

Name(s): \_\_\_\_\_

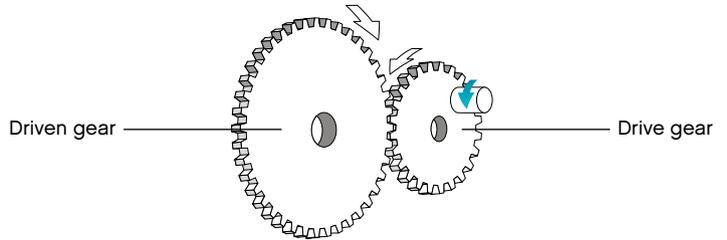
Date and subject: \_\_\_\_\_

### Principle Models: Gears

Student Worksheet

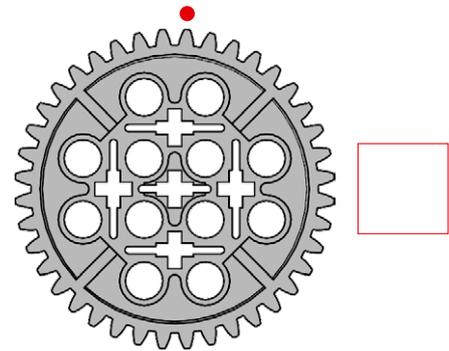
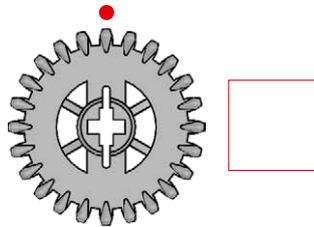
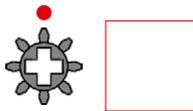
#### Things to talk about:

- What do you know about this simple machine?
- Where do we use this simple machine?
- Why do we use this simple machine?



Find the LEGO® gears shown and count the number of teeth they each have. Start counting from the dot.

Write your answers in the boxes.



#### 1. Build A1 (Direction of rotation).

Follow Building Instructions A, pages 4 to 8, steps 1 to 7.

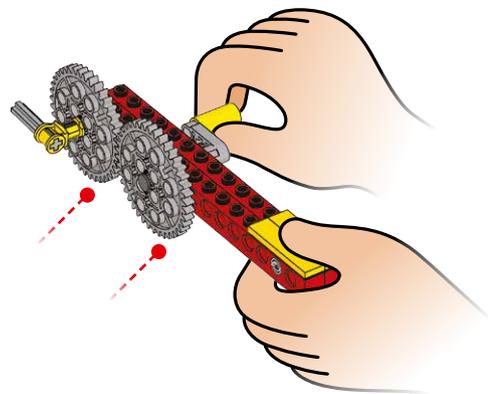


#### 2. Label the gears.

Draw lines from the words to the picture of the model.



Driven gear ●  
Drive gear ●



#### 3. Try out the model and make observations.

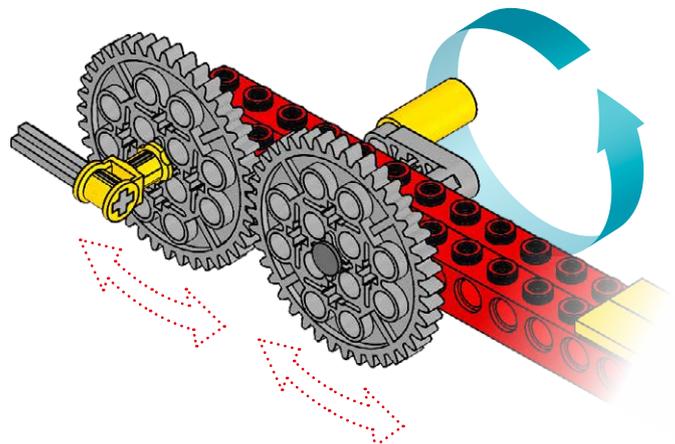
Crank the handle one full turn, and count how many times the position marker turns. Write your answer here:



.....



