

Review:

What are the parts of a lever?

What is a fulcrum?

What is an example of force?

Lesson: Gears

Pass out this weeks worksheets - Go over with the class.

Questions:

- Where have you seen gears?
gears are in watches, cars, clocks, printers, etc.
- What are they used for?
-makes a car go faster or slower
-makes clock hands move
-Gears are mostly used to make things move and they can help us do work, just like levers.

HINTS to launch a brick further:

- Make the arm longer**
- More force**
- Taller project**
- Different gearing**
- Arm with less weight**

Engineering with Legos : Crazy Contraptions



BRAIN BUILDERS
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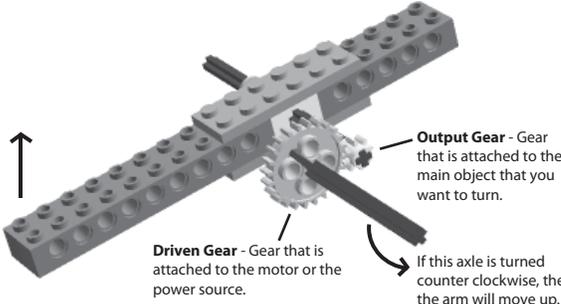
 Gears help machines do work. They can make something go faster or slower.

Spur Gear - This is the most common type. It is also known as a straight cut gear as its teeth are "cut straight" across. Different sizes of spur gears can be used together in many different combinations.



Gear Functions

Each gear has a job to do. Here is how gears are used and how they work together. In order for gears to work, their teeth need to be interlocking.



Driven Gear - Gear that is attached to the motor or the power source.

Output Gear - Gear that is attached to the main object that you want to turn.

If this axle is turned counter clockwise, then the arm will move up.

When 2 or more gears are used together, they form something called a gear **transmission**. Depending on the size of the gears and where they are placed, they can make your contraption move slower or faster.

Build a brick launcher

Build a hand powered catapult with gears and a lever that activates the arm. If built correctly, when the lever is pulled down the arm will move faster and will be able to launch your object further!

Challenge 1 - Launch a LEGO brick 10 feet
Challenge 2 - Launch a LEGO brick 15 feet
Challenge 3 - Launch a LEGO brick further than your friends!

Challenge 1 - Individual build or team of 2

- Launch a brick 10 feet

Challenge 2 - Individual build or team of 2

- Launch a lego brick 15 feet

Ultimate Challenge- Individual build

- Who can launch a brick the furthest