

USING LEGO GEARS WITH YOUR EV3

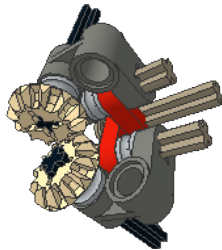
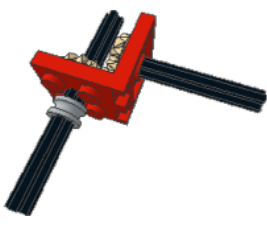
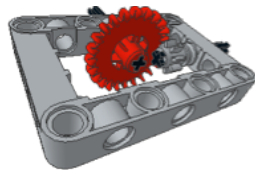
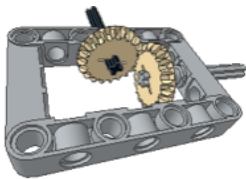
By Droids Robotics, 2015

Gears are used for many reasons on EV3 robots.

- 1) To change the direction of motion
- 2) To transfer power somewhere far away from the motor
- 3) To increase or decrease speed
- 4) To increase or decrease torque

Changing direction of motion:



Gears can be used to transfer motion from one direction to another. Notice that you can use LEGO Systems parts or LEGO Technic frames and beams to create these custom gear boxes.



Using LEGO knob wheels can give you the same results.



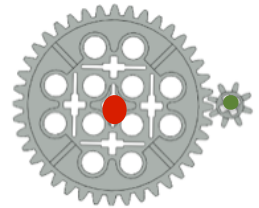
LEGO also has gear boxes available.

- | | |
|---|---------------|
|  | Drive Gear |
|  | Follower Gear |

Gearing Up:

To increase speed use a large LEGO gear connected to the motor ("drive gear"), connected to a smaller gear ("follower gear").

So, if you connect a 40 tooth gear to a 8 tooth gear, every time the 40 tooth gear turns once, the smaller gear will rotate 5 times. You have geared up your motor: increased speed, but decreased torque.



Gearing Down:

To reduce speed and increase torque, use a small LEGO drive gear connected to a motor, turning a large follower gear.

So, if you start with a 8 tooth gear and connect to the 40 tooth gear, you will have to have turned the 8 tooth gear 5 times to rotate the 40 tooth gear once. You have geared down the motor: increased torque, but decreased speed.

