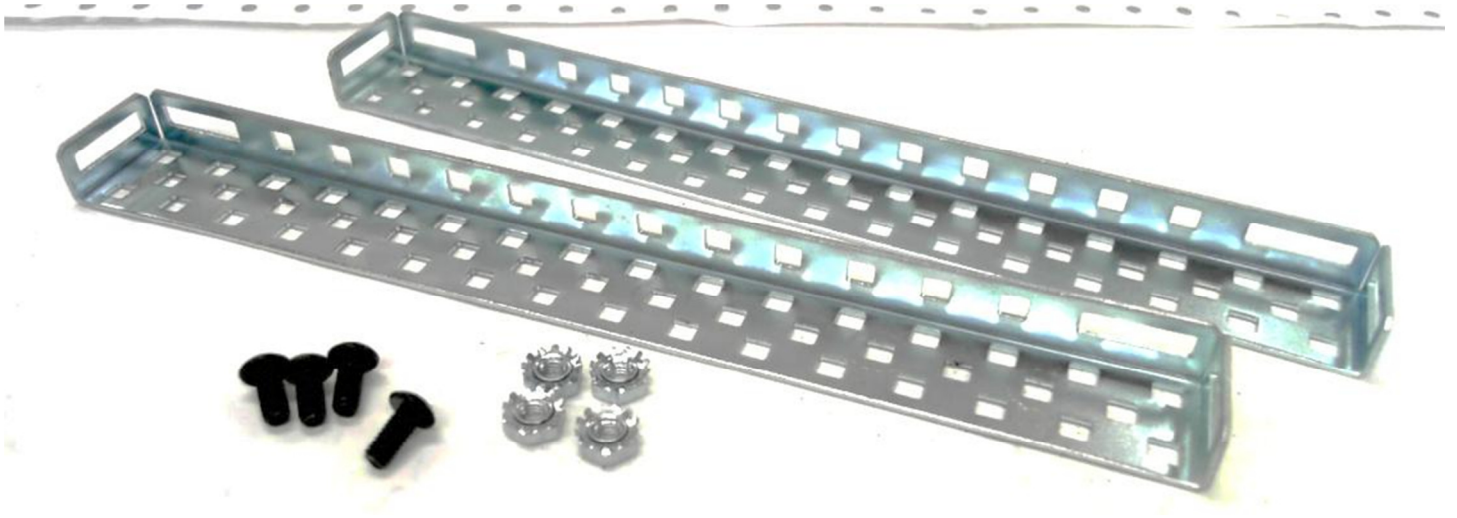


# Simple Machine Investigation

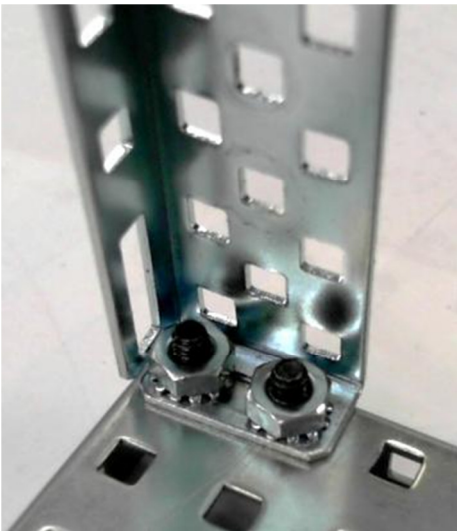
## Build and Measurement Instruction for the Wheel and Axle

### WHEEL & AXLE ASSEMBLY

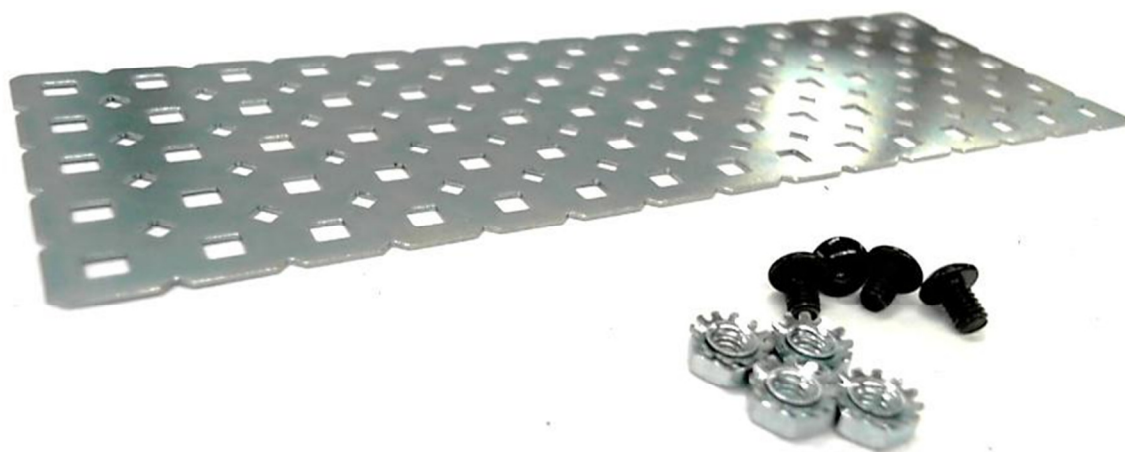
1. Gather Parts



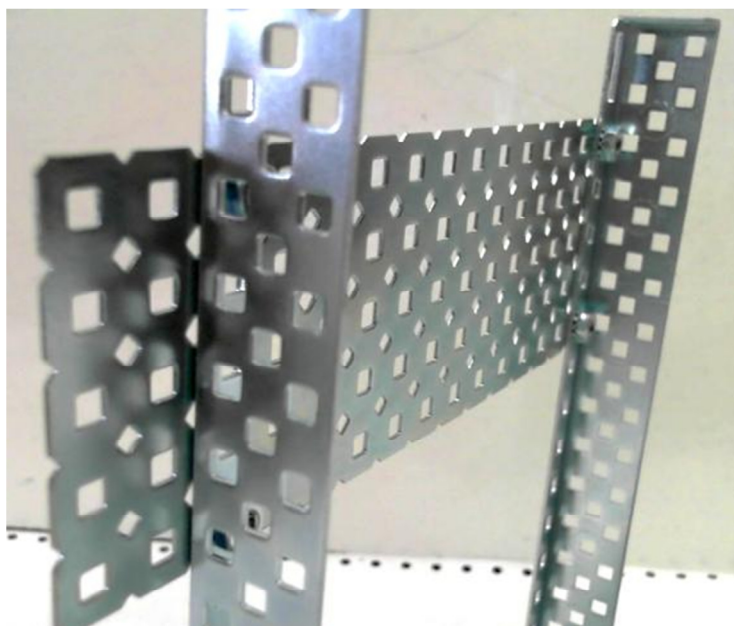
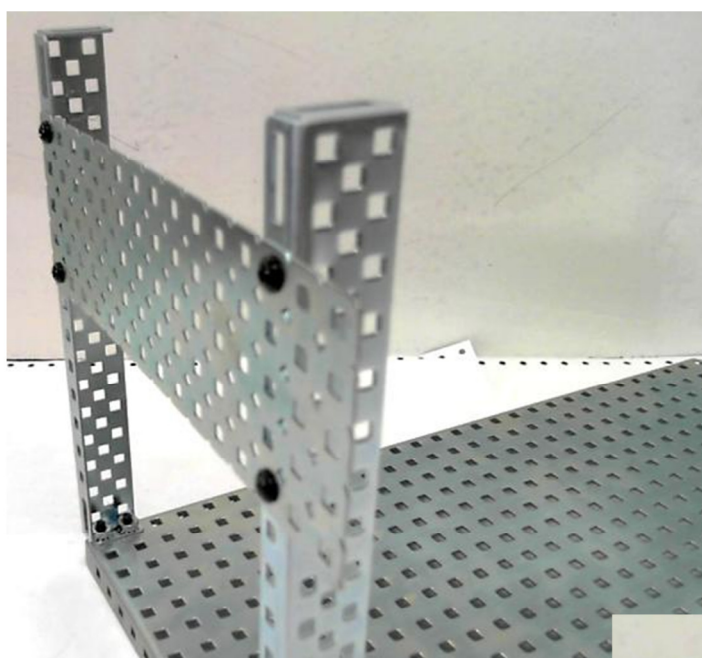
2. Attach uprights to the base plate



