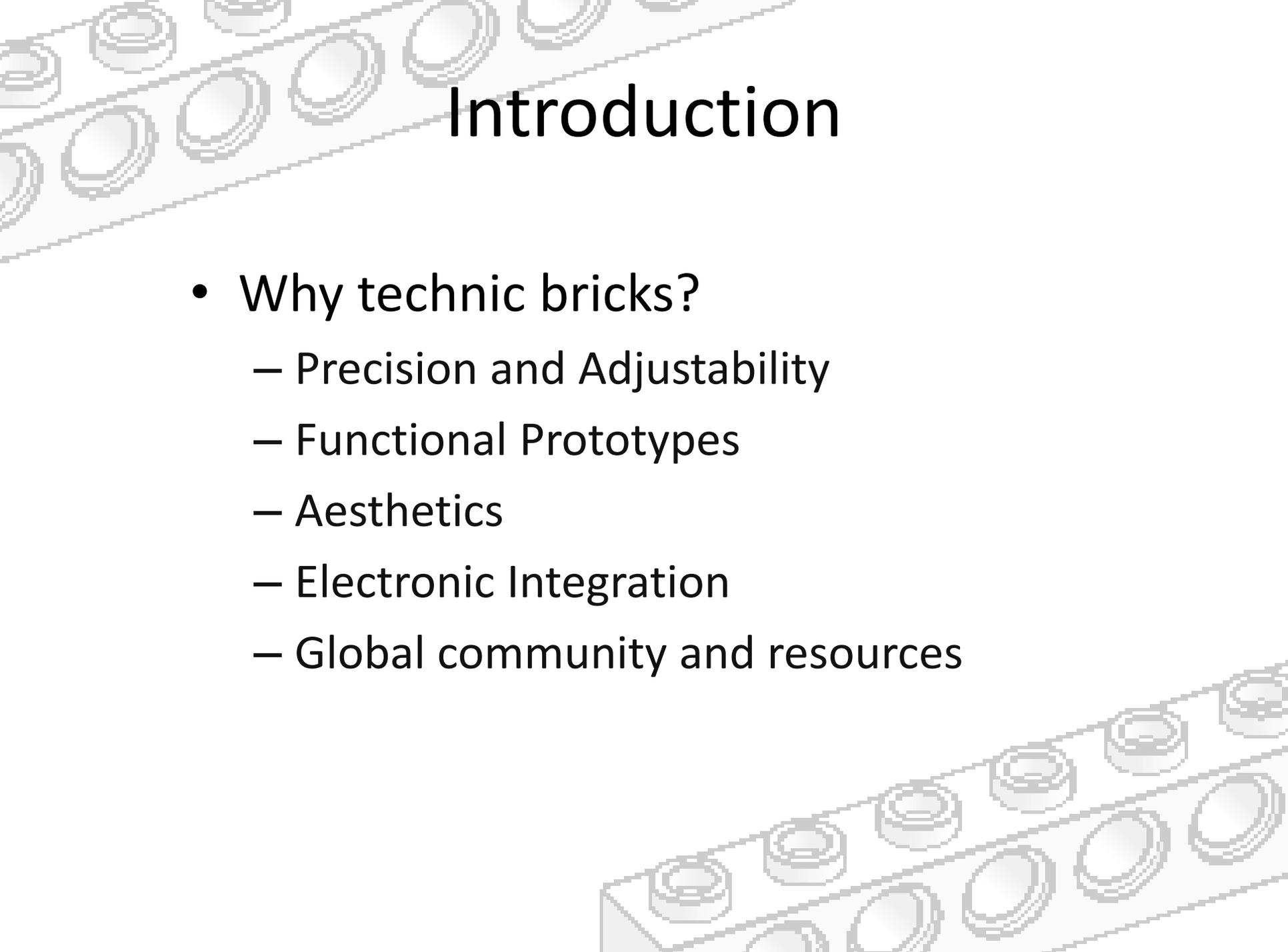




Technic Bricks Workshop

Building Principles, Gear Wheels, Gear Ratio...



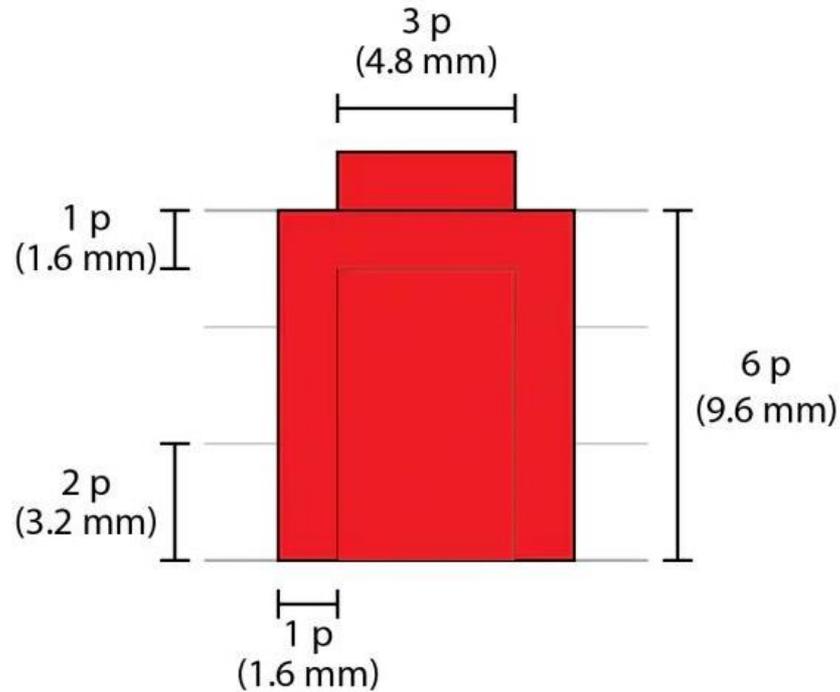


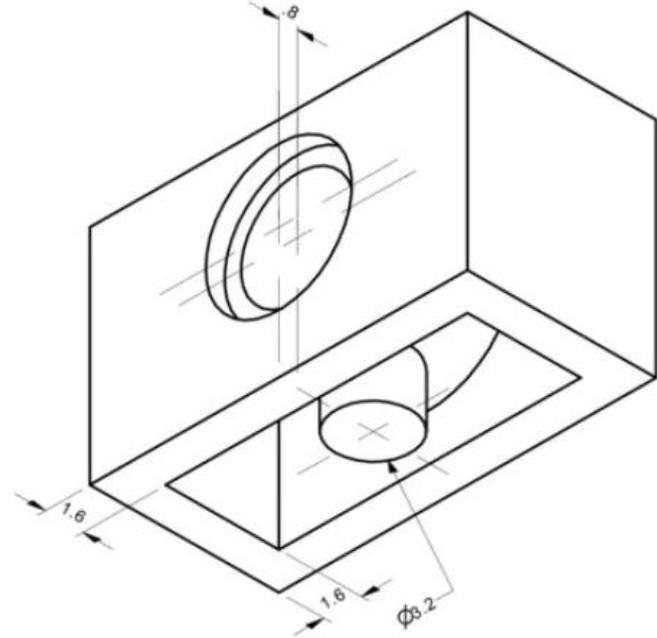
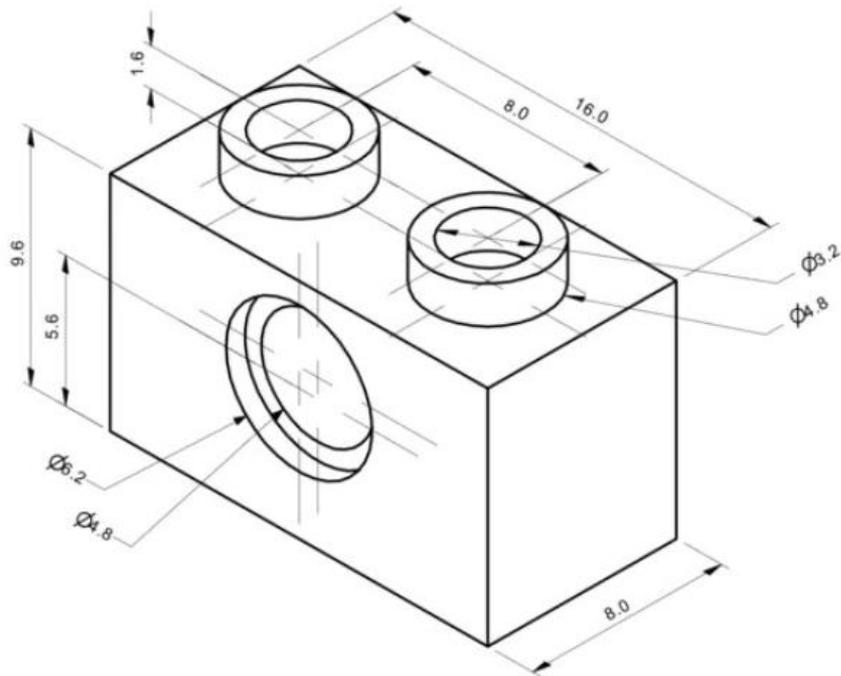
Introduction

- Why technic bricks?
 - Precision and Adjustability
 - Functional Prototypes
 - Aesthetics
 - Electronic Integration
 - Global community and resources

Specification of bricks

- 1 plastic (p) = 1.6 mm





Height: 6p

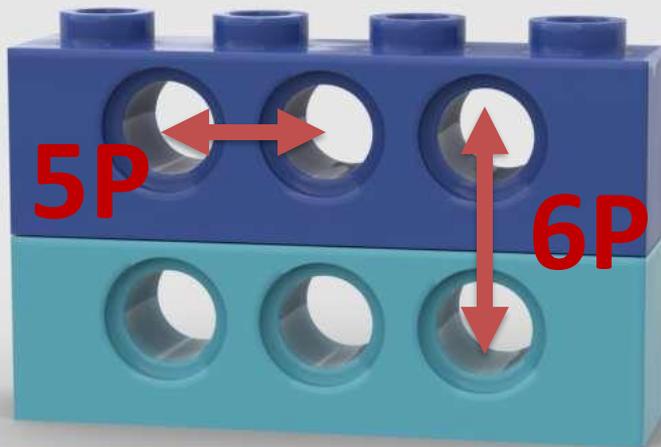
Wide: 5p

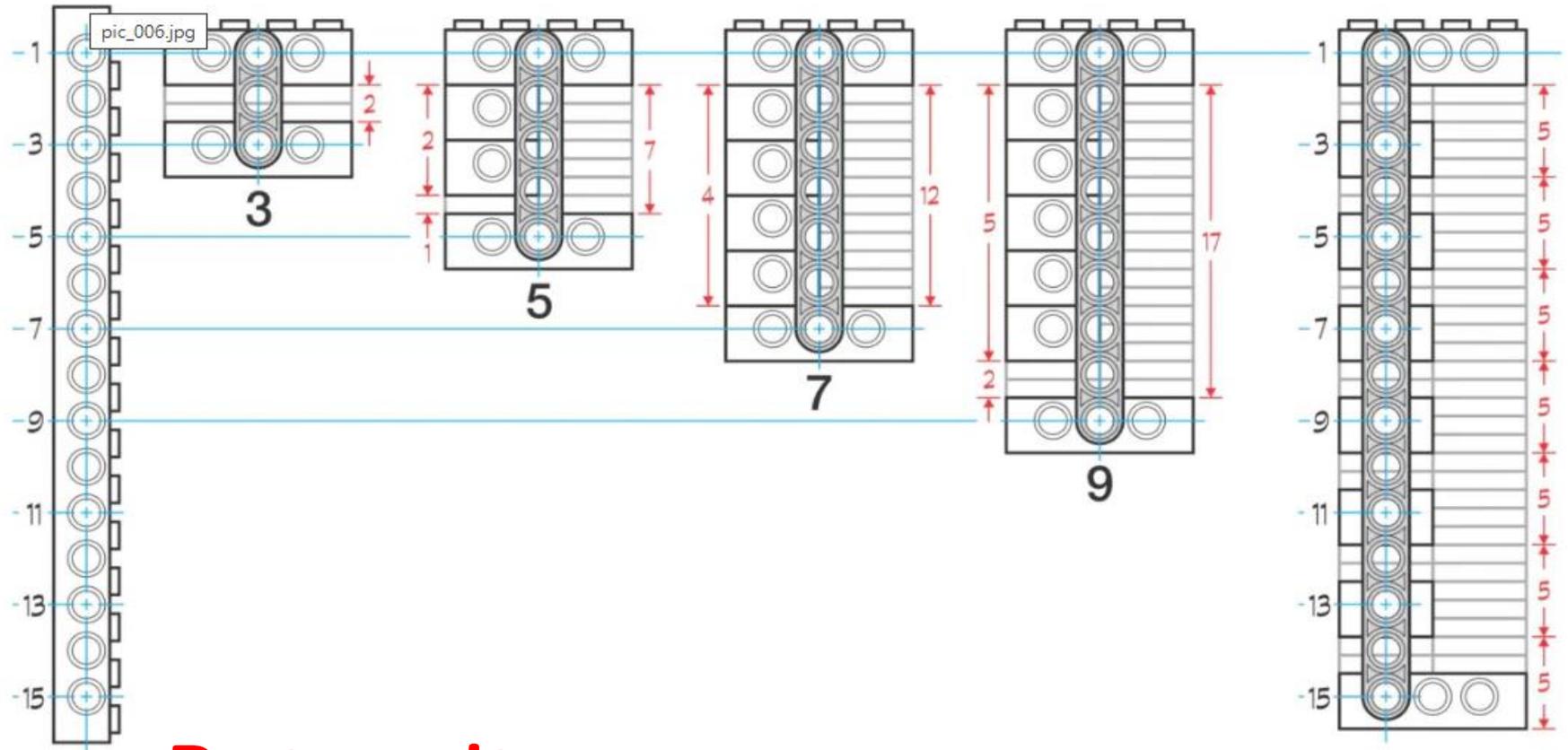
Between stud: 5p

Bottom to pin: 3.5p

Top to pin(w/o stud): 2.5p

Miss Match!!!





But wait...

Building Parts

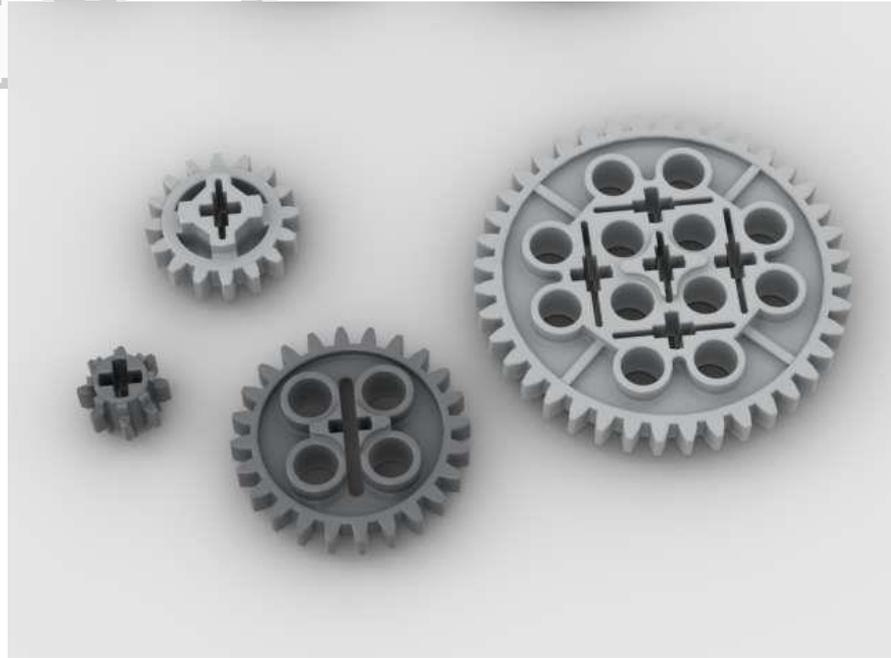
- Arms (Odd Numbers)



- Technic Bricks (Even Numbers)



- Gears (Spur)



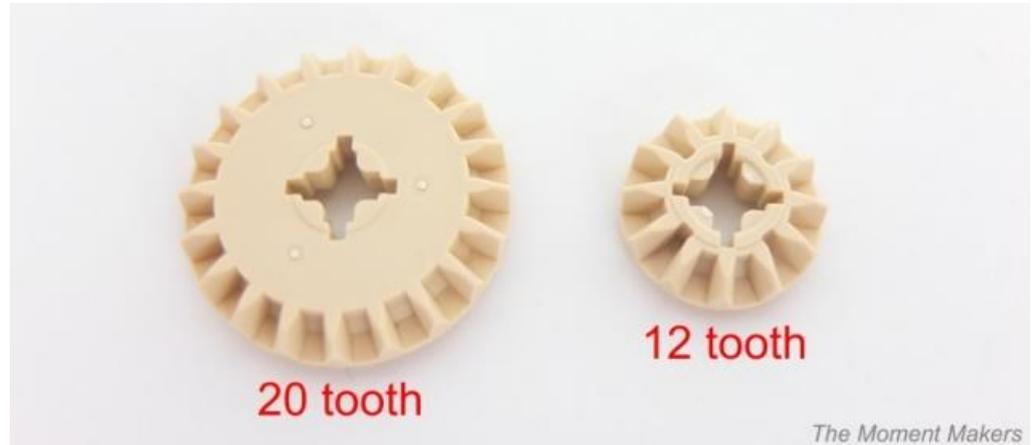
- Gears (Bevel)



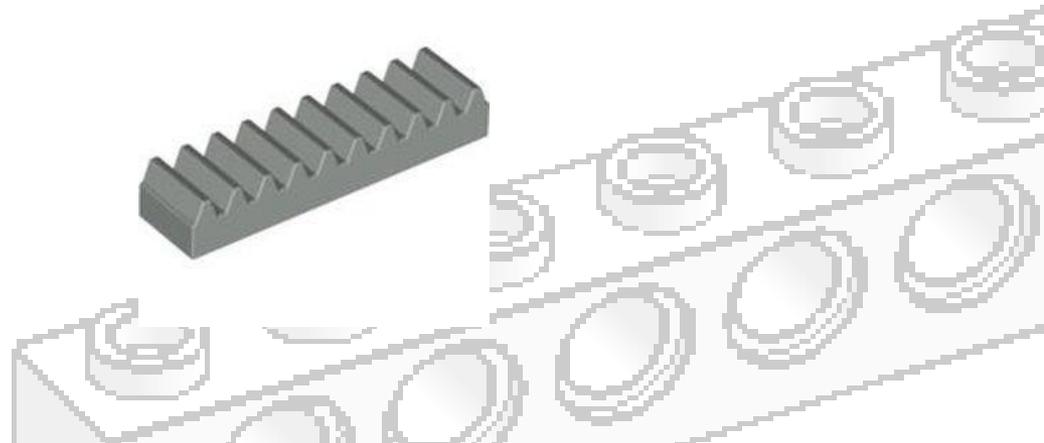
- Gears (Worm)



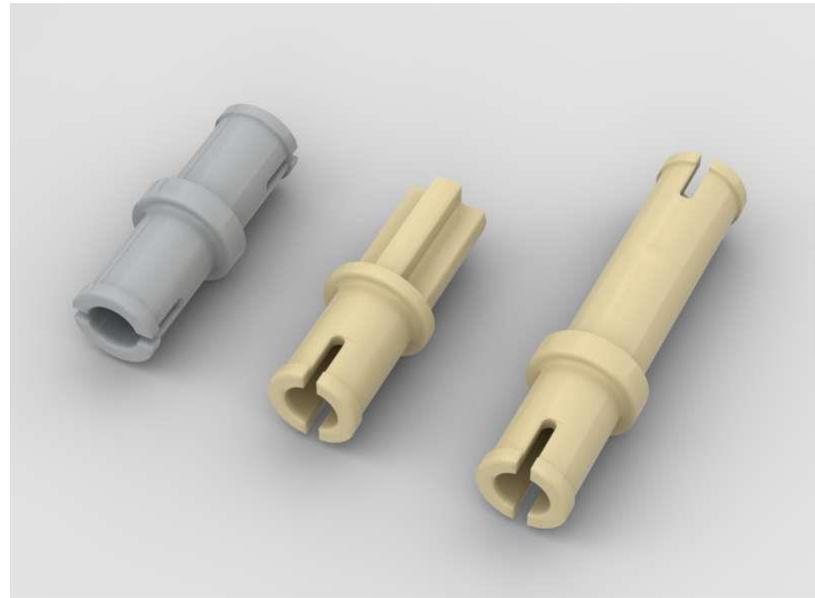
- Gears (Crown)



- Gears (Rack)



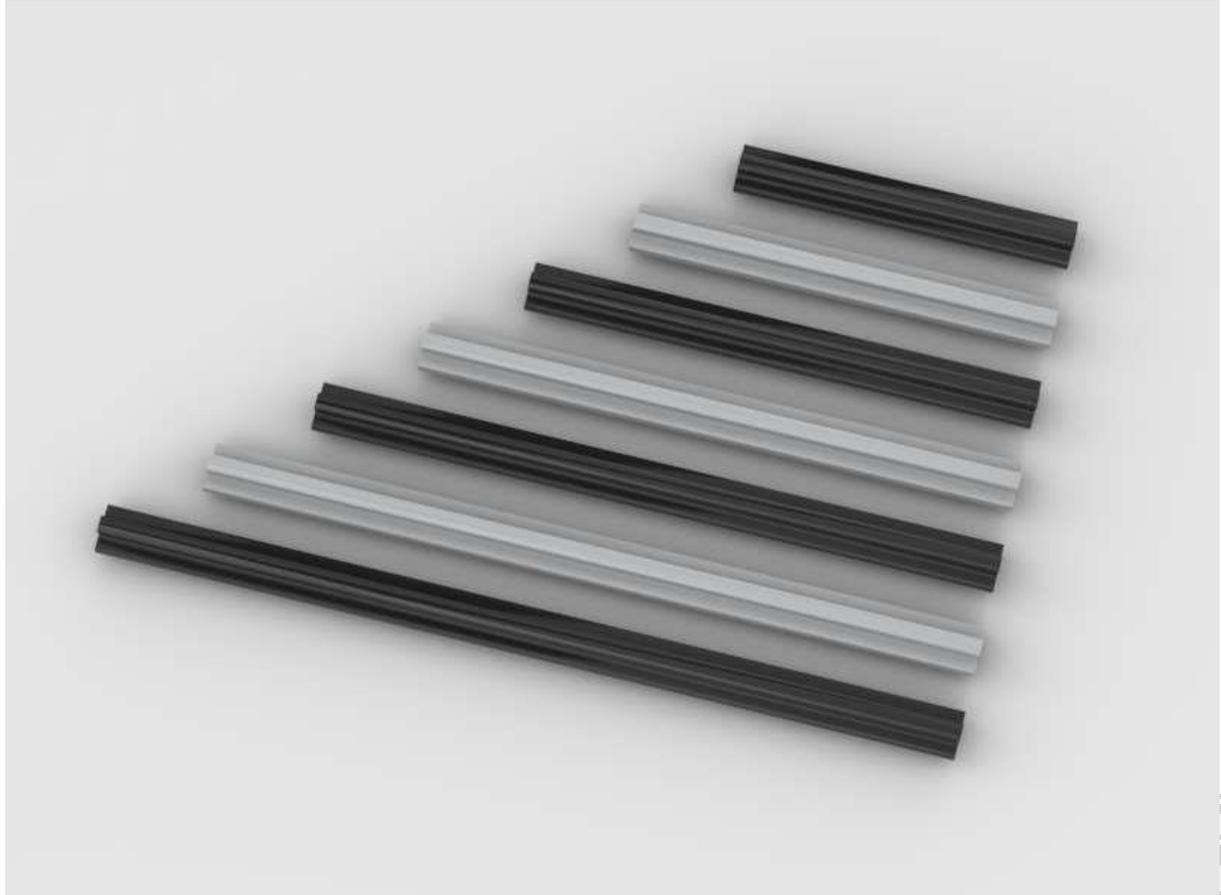
- Pin (with NO friction)



- Pin (with friction)

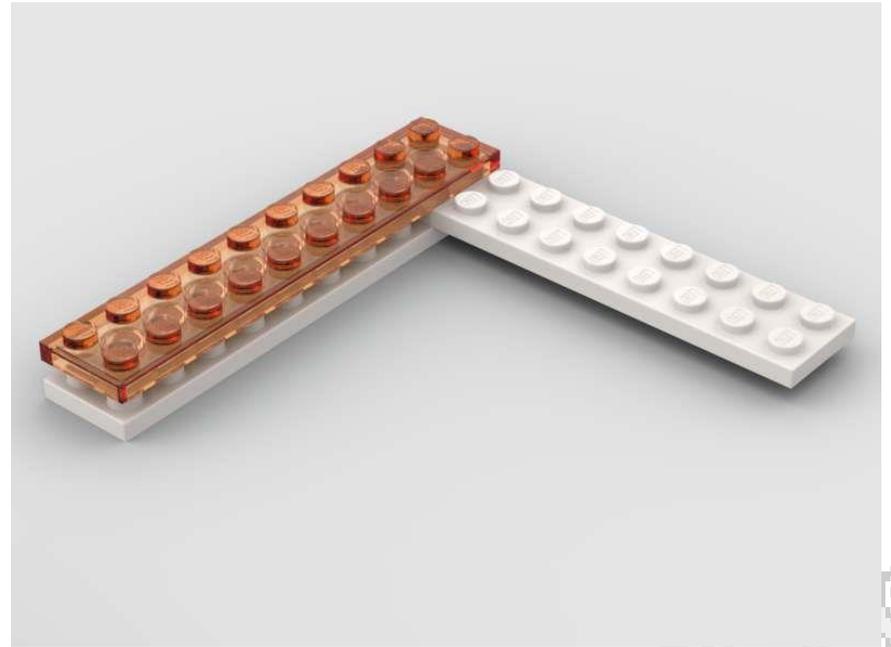
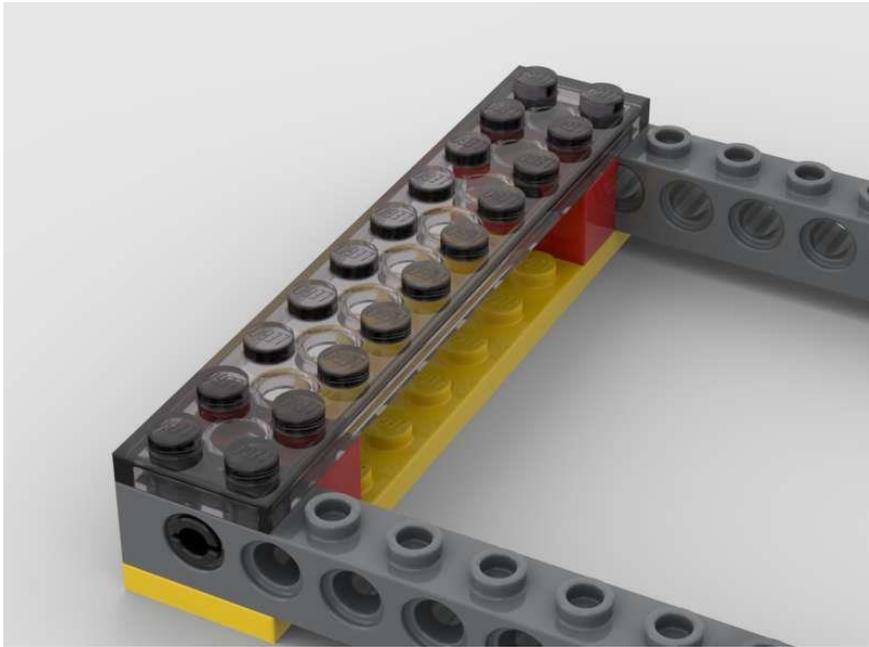


