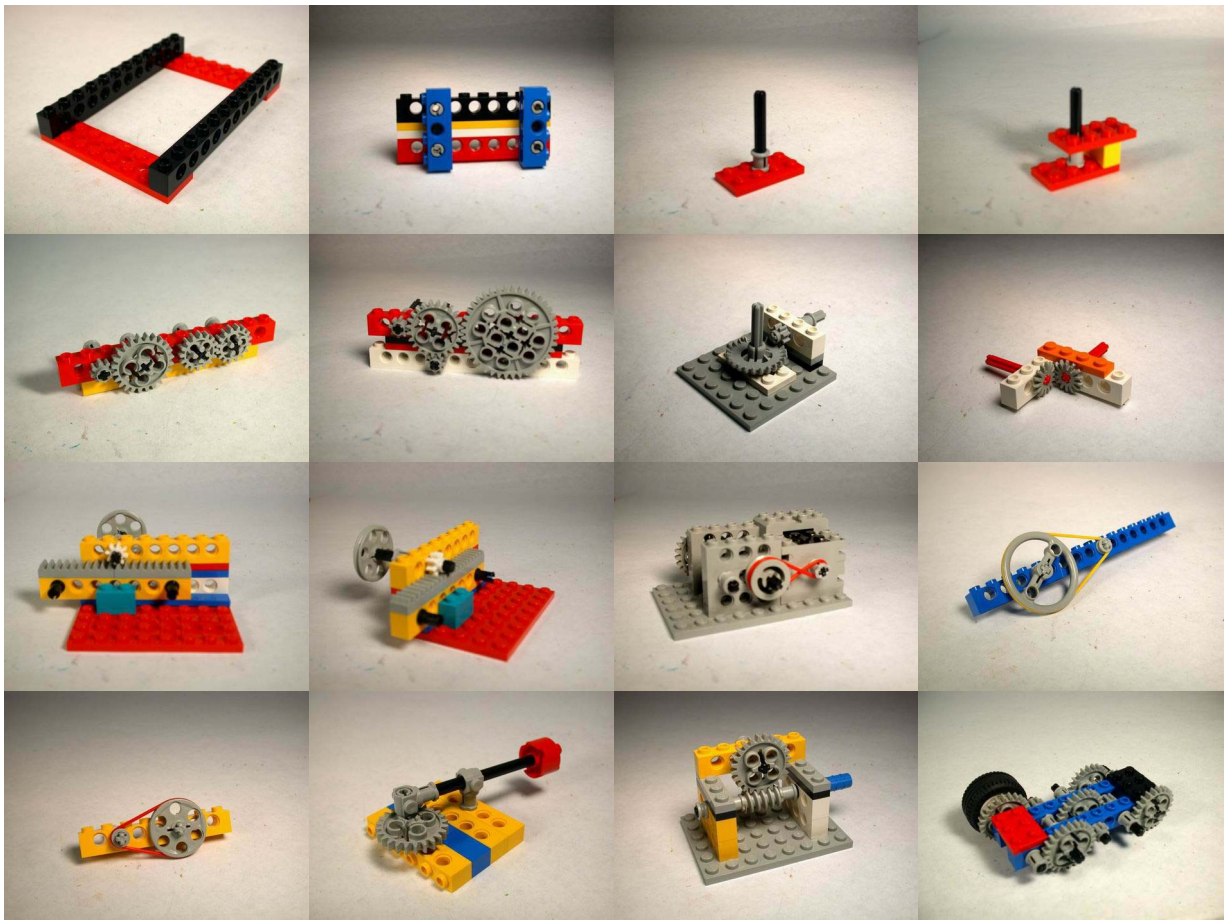
ART OF LEGO

Based on the paper "The Art of LEGO Design" by Fred G. Martin. The paper is available at http://llk.media.mit.edu/projects/cricket/doc/artoflego.pdf

Layout by
Arnan (Roger) Sipitakiat

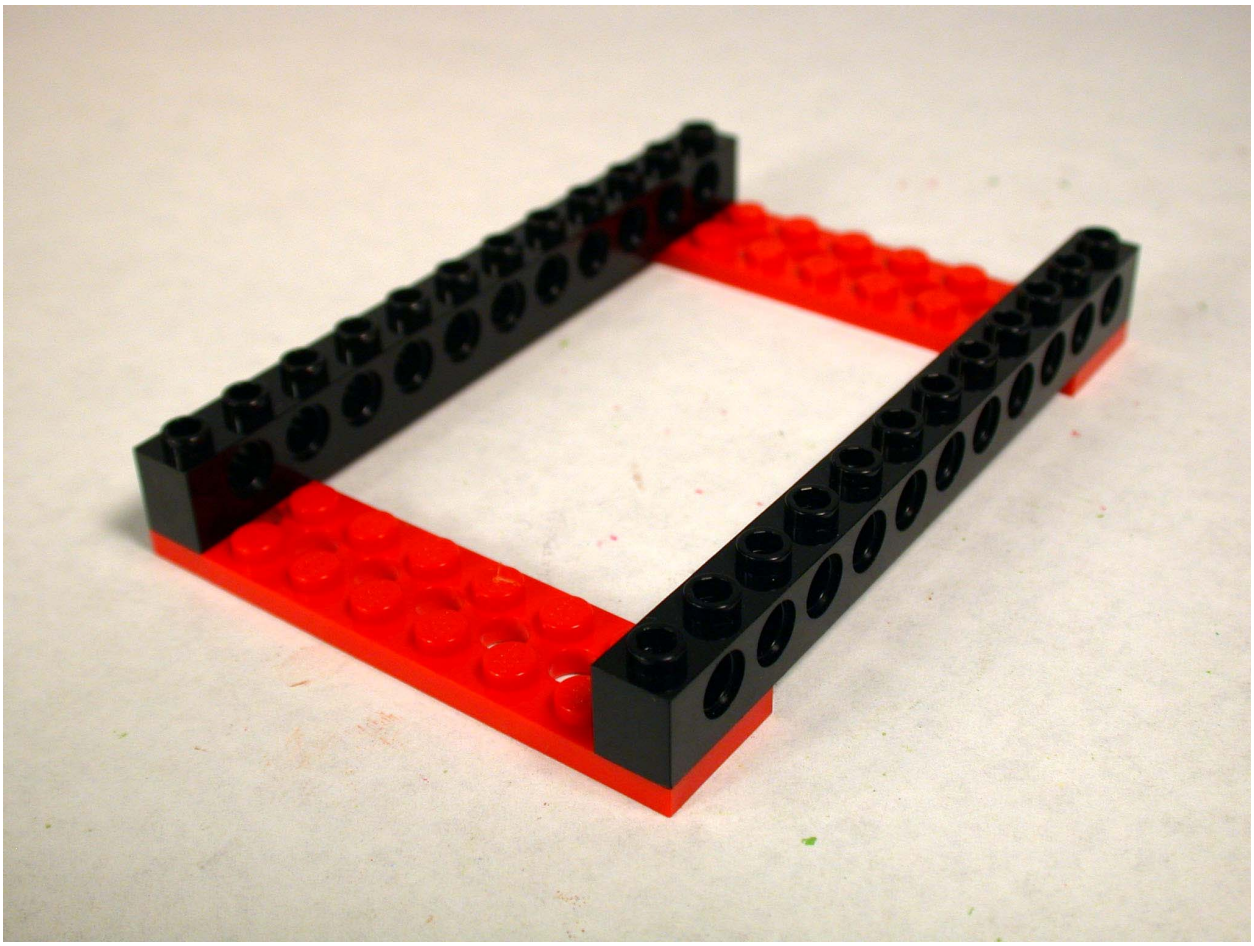
LEGO examples/photos by
Arnan (Roger) Sipitakiat
Paulo Blikstein
Rahul Bhargava