3. Gather parts



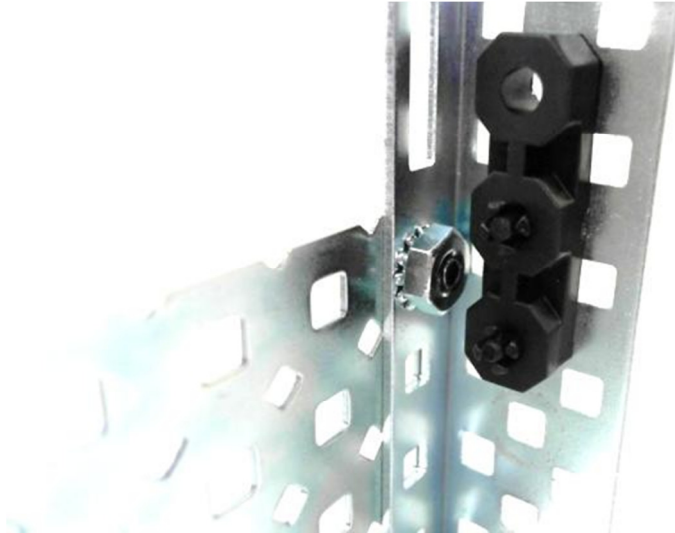
4. Attach plate to uprights to make the structure more stable.



