Professional Learning – Coding Series

SCIENCE NORTH SCIENCE NORD

Land Acknowledgement

Anishinaabe Territory

Robinson-Huron Treaty

Located on the traditional lands of
Atikameksheng Anishnawbek

schools.sciencenorth.ca/virtual-learning-packages

VIRTUAL LEARNING PACKAGES

SMALL SCHOOL PACKAGE

MEDIUM SCHOOL PACKAGE

LARGE SCHOOL PACKAGE

SYNCHRONOUS E-WORKSHOPS

Science North is pleased to offer Ontario schools virtual learning packages. We understand that experiential learning is of utmost importance for students and with new guidelines and field trip restrictions in place, why not go virtual?! Purchasing a virtual learning package for your school means that all students in the school will have the opportunity to participate in dynamic live shows, engaging synchronous workshops, and be able to drive their own experience by asking our Scientists anything!

Let Science North support your curriculum with our customizable packages.

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Workshop Goals

Science North is dedicated to getting **students excited** and **thinking about science**. We aim to provide teachers with **innovative, hands-on activities** and **creative learning tools** that make learning more meaningful and fun.

Motivate students:

- *Connect to their interests.*
- *Highlight relevance of material.*
- *Use real-world examples.*
- *Choose challenging activities.*
- *Boost confidence.*

Promote active learning:

- *Use a group or individual activity.*
- *Challenge them to solve a problem.*

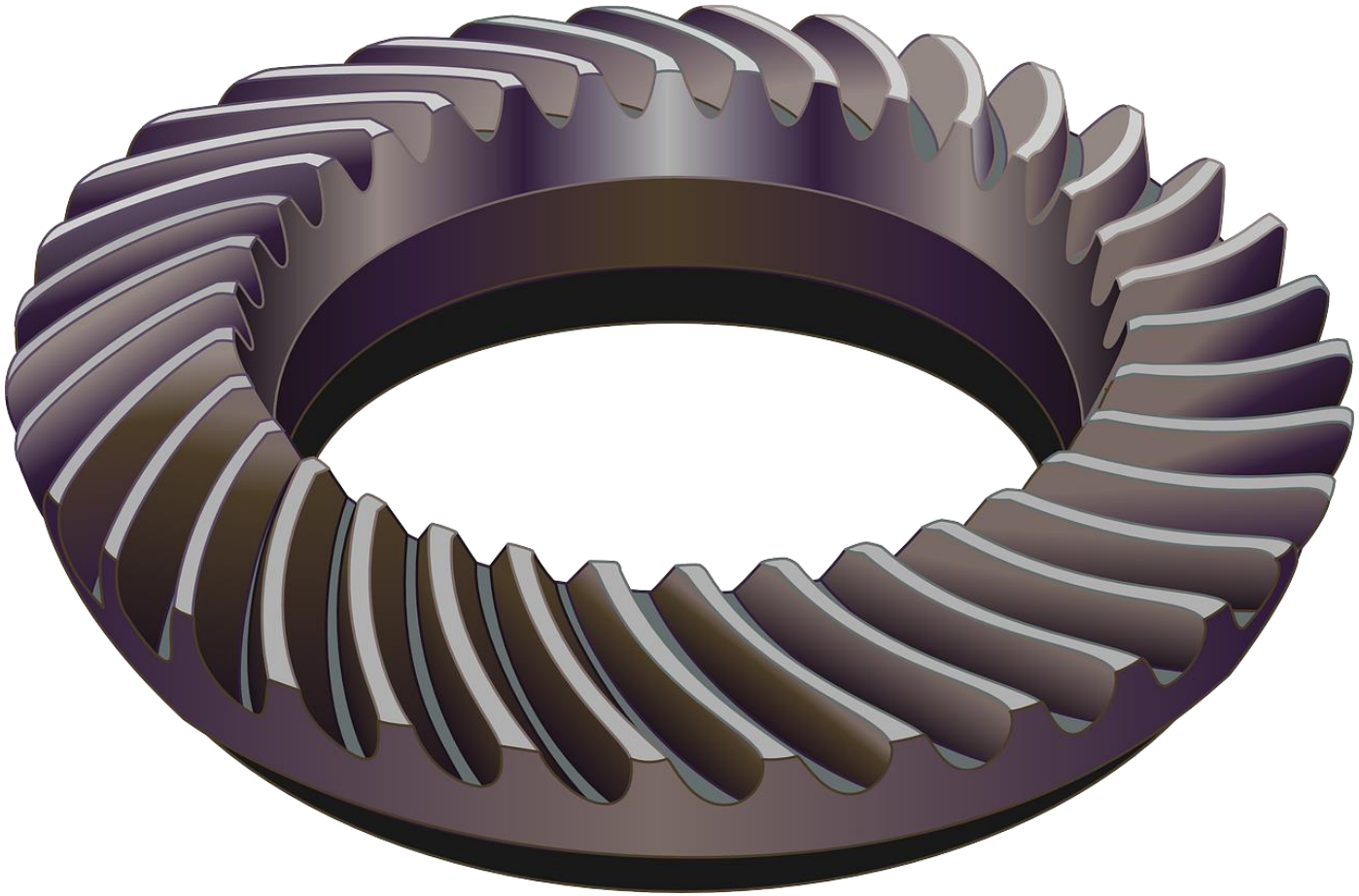
Gears Rule– Gr 3/4

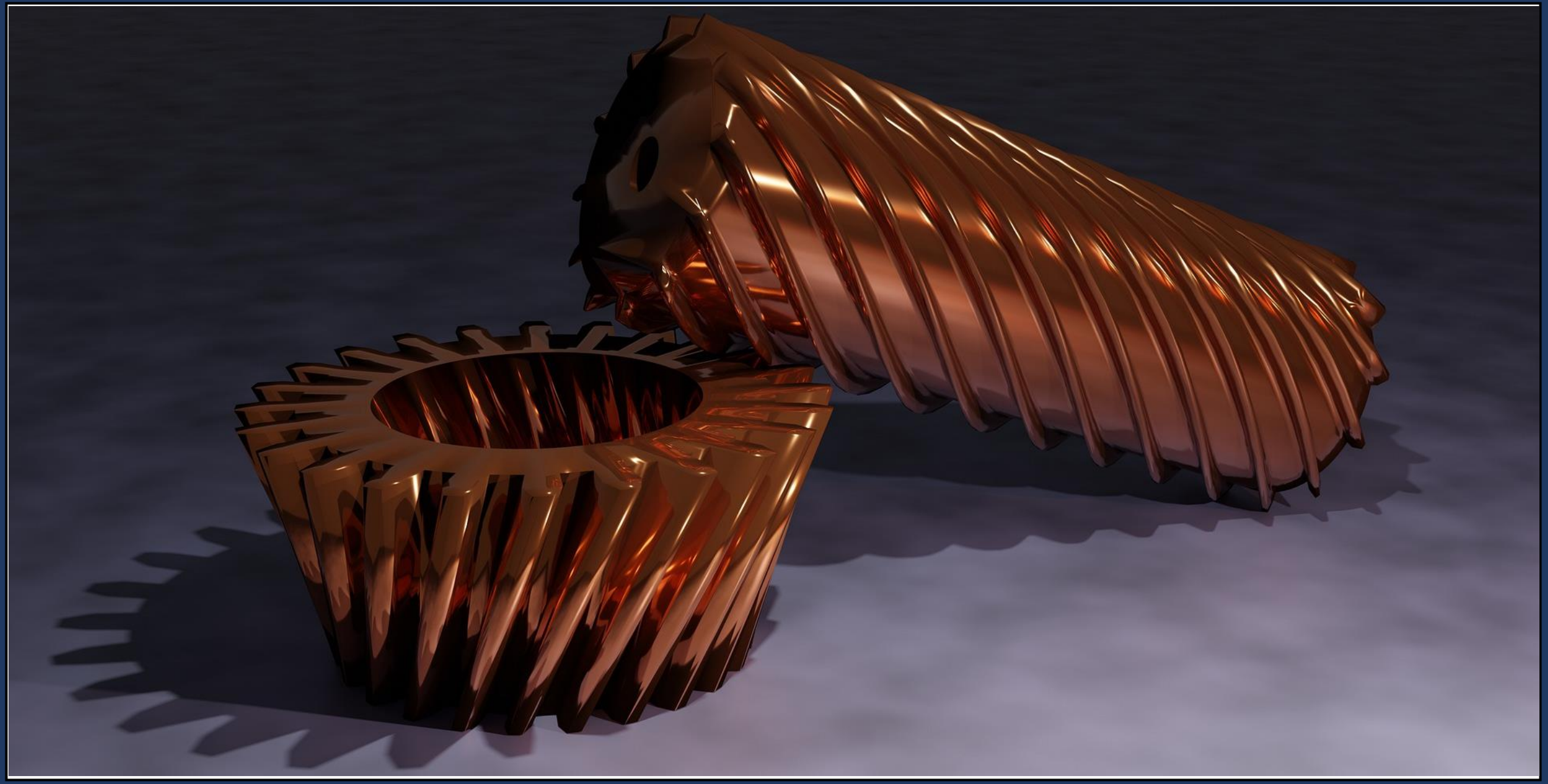
Part 1 - November 23, 2020

- Introducing the concept
  - Lesson Plan
  - Slides
  - GearSketch
  - Gears Rule Handout/Solution
- Applying the concept
  - Lesson Plan
  - Slides
  - Gears Rule Assessment
  - GearSketch

Part 2 - November 24, 2020

- Culminating Math Activity
  - Lesson Plan
  - Slides
  - Coding Handout
  - Scratch





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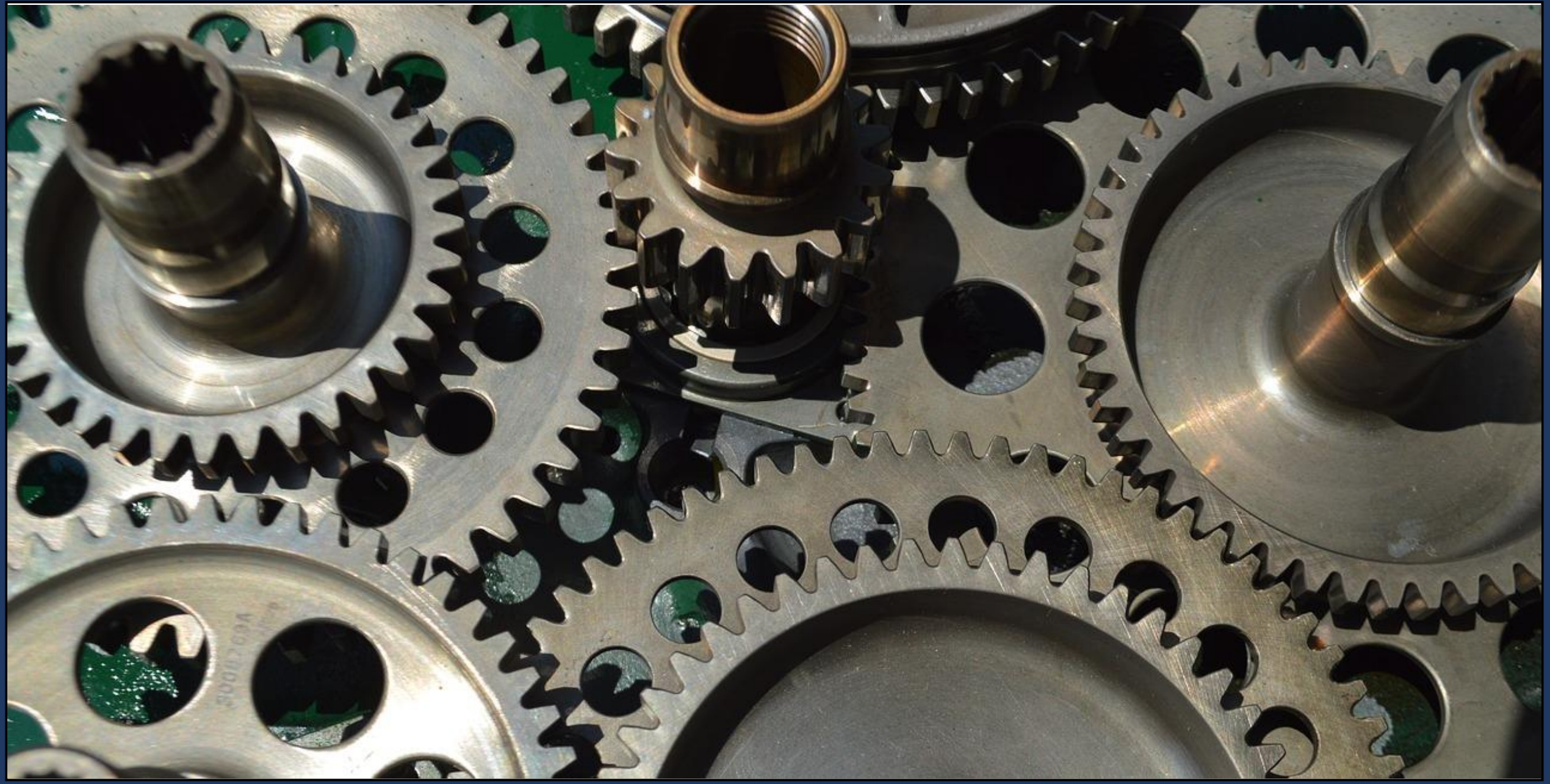

