

Grade Level: 4 - 5

Curriculum: Explorations, ADST, Science

Title of Lesson: Simple Machines Introduction to Pulleys

Learning Goals/Objectives:

- Machines are devices that transfer force and energy.
- The choice of technology and tools depends on the task.

Materials Needed:

- Pencil and Paper

Activity Instructions: (Step by Step)

- Begin by watching this video: <https://youtu.be/EQrxLil1uJc>
 - You can refer back to the video to help you answer the questions below:

Simple Machines: Pulleys

How does a fixed pulley make doing work easier?

How can you use a pulley to lift an object heavier than you are?

What is the main difference between a fixed pulley and a moveable pulley?

What is the relationship between force and distance when using a moveable pulley?

How can we find out the mechanical advantage of a pulley assembly?

As we increase the number of pulleys in an assembly, how does it change the relationship between force and distance?

What is a block and tackle?

Can you think of a reason why someone might want to use a block and tackle instead of a series of individual pulleys?

Think of a task where you might need to lift a heavy object. How might you use a pulley, counterweight, block & tackle to help you accomplish the task? Sketch below how you could use your pulley assembly.