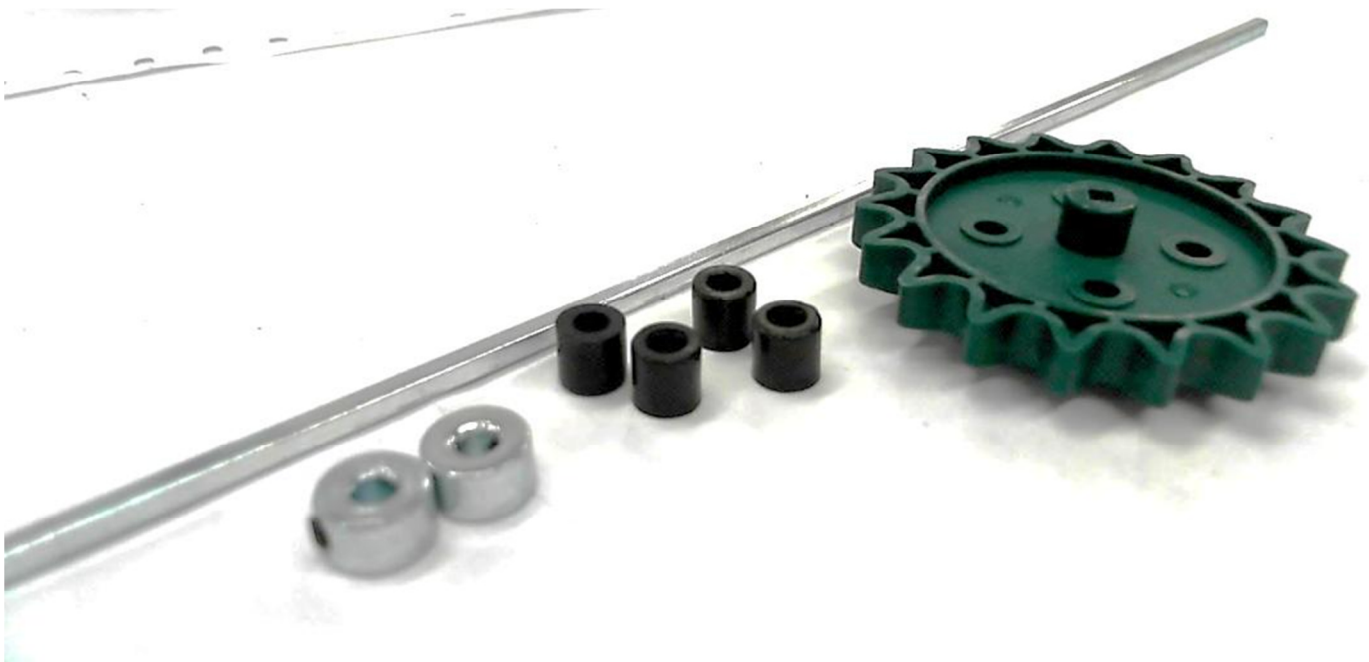
5. Gather parts



6. Attach bearings to uprights with the pop rivets.

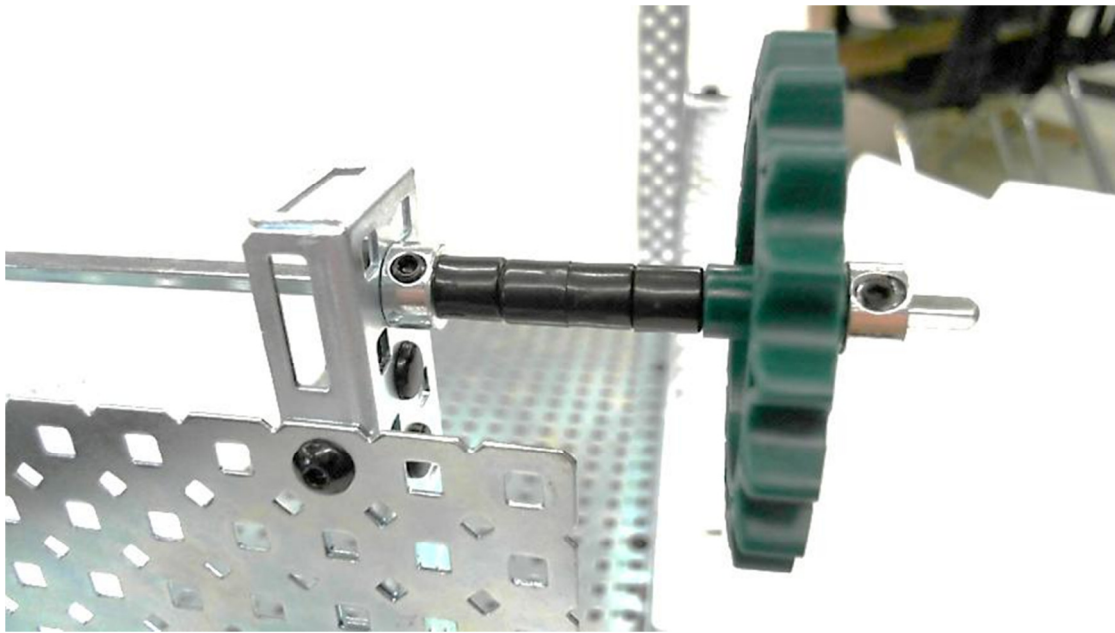
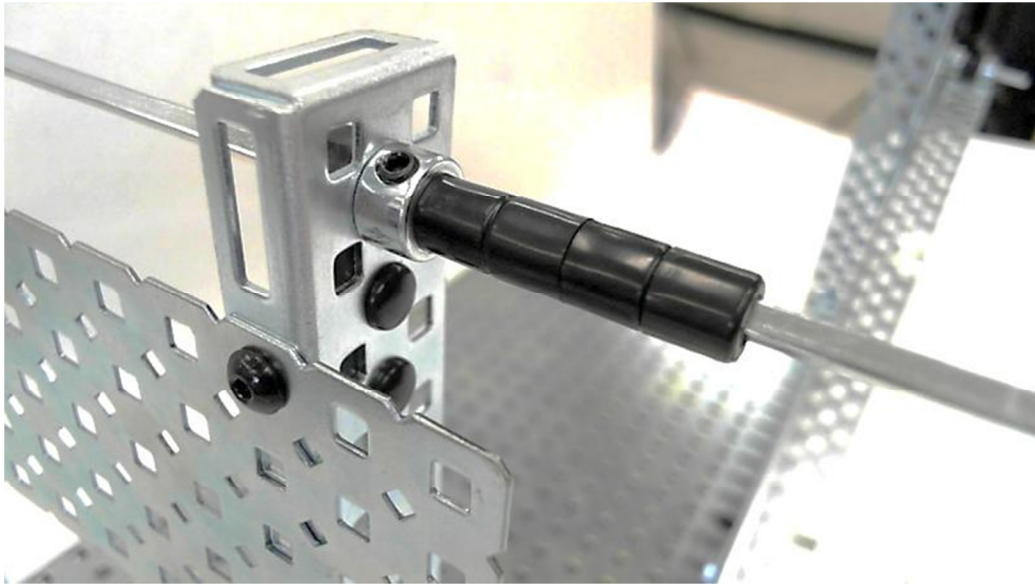


