

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

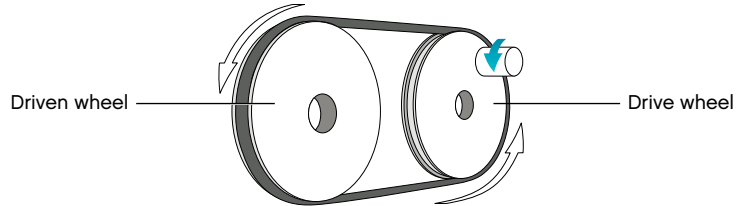
Date and subject: \_\_\_\_\_

## Principle Models: Pulleys

Student Worksheet

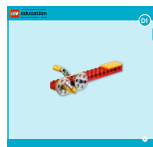
### Things to talk about:

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



### 1. Build D1 (Direction of rotation).

Follow Building Instructions D, pages 4 to 8, steps 1 to 8.



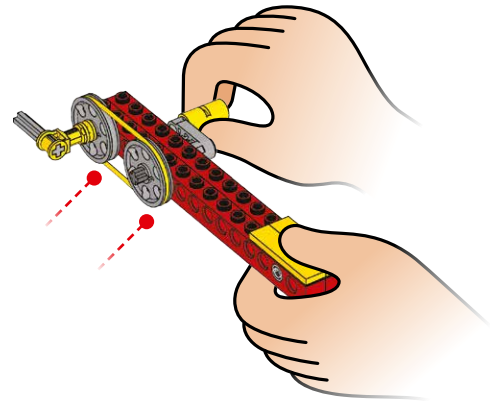
### 2. Label the pulleys.

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



Driven wheel ●

Drive wheel ●



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

Crank the handle one full turn, and count how many times the position marker turns.

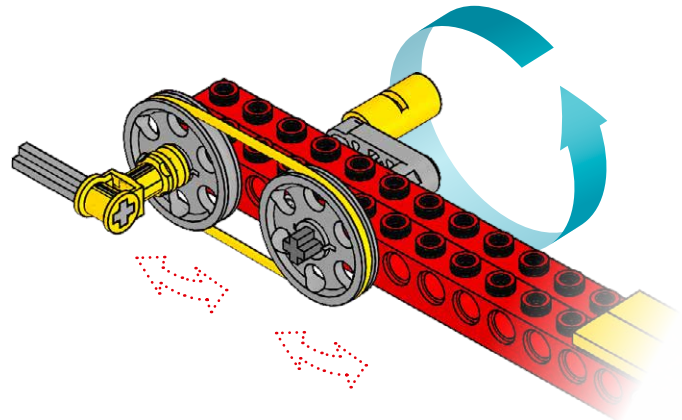
Write your answer here:



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



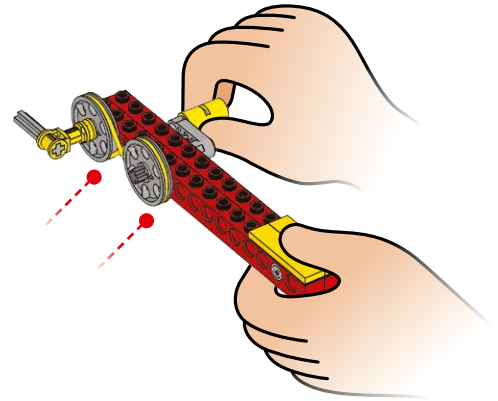
1. **Build D2** (Changing direction of rotation).  
Follow Building Instructions D, page 10, step 1.



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



Driven wheel ●  
Drive wheel ●

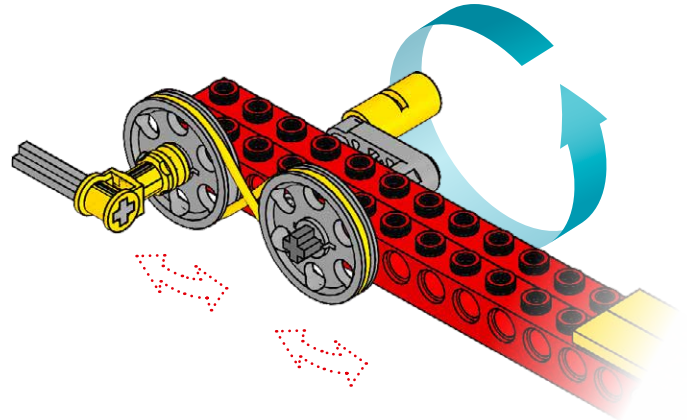


3. **Try out the model and make observations.**  
Crank the handle one full turn, and count how many times the position marker turns.  
Write your answer here:

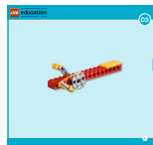


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Observe which way the pulleys turn when you crank the handle, and draw arrows to show the directions they turn in.