Future of Learning Group. MIT Media Laboratory
August 2002

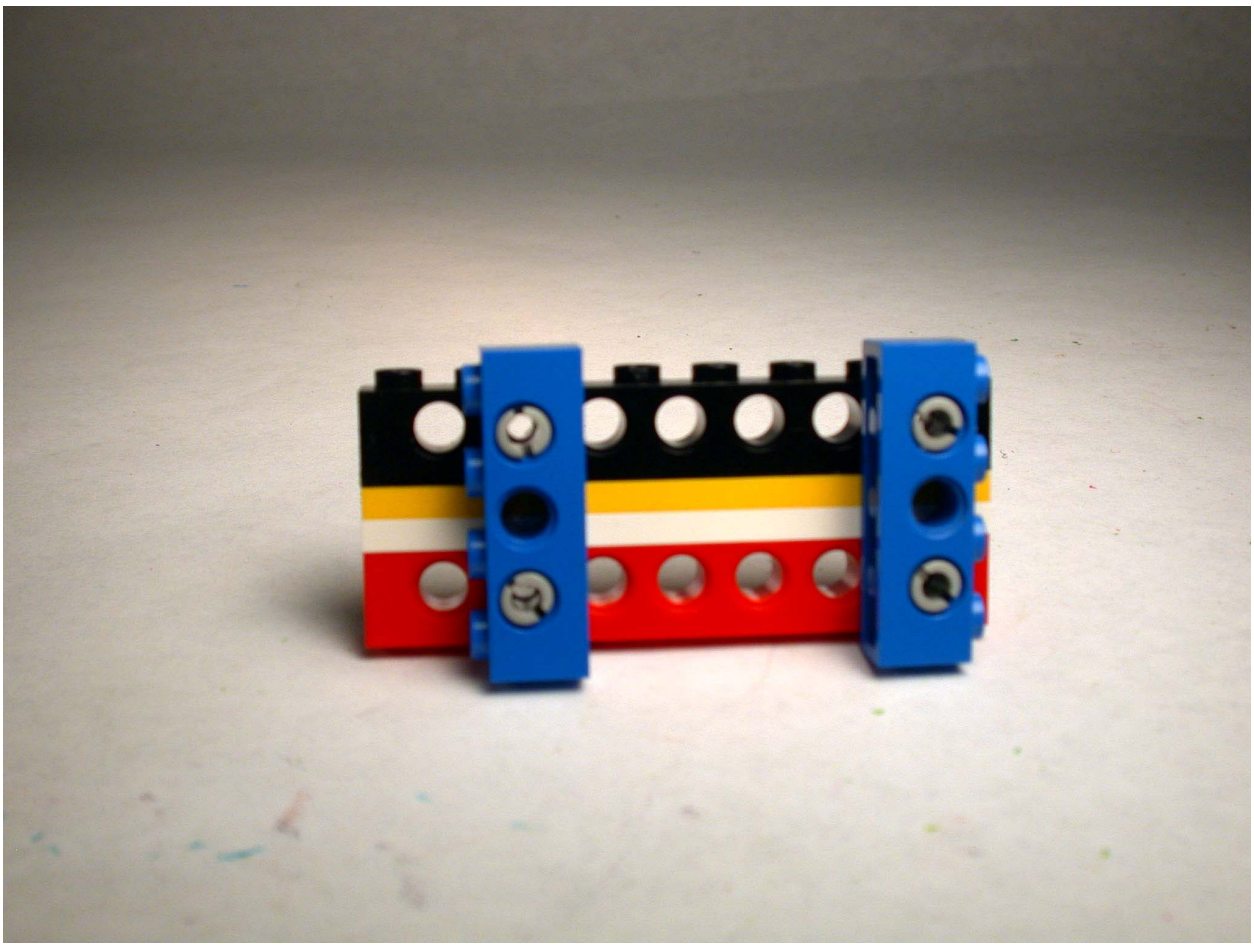
Locking Parallel Beams Together with 2x_ Parts

Purpose: Hold beams in parallel.



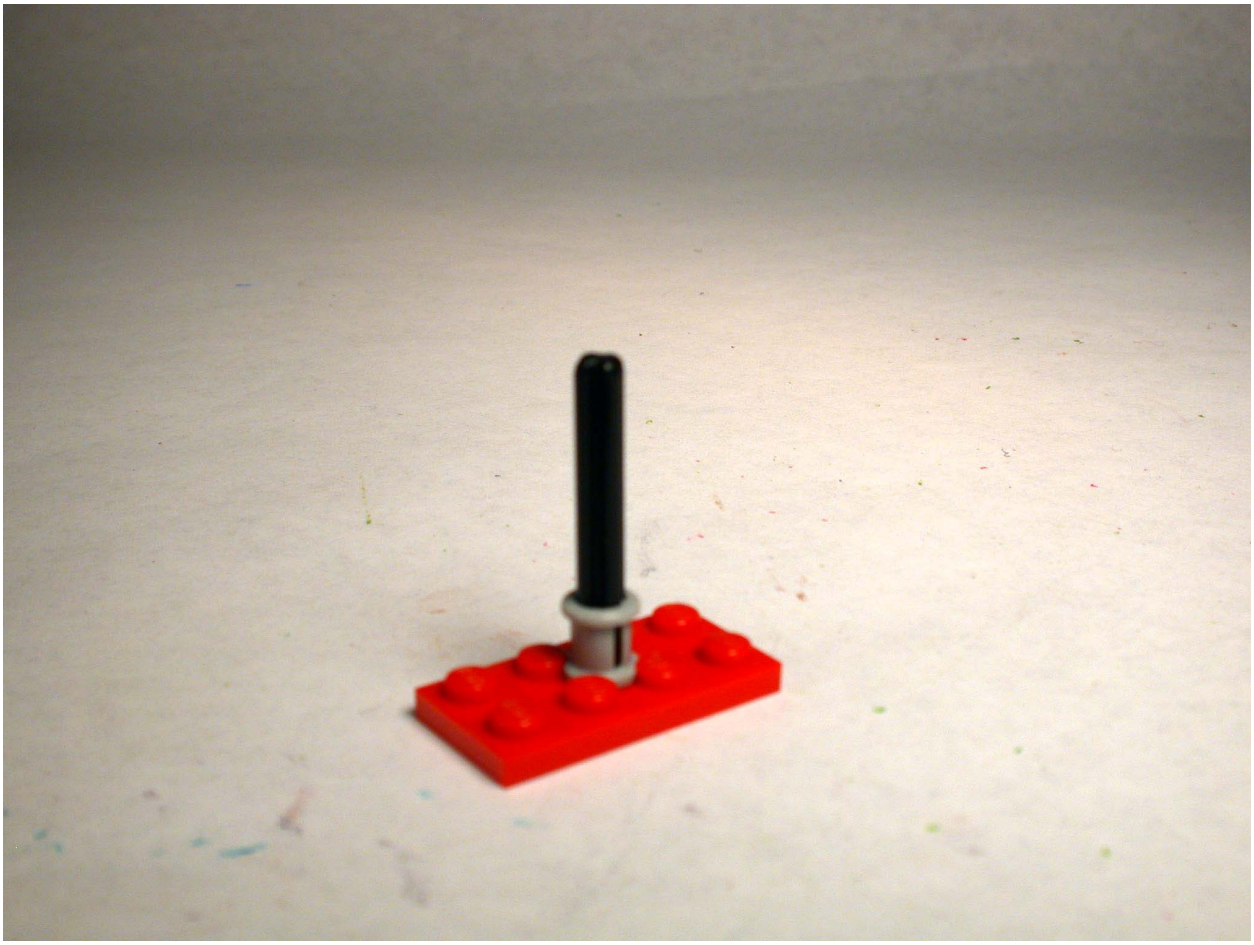
Two Beams Locked Using $1\frac{2}{3}$ Vertical Spacing Relation