7. Gather Parts





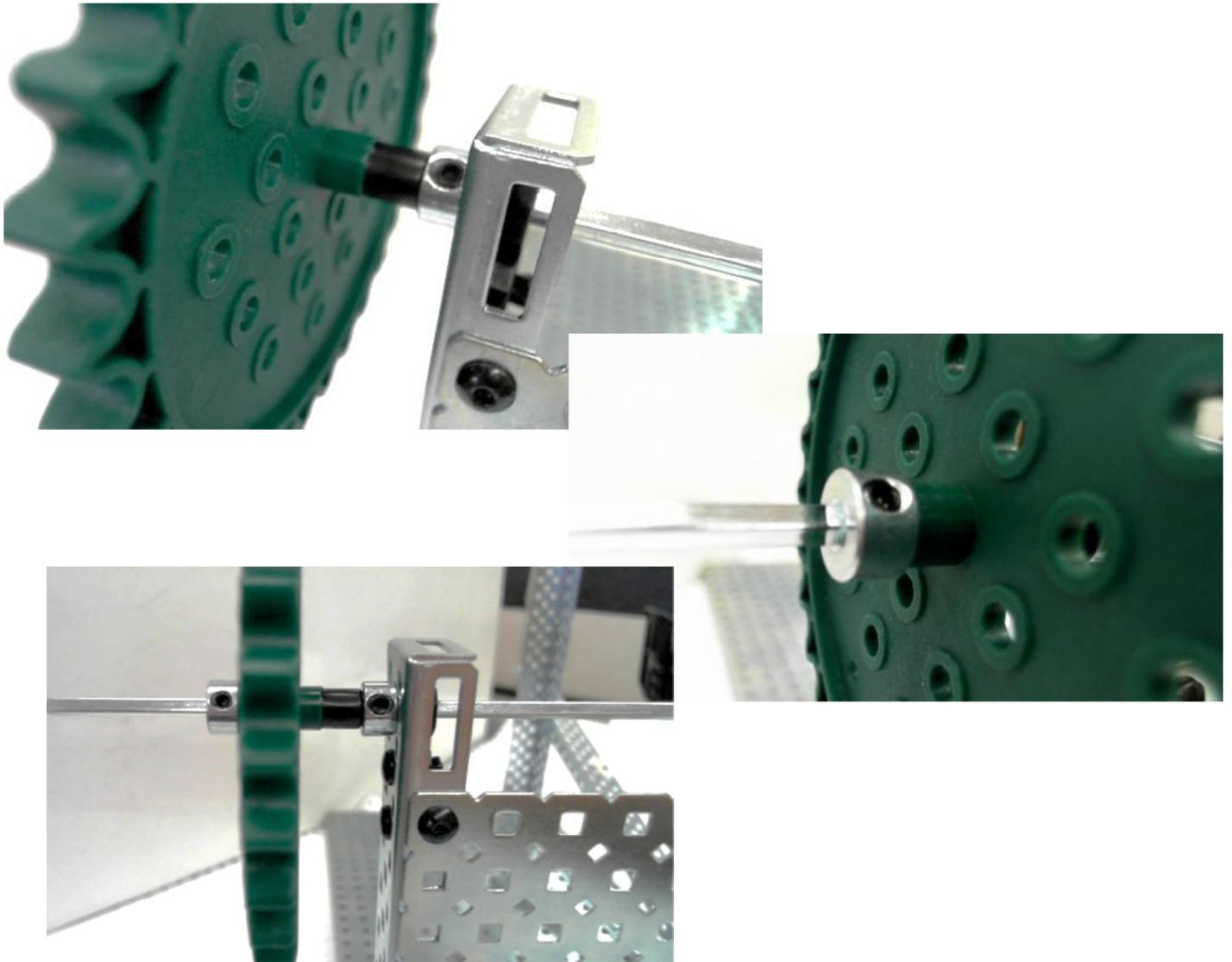
8. Attach the AXLE HUB part of your Wheel & Axle machine



