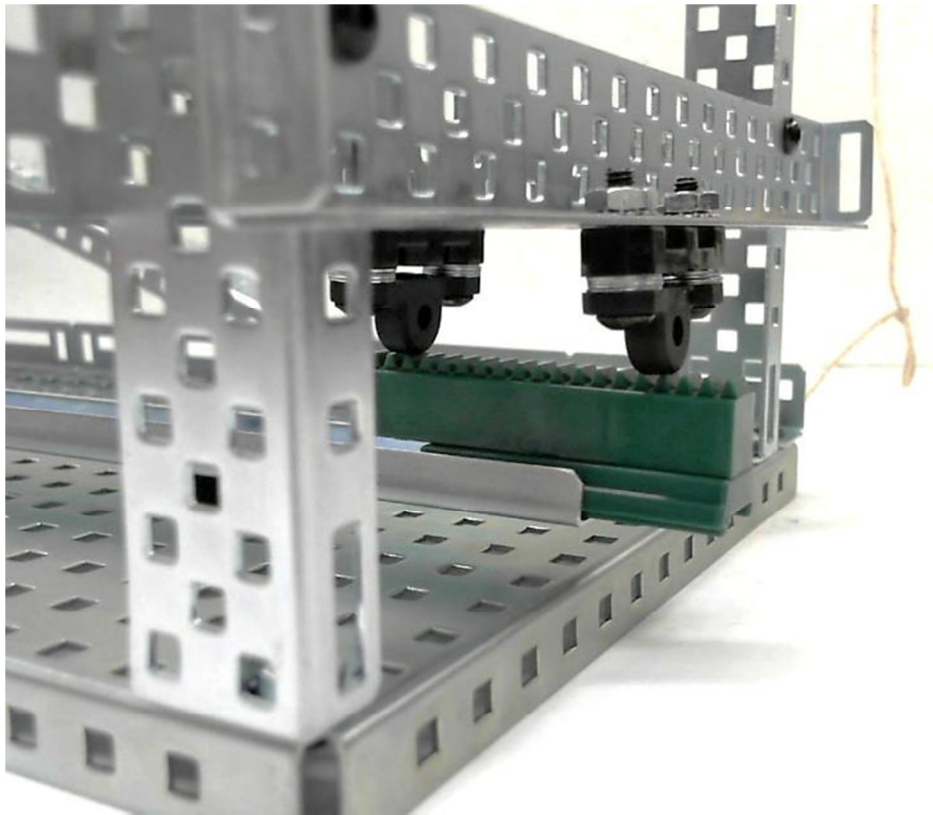


## 8. Assemble





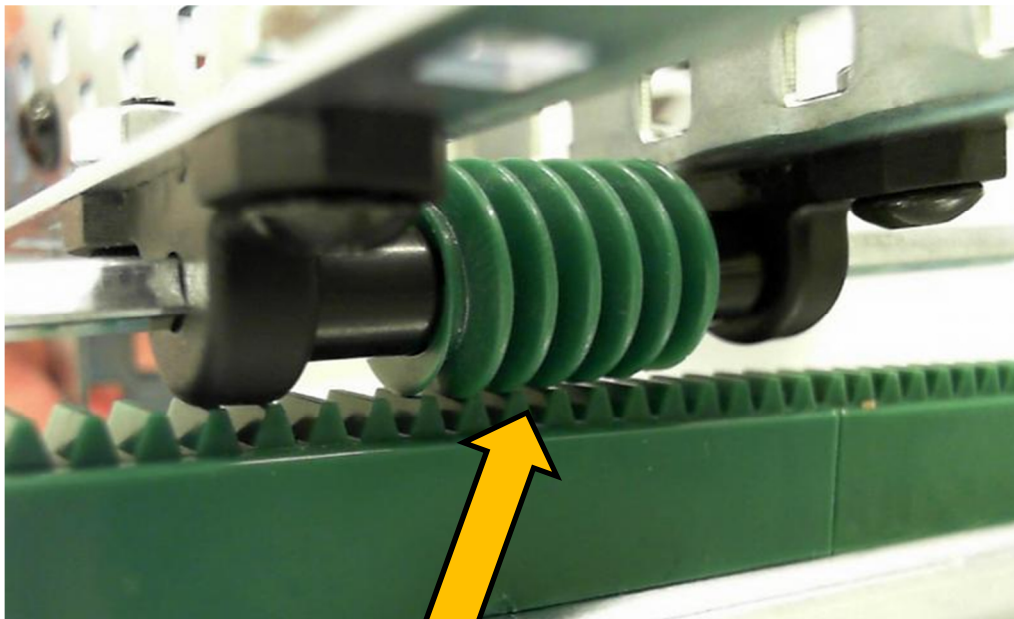
9. Slide the rack into the rails



