

SIMPLE MACHINES SCAVENGER HUNT

ABOUT THIS CHALLENGE

Simple machines are the foundation of all mechanical devices. A chain reaction machine is a series of simple machines - one after the next. We challenge students to discover the simple machines in OK Go's videos and think about the purpose of the machine. Note, we chose to highlight the set of topics and standards below as a list that closely connects with this challenge.

TOPICS

Simple Machines
Lever
Pulley
Wedge
Inclined plane
Wheel and axle
Screw
Work

STANDARDS

Science Standards (NGSS)

3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Cross-Cutting Concepts:

Systems and System Models.
Energy and Matter.
Cause and Effect.



MAKE A LIST OF THE SIMPLE MACHINES WITHIN OK GO'S CHAIN REACTION MACHINE MUSIC VIDEO "THIS TOO SHALL PASS"

LEARNING OBJECTIVES

Students will be able to:

Recognize examples of the six types of simple machines.

Describe how a particular simple machine works within a greater system.

Identify content-related material within the music video - such as greatest kinetic and potential energy, forces working at a particular point, etc.

GETTING STARTED

Show the "This Too Shall Pass" music video.

Get students excited about the STEAM concepts in this video.

Go to OKGoSandbox.org and play the "Simple Machines" video.

This video will outline the challenge and explain OK Go's creative thinking behind the music video "This Too Shall Pass."

Go to OKGoSandbox.org and play the "This Too Shall Pass Q&A" video.

In this Q&A, OK Go explains the creative and scientific processes they went through to create the music video "This Too Shall Pass." The Q&A can be shown before the challenge to inspire students, or after to answer any lingering questions they have.

Note: This activity works well with our Chain Reaction Machines activity.

This scavenger hunt is a great introduction into students creating their own chain reaction machines. Download the Chain Reaction Machines guide and watch the "Chain Reaction Challenge" video for more information.



MATERIALS

Simple Machines Scavenger Hunt worksheet

PART ONE: CHALLENGE

Compile a list of the simple machines within “This Too Shall Pass”

Begin by showing the “This Too Shall Pass” music video. Have students talk about things they notice or wonderings they may have, and then create a class question list.

Then, show the behind the scenes video talking about the six simple machines.

Have students complete the scavenger hunt by allowing them to re-watch the original music video while recording the simple machines they find in the video and when they find them. Download OK Go Sandbox’s **Scavenger Hunt worksheet** to assist in note taking. This worksheet can be printed or used on any device.

As a class, discuss the simple machines your students found. Have a conversation about how these simple machines work in comparison to more complex machines. Connections between kinetic versus potential energy and cause and effect can be may also be included in this conversation with students.

This scavenger hunt can be an introduction to recognizing the different types of simple machines or framed as an analysis of how the machines are used.



VOCABULARY

After watching the "Simple Machines" video from OK Go Sandbox, students will have a good understanding of the six types of **simple machines**: Lever, Wheel and axle, Pulley, Wedge, Inclined plane, and Screw. Explain to students that whenever these simple machine exert a **force** on each other, a push or a pull, they are doing **work**, or transferring their energy from one machine to the next.

Your simple machines conversation can also easily include connections to kinetic versus potential energy. Explain that while an object is moving, like a ball rolling, it holds **kinetic energy** by virtue of being in motion. However, **potential energy** holds energy through its position relative to others, like a ball sitting on top of a ramp. These definitions can vary in depth according to the grade level of your students.

GUIDING QUESTIONS

How can we combine simple machines?

Where do we see simple machines used in everyday life?

What can we conclude and learn from this challenge?

Where do we see examples of forces and motion in this activity?

Where do we see examples of potential energy in "This too Shall Pass?"

Where do we see examples of kinetic energy in "This too Shall Pass?"