Purpose: Make LEGO construction sturdy



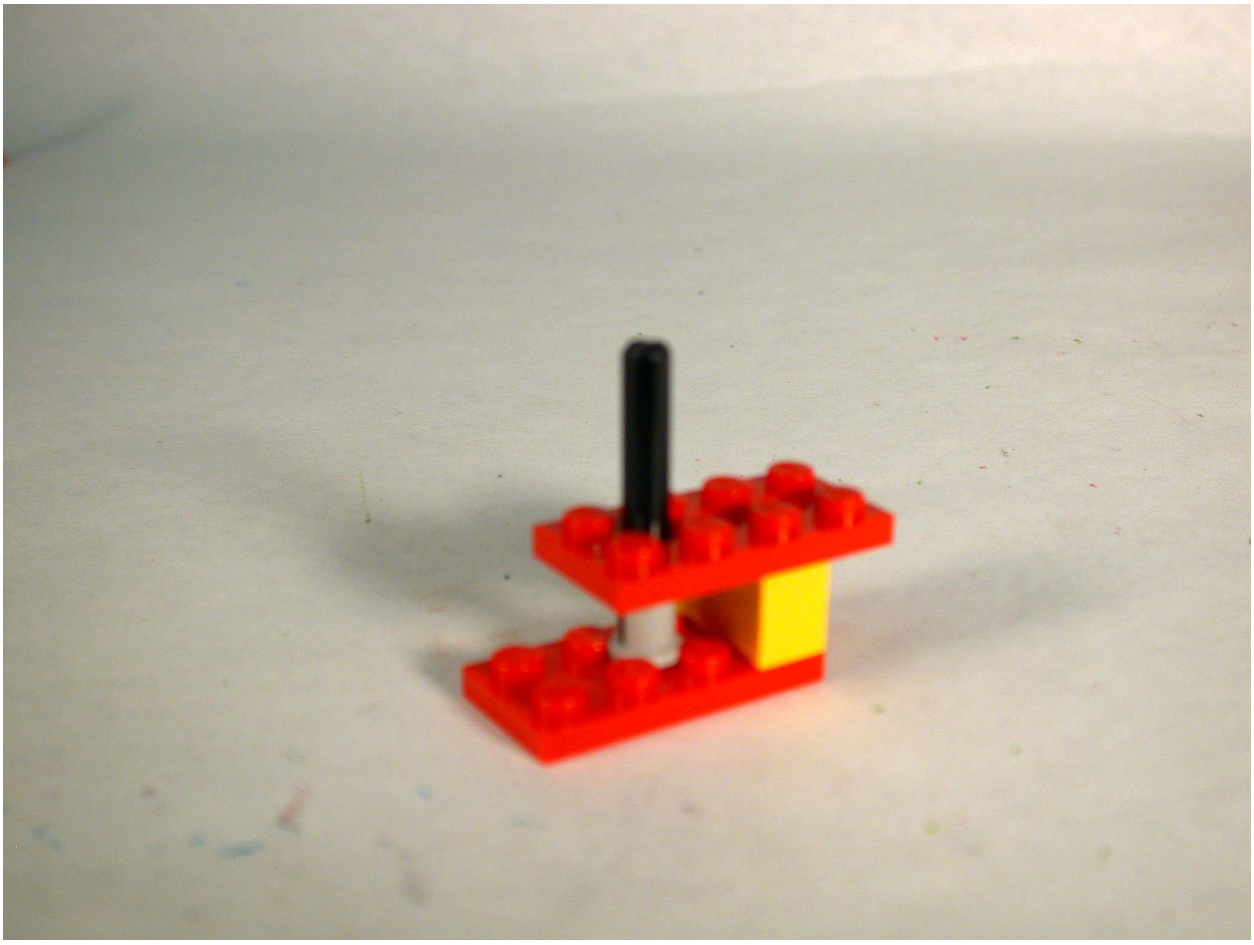
Using a Stop Bush to Retain an Axle

Purpose: Axel support



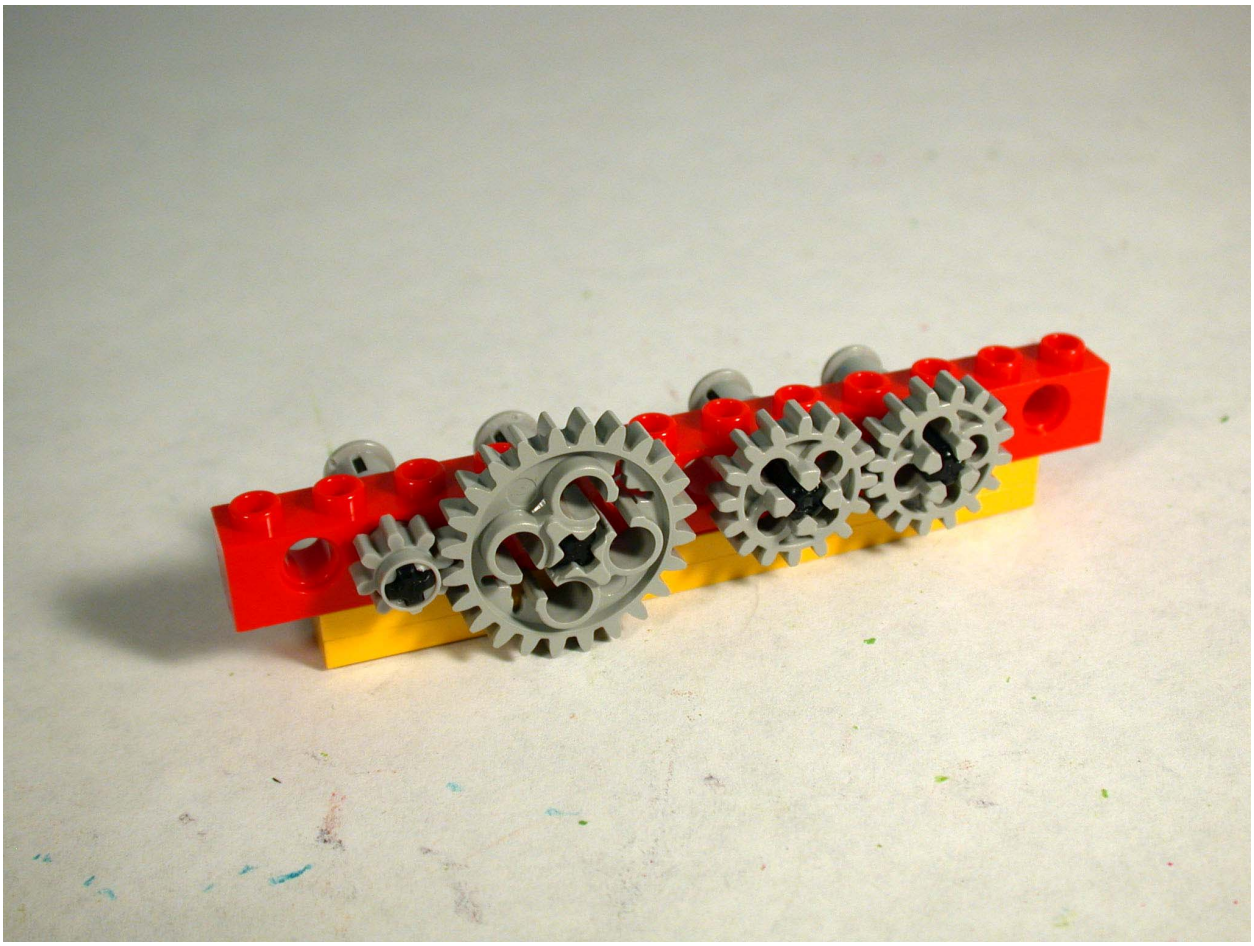
Trapping an Axle between Two Plates Using Stop Bush

Purpose: Axel support. Axel can rotate.