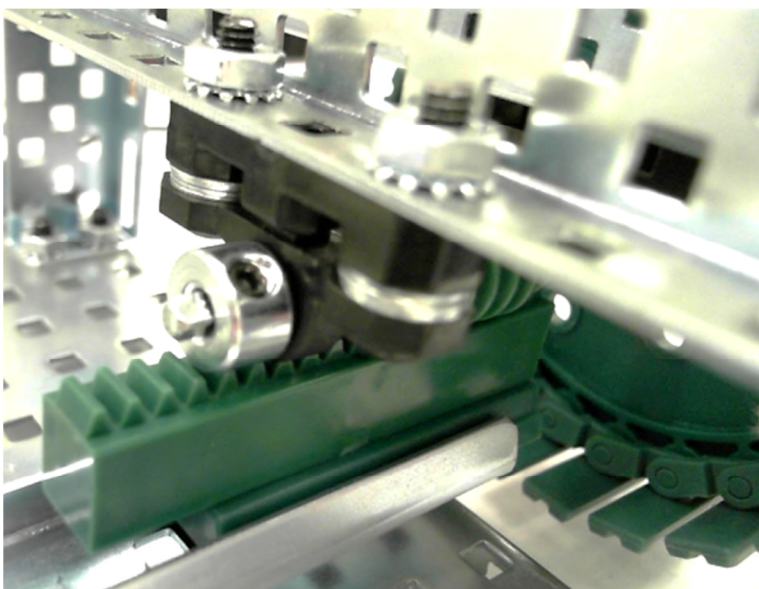
10. Gather Parts

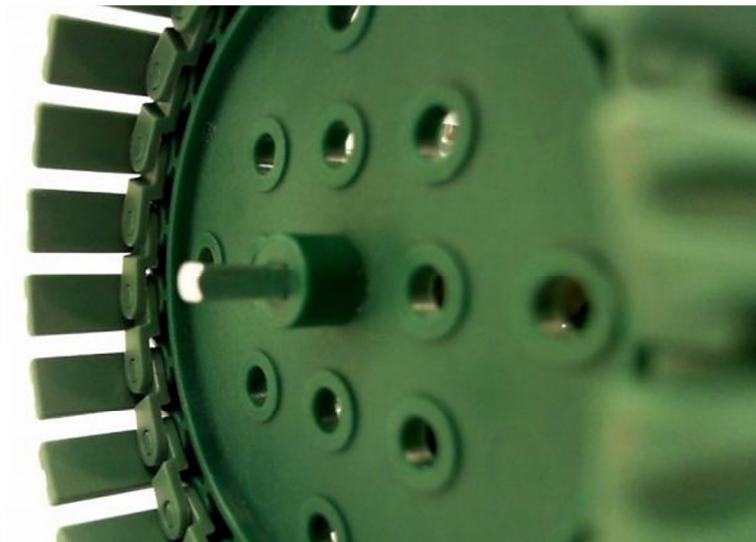
