

## Vex Challenge #2:

# Gears

Due Date: January 18, 2013

Inventor's Guide:

Motion Section: Gears & Wheels (3.1-3.12)

CMU Vex Curriculum: [How Do Gear Ratios Affect Speed and Torque?](http://www.education.rec.ri.cmu.edu/roboticscurriculum/vex_online/lessons/gearbox/lesson.html)

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## **Build a robot to push around stacks of tuna cans.**

### 1 Level Challenge (80 points):

- Build a robot that can push at least 20 cans of tuna
  - Make a design drawing of your robot
    - Label the gears and the gear ratio
- Program your robot to push the cans autonomously
  - The robot must push the cans at least 1 foot and then stop

### 2 Level Challenge Hardware Option (100 points):

- Complete the 1 Level Challenge for 30 cans of tuna instead of 20

### 2 Level Challenge Software Option (100 points):

- Complete the 1 Level Challenge
- Program your robot to detect the cans autonomously
  - The robot must drive up to the tuna cans autonomously
  - The robot must detect the tuna cans with a sensor
  - The robot must switch to operator control when it runs into the cans

