

Review



- How does a wheel and axle work?
 - What are some examples of objects that use this machine?
- What does a pulley do for us?
 - What is an example of an object that uses a pulley?
- Name the four parts of a pulley.

Day 3- Learning Goal: Identify the parts of various mechanisms and describe the purpose of each part

Success Criteria:

We can...

- Identify examples of pulleys in our daily lives.
- Understand differences between the types of pulleys.
- Give examples of objects that use each type of pulley.
- Build a moveable pulley.



Story Time!

As we read the story, think about what pulleys we use everyday.



Timothy is a 9 year old boy. He gets up in the morning and opens his window blinds to get some light in his room. When he looks out the window, he notices the construction across the street from his apartment. There is a huge crane moving a large object that he does not seem to know.



After, he looks for something to wear to school. He realizes that his favourite blue shirt is still wet from being washed the previous night. He unhooks it from the clothesline in the laundry room and decides to stick it in the drying machine for 10 minutes to finish drying it off.



In the meantime, Timothy goes to the kitchen to get some breakfast. He sits down at the kitchen table and within minutes his mom puts an interesting green coloured drink in front of him and says, “drink this, it’s good for you.” Timothy cringes as he knows it is one of his mom’s famous Kale shakes that she has made using the blender.



After about half an hour, Timothy is all fuelled up. He's clothed and ready to go fishing. "Don't forget your fishing rod," Timothy's mom says. He quickly grabs his fishing rod and heads out the door.



He leaves from his apartment door and pushes the button to call the elevator. As he descends down the floors he is itching with excitement.



Timothy's dad opens the garage door and pulls the car up to Timothy and his mom. He waves goodbye to his mom and hops in the car with his dad. He is excited for a fun day of fishing!

THE END

What objects used
pulleys in the
story?

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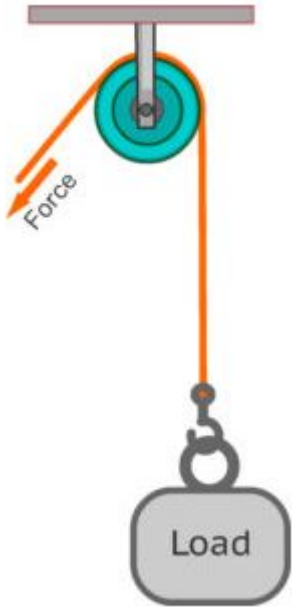
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Types of Pulley

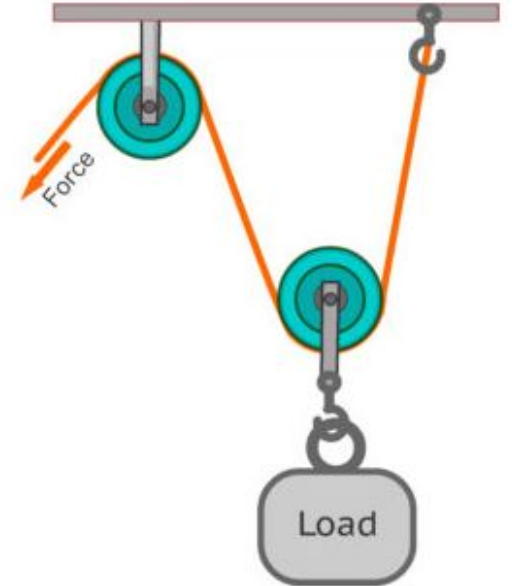
Fixed



Moveable



Compound



What is different? What is the same?

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Fixed Pulley

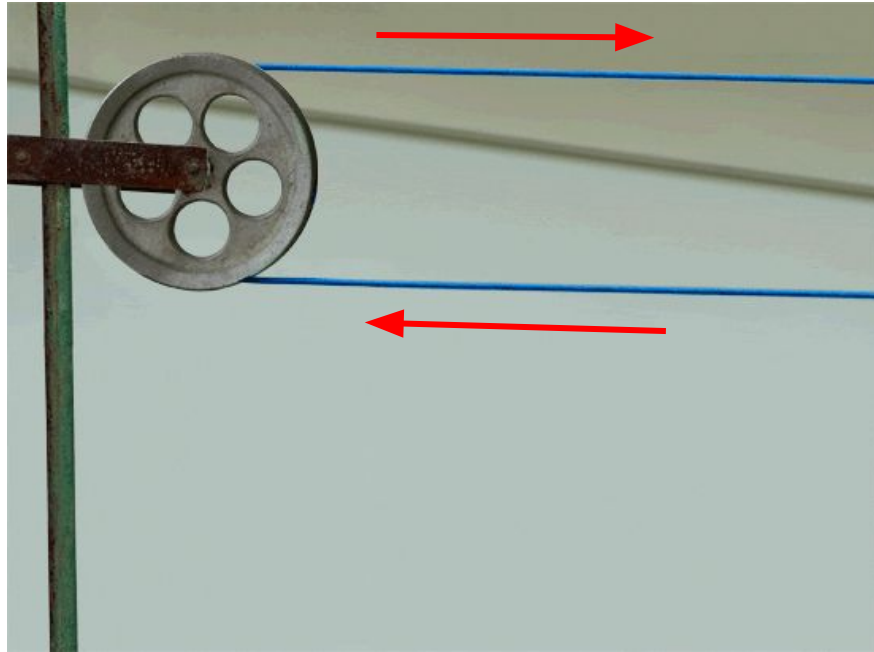


A pulley that stays in **one place**.