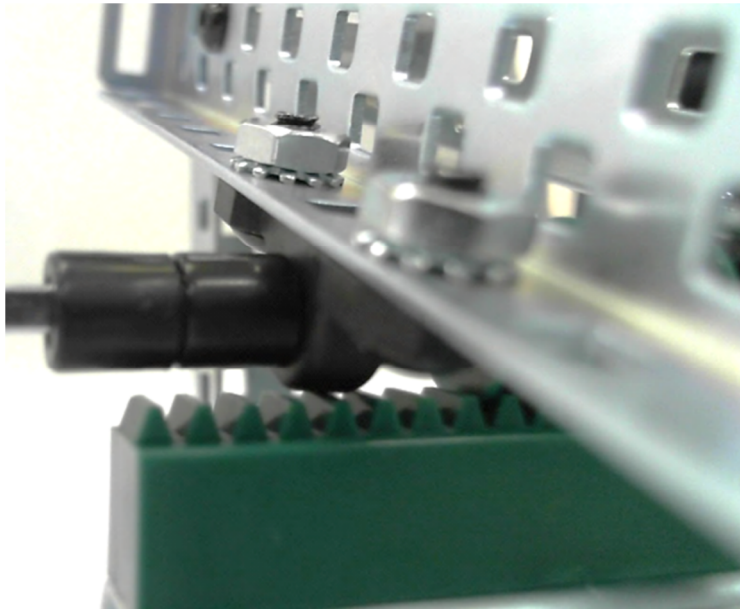


## 11. Assemble



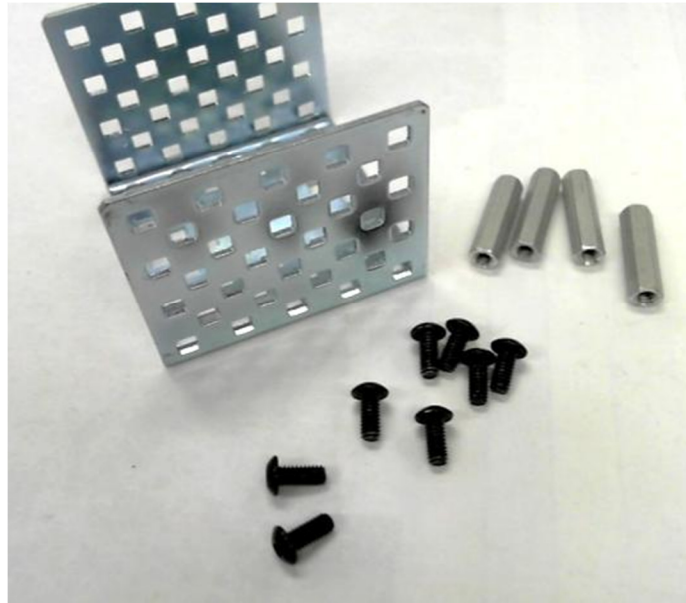
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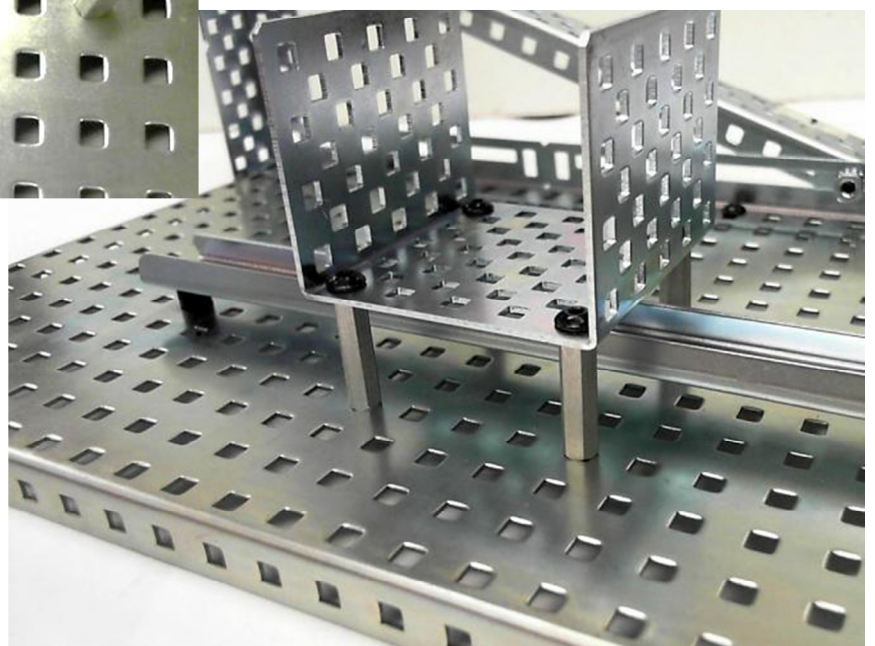
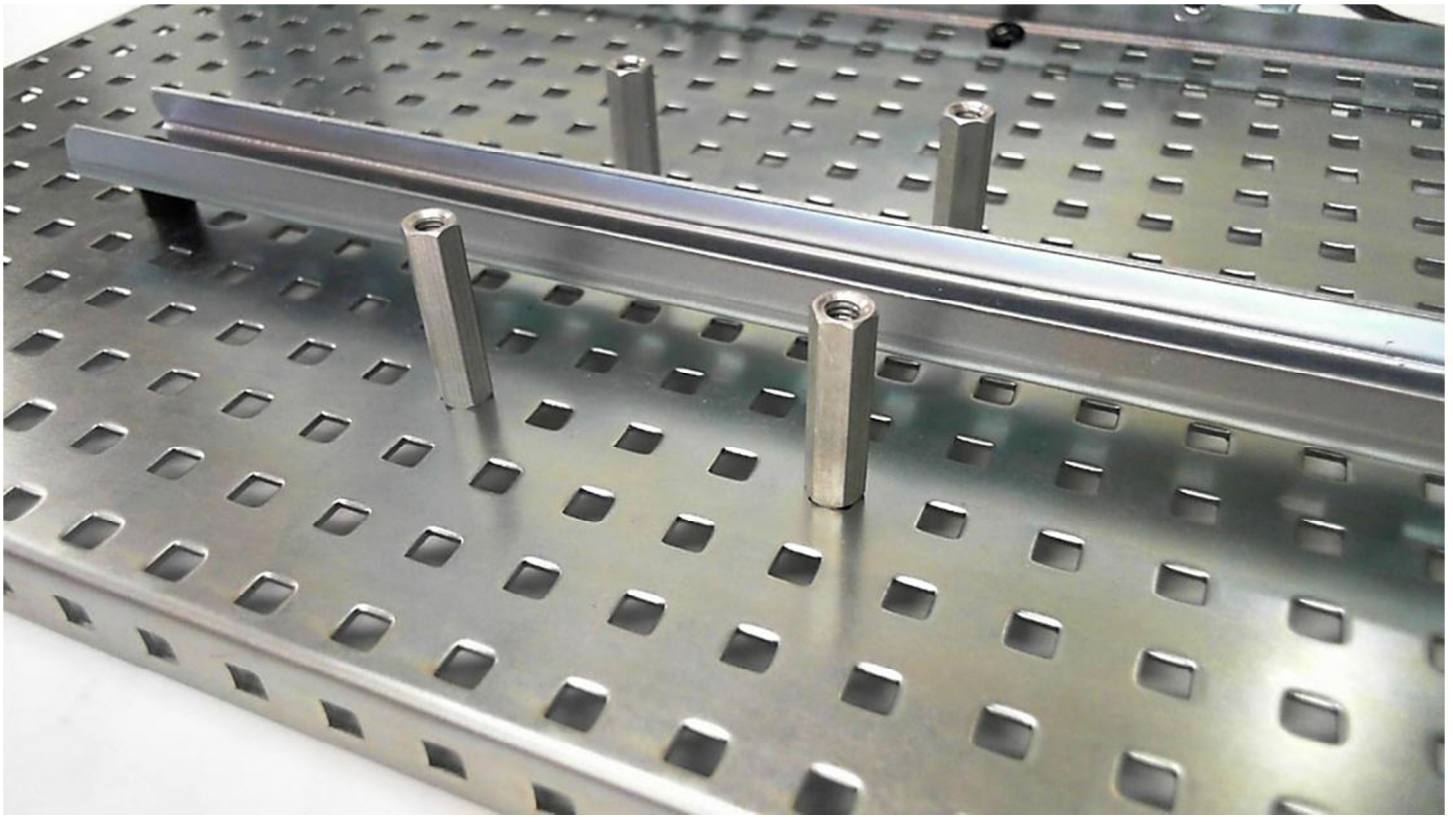




## 12. Gather Parts