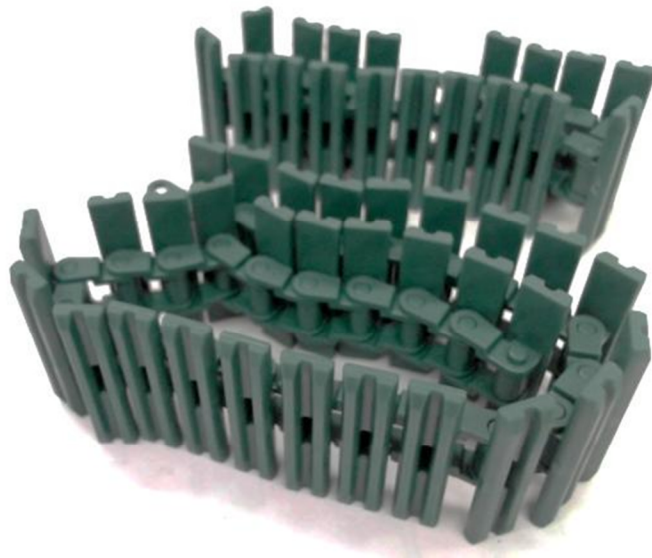
9. Gather parts



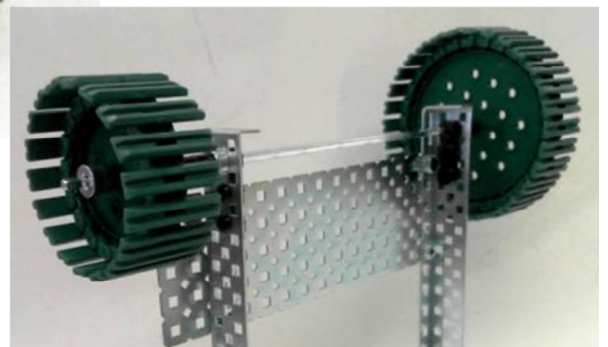
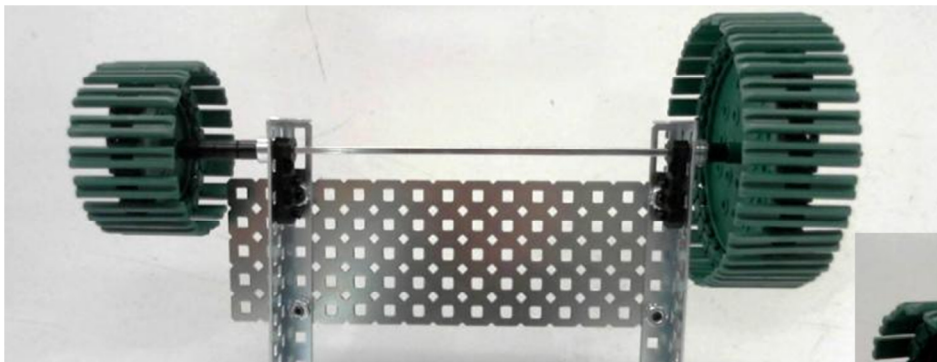
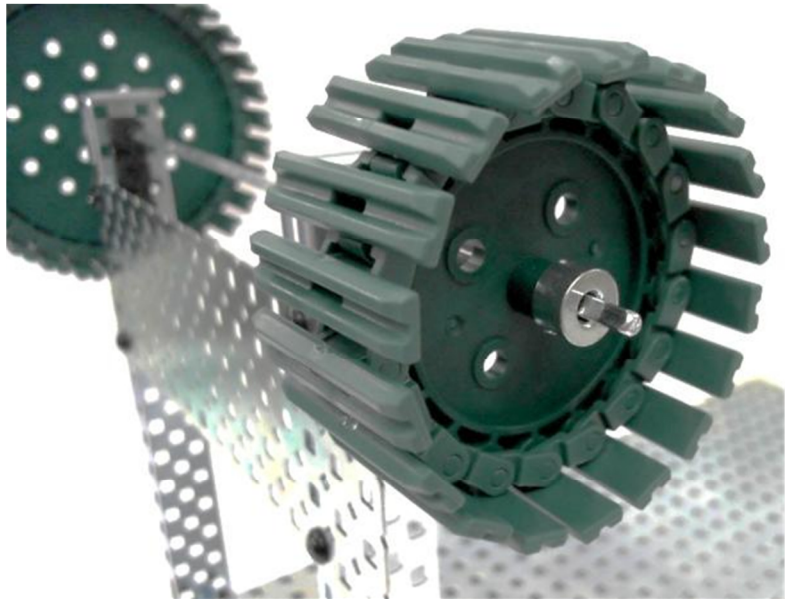
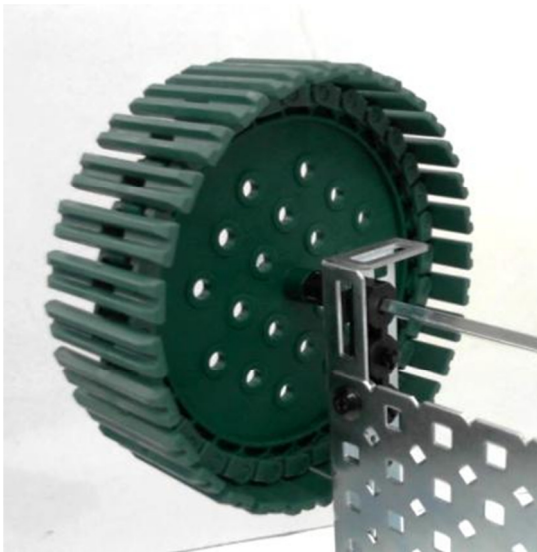
10. Attach the WHEEL HUB part of your Wheel & Axle machine,



