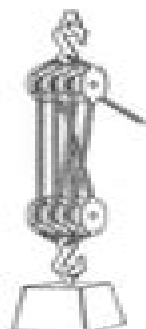


Name: _____

Date: _____

Student Exploration: Pulley Lab

Vocabulary: block and tackle, conservation of energy, efficiency, friction, input force, load, mechanical advantage, output force, pulley, pulley system, simple machine, work



Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

A **pulley** is a wheel with a groove for a rope or cable. The image at left shows an example of a **pulley system**, also called a **block and tackle**.

1. Why do you think people use pulley systems to lift heavy loads? _____

So that its easier for them to lift

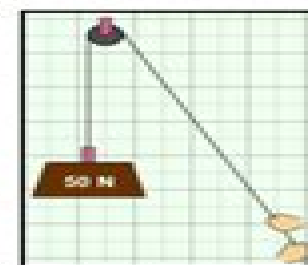
2. In what places have you seen pulleys at work? Construction site

Gizmo Warm-up

The *Pulley Lab* Gizmo demonstrates why pulleys are useful for lifting loads. To begin, check that the Gizmo has the following settings:

- The **Pulley configuration** is **1 fixed**.
- **Ideal pulleys** (**0.0 N**) is selected.
- The **Weight** is **50 N** (50 newtons), and the **Efficiency** is **100%**.

To apply an **input force**, drag the **input force** spring balance to the right. Slowly increase the force until the 50-N **load** begins to rise.



1. What is the minimum force required to lift a 50-N load with one fixed pulley? 52n

2. Change the **Pulley configuration** to **1 fixed, 1 moveable**. As you did before, slowly drag the **input force** balance to the right until the load begins to lift.

A. What force is required to lift a 50-N load with this pulley system? 26n

B. What is one advantage of using a pulley system? You can get things lifted faster

Answers For Pulley Lab Gizmo

Mike Jess

A red circular graphic with a gradient, appearing as a semi-circle or a partial circle, located to the right of the 'Mike Jess' text.

Answers For Pulley Lab Gizmo:

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