



Minds-On Physics

Indicates a research-demonstrated benefit

Overview

Activity-based curriculum for high school physics. Helps students to explore, hone, and link concepts, and to develop analysis and reasoning skills.



Type of Method Full curriculum



Level

Designed for: High School

Can be adapted for: Teacher Prep Course, Teacher Professional Development, Middle School, Intro College Calculus-based, Intro College Algebra-based, Intro College Conceptual



Setting

Designed for: Lecture - Small (<30 students)

Can be adapted for: Lecture - Large (30+ students), Recitation/Discussion Session, Lab



Coverage

Few topics with great depth



Topics

Mechanics, Electricity / Magnetism, Waves / Optics, Thermal / Statistical



Instructor Effort

Medium



Resource Needs

Simple lab equipment, Tables for group work



Skills

Designed for: Conceptual understanding , Problem-solving skills , Using multiple representations , Metacognition

Can be adapted for: Lab skills, Making real-world connections, Designing experiments



Research Validation

Based on research into: theories of how students learn , student ideas about specific topics , research on expert-novice thinking

Demonstrated to improve: conceptual understanding

Studied using: student interviews , classroom observations , analysis of written work , research at multiple institutions , research by multiple groups



Compatible Methods

[Peer Instruction](#), [PhET](#), [JiTT](#), [CGPS](#), [Physlets](#), [SCALE-UP](#), [Modeling](#), [OSP](#), [TEFA](#), [Clickers](#)

**Similar Method**

None

**Developer(s)**

William J. Gerace, Jose P. Mestre, Robert J. Dufresne, and William J. Leonard

**Website**

<http://www.srri.umass.edu/mop>