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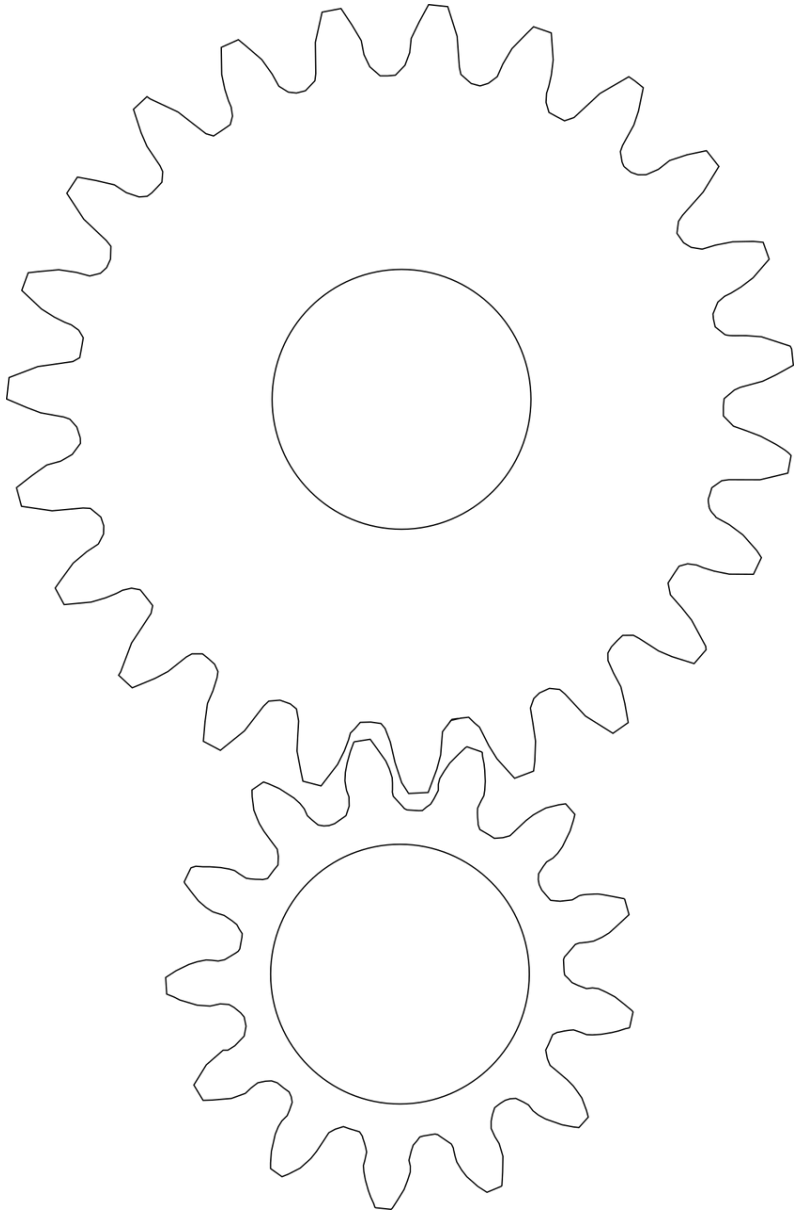
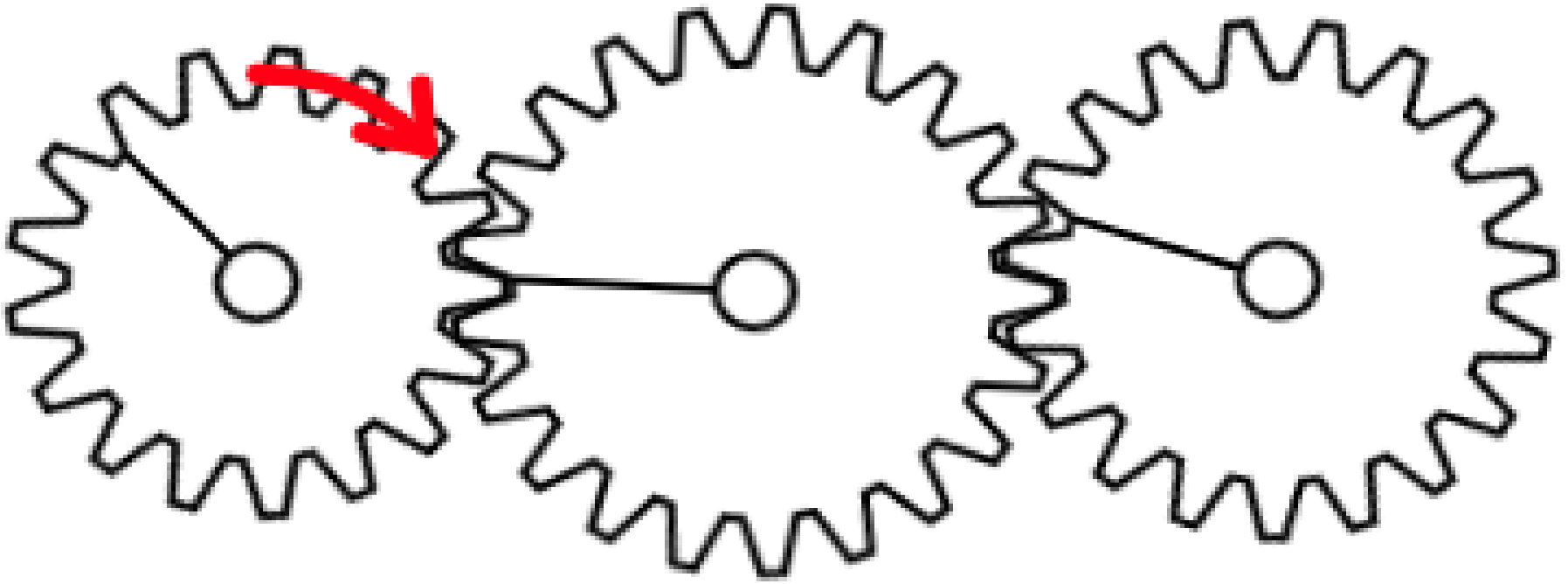