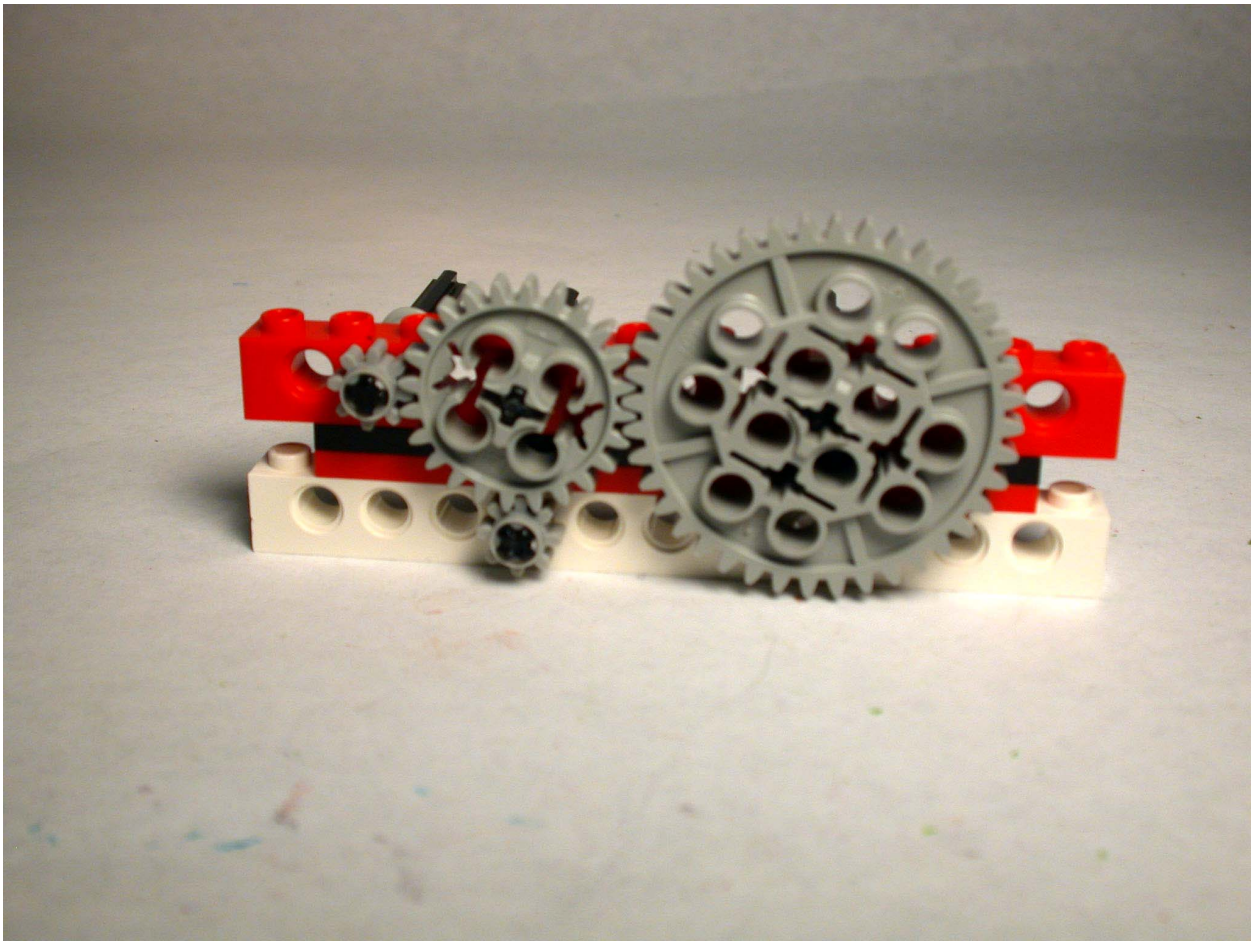
The 16–Tooth Gears

Purpose: Demonstrate gears that match each other given the same distance between axels.



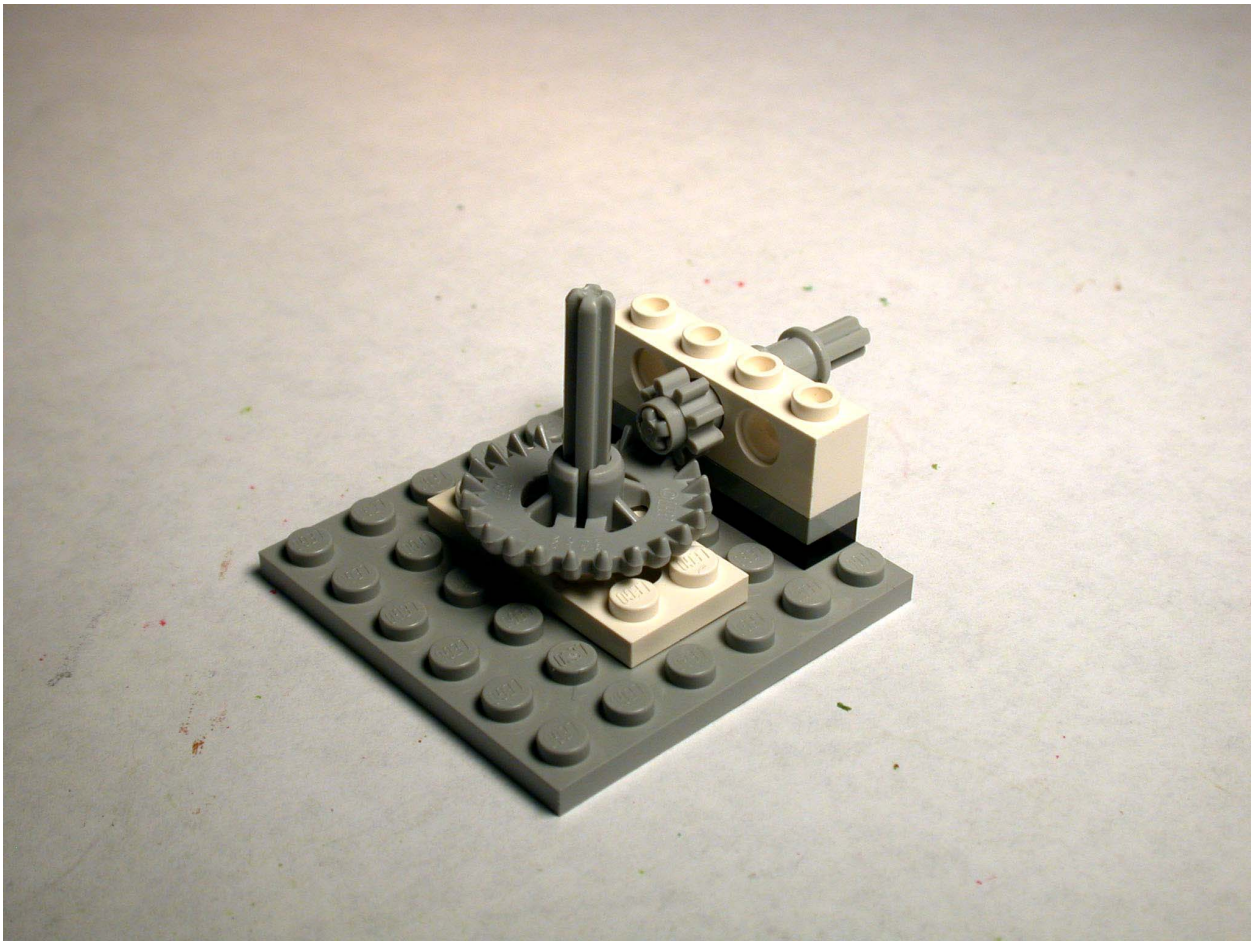
The Half-Radius Round Gears

Purpose: Demonstrate how different gears fit together.