11. Gather parts.



12. Attach links to the Wheel Hub and Axle Hub and your Wheel and Axle is now complete.

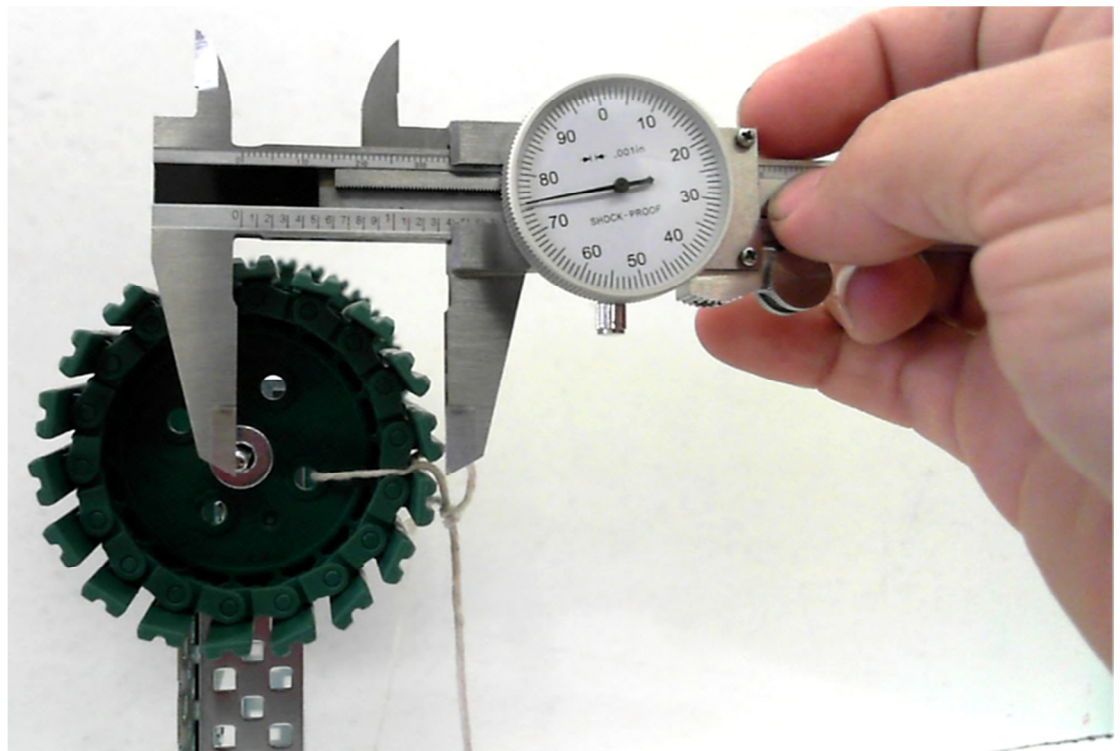
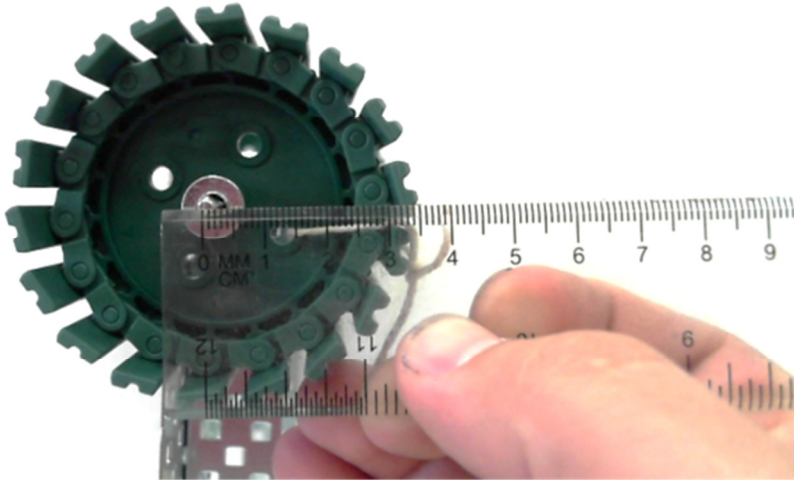




