



**Automation & Robotics Virtual Learning**

**7th & 8th**

**Mechanisms Day 10**

**April 17th, 2020**



PLTW: Automation & Robotics  
Lesson: Mechanisms Day 10 [April 17th]

**Objective/Learning Target:**

Students will review of the basics of mechanisms, and the relationship between gear ratios, speed and torque.

\*To complete the Warm-up and assignment electronically, click [here](#)

# Warm-up

Today's lesson is going to continue to challenge your knowledge of mechanisms.



[Link to video](#)

Before we get started watch the above video and list all the different types of movement you see.

---

---

---

---

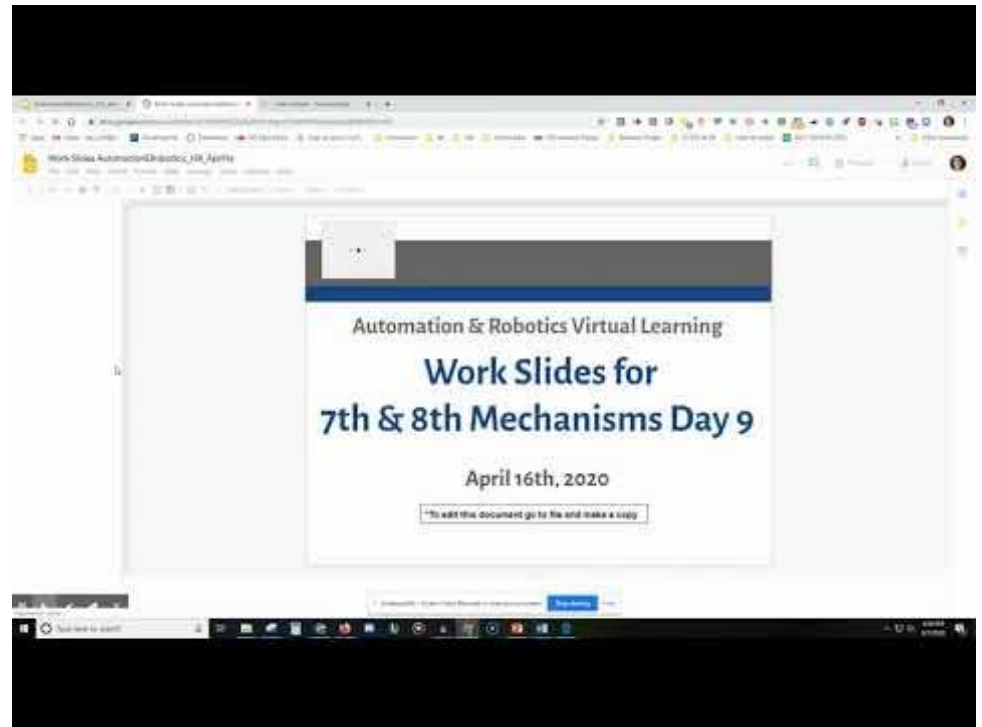
---

---

# Instructions:

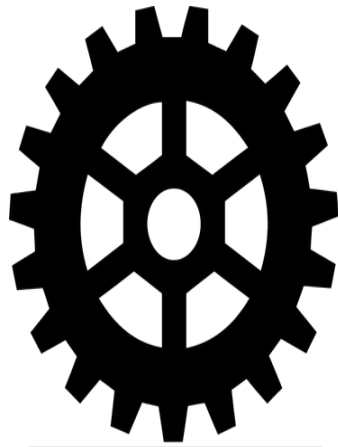
## Recap from lesson 9

- Take the gears from the side of each slide and arrange them so that they complete the use specified at the top of the slide.
- For example, if the slide says increase speed from input to output you would arrange the gears so that your speed increases.
- You may not use all of the pieces available on each slide and that's okay!

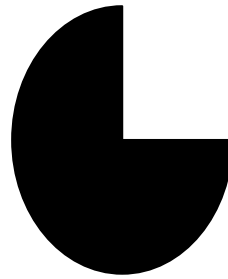


[Link to video](#)

Materials:



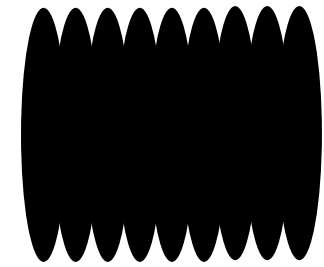
Gear - 19 teeth



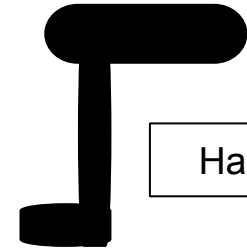
Cam



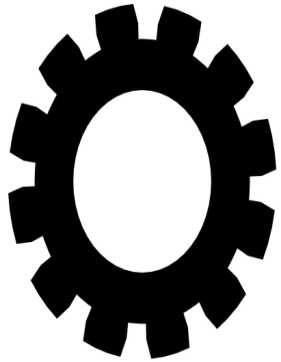
Follower



Worm Gear - 18 teeth

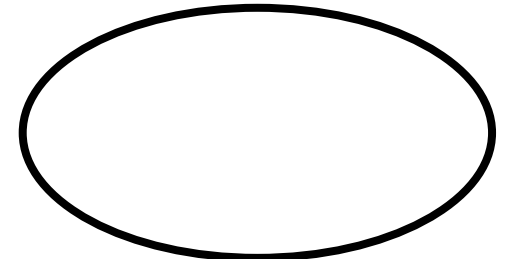


Handle



Gear - 12 teeth

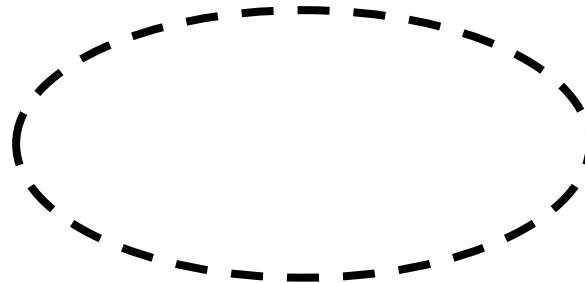
# *Gear Choices*



Belt



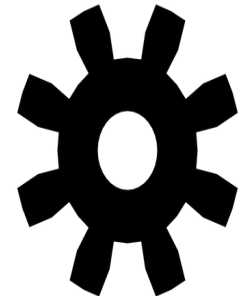
Pulley  