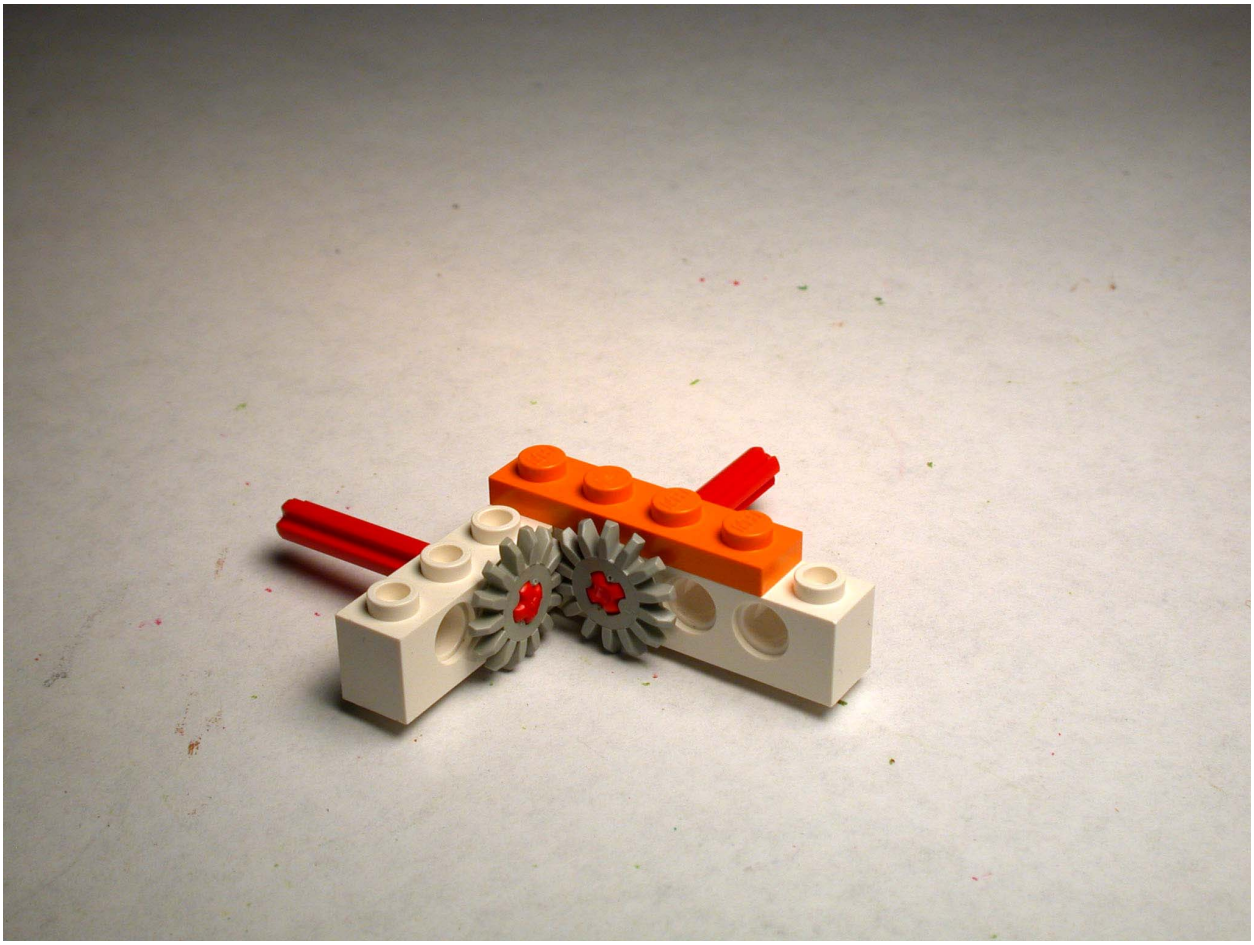
Tooth Gear Meshing with Crown Gear

Purpose: Change rotational axis.