- Axles



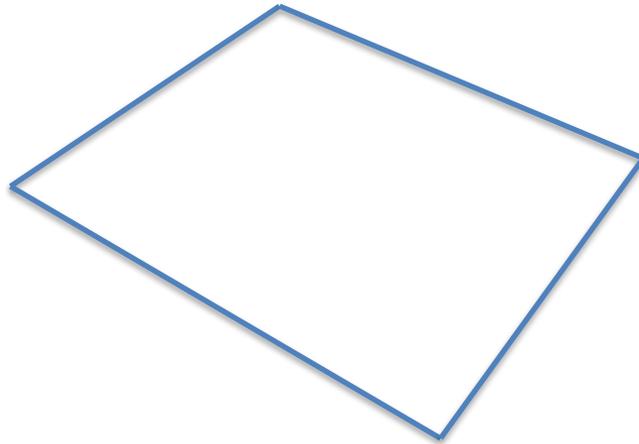
Tips for Strong Connections

- Interlocking

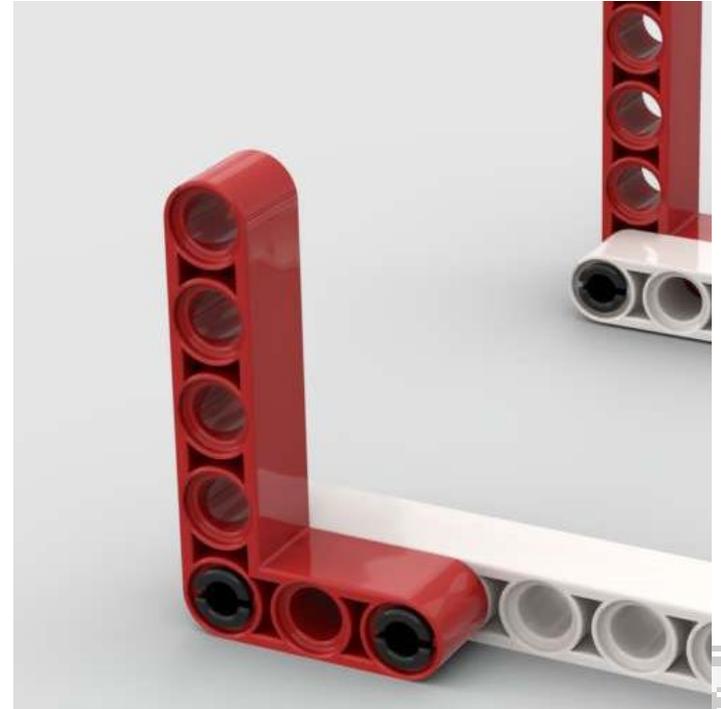
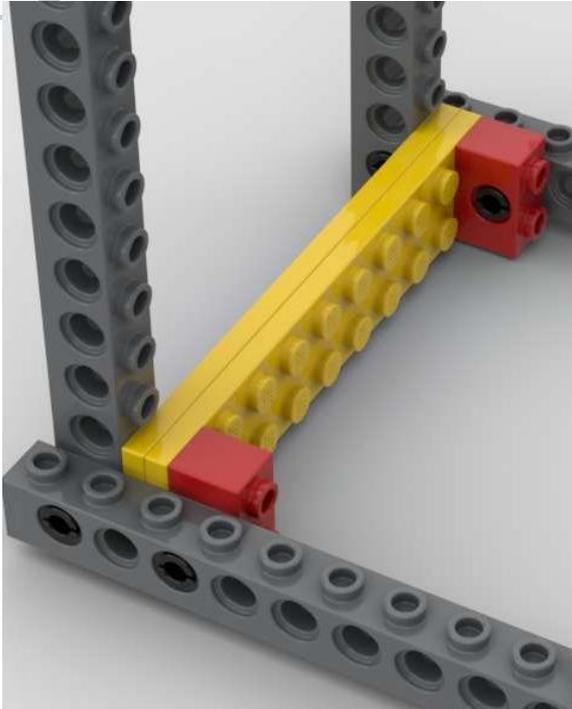


