Guide

Workbook for Introductory Physics

Indicates a research-demonstrated benefit

Overview

Sequences of multiple-choice questions that emphasize qualitative reasoning and multiple representations. For interactive discussion in lecture.

Type of Method	Instructional strategy, Curriculum supplement
Level	**Designed for:** Intro College Algebra-based **Can be adapted for:** Teacher Professional Development, High School, Intro College Calculus-based, Intermediate
Setting	**Designed for:** Lecture - Large (30+ students) **Can be adapted for:** Lecture - Small (<30 students), Recitation/Discussion Session, Studio
Coverage	Few topics with great depth
Topics	Electricity / Magnetism, Waves / Optics, Modern / Quantum
Instructor Effort	Medium
Resource Needs	Flash cards
Skills	**Designed for:** Conceptual understanding , Using multiple representations **Can be adapted for:** Problem-solving skills, Metacognition
Research Validation	**Based on research into:** theories of how students learn , student ideas about specific topics **Demonstrated to improve:** conceptual understanding **Studied using:** student interviews , classroom observations , research at multiple institutions
Compatible Methods	Peer Instruction, PhET, UW Tutorials, JiTT, Ranking Tasks, ILDs, CGPS, Physlets, Context-Rich Problems, RealTime Physics, TIPERs, ABP Tutorials, SCALE-UP, OSP, SDI Labs, OST Tutorials, Thinking Problems, LA Program, CAE TPS, MBL, CPU, SCL, TEFA, Tools for Scientific Thinking, Tutorials, Clickers

Similar Methods	Peer Instruction, CAE TPS, TEFA, PI QM
Developer(s)	David E. Meltzer and Kandiah Manivannan
Website	http://physicseducation.net
Intro Article	2780
Intro Article	Transforming the lecture-hall environment: The fully interactive physics lecture