

Gears Rule	Grade 3 and 4
------------	---------------

Gears Rule Handout

What to do:

Gears are used to transfer motion between the parts of a mechanical device. They are useful as a machine because they can change the direction of movement or change the output speed. Gears behave in a predictable way and we can make rules to determine what will happen when gears interact.

Your task will be to create these rules using pseudo-code. Pseudo-code is simply code that has been written out and provides us with instructions we can follow.

Program:

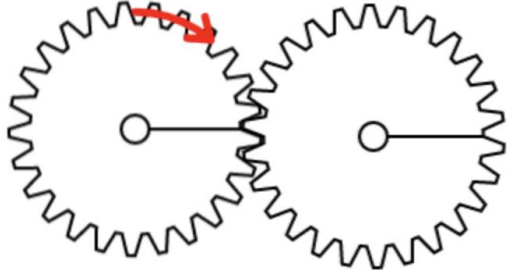
You'll be able to test each rule using the gear program **gearsket.ch**

Example:

If a gear has a force applied and is connected to another gear

Then both gears will turn.

(Hint: turn/stay still)

<p>Draw the rule:</p> 	<p>Write the pseudo-code for a gear that does not have a force:</p> <p style="text-align: center;"><i>If a gear does not have a force applied and is connected to another gear Then both gears will stay still.</i></p>
---	---

Rule 1:

If a gear is turning clockwise

Then the gear next to it turns _____.

(Hint: clockwise/counter-clockwise)

Draw the rule:	Write the pseudo-code for a gear turning counter-clockwise:
----------------	---

Rule 2:

If a gear is smaller than the gear next to it

Then in comparison to the first gear, it moves _____.

(Hint: faster/slower)

Draw the rule:	Write the pseudo-code for a bigger gear:
----------------	--

Rule 3:

In a gear train with no belt

If there are an even number of gears:

Then the last gear moves in the _____ direction as the first.

(Hint: same/opposite)

Draw the rule:	Write the pseudo-code for a rule with an odd number of gears:
----------------	---

Rule 4:

If two gears are connected by a belt:

Then the two gears will move in the _____ direction.

(Hint: same/opposite)

Draw the rule:

Rule 5:

If the size of the force (arrow) gets bigger

Then the speed of the gear will get relatively _____.

(Hint: faster/slower)

Draw the rule:	Write the pseudo-code for a rule when the force gets smaller.
----------------	---

Rule 6:

If two gears are connected and both have a force in the same direction:

Then the gear with the _____ force will determine which way the gears move.

(Hint: bigger/smaller)

Draw the rule:
