
Lego® Gears



Use Lego® models to demonstrate what gears can do.

Related exhibits: Gears exhibits

Time: 5 minute demo, cart program

Ages: ages 4 and up

Staffing: Floor staff or volunteer

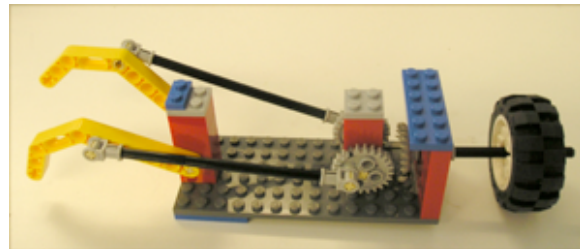
Safety: no issues

Materials:

- Lego® gear models (included with the educational supplies)
- Other items in which gears are visible (such as hand drill, egg beater, bike, or clock)

Procedure:

1. Demonstrate the different Lego® gear models.
2. Allow participants to examine the gears and how they work.
3. Discuss the different type of gears (i.e. worm gear, bevel gear) and how they operate.



Questions to Ask:

Where are the gears speeding

something up or slowing something down?

How many times does this gear go around for every turn of the first gear?

Does the larger gear spin faster or slower?

Where is there a translation of motion? For example, where does a circular motion cause a linear motion or visa versa?

Where else have you seen gears? What were the gears being used for?

Science Content:

There are many gear types, designs and sizes. Gears can be used to change the speed of moving parts, or alter the effort required to move parts. The concept of gear ratios is determined mathematically by counting the teeth on the interacting gears. Gears can translate motion perpendicularly, reverse motion, and change the speed of motion. Wheels can also be used with gears to change forward motion of a vehicle into other motions. Gears can also be combined with cams, levers, and linkages to create different motions.

Other Resources:

www.howstuffworks.com/gear.htm

The Way Things Work, by David Macaulay. Houghton Mifflin Company, Boston, 1988.