Hands-on practice 1

- Build a FIRN horizontal rectangular frame structure

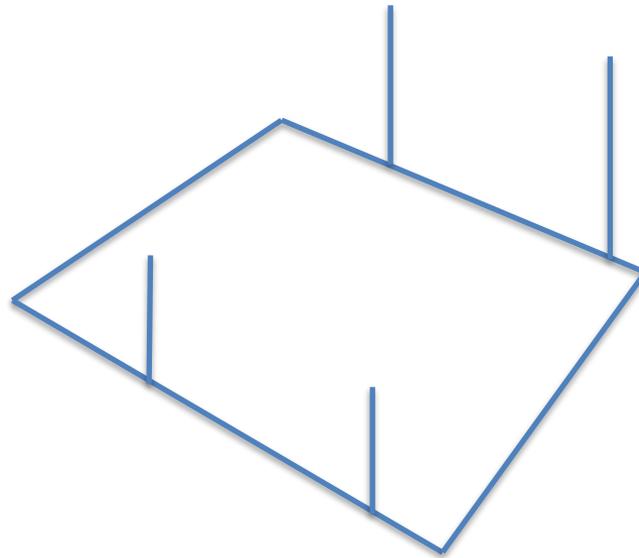


Vertical Linkage



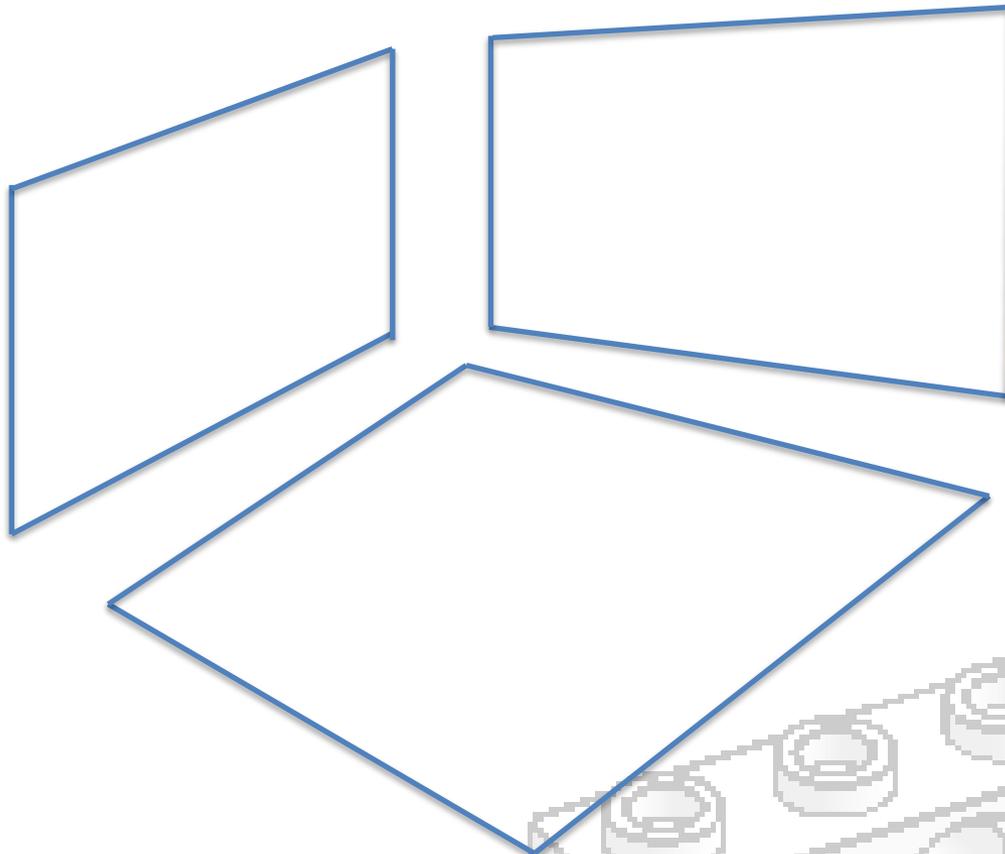
Hands-on practice 2

- Add vertical extension to the rectangular frame