### 13. Assemble

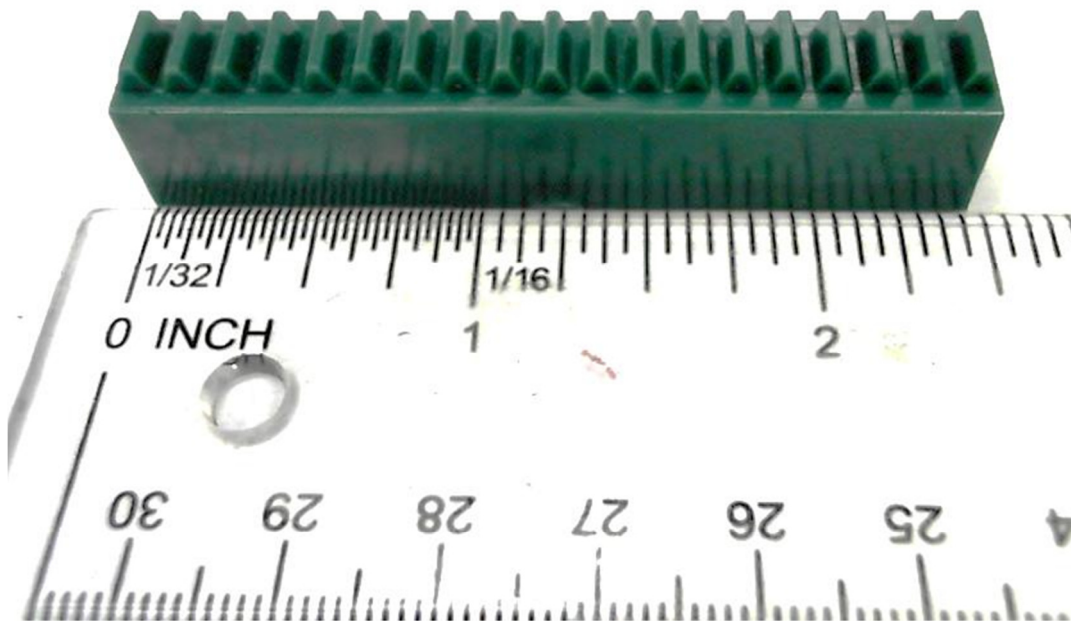




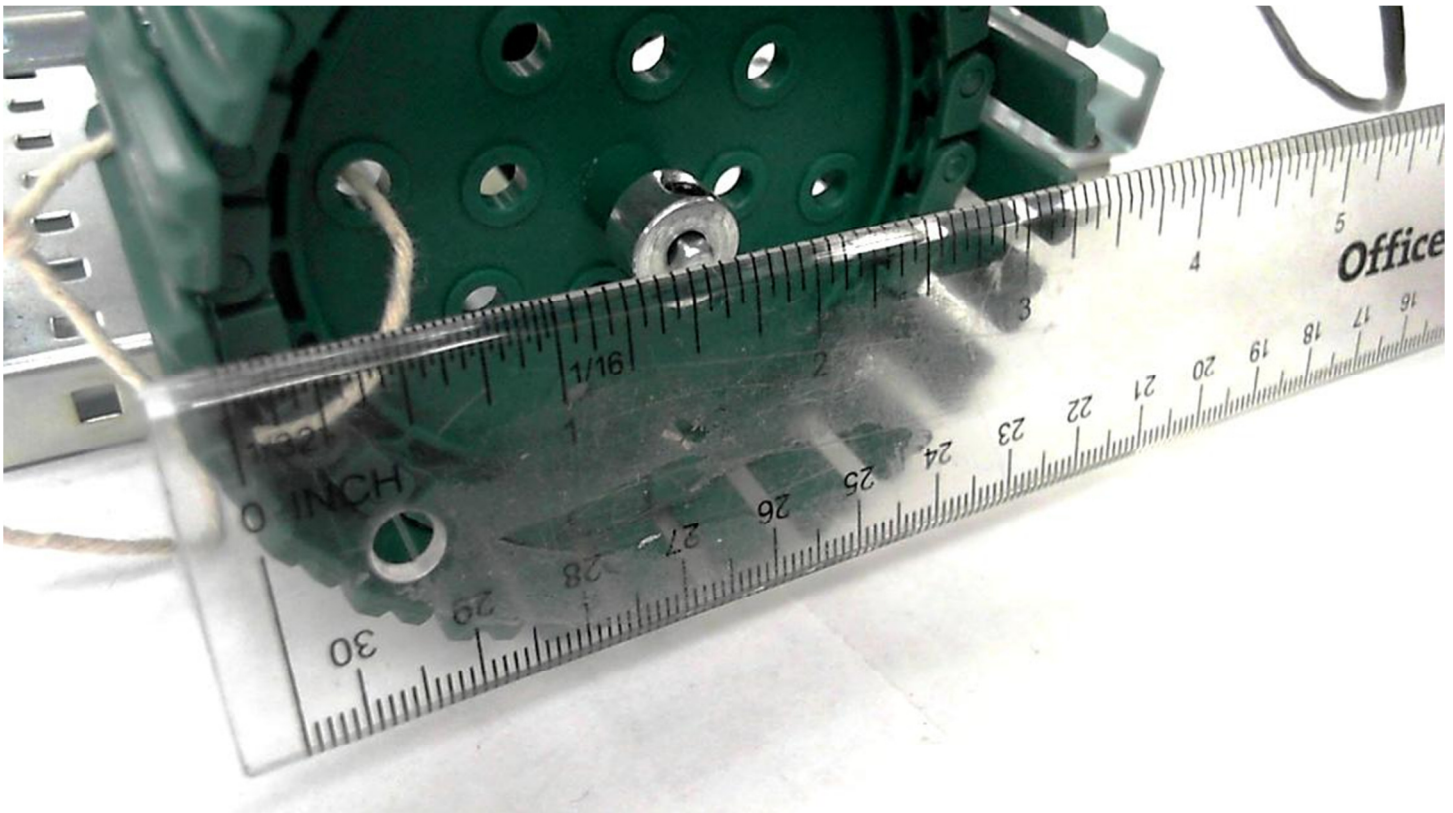