4 mm



Chain

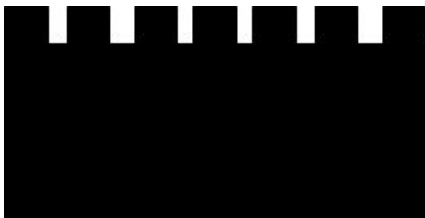


Pulley  
2 mm

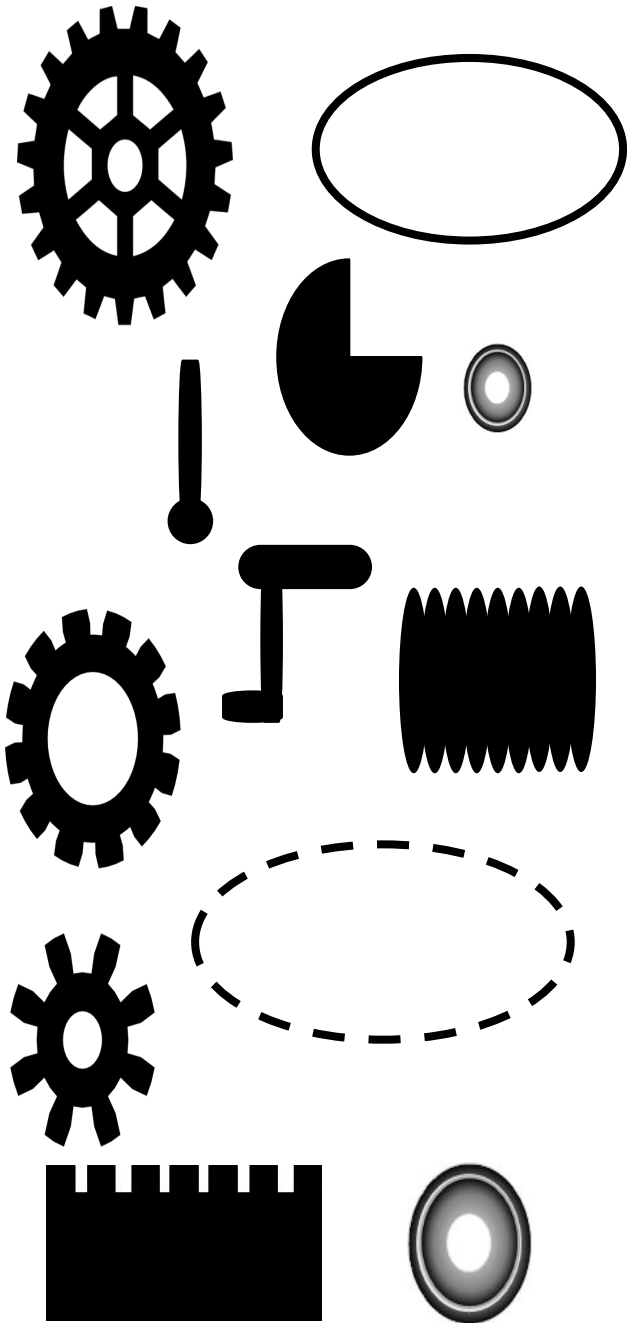


Gear - 8 teeth

Rack Gear



# 1) Increase the Torque



Explain why your mechanism increases torque

---

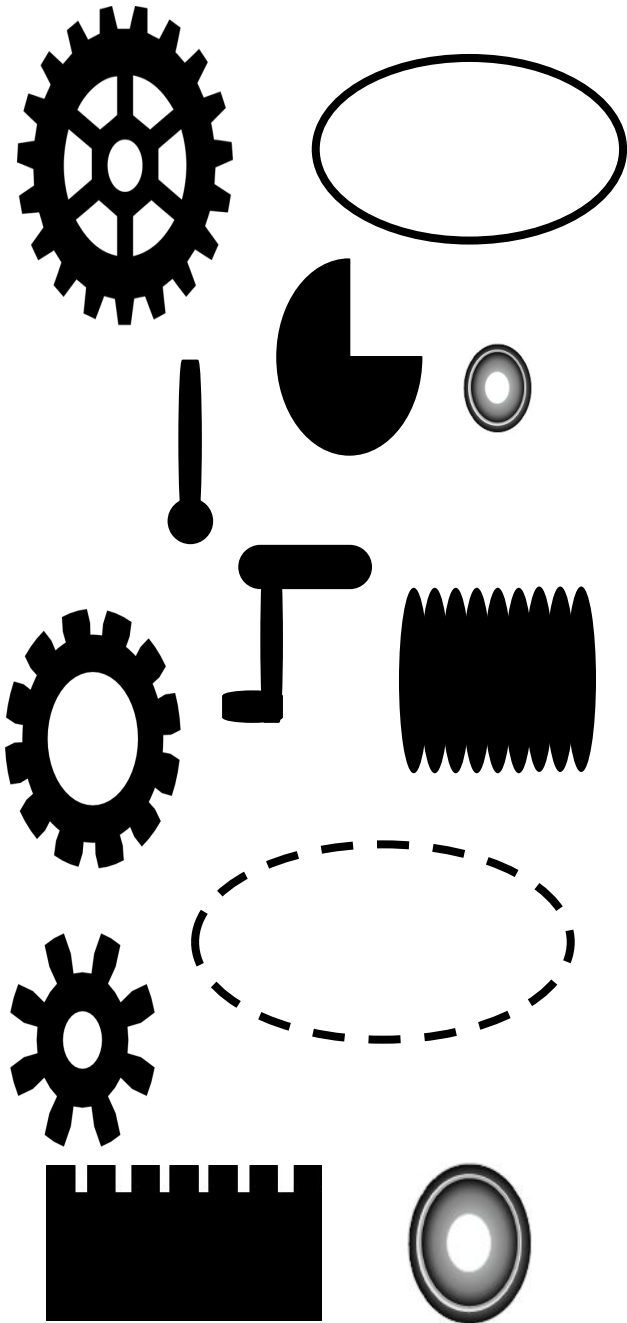
---

---

---

---

## 2) Make the Output movement linear



Explain how/why the output movement is linear.

