Automation & Robotics Virtual Learning

7th & 8th
Mechanisms Day 9

April 16th, 2020

PLTW: Automation & Robotics
Lesson: Mechanisms Day 9 [April 16th]

Objective/Learning Target:
Students will demonstrate the four uses for mechanisms which are:

- Change direction of movement
- Change type of movement
- Change speed of movement
- Change amount of force or torque available to do work

Warm-up

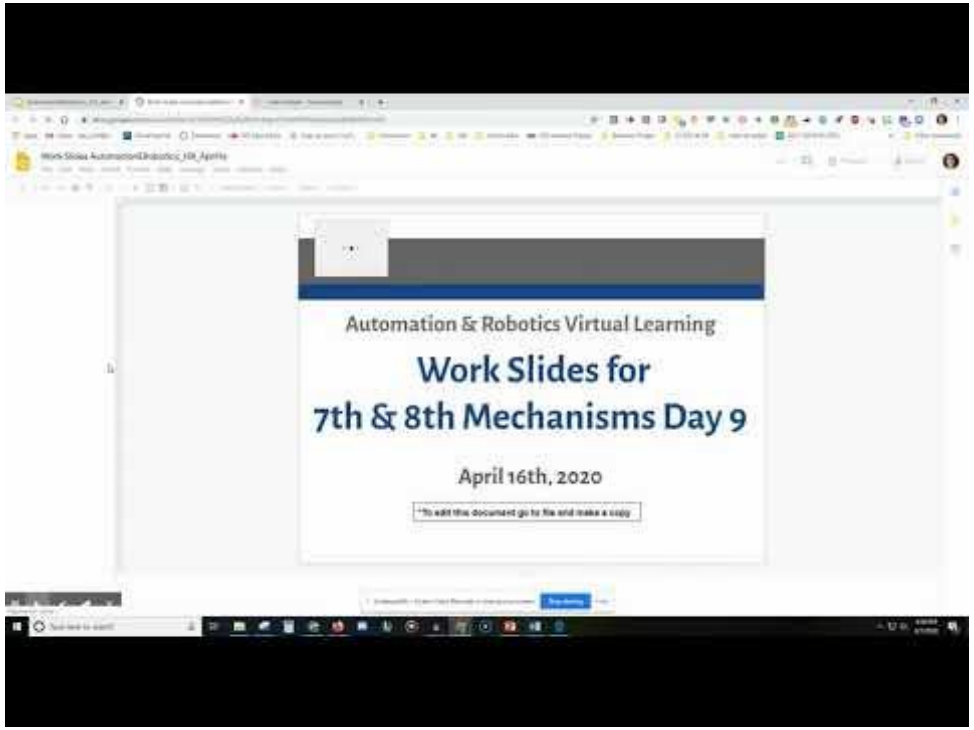
*To complete the Warm-up and assignment electronically, click here

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

Link to video

Before we get started watch the above video and list all the different mechanisms you see.

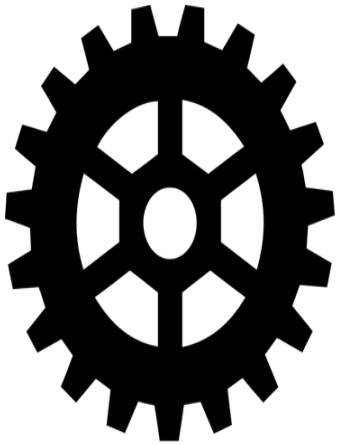
Instructions:



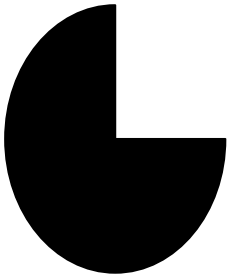
Link to video

- 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!

