























## Physics Union Mathematics

 Indicates a research-demonstrated benefit

### Overview

A physics/physical science curriculum that builds on intrinsic mathematical reasoning to develop and strengthen mathematics and physics concepts.

 <b>Type of Method</b>	Full curriculum, Curriculum supplement
 <b>Level</b>	<b>Designed for:</b> High School  , Middle School <b>Can be adapted for:</b> Teacher Prep Course, Teacher Professional Development, Intro College Calculus-based, Intro College Algebra-based, Intro College Conceptual
 <b>Setting</b>	<b>Designed for:</b> Lecture - Small (<30 students)  , Recitation/Discussion Session, Lab, Homework
 <b>Coverage</b>	Few topics with great depth
 <b>Topics</b>	Mechanics, Electricity / Magnetism
 <b>Instructor Effort</b>	High
 <b>Resource Needs</b>	Projector, Computers for students, Advanced lab equipment, Tables for group work
 <b>Skills</b>	<b>Designed for:</b> Conceptual understanding, Problem-solving skills, Lab skills, Using multiple representations, Designing experiments, Metacognition <b>Can be adapted for:</b> Making real-world connections
 <b>Research Validation</b>	<b>Based on research into:</b> theories of how students learn  , student ideas about specific topics  <b>Demonstrated to improve:</b> conceptual understanding  , lab skills  <b>Studied using:</b> classroom observations 
 <b>Compatible Methods</b>	<a href="#">JiTI</a> , <a href="#">Physlets</a> , <a href="#">SCALE-UP</a> , <a href="#">Modeling</a> , <a href="#">OSP</a> , <a href="#">ISLE</a> , <a href="#">CPU</a>
 <b>Similar Methods</b>	<a href="#">ISLE</a>
 <b>Developer(s)</b>	Eugenia Etkina, Suzanne Brahmia, Chis D'Amato, James Finley, Jim Flakker, Danielle Bugge, Richard Therkorn



**Website**

<http://pum.rutgers.edu>



**Intro Article**

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**Intro Article**

[Searching for Evidence of Student Understanding](#)