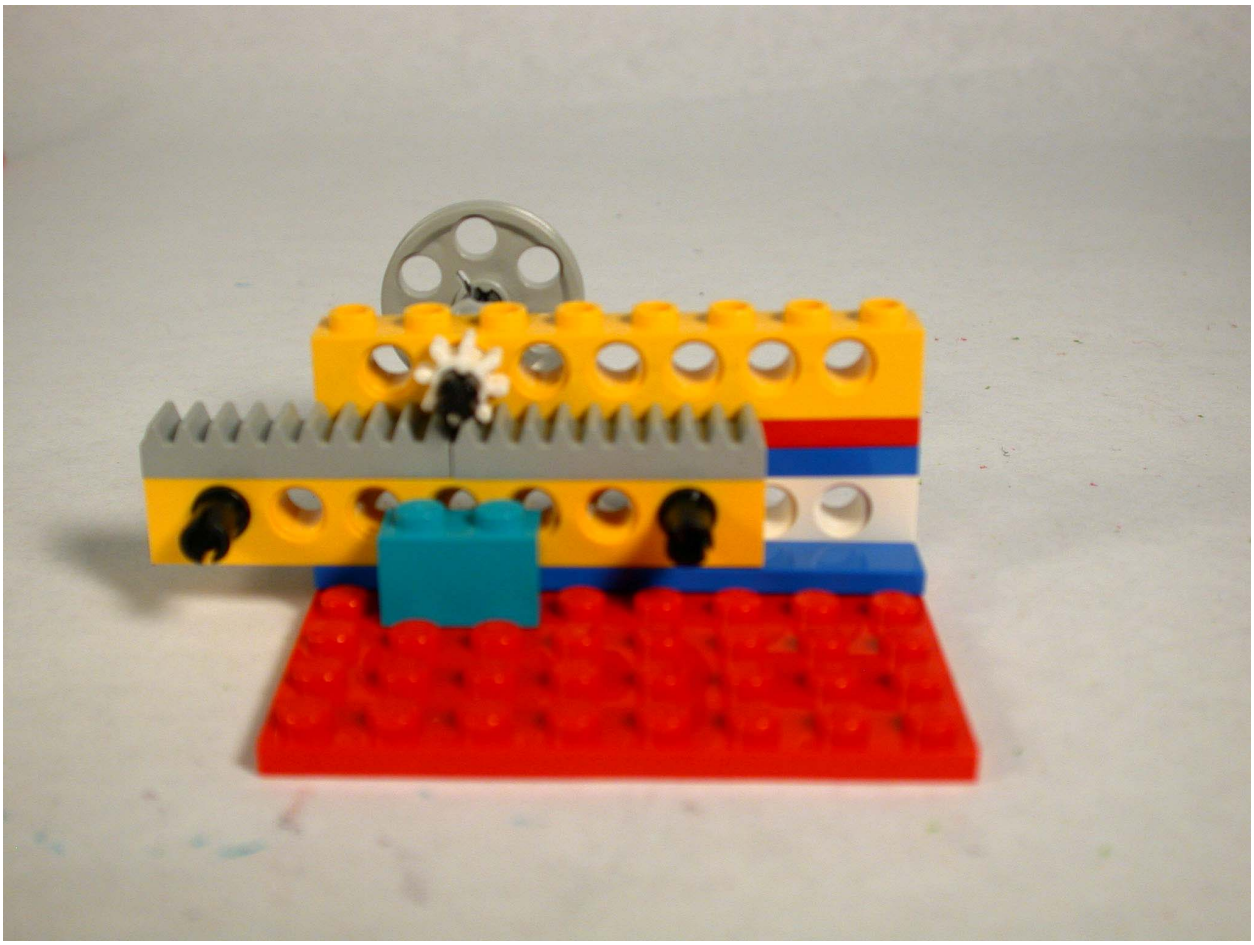
The Bevel Gear

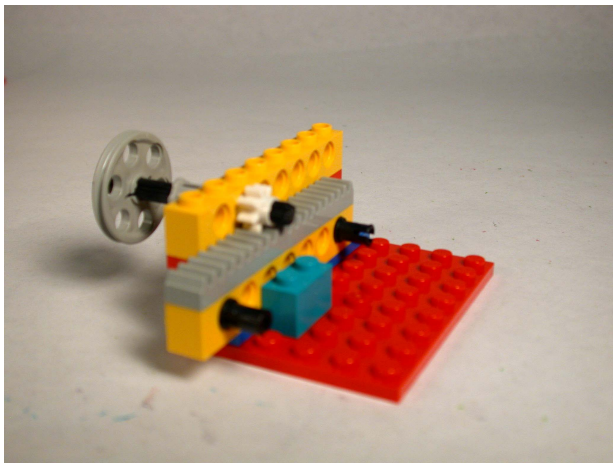
Purpose: Change rotational axis. No change in rotational speed.



Using the Gear Rack

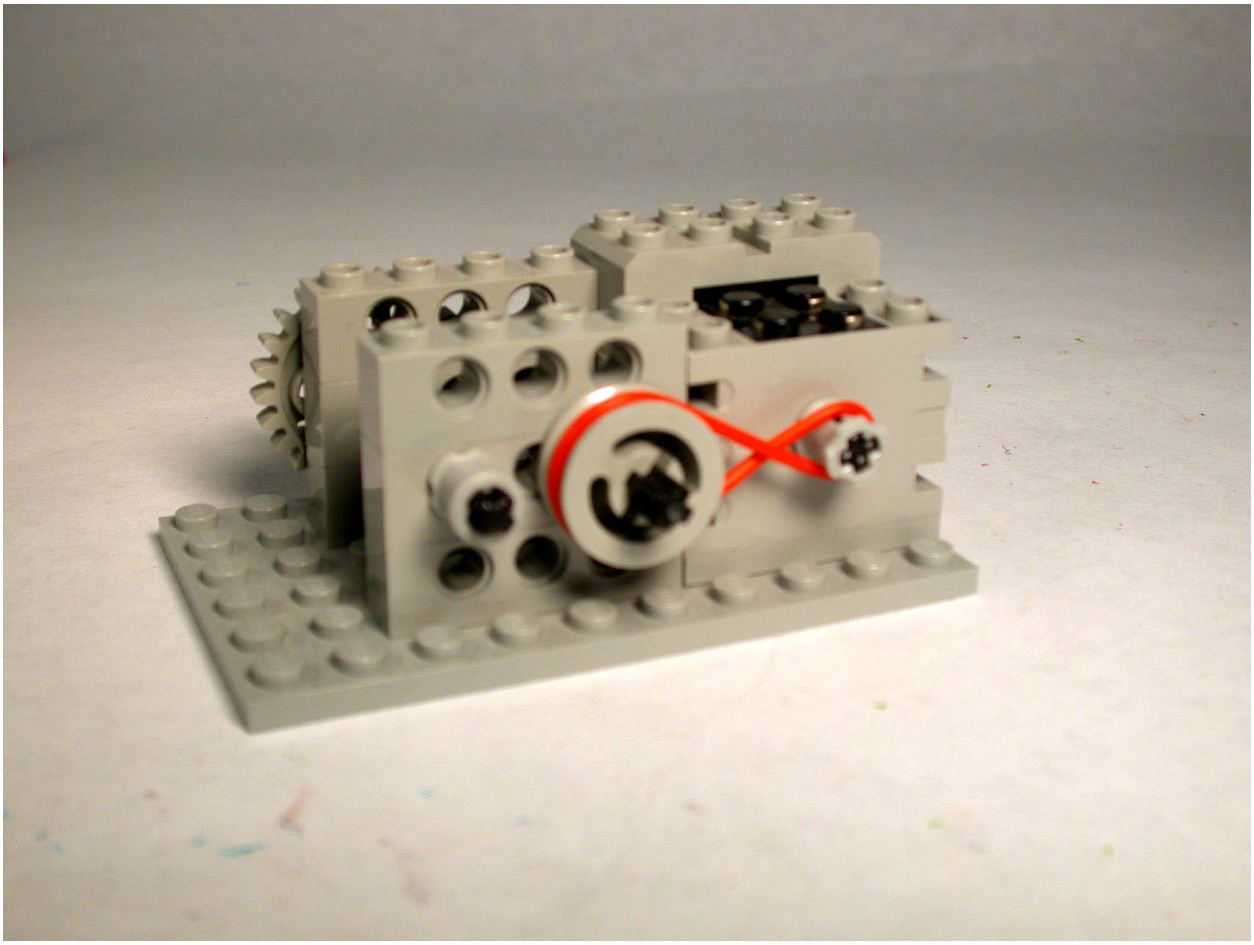
Purpose: Conversion between rotational movement and linear movement