Materials:

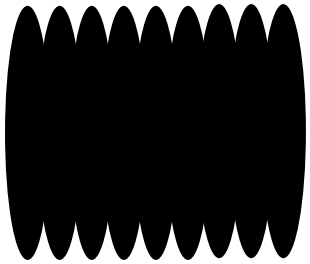


Gear - 19 teeth

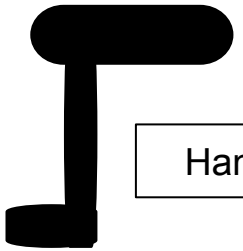


Cam

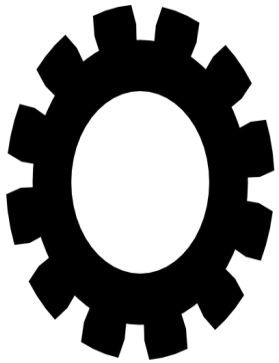
Follower



Worm Gear - 18 teeth

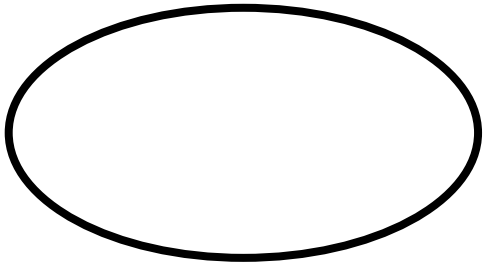


Handle



Gear - 12 teeth

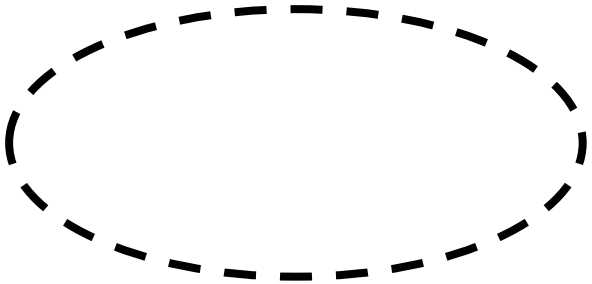
Gear Choices



Belt

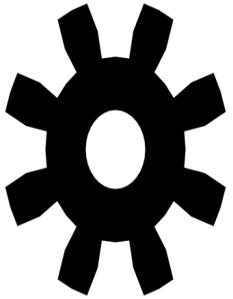
Pulley
4 mm

Rack Gear



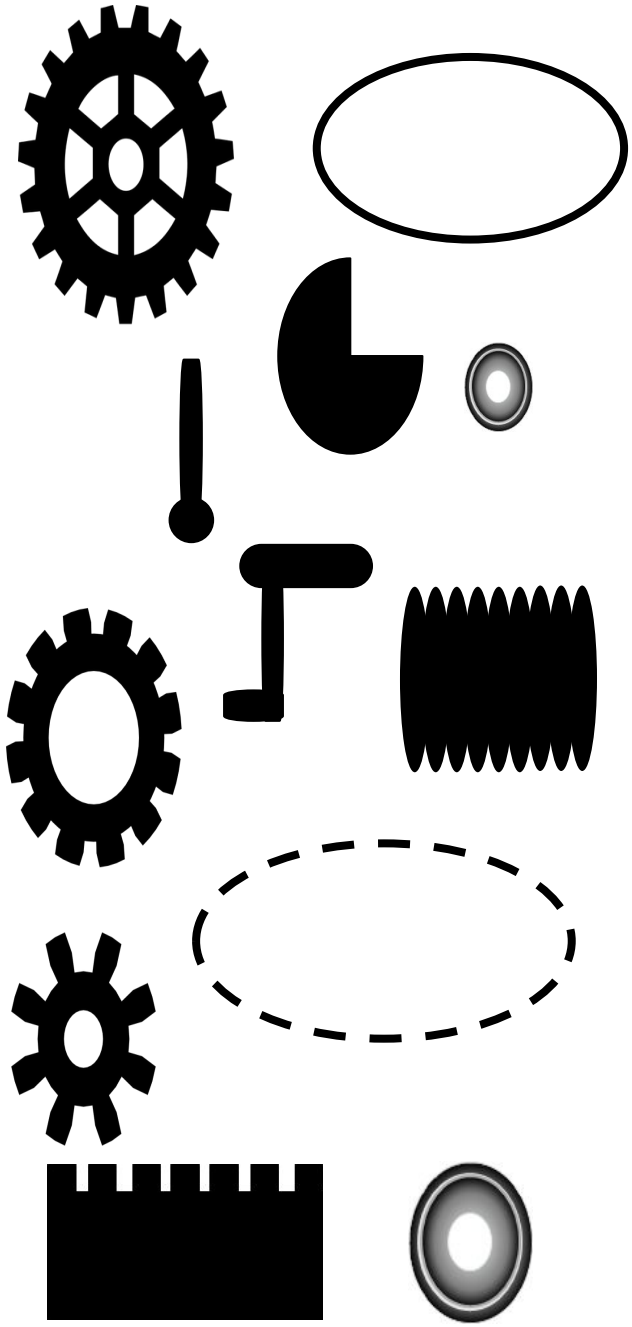
Chain

Pulley
2 mm



Gear - 8 teeth

1) Increase the Speed



Explain why your mechanism increases speed

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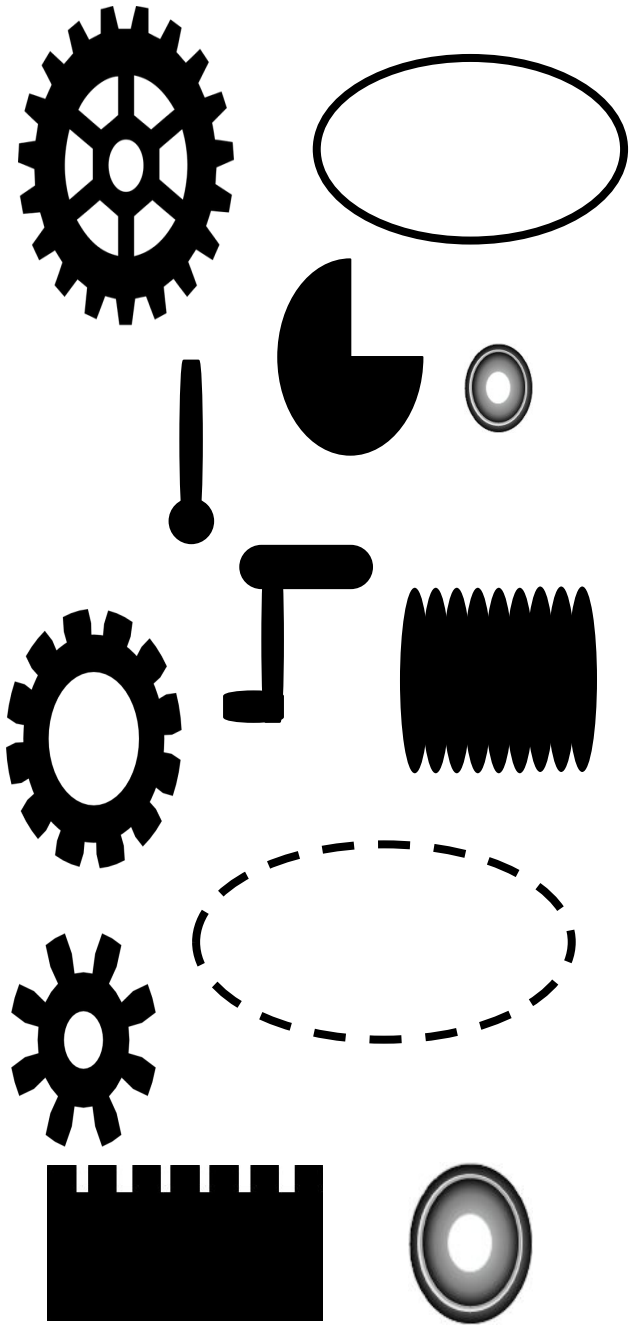
2) Change the type of movement



Explain why your mechanism has change the movement

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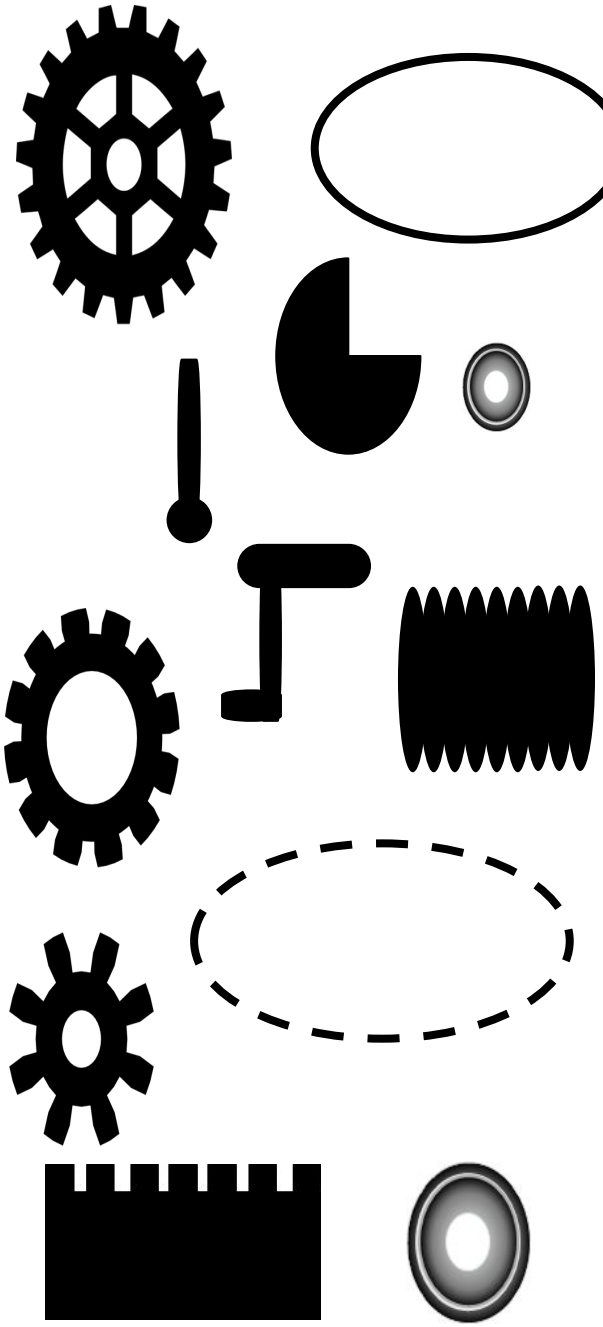
3) Decrease the Speed



Explain why your mechanism decreases speed

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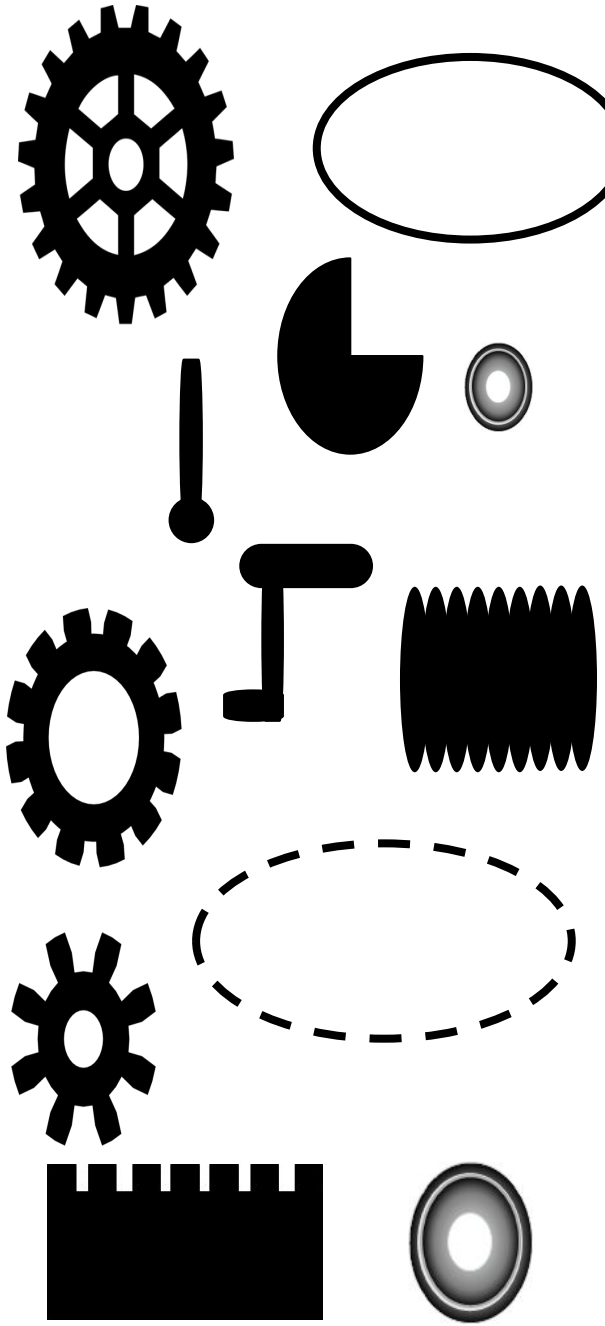
4) Change the input type of movement