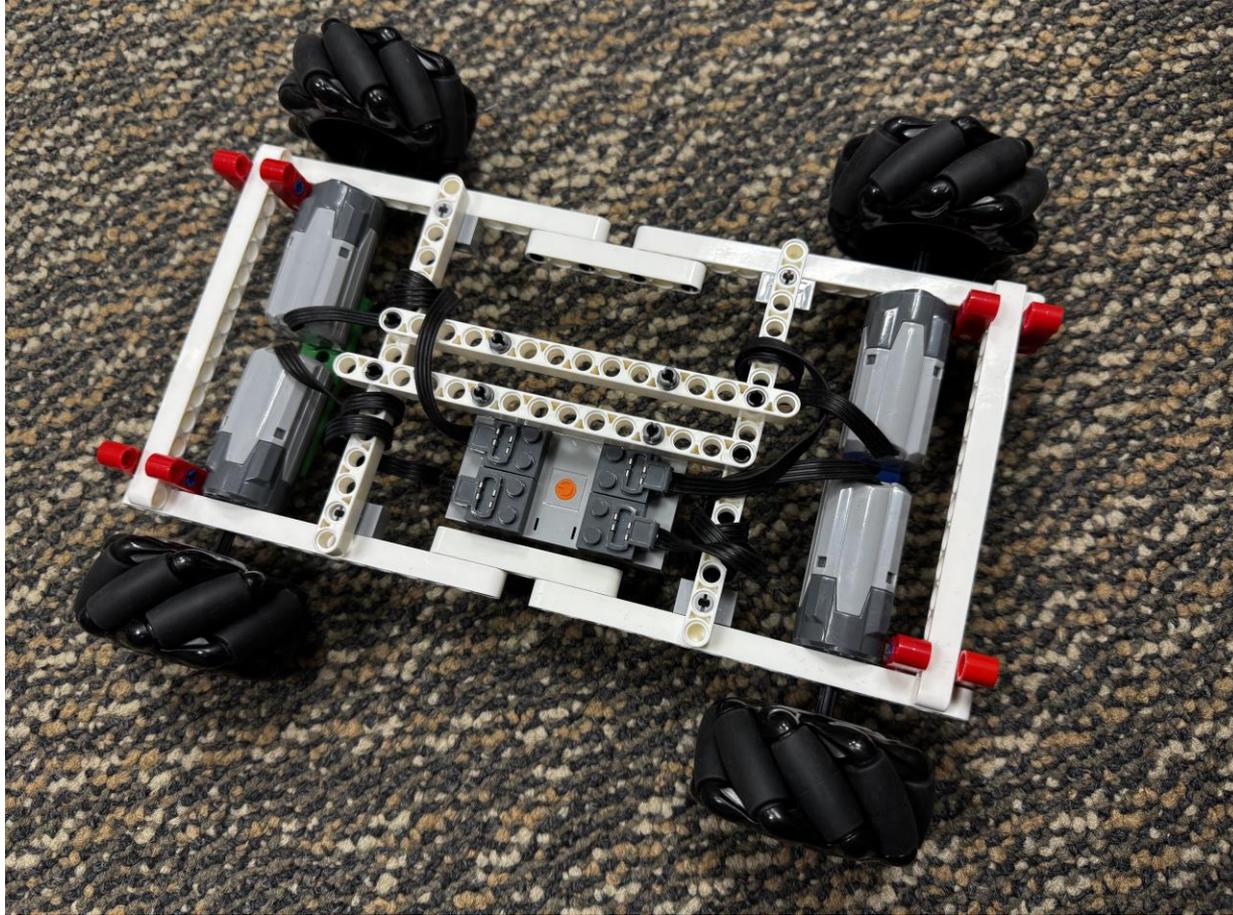


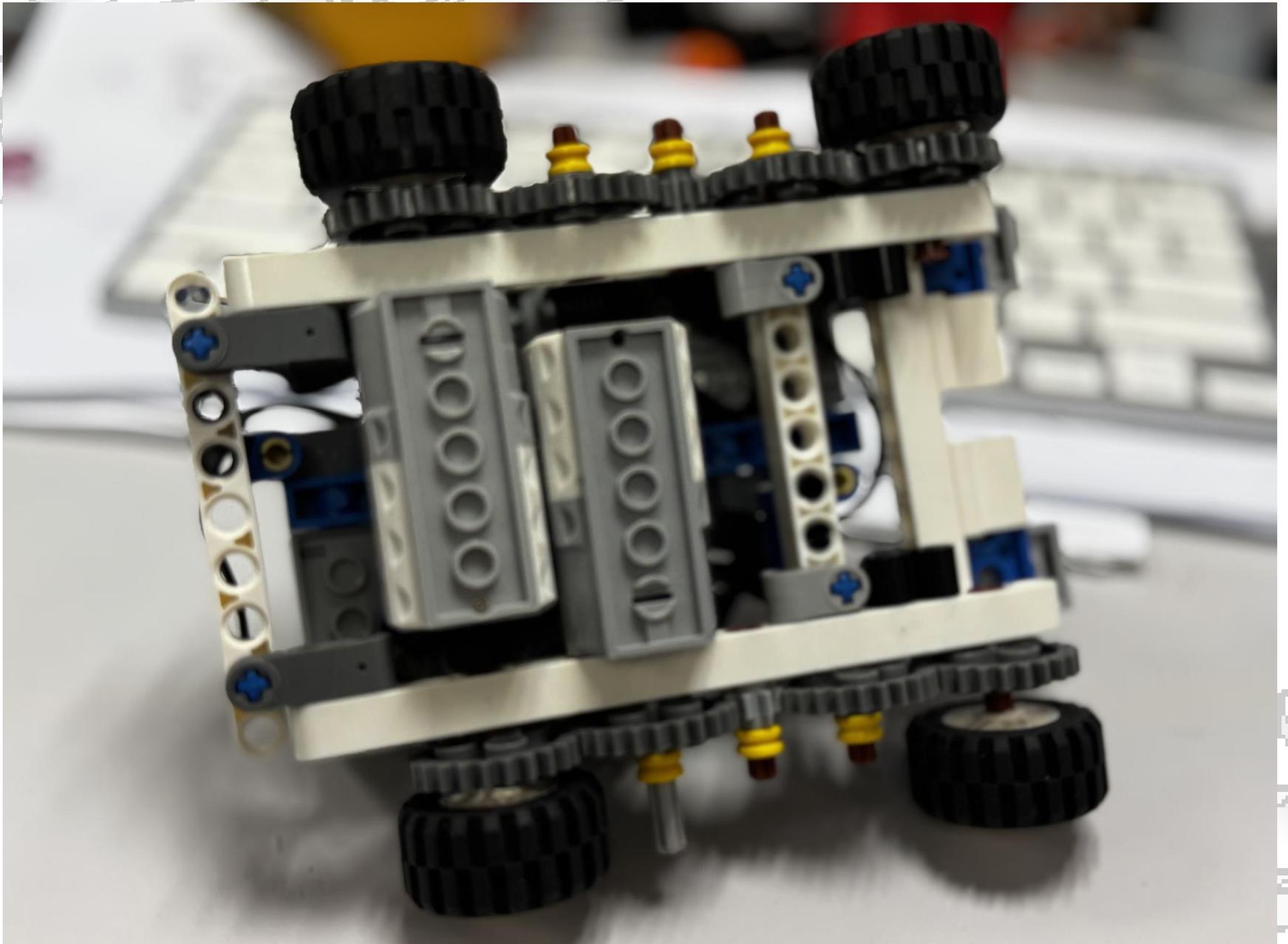
Hands-on practice 3

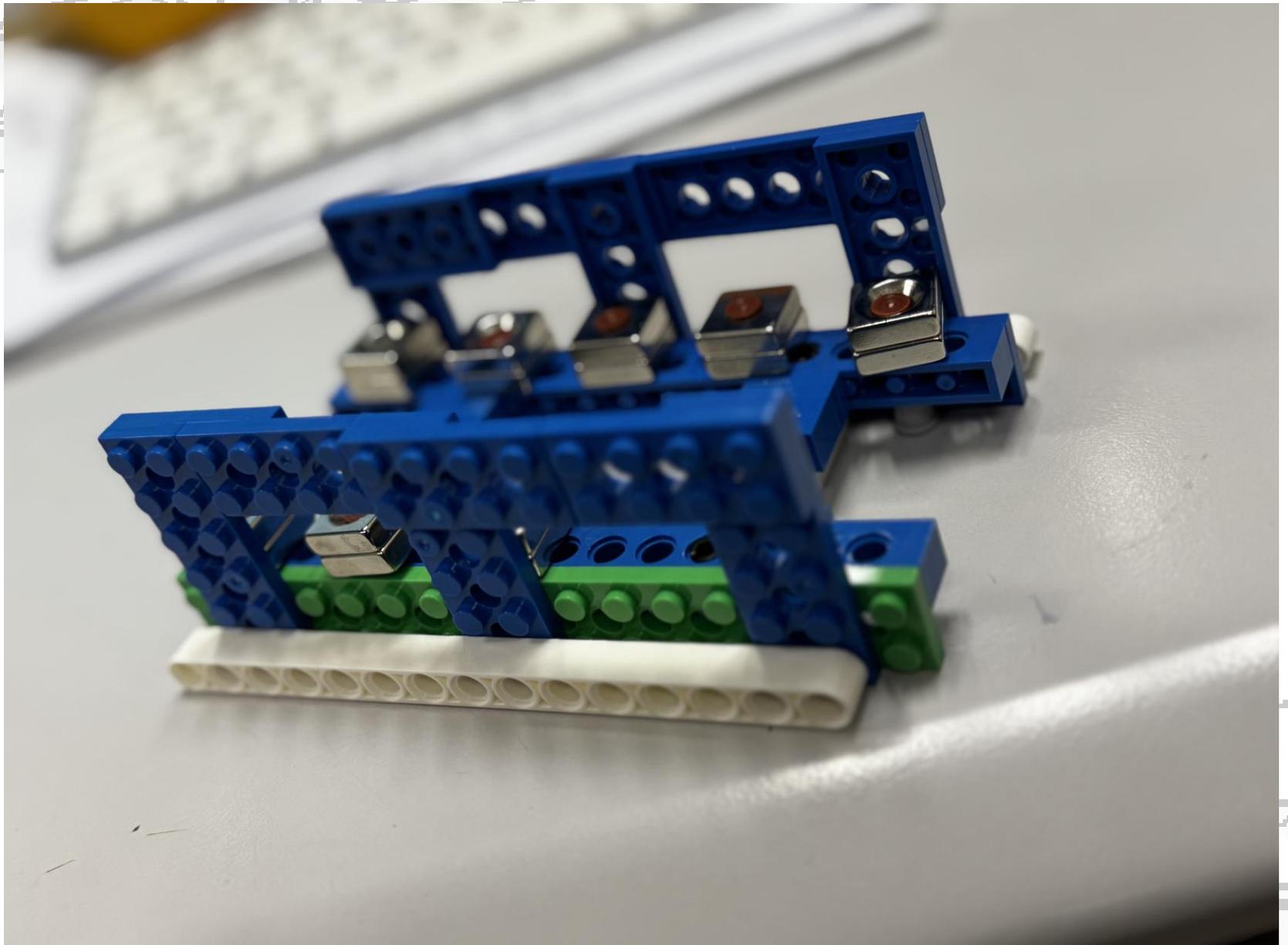
- Build 3D frame by rectangular frame