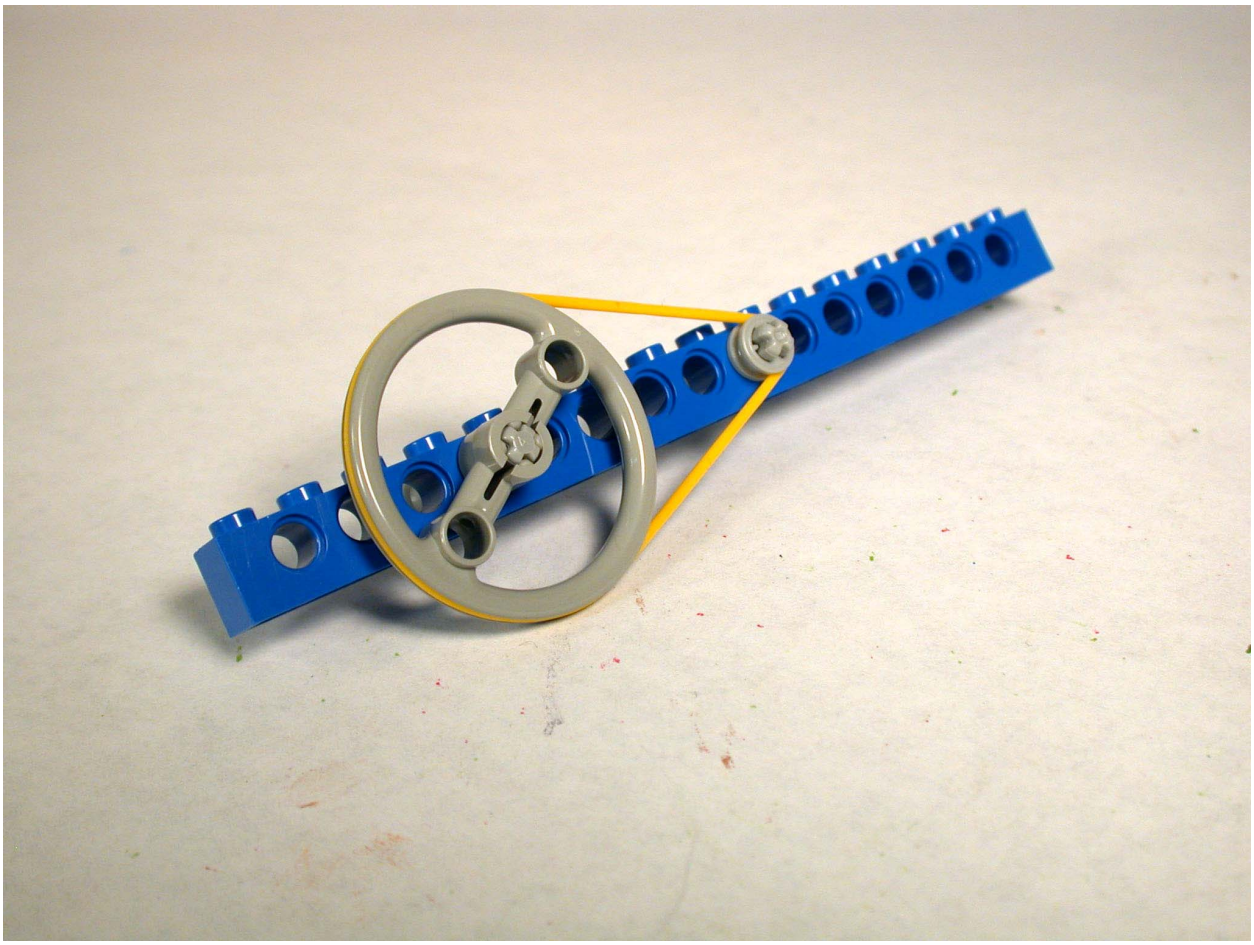


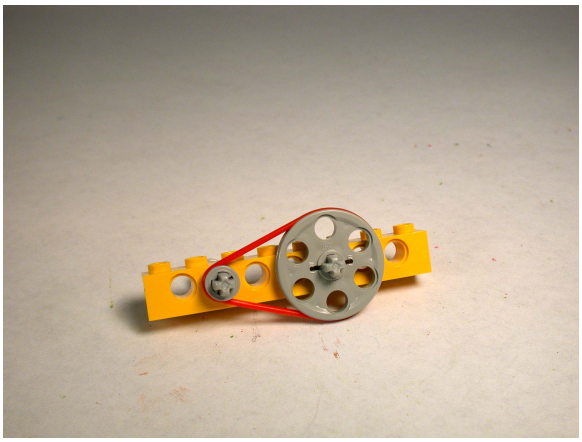
Using Pulley Wheels

Purpose: Link axels/motors. Has better flexibility than using gears.