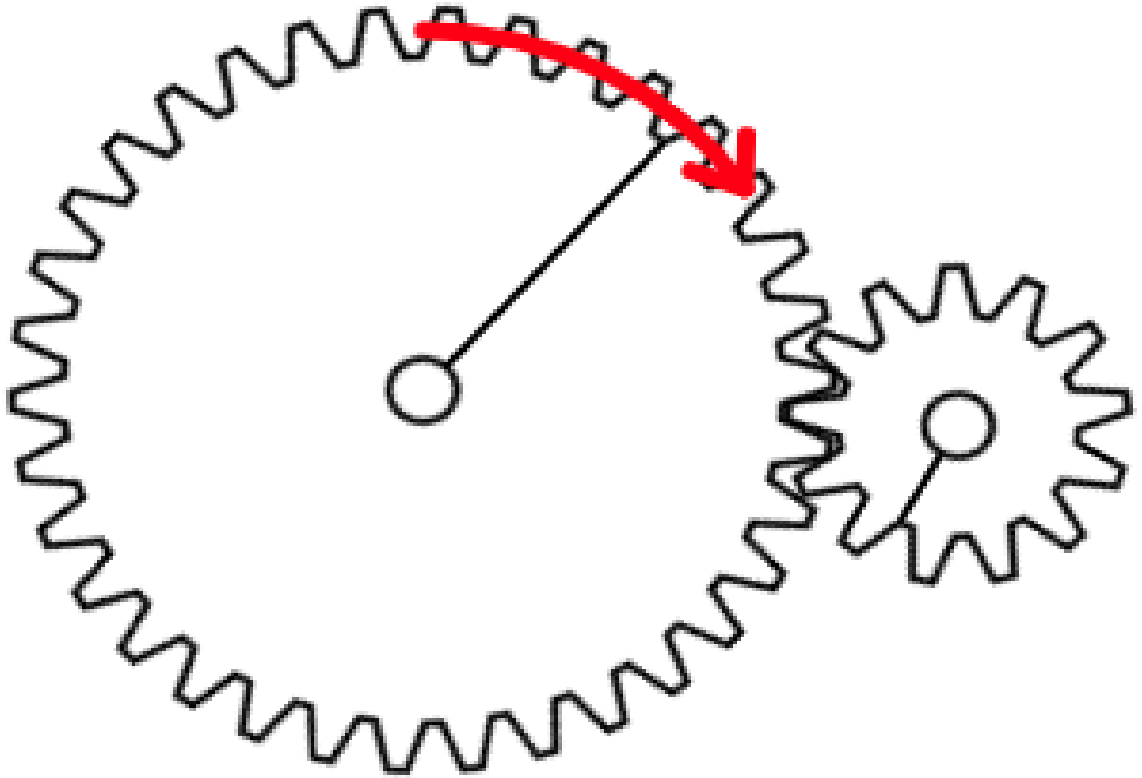
Conditional Statements

- At school:
  - If the fire alarm goes off, then
  - If I arrive to school late, then
  - If the bell rings, then
  - If we eat lunch, then
- In sports/games:
  - If the referee blows the whistle, then
  - If the timer runs out, then
  - If I match 2 cards, then
  - If I play an 8, then

Conditional Statements

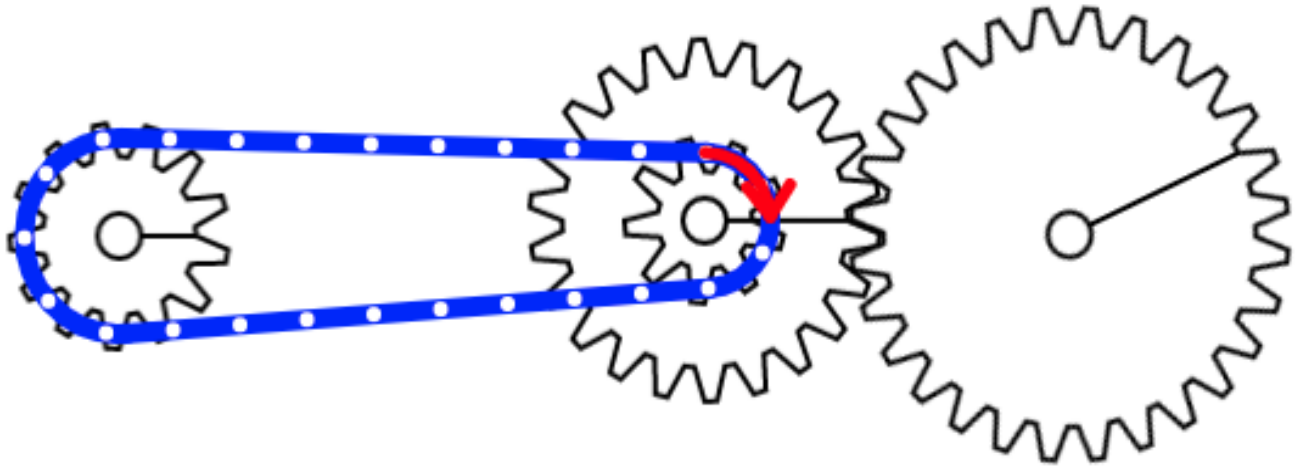
- About gadgets:
  - When I press start on the microwave, then
  - When the battery says 1% on a device, then
  - When I press the space bar on a computer, then
- Your examples!