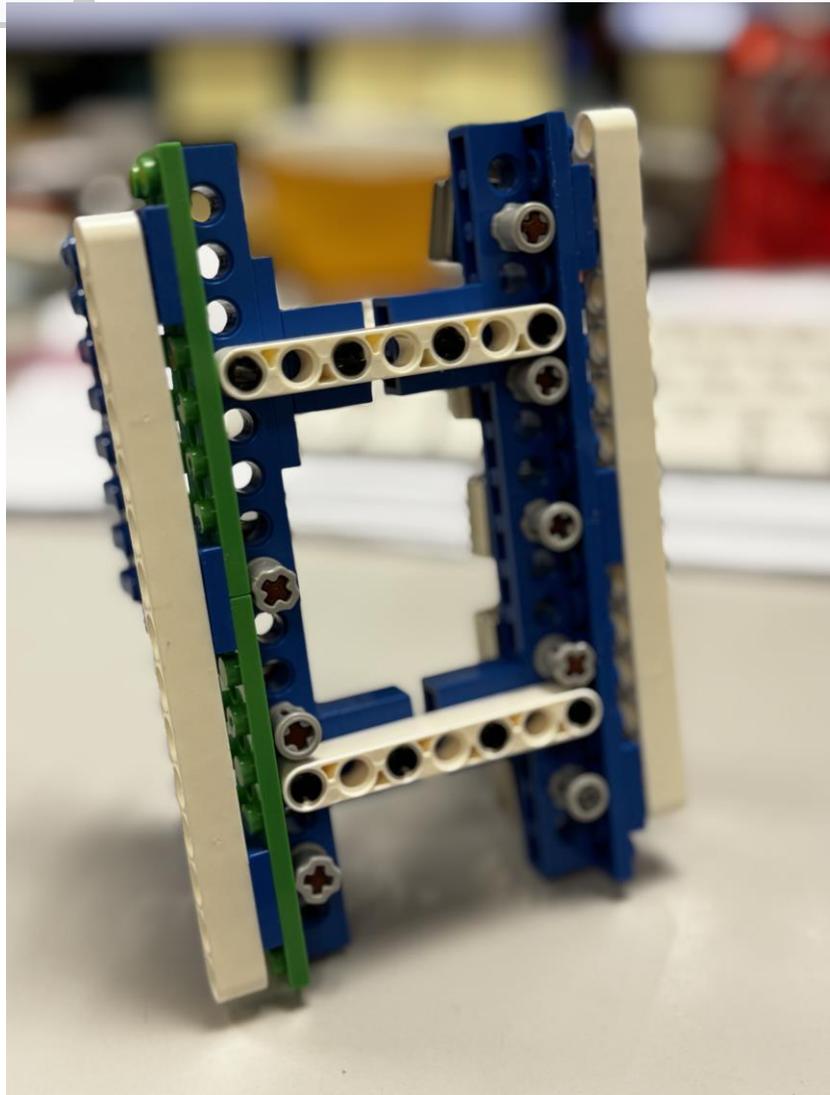


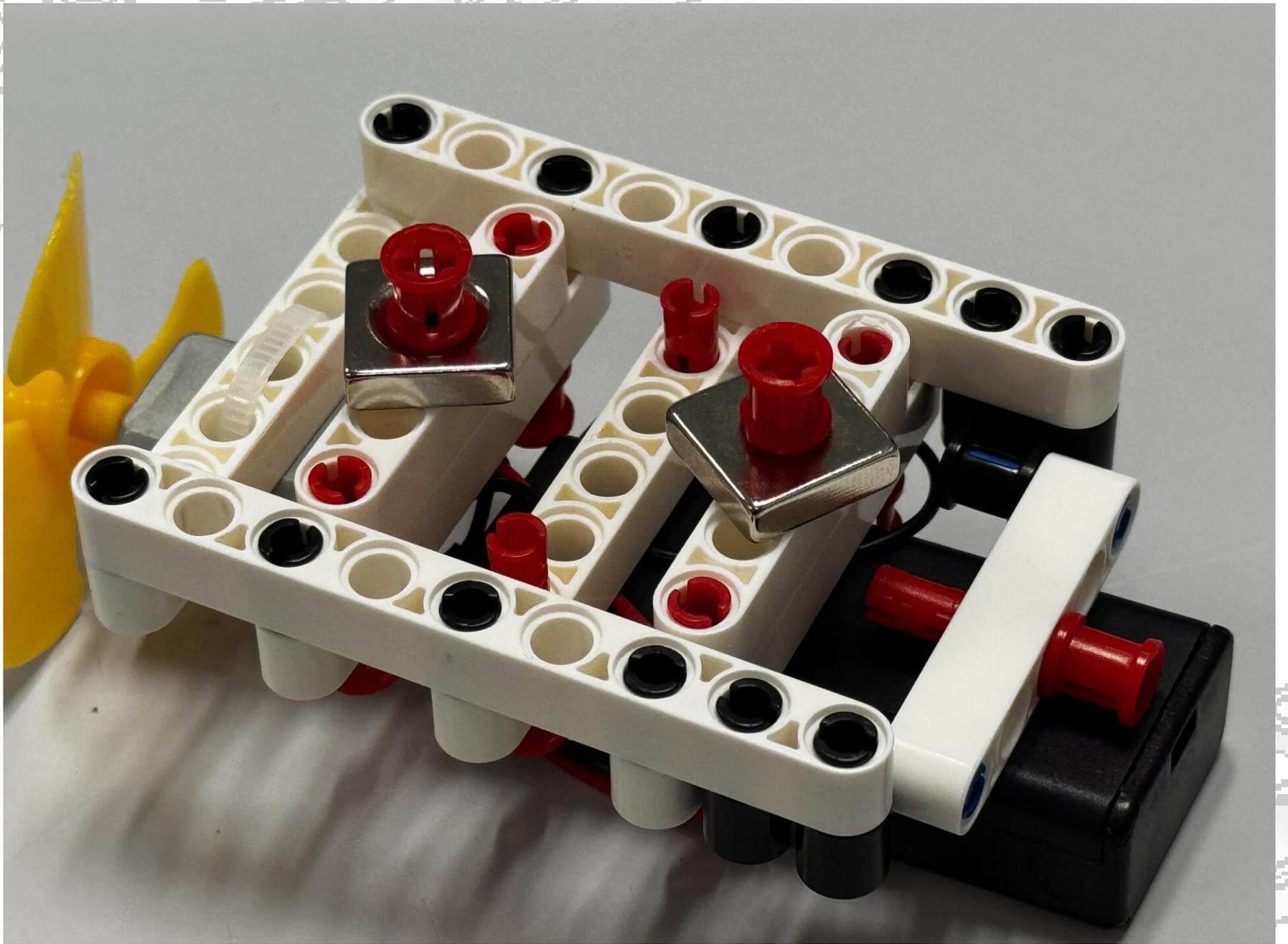
Application of the structure





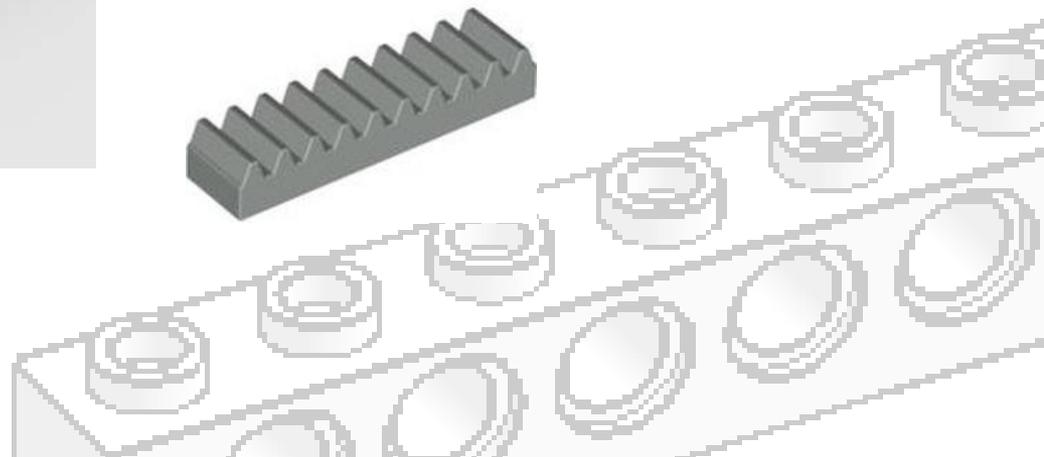
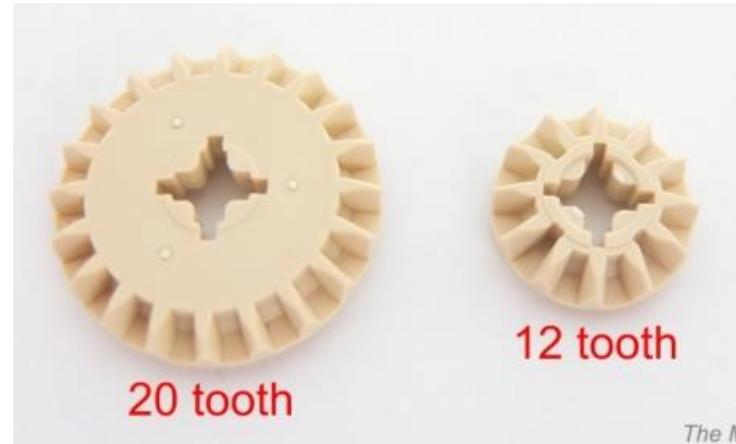
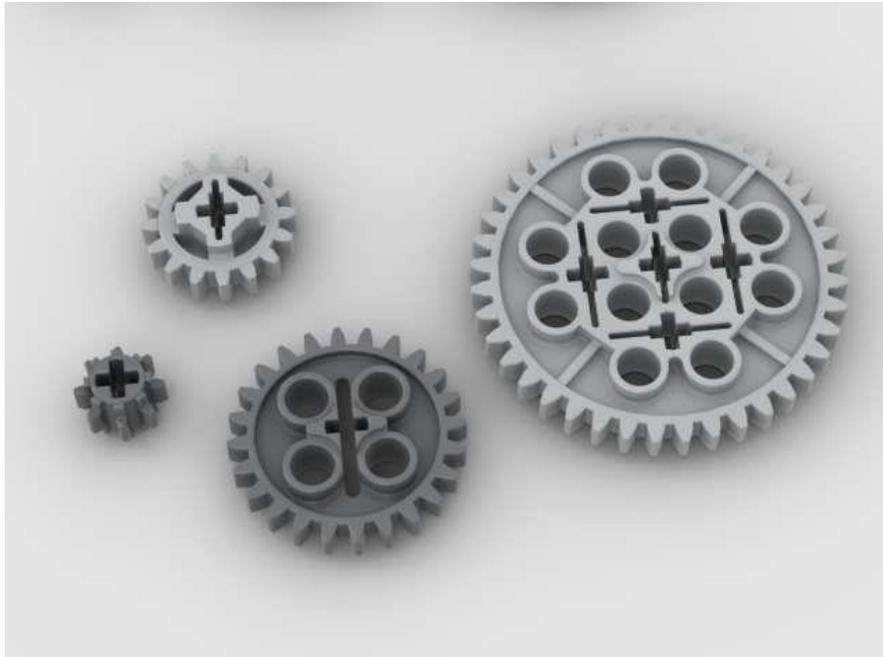






