Guide

CPU Computer Simulators

Indicates a research-demonstrated benefit

Overview

A suite of computer simulations for teaching physics and physical science through exploring phenomena and conducting simulated experiments.

Type of Method	Computer simulations
Level	**Designed for:** Teacher Prep Course , Teacher Professional Development , High School , Intro College Calculus-based, Intro College Algebra-based, Intro College Conceptual
Setting	**Designed for:** Studio , Lecture - Large (30+ students), Lecture - Small (<30 students), Recitation/Discussion Session, Lab, Homework
Coverage	Few topics with great depth, Many topics with less depth
Topics	Mechanics, Electricity / Magnetism, Waves / Optics, Thermal / Statistical
Instructor Effort	Low
Resource Needs	Projector, Computers for students
Skills	**Designed for:** Conceptual understanding , Using multiple representations **Can be adapted for:** Making real-world connections, Model building
Research Validation	**Based on research into:** theories of how students learn , student ideas about specific topics **Demonstrated to improve:** conceptual understanding , beliefs and attitudes **Studied using:** classroom observations
Compatible Methods	Peer Instruction, PhET, UW Tutorials, JiTT, Ranking Tasks, ILDs, CGPS, Physlets, Context-Rich Problems, RealTime Physics, Workshop Physics, TIPERs, ABP Tutorials, SCALE-UP, Modeling, OSP, SDI Labs, OST Tutorials, ISLE, Thinking Problems, Workbook for Introductory Physics, LA Program, PET, PSET, LEPS, CAE TPS, Lecture-Tutorials, Astro Ranking Tasks, MBL, SCL, TEFA, CU Modern, Energy Project, SGSI, Paradigms, PUM, EiP, Tools for Scientific Thinking, M&I, Tutorials, Clickers, PRISMS PLUS, Responsive Teaching

Similar Methods	PhET, Physlets, OSP,
Developer(s)	Fred Goldberg and many others
Website	http://cpucips.sdsu.edu/simulators.html