

MythBusters

Teacher's Guide

Grade Level: 6–12 | **Curriculum Focus:** Physical Science

Series Description

The *MythBusters* use the scientific method in clever and creative ways to prove or disprove common understanding of physical events.

Titles in series

- Animal Behavior: Goldfish Memory
- Bacteria: Toothbrush Surprise
- Botanical Growth: Talking to Plants
- Buoyancy: Balloon Lift ; Ping Pong Salvage
- Chemical Changes: 101 Uses for Cola
- Chemical Reactions: Skunked
- Circular Motion: 360-Degree Swing Set
- Combustion: Gas Station Explosions
- Electricity: Franklin's Kite
- Electricity and Magnetism: Electrical Safety in a Thunderstorm
- Energy Conservation: Free Energy
- Force and Motion: Escape Slide Parachute; Forces and Motion: Toy Car vs. Real Car
- Forces: Flight Attendant Freefall; Penny Drop
- Gravity: Toast Buttered Side Down or Up?
- Inertia: Helium Football
- Myths About Motion: Is It Worth Running in the Rain?
- Reflected Energy: Ancient Death Ray
- Sound Energy: Does a Duck's Quack Echo?; Can a Singer Break Glass?
- Water Displacement: Down With the *Titanic*
- Work and Energy: Windows Down vs. Air Conditioning

Overview

In the popular *MythBusters* series, special-effects experts Adam Savage and Jamie Hyneman use the scientific method to prove or disprove common beliefs about physical science. Have students view the programs to engage them with entertaining subjects while imparting facts about the interactions between physical matter and the forces of nature that shape our world. Each *MythBusters* episode above explains a specific concept in physical science.

Classroom Connection

- Have students predict the outcome of a *MythBusters* episode before watching the entire program; make sure they write their reasons for their predictions. After viewing, ask them to explain the actual outcome and why their predictions were correct or incorrect.
- Ask students to identify the basic steps of the scientific method and provide an example of each step from a *MythBusters* episode.
- With the *MythBusters* as their guides, have students use the scientific method to conduct their own experiments and prove or disprove some common theories about the physical world.

Academic Standards

National Academy of Sciences

The National Academy of Sciences provides guidelines for teaching science in grades K–12 to promote scientific literacy. To view the standards, visit this Web site:

<http://books.nap.edu/html/nse/html/overview.html#content>.

This guide addresses the following standards:

- Science as Inquiry (grades 5–12): Abilities necessary to do scientific inquiry; Understanding about scientific inquiry
- Physical Science (grades 5–12): Motions and forces; (grades 5–8): Transfer of energy; (grades 9–12): Chemical reactions; Interactions of energy and matter
- Science in Personal and Social Perspectives (grades 5–8): Science and technology in society
- History and Nature of Science (grades 5–12): Science as a human endeavor

National Council of Teachers of Mathematics

The National Council of Teachers of Mathematics (NCTM) has developed national standards to provide guidelines for teaching mathematics. To view the standards online, go to

<http://standards.nctm.org/>.

This guide addresses the following standards:

- Algebra: (grades 6–8) Understands patterns, relations, and functions; (grades 9–12) Analyze change in various contexts
- Measurement: (grades 6–12) Understands measurable attributes of objects and the units, systems, and processes of measurement

- Data Analysis and Probability: (grades 6-12) Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them; (grades 6-12) Develop and evaluate inferences and predictions that are based on data