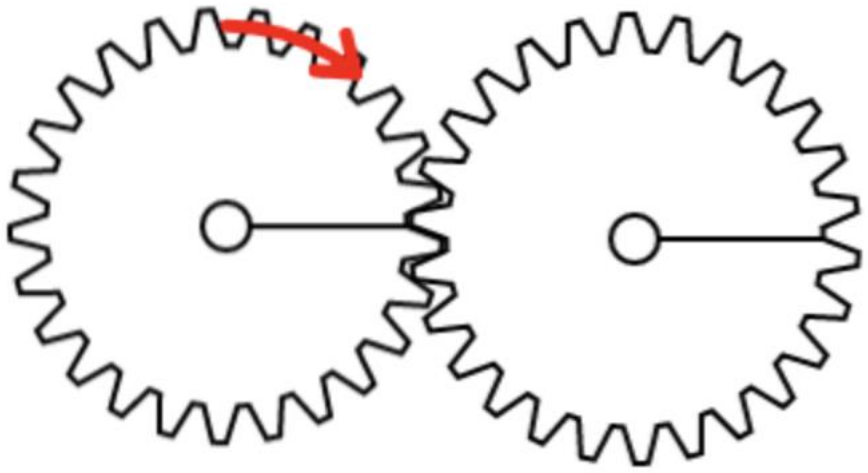


GearSketch

gearsket.ch



Gear Rules!



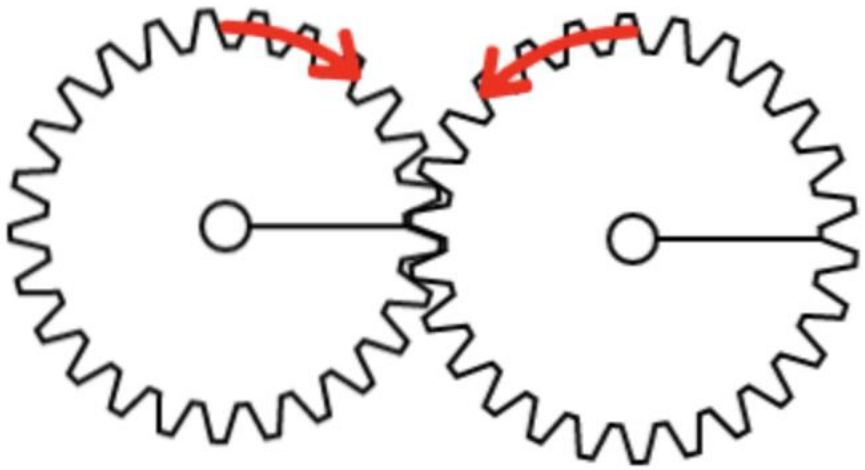
If a gear does not have a force applied and is connected to another gear

Then both gears will stay still.

If a gear <u>has a force applied</u> and is connected to another gear

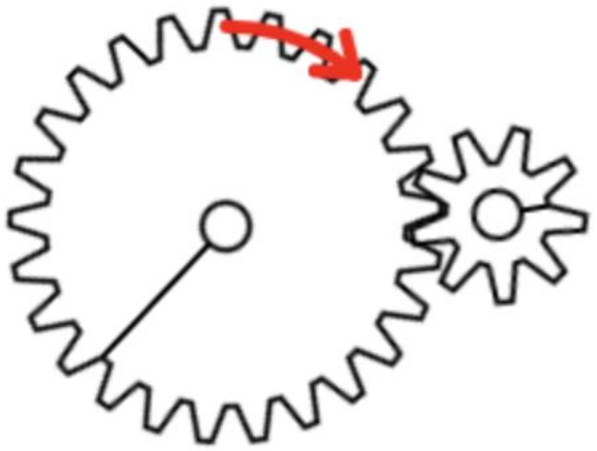
Then both gears will turn.

Rule 1



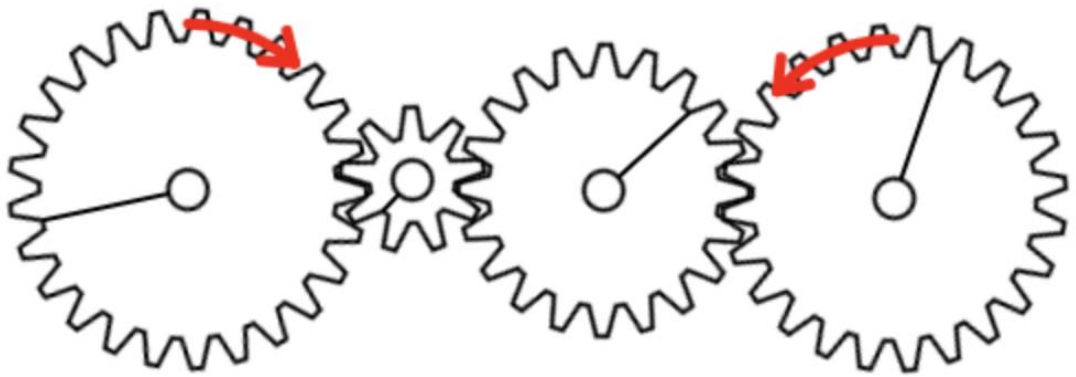
- If a gear is turning clockwise
- Then the gear next to it turns counter-clockwise.

