



Guide

## Investigative Science Learning Environment

Indicates a research-demonstrated benefit

### Overview

Comprehensive learning system for introductory physics that engages students in experiences that mirror experiences of practicing scientists.



**Type of Method** Instructional strategy, Curriculum supplement

**Designed for:** Intro College Calculus-based , Intro College Algebra-based , High School



**Level**

**Can be adapted for:** Teacher Prep Course, Teacher Professional Development, Intro College Conceptual, Intermediate, Upper-level Undergraduate, Graduate School, Any



**Setting**

**Designed for:** Lecture - Large (30+ students) , Lecture - Small (<30 students) , Recitation/Discussion Session , Lab , Studio



**Coverage**

Few topics with great depth, Many topics with less depth



**Topics**

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



**Instructor Effort**

Medium



**Resource Needs**

Projector, Advanced lab equipment, Cost for students



**Skills**

**Designed for:** Conceptual understanding , Problem-solving skills , Lab skills , Using multiple representations , Designing experiments , Metacognition

**Can be adapted for:** Making real-world connections



**Research Validation**

**Based on research into:** theories of how students learn , student ideas about specific topics

**Demonstrated to