---

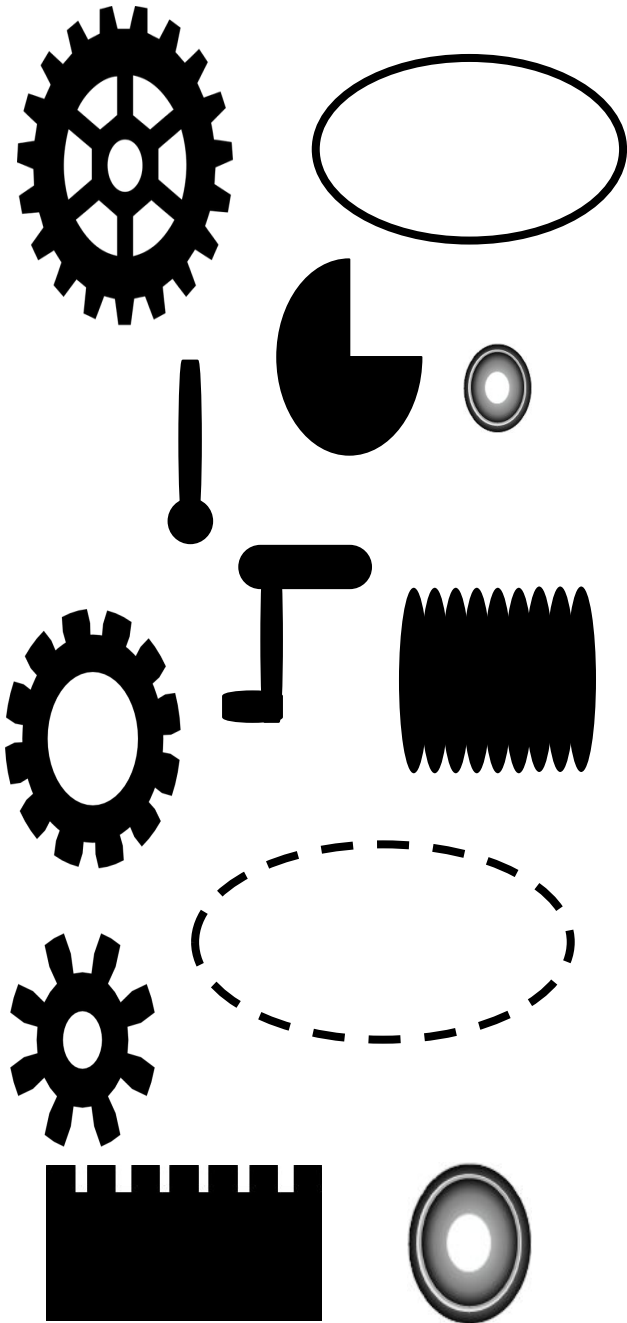
---

---

---

---

### 3) Decrease the Torque



Explain why your mechanism decreases torque

---

---

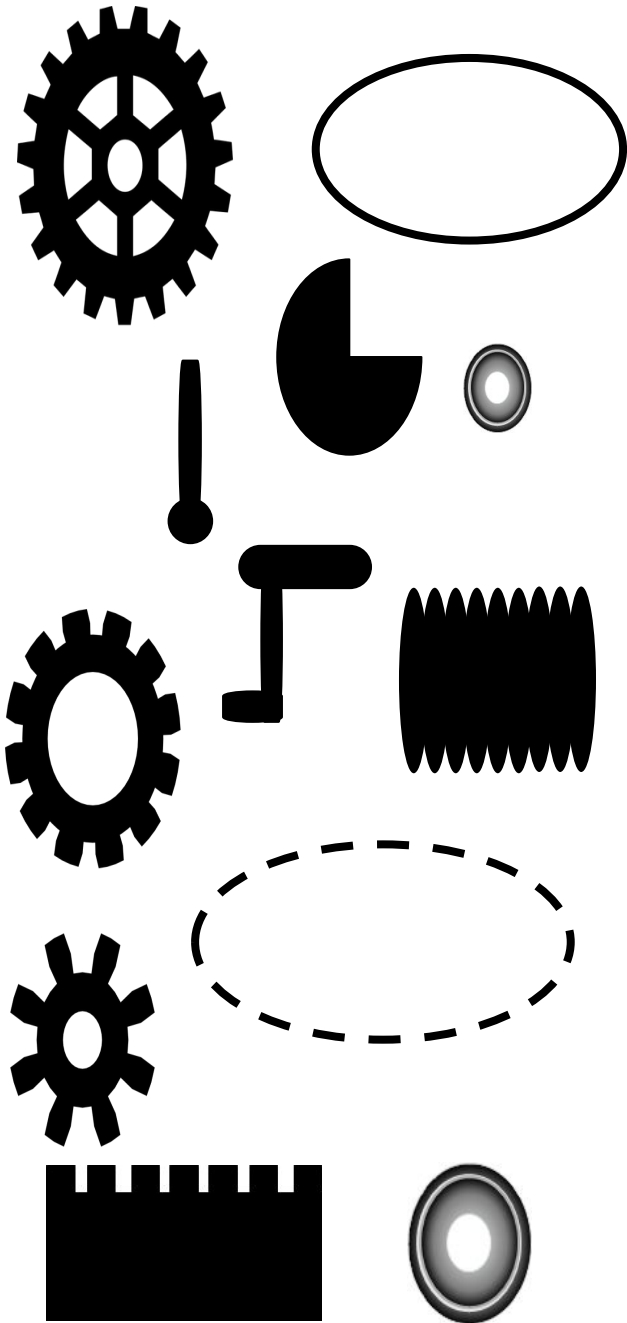
---

---

---



## 4) Make the Output movement Reciprocating



A large, empty, rounded rectangular box intended for drawing or writing a solution to the problem.

Explain how/why the output movement is reciprocating.

Five horizontal lines provided for writing the explanation.

# Extend your learning

Take a look at the everyday commonly used mechanisms here at this [website](#).