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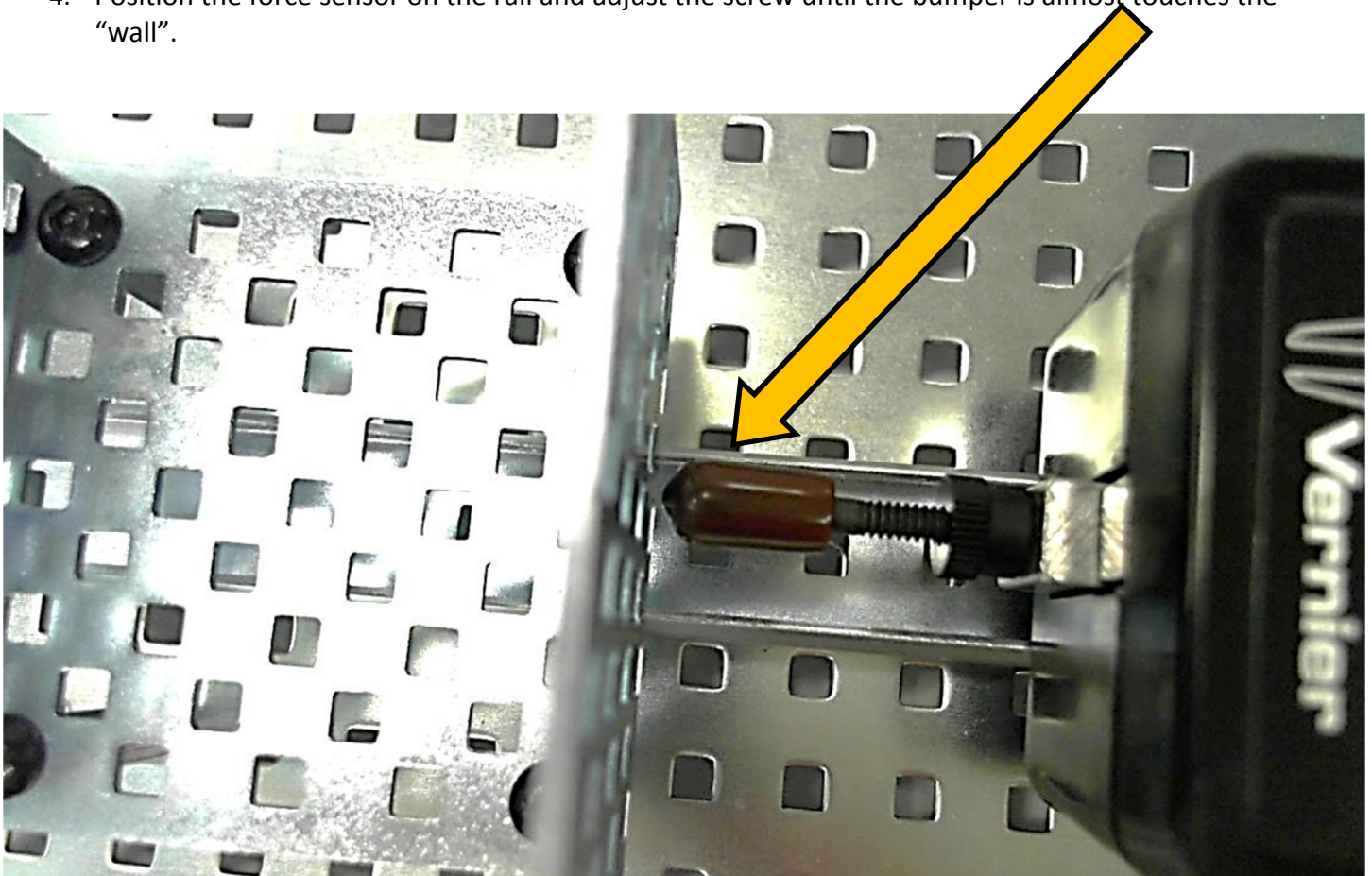




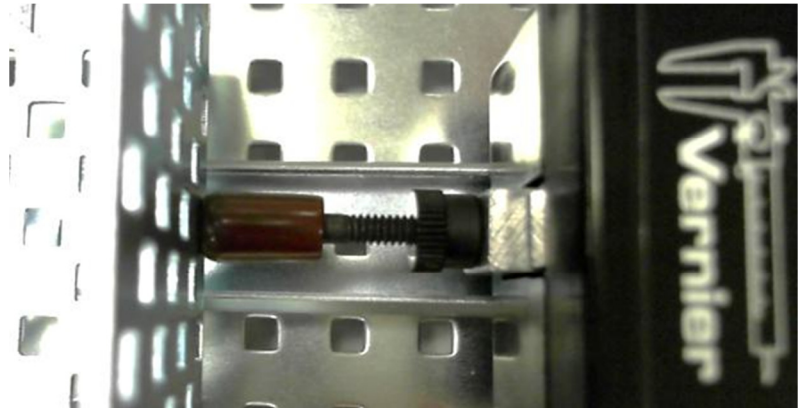
