

# Mark Mothersbaugh: Orchestrions and Creative Solutions

EXHIBITION: MARK MOTHERSBAUGH, MYOPIA



## GRADE LEVEL: 5-12

This lesson plan can be adapted for multiple age groups.

## VOCABULARY

- Contemporary Art
- Collaboration
- Scientific method
- Simple machines: pulley, lever, wedge, wheel and axle, screw, gear

## MATERIALS

Various everyday items for the students to use to build their machines.

## DISCUSSION

Discuss Mark Mothersbaugh's Orchestrions- the first was created while composing music for a Wes Anderson movie score. These machines were created from birdcalls and organ pipes and he was never sure how it would sound until it was assembled.

Introduce the cartoonist Rube Goldberg and his elaborate illustrations.

Discuss how Rube Goldberg is the only person listed as an adjective in the dictionary. A Rube Goldberg inspired machine is a contraption or invention elaborately engineered to perform a simple task.

Discuss how individuals or groups can create a unique solution to accomplish the same simple task.

Introduce or review the Scientific Method and discuss its value in problem solving and experimentation.

Introduce or review simple machines. Discuss and demonstrate their individual designs and uses.

Have the class brainstorm simple tasks for their inventions to perform: water a plant, move a toy car, collect marbles in a cup, etc.

## Objective:

The students will study Mark Mothersbaugh's Orchestrions. Inspired by his work they will use problem solving, collaboration, and an understanding of simple machines to construct an invention from everyday items to solve a simple problem. This project can be completed as a group project or an individual activity.

## BEFOREHAND

Divide the students into groups.

Collect videos, photos and examples to be shared with the class

Collect materials to be used for assembling the student's inventions.

## PROCEDURE

Introduce the project as finding a creative solution to a simple problem.

Specify the assignment's timeline, the minimum number of steps that the machine must perform and any additional guidelines for the project's completion.

Provide or suggest a variety of everyday items to use in creating their invention.

Have the students work collaboratively or as individuals to formulate a hypothesis, devise a plan, build a multi-step machine, and test their predictions.

Hint: Working Backward- This strategy for mathematical problem solving can also be employed here. Suggest that the students begin with the desired result and work backward to design the steps needed achieve the final goal.

Have the students draw conclusions based on the success or failure of their machine.

## EVALUATION

Have the students present their plans, invention and conclusions to the class and/or write a lab report detailing their experiment.

Evaluate the student's ability to collaborate, apply the Scientific Method, and draw conclusions based on the success or failure of their design.

## RESOURCE

Mark Mothersbaugh, Myopia, Edited by Adam Lerner

[www.rubegoldberg.com](http://www.rubegoldberg.com)

[www.greatbusinessschools.org/10-great-inventions-dreamt-up-by-children](http://www.greatbusinessschools.org/10-great-inventions-dreamt-up-by-children)

[www.cosi.org](http://www.cosi.org)

[www.tinkerlab.com](http://www.tinkerlab.com)

I-Pad Application: Simple Machines by Tiny Bop

## SCIENCE STANDARDS

Cognitive Demand for Science: Demonstrating science knowledge (scientific inquiry)

Cognitive Demand for Science: Designing technological/engineering solutions using science

Pre K-4: Identify problems and potential technological/engineering solutions.

5-8: Apply research, innovation and invention to problem solving

9-12 Build, test and evaluate a model or prototype that solves a problem or need.

## VISUAL ART STANDARDS

5: 5PR: During collaborative art making experiences, demonstrate respect and support for peer ideas and creativity.

8: 1PE: Identify how an artist's choice of media relates to the ideas and images in the work.

8: 3PE: Connect science and technology with the development of art in various cultures.

8: 1RE: Examine various qualities in artworks to understand how an artist's choice of media relates to the image and ideas in the work.

HS Intermediate: 5PE: Explore the application of technology to the production of visual artworks

HS Accelerated: 4PE: Explain how individual artists impact cultural developments.

HS Accelerated: 5PE: Investigate the influence of technology on visual art and its effects on their own works.