



## 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

**Designed for:** High School



**Level**

**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>