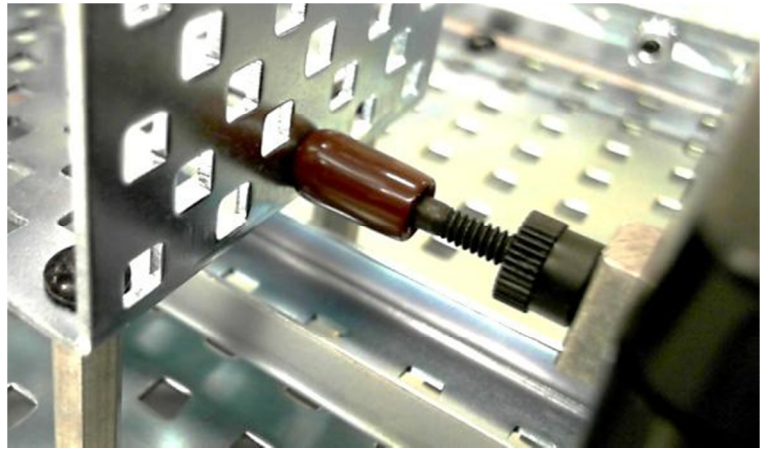
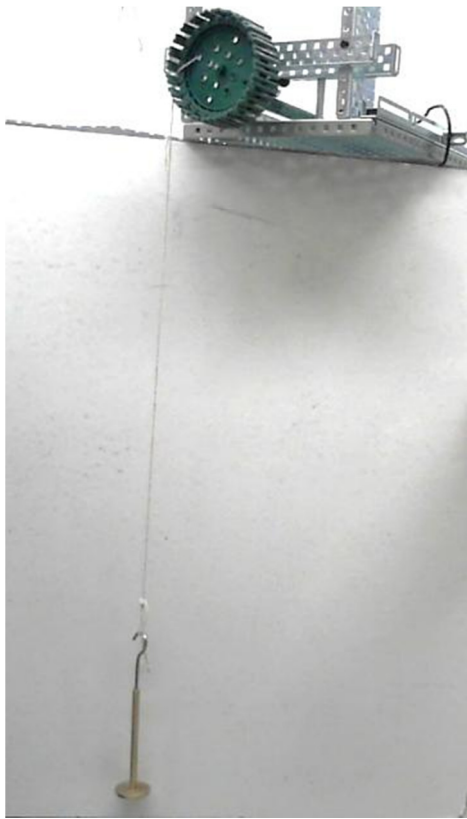
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