## WHEEL & AXLE MEASUREMENTS AND DATA COLLECTION

*Use these instructions along with your Simple Machine Investigation Data Sheet Part 3-Wheel & Axle*

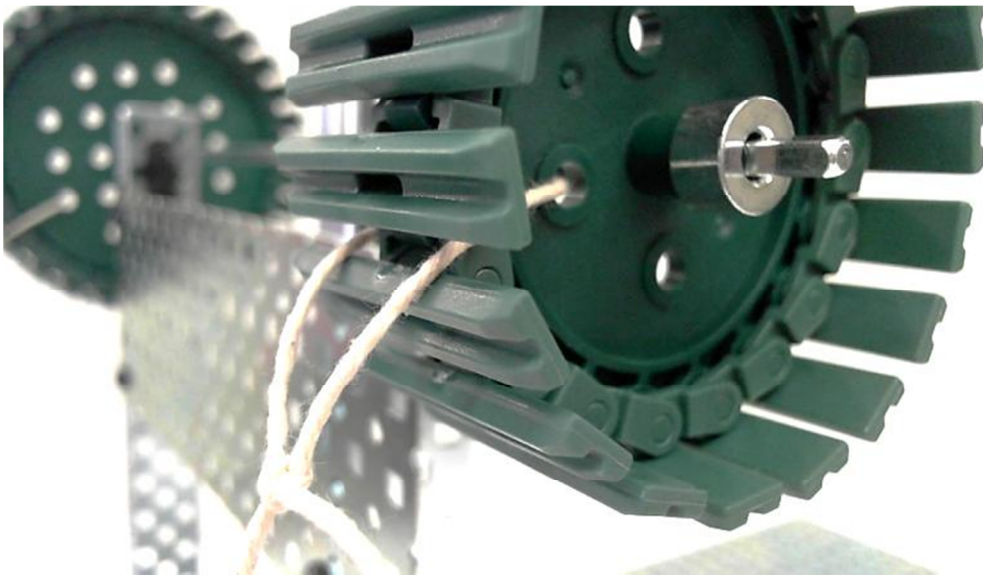
1. Measure the diameter of the WHEEL (larger diameter) and the diameter of the AXLE (smaller diameter) using a ruler or dial calipers. These pictures show how you might measure obtain the diameter by measuring the radius and then multiplying by 2. Record these values in the appropriate places on your data sheet.



2. Gather your resistance force, force sensor, and two strings. The string that will wrap around the AXLE should be about 2 feet in length. The string that will wrap around the WHEEL should be about 3 feet in length.



3. Tie the shorter string onto the AXLE. Tie the longer string onto the WHEEL.



4. Then tie an open loop in the other end of the strings.





5. Use the force sensor and strings to apply the resistance and effort force to the Wheel & Axle System