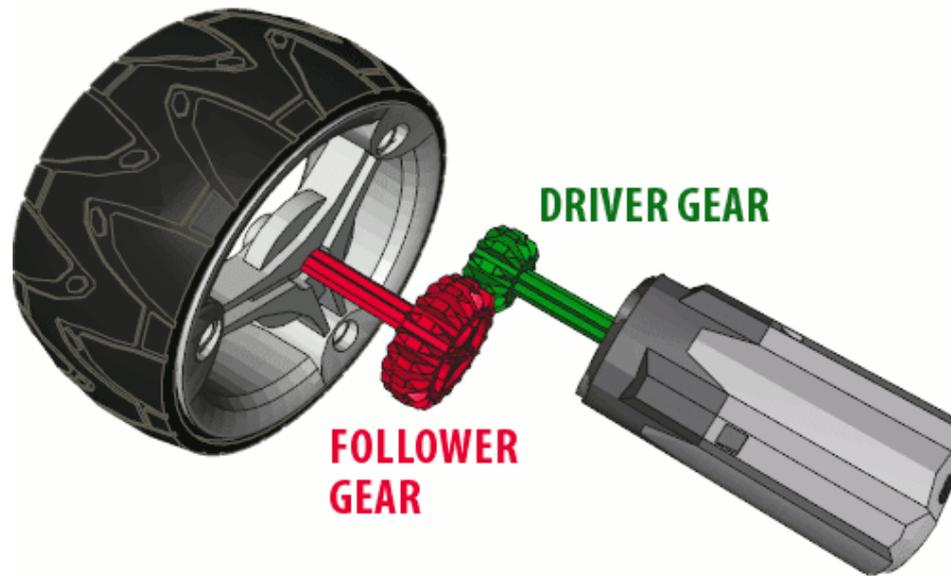
Gear Wheels

- Spur Gears, Crown Gears, Rack



Using Gear Wheels

- Practical Application Examples



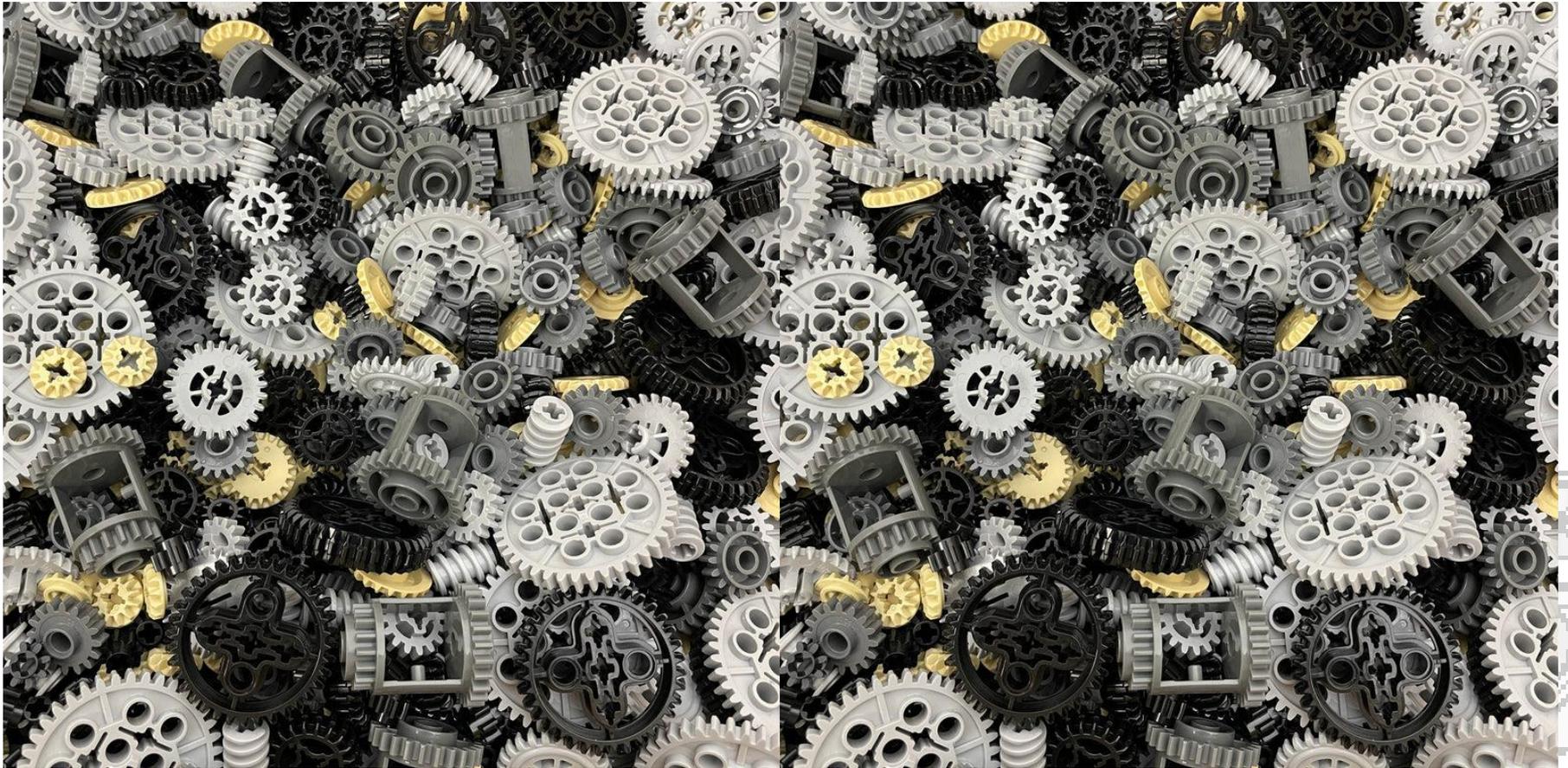
Gear Ratio

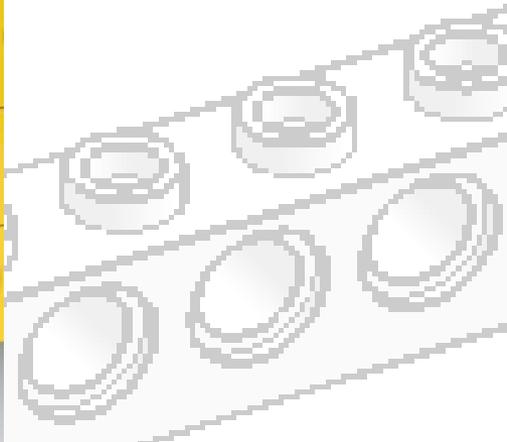
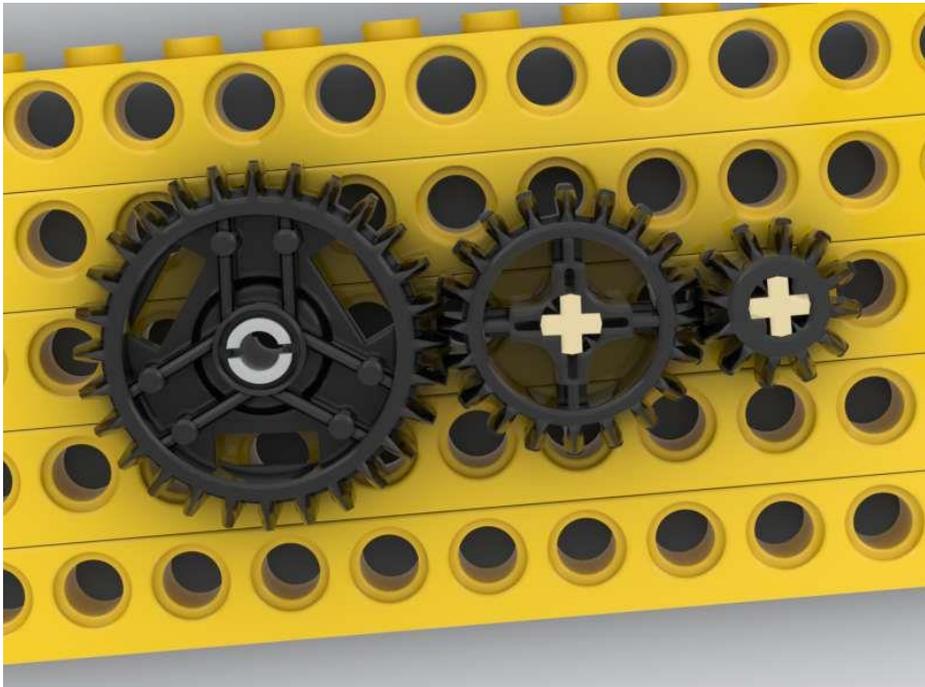
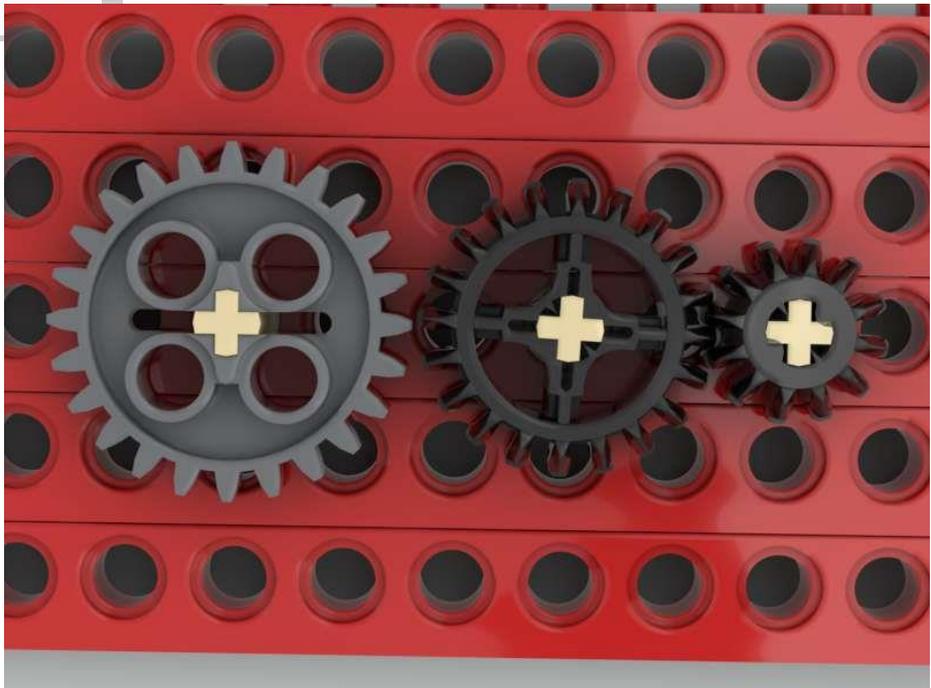
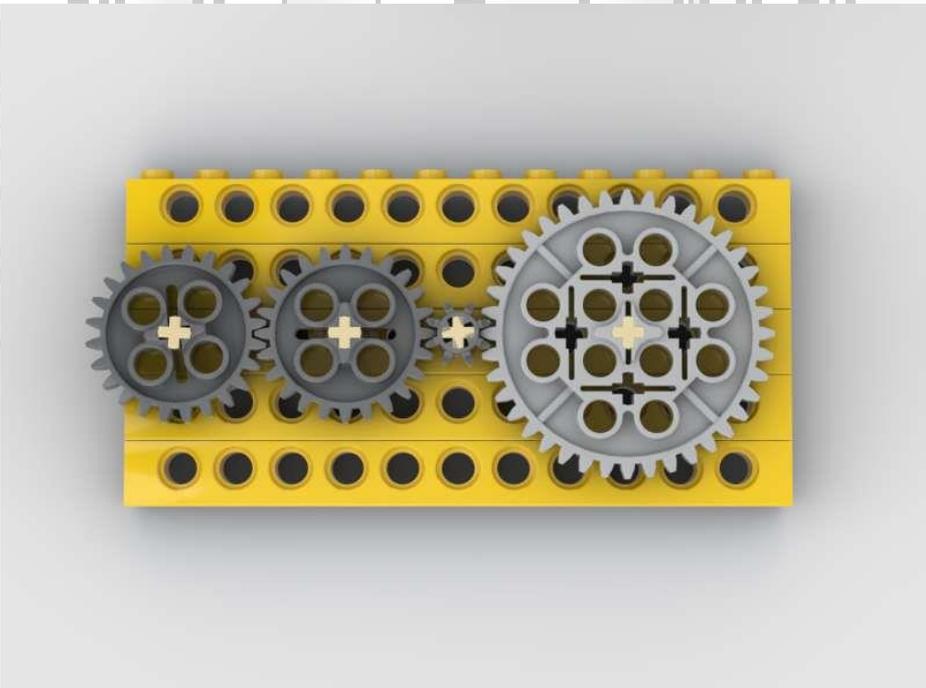
- small drive large:
torque +
speed -
(gearing down)
- large drive small,
speed +
torque -
(gearing up)



Practice:

- Try different gear and gear ratio yourself !





Q&A and Wrap-up

- Recap and Further Resources



<https://www.bricklink.com/v3/studio/download.page#xlink>