

Name: \_\_\_\_\_

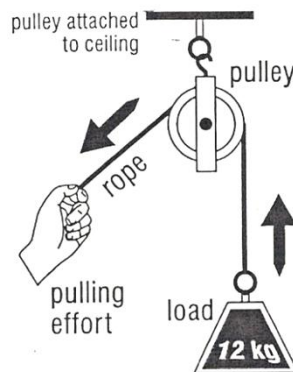
Date: \_\_\_\_\_

# PULLEY INFORMATION

There are two main types of pulleys. A **fixed pulley** is a pulley that is attached to a structure, it can not move relative to the structure. A **moveable pulley** is a pulley that can change position relative to the structure. Pulleys can also be combined into what is known as a pulley system. A **pulley system** is when you combine two or more pulleys. Below you will find examples of each of these setups.

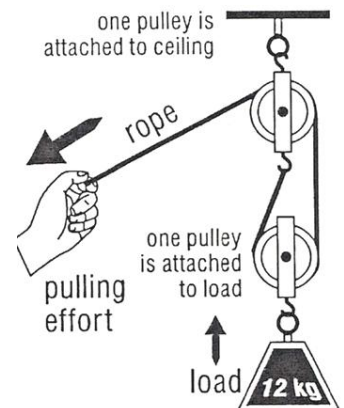
## One Fixed Pulley

- one pulley attached to structure
- it would take 12 kg effort to lift a 12 kg load
- there is no mechanical advantage



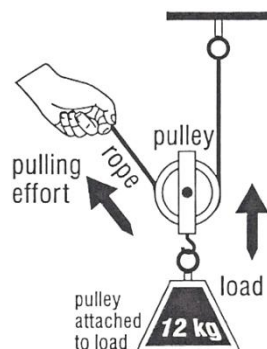
## One Fixed and One Moveable Pulley

- one pulley attached to structure, one pulley attached to load
- it would take 6 kg effort to lift a 12 kg load
- there is a mechanical advantage of 2



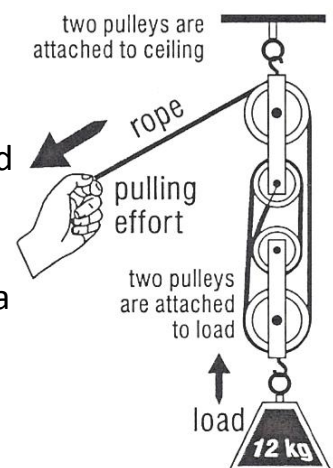
## One Moveable Pulley

- one pulley attached to load
- it would take 6 kg effort to lift a 12 kg load
- there is a mechanical advantage of 2



## Two Fixed and Two Moveable Pulleys

- two pulleys attached to structure, two pulleys attached to load
- it would take 3 kg effort to lift a 12 kg load
- there is a mechanical advantage of 4



Based on the information and pictures on the previous page, write your own explanation for each of the following words.

Load

*A force or weight on a structure.*

*The thing being lifted.*

Effort

*A force applied to move a load.*

*The force that a person applies.*

Mechanical Advantage

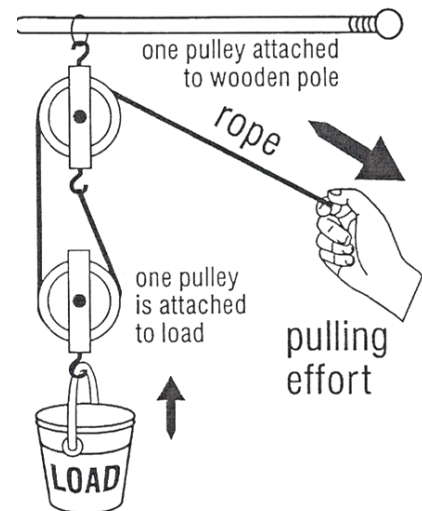
*The load force divided by the effort force.*

*A situation when the system makes it easier to move a load.*

Use the following information to determine how much effort is needed to lift the bucket.

Highlight the information that is important to determining your answer.

- The pulley system is made of one fixed pulley and one moveable pulley.
- The pulley system has a mechanical advantage of 2.
- The rope is made of nylon.
- The bucket is filled with marbles.
- The marbles have a mass of 30 kg.
- Mrs. Salmini is pulling the rope.



The effort needed to lift the bucket is 15 kg

When you are done, take your work to your teacher to have it checked. Be prepared to explain how you got your answer.