It consists of one pulley attached to a **permanent location**.

Fixed pulleys help to lift a load by **changing the direction** that you have to apply a force in order to lift it.

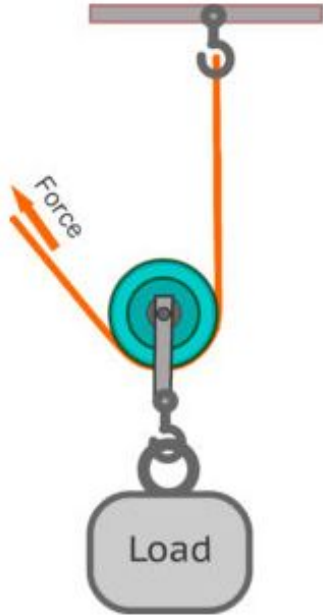
Clothesline



Combines two poles and **two fixed pulleys** attached by a cable or rope.

Pulling the rope **towards** you on the bottom will push the top portion of the rope **away** from you.

Moveable Pulley



A pulley that **changes position**.

Part of the **load is supported by a fixed object** - such as a wooden or metal beam - and the other part is supported by a person.

Moveable pulleys make it easier to lift a load by **making it lighter** to move.

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Mini Experiment - Moveable Pulley

Materials:



Metal spoon



Desk



Masking tape



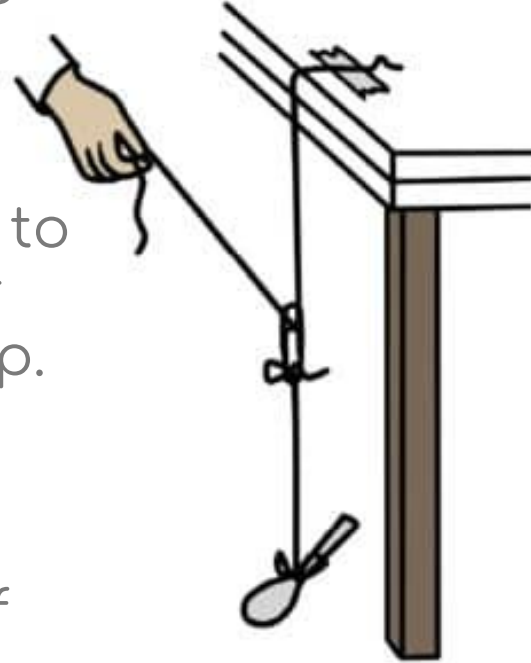
Two pieces of string, one
30 cm long and the other
1 m long



Paper clip

Instructions:

1. Tie one end of the 30 cm piece of string to the spoon. Tie the other end to the paper clip.
2. Tape one end of the 1 m piece of string to the edge of the tabletop. Run the other end of the string through the paper clip.
3. Pull the string to lift the spoon.
4. Notice what happens to the position of the paper clip as you pull the string.

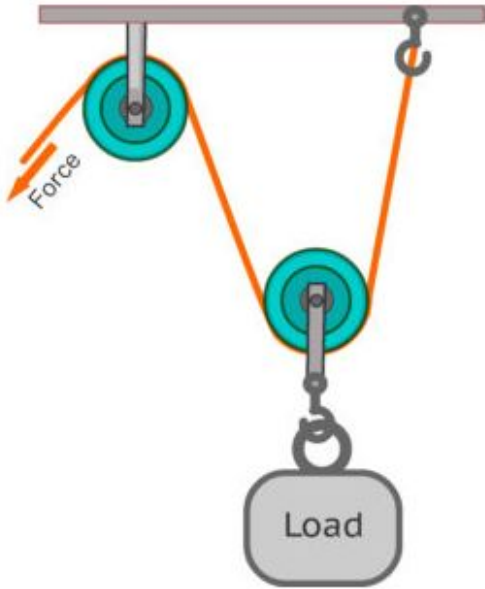




Fill out Sheet

Anyone want to share?

Compound Pulley



A pulley made up of **two or more pulleys**.

Compound pulleys combine both benefits of the fixed and moveable pulley. They can **change the direction of force** as well as **reduce the effort required to lift a load**.

Another name for compound pulleys is a **block and tackle**.

Crane



Uses a compound pulley system to lift heavy objects using a much smaller input force.

No matter where they are, their main function is to lift heavy objects! This is a different function from the pulley system in the clothesline.

What was the function of the clothesline?



Google Form - Pulleys Part 2

<https://forms.gle/YghfZGtHbi3uMLgHA>