Explain how your input movement is different from your output movement.

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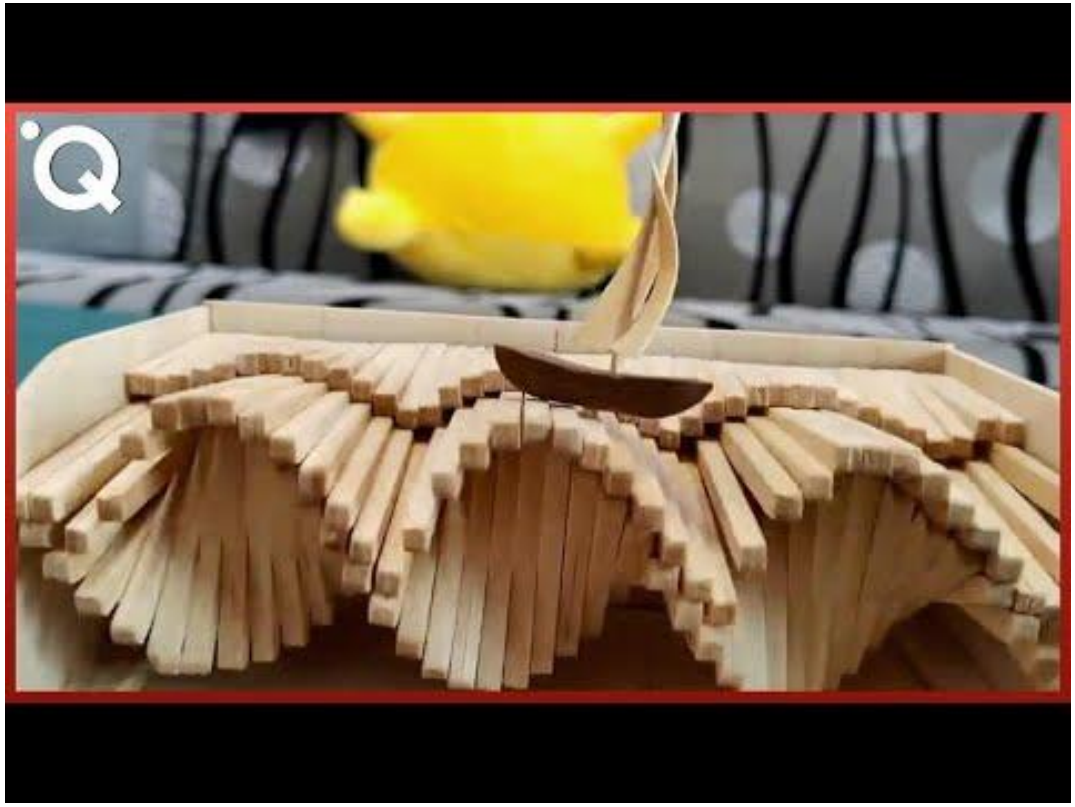
Extend your learning

Take a look at how this one artist used simple mechanism ideas to create these moving art pieces out of ice cream sticks
Maybe you could try to build your own!



Link to video