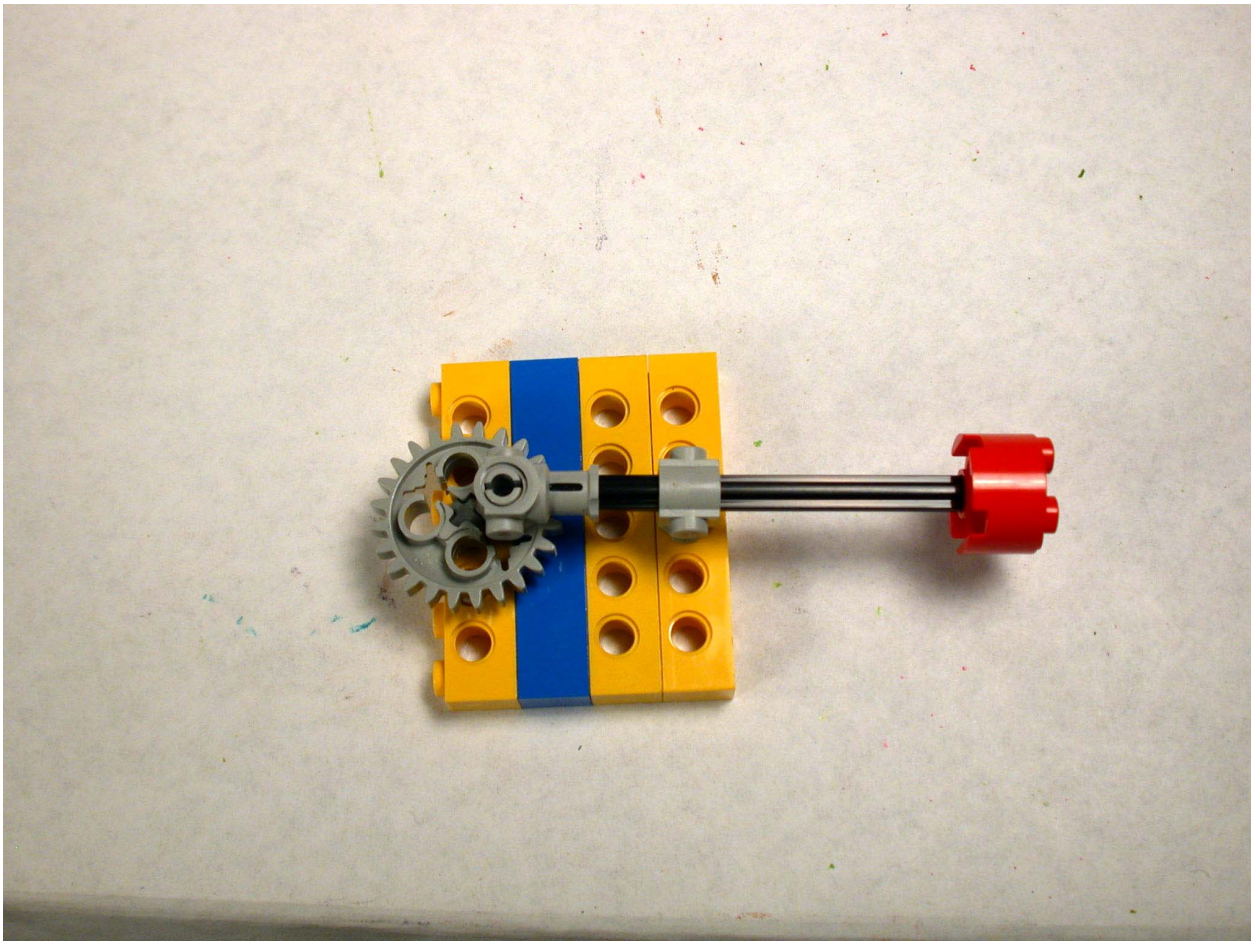
Using Pulley Wheels 2

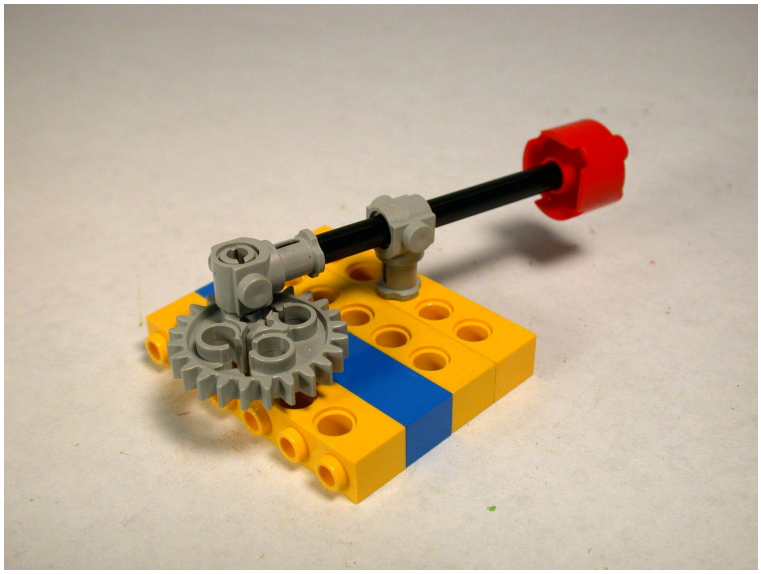




LEGO Legs

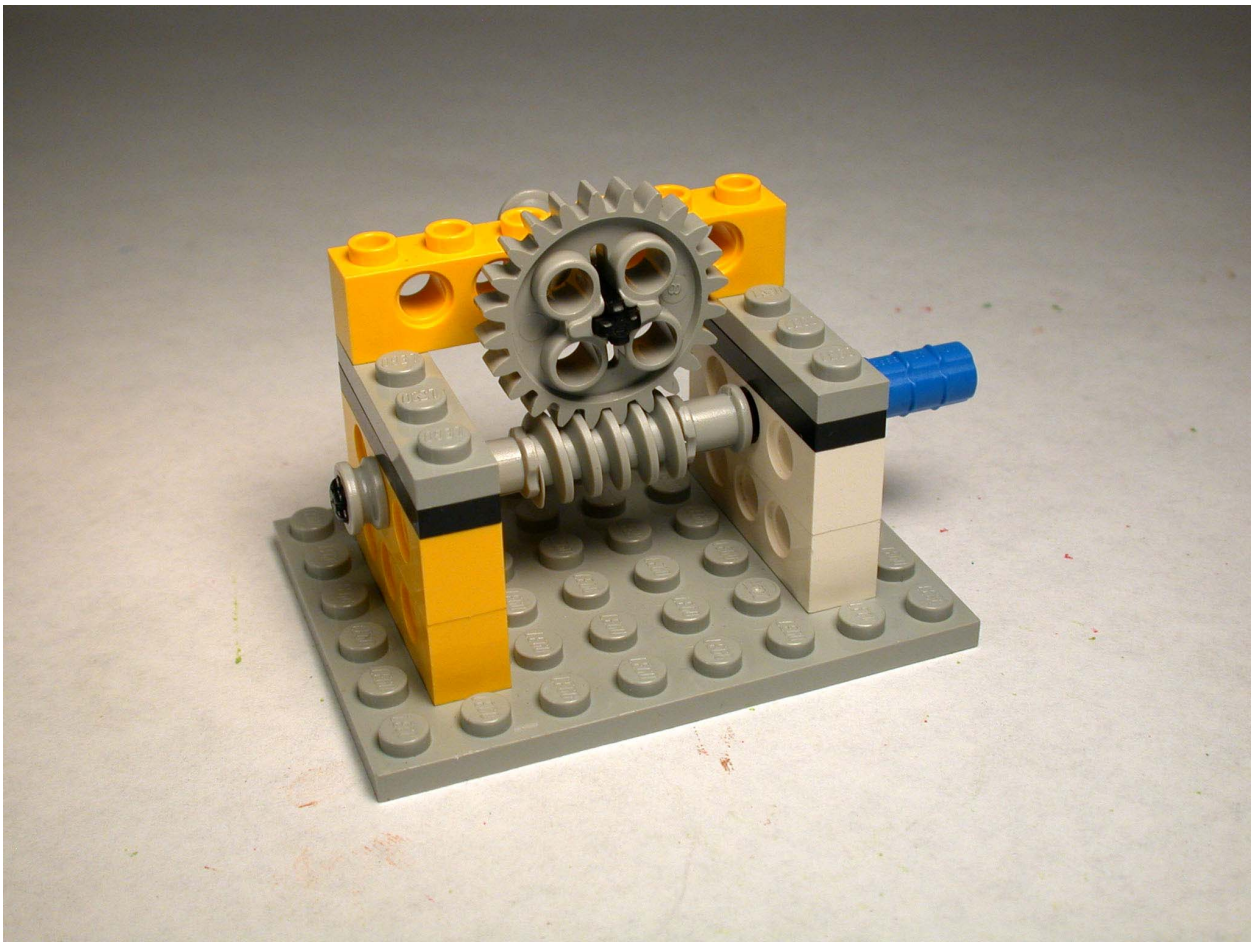
Purpose: Create walking creatures





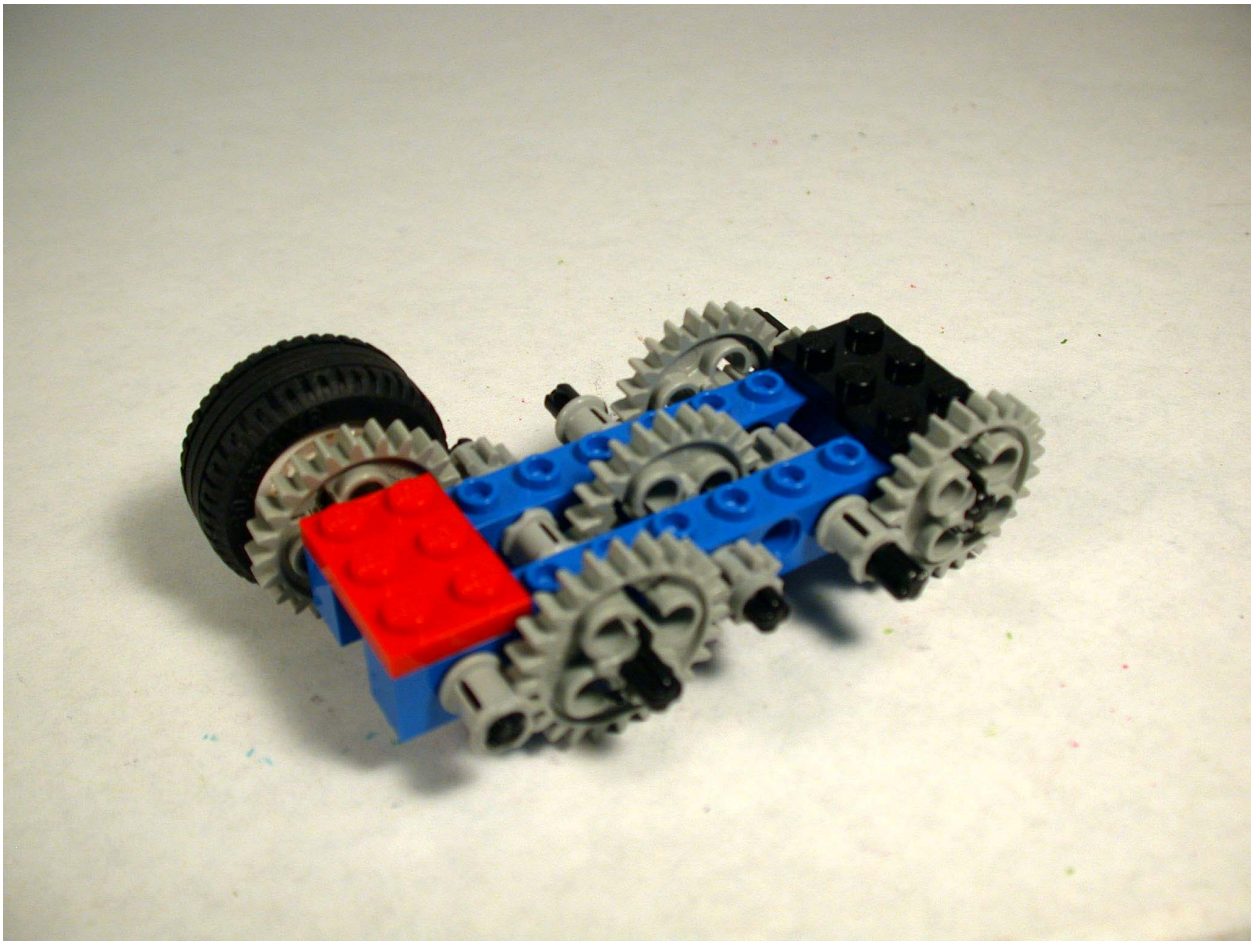
Using the worm gear

Purpose: Significantly slows down rotational speed.



LEGO Gear-train

Purpose: demonstrate how gearing works.



LEGO Gear-train used in a robot

Purpose: demonstrate how gearing works.