Rule 2



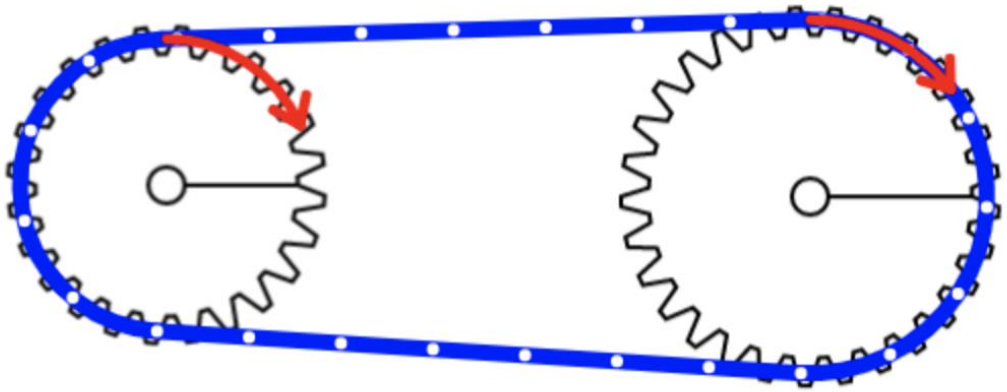
- If a gear is <u>smaller</u> than the gear next to it
- Then in comparison to the first gear, it moves <u>faster.</u>

Rule 3



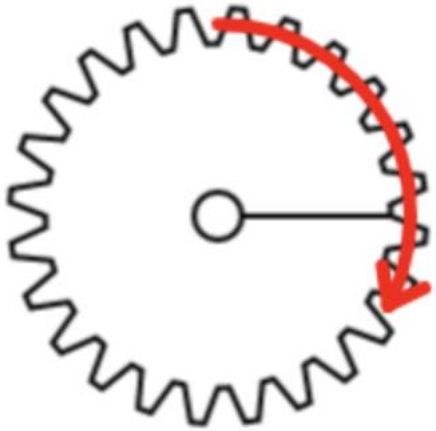
- In a gear train with no belt
- If there are an <u>even number of gears</u>:
- Then the last gear moves in the <u>opposite</u> direction as the first.

Rule 4



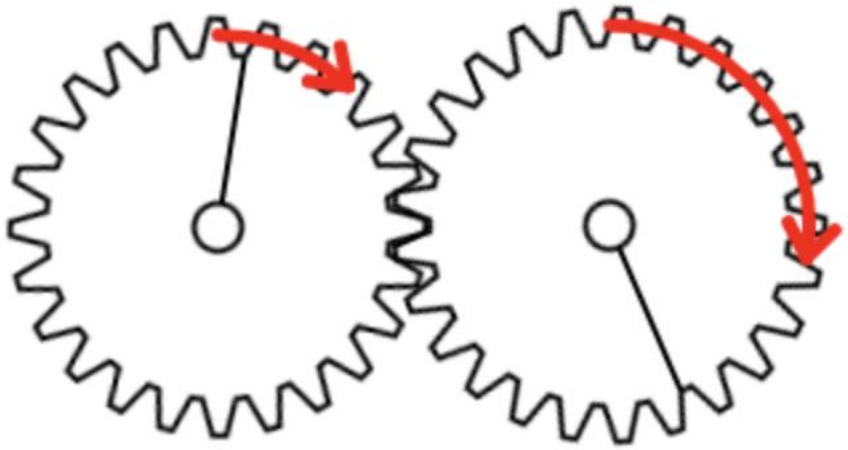
- If two gears are connected by a belt:
- Then the two gears will move in the same direction.

Rule 5



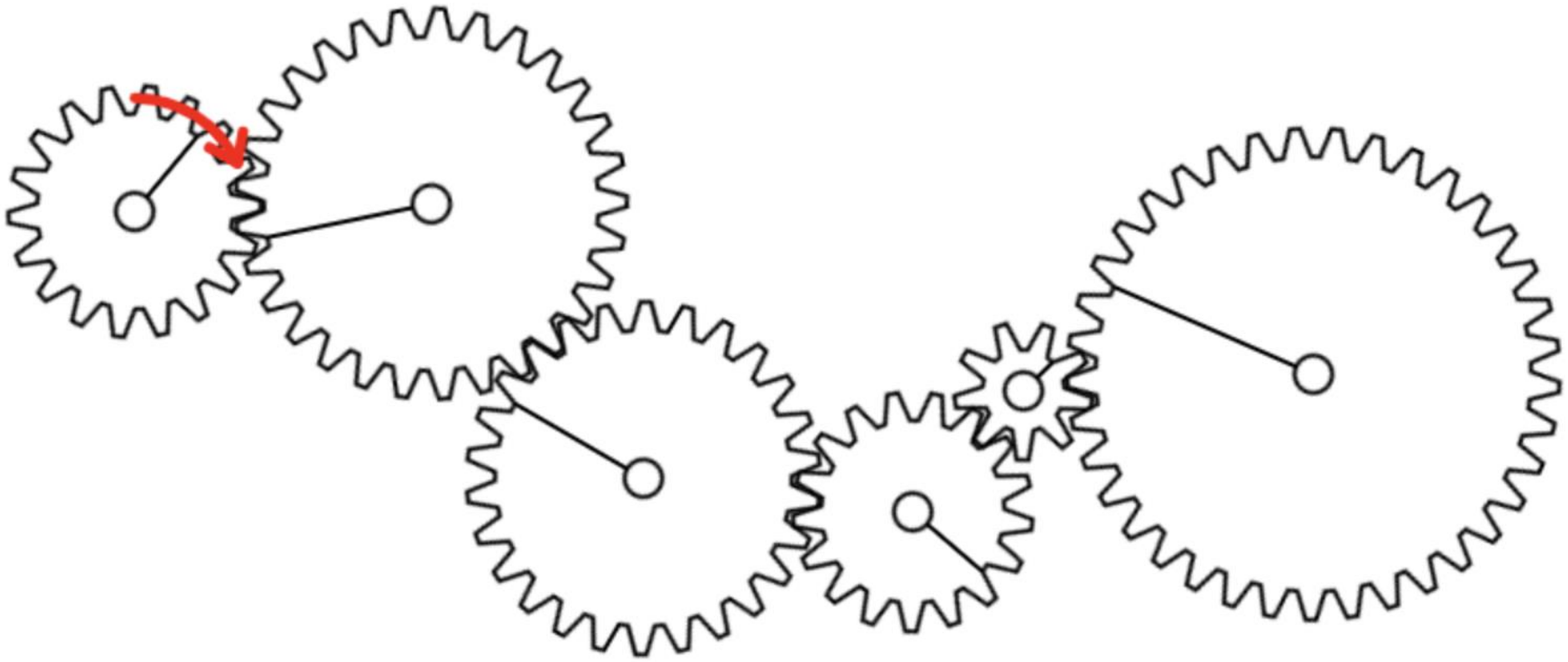
- If the size of the force (arrow) gets bigger
- Then the speed of the gear will get relatively faster.

Rule 6

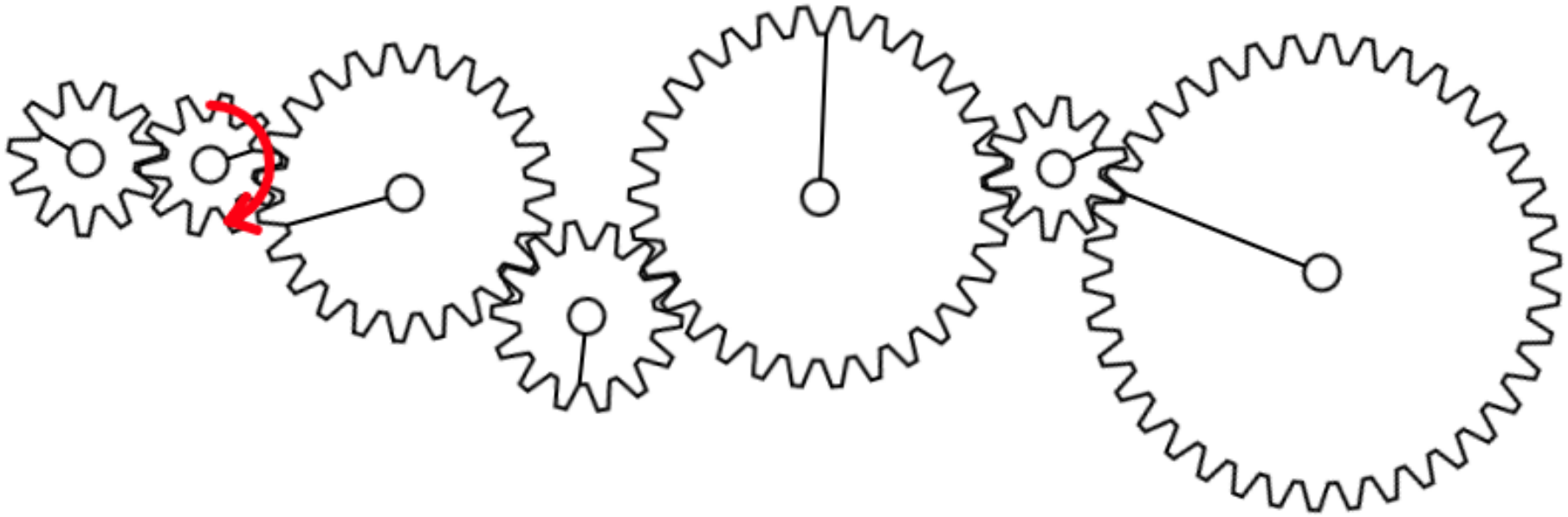


- If two gears are connected and both have a force in the same direction:
- Then the gear with the bigger force will determine which way the gears move.

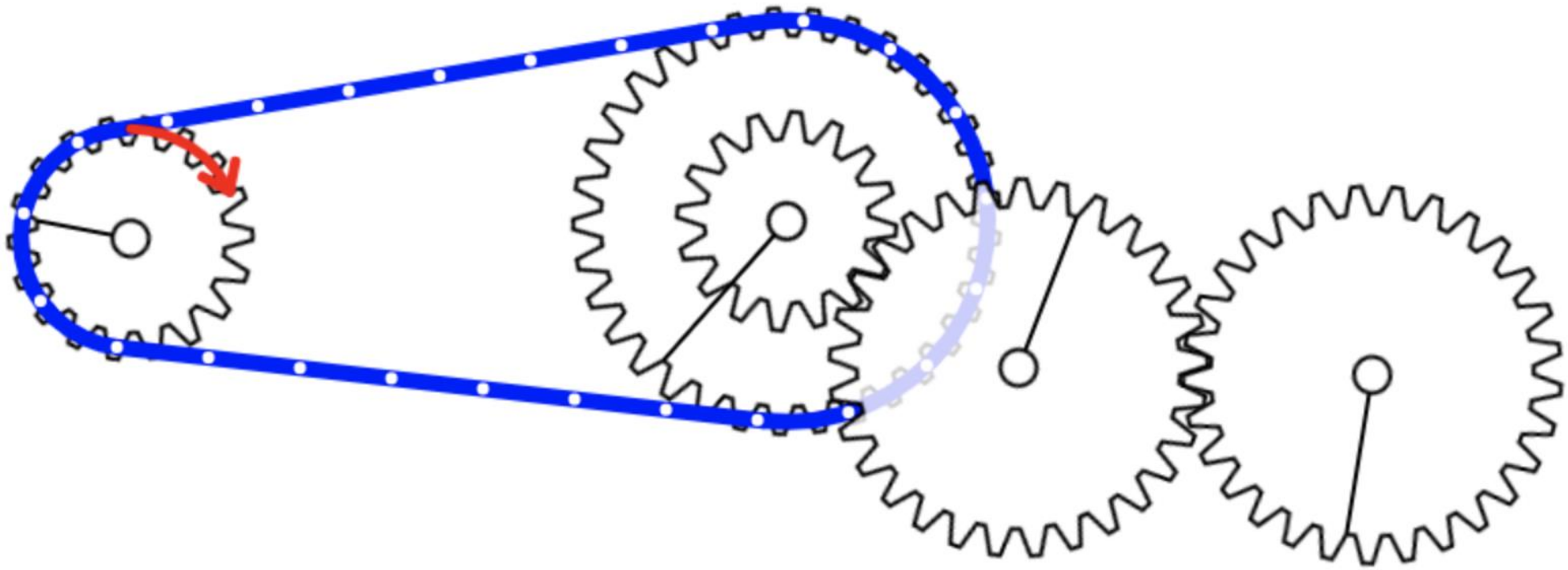
Assessment Activity - Gear Train 1



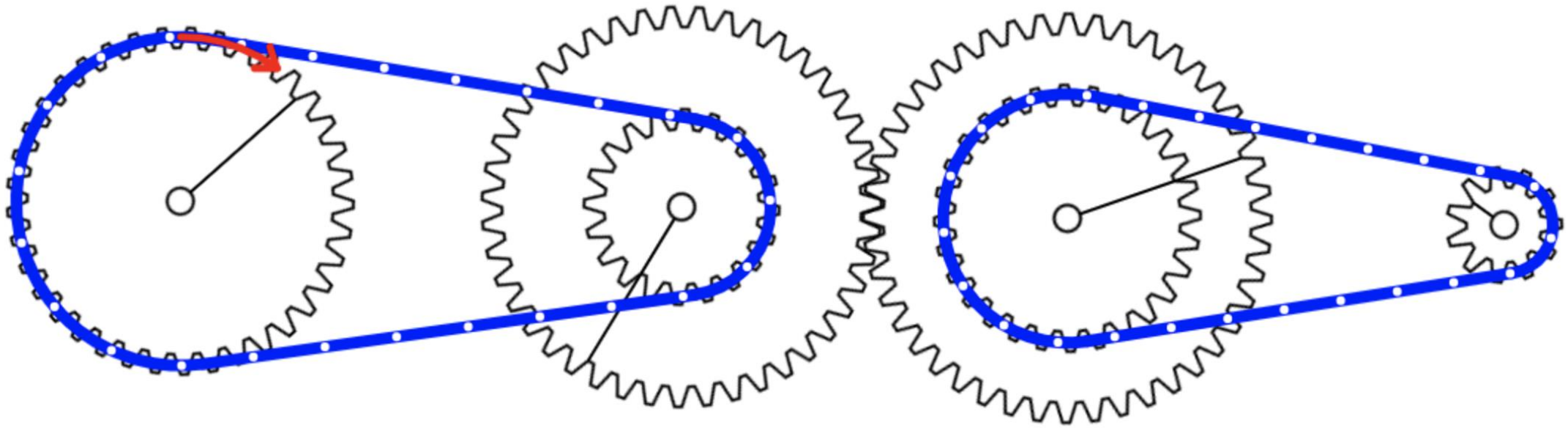
Gear Train 2



Gear Train 3

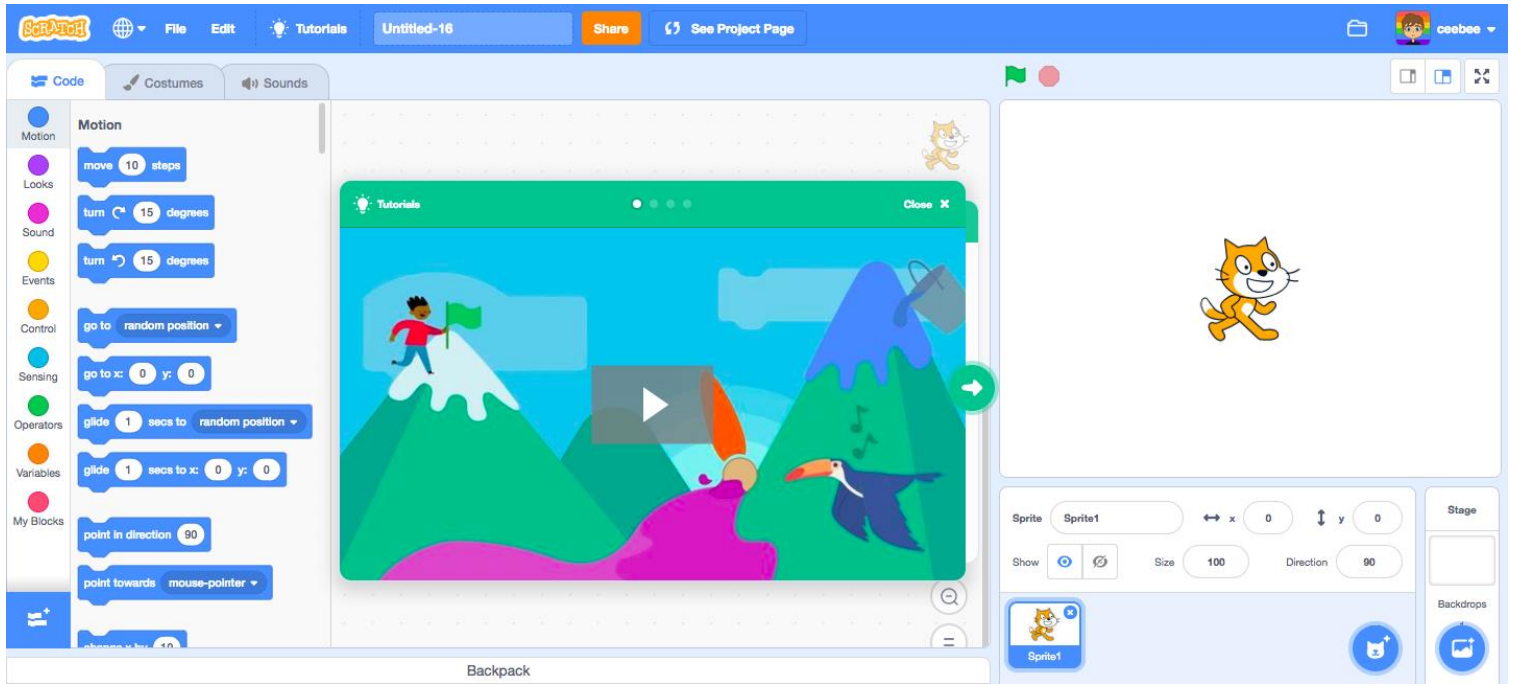


Gear Train 4



Culminating Math Activity

scratch.mit.edu



Thank You!!

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