Observe which way the gears turn when you crank the handle, and draw arrows to show the directions they turn in.



**1. Build A2 (Idler gearing).**

Follow Building Instructions A, pages 10 to 14, steps 1 to 8.

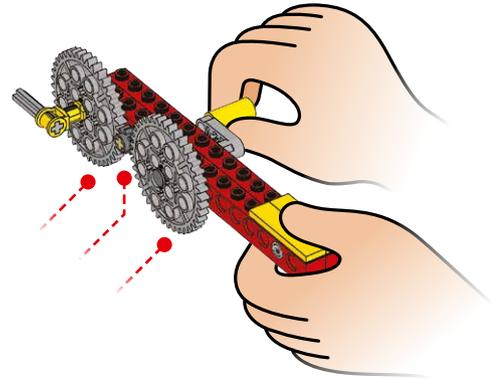


**2. Label the gears.**

Draw lines from the words to the picture of the model.



- Driven gear ●
- Idler gear ●
- Drive gear ●



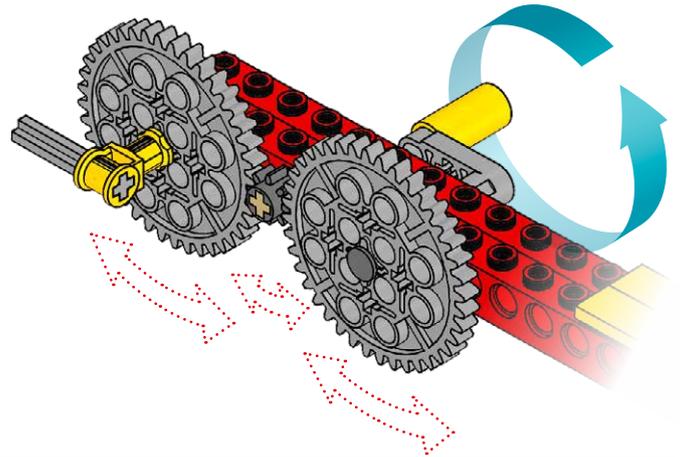
**3. Try out the model and make observations.**

Crank the handle one full turn, and count how many times the position marker turns. Write your answer here:



.....

Observe which way the gears turn when you crank the handle, and draw arrows to show the directions they turn in.



**1. Build A3 (Increasing speed of rotation).**

Follow Building Instructions A, pages 16 to 20, steps 1 to 7.

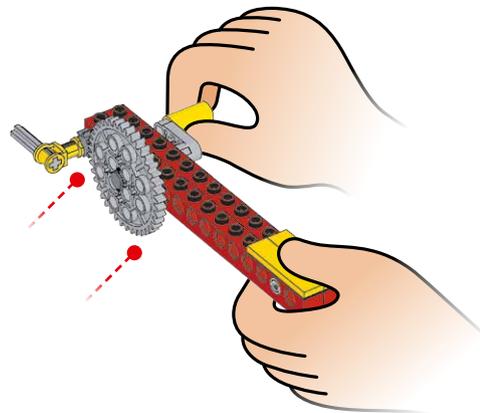


**2. Label the gears.**

Draw lines from the words to the picture of the model.



- Driven gear ●
- Drive gear ●



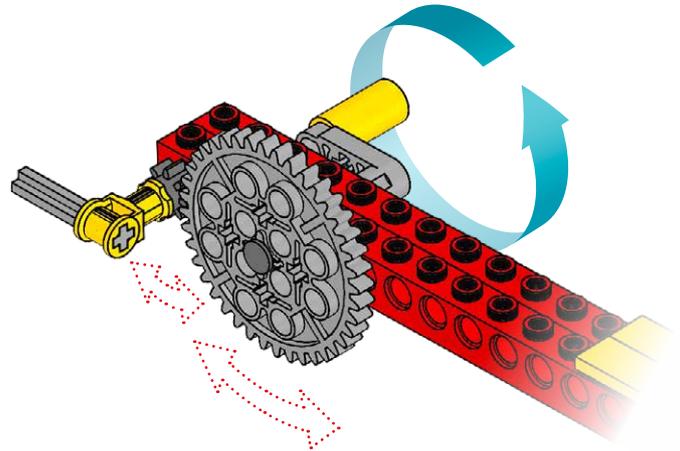
**3. Try out the model and make observations.**

Crank the handle one full turn, and count how many times the position marker turns. Write your answer here:



.....

Observe which way the gears turn when you crank the handle, and draw arrows to show the directions they turn in.



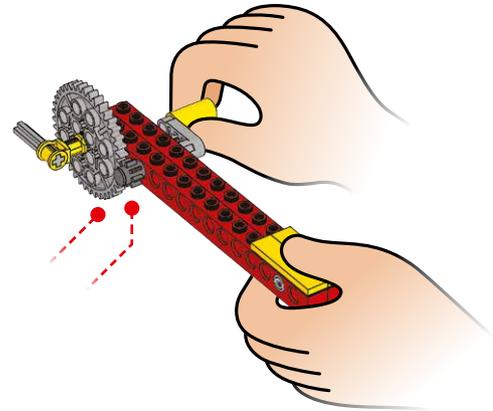
1. **Build A4** (Decreasing speed of rotation).  
Follow Building Instructions A, pages 22 to 26, steps 1 to 7.



2. **Label the gears.**  
Draw lines from the words to the picture of the model.



Driven gear ●  
Drive gear ●

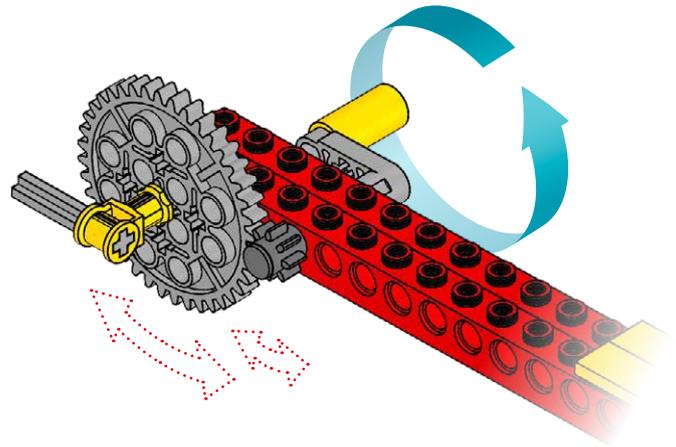


3. **Try out the model and make observations.**  
Count how many times the handle has to turn for the position marker to turn once.  
Write your answer here:



.....

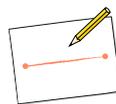
Observe which way the gears turn when you crank the handle, and draw arrows to show the directions they turn in.



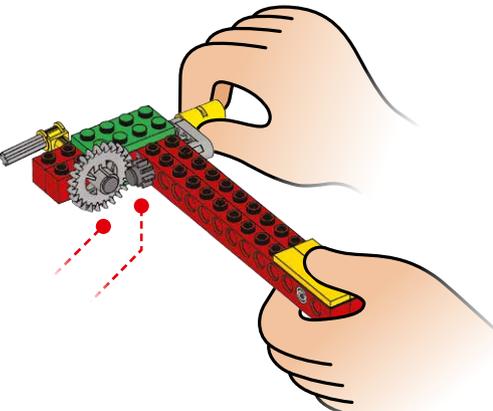
1. **Build A5** (At an angle).  
Follow Building Instructions A, pages 28 to 32, steps 1 to 8.



2. **Label the gears.**  
Draw lines from the words to the picture of the model.



Crown gear ●  
Spur gear ●



3. **Try out the model and make observations.**  
Count how many times the handle has to turn for the position marker to turn once.  
Write your answer here:



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Observe which way the gears turn when you crank the handle, and draw arrows to show the directions they turn in.