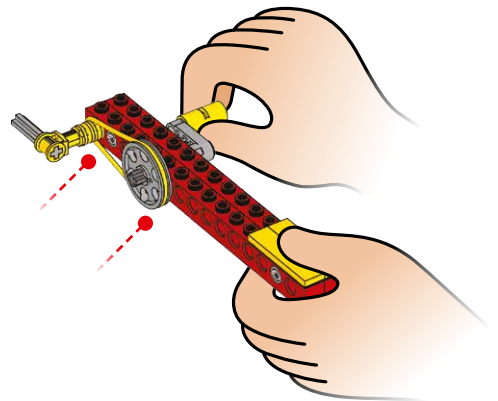
1. **Build D3** (Increasing speed of rotation).  
Follow Building Instructions D, pages 12 to 16, steps 1 to 7.



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



Driven wheel ●  
Drive wheel ●

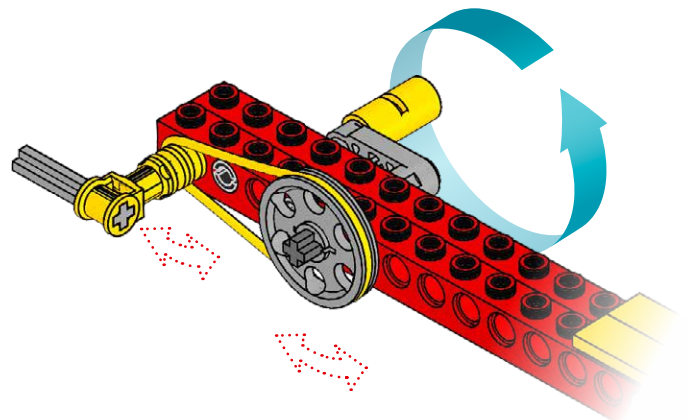


3. **Try out the model and make observations.**  
Crank the handle one full turn, and count how many times the position marker turns.  
Write your answer here:



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



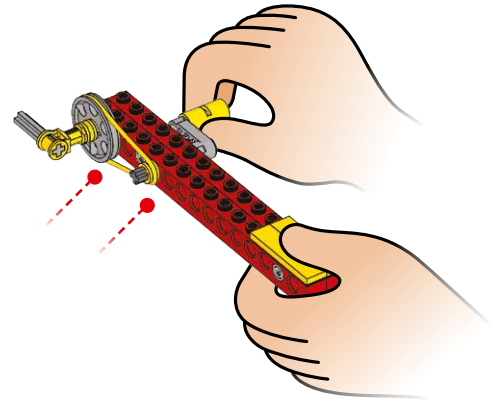
- Build D4 (Decreasing speed of rotation).**  
Follow Building Instructions D, pages 18 to 22, steps 1 to 8.



- Label the pulleys.**  
Draw lines from the words to the picture of the model.



Driven wheel ●  
Drive wheel ●

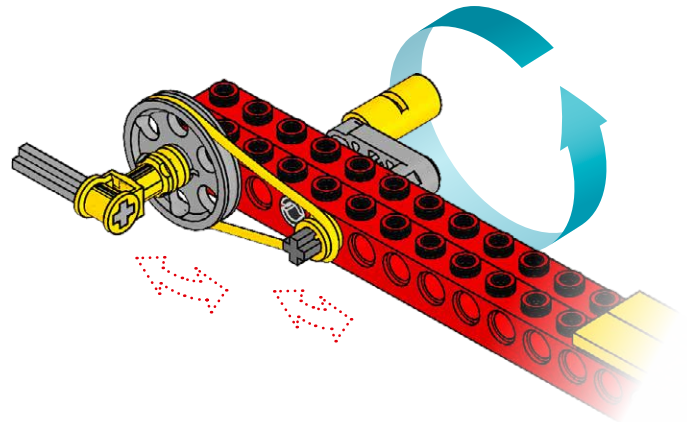


- Try out the model and make observations.**  
Count how many times the handle has to turn for the position marker to turn once.  
Write your answer here:



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



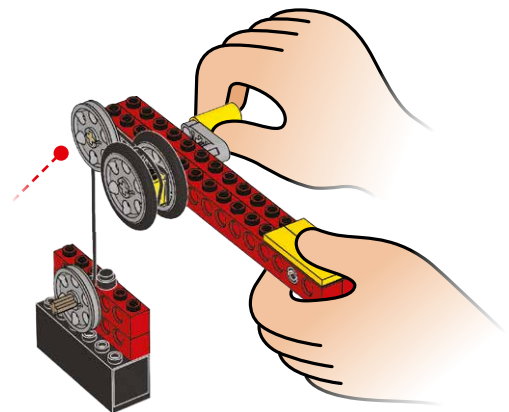
- Build D5 (Fixed pulley).**  
Follow Building Instructions D, pages 24 to 32, steps 1 to 10.



- Label the pulley.**  
Draw a line from the word to the picture of the model.



Fixed pulley ●



- Try out the model and make observations.**  
Observe the directions of movement in the line when the model is used to lift a load.



Mark the direction of movement of the line with arrows, from the load to the fixed pulley and from the fixed pulley to the winch. Continue from where the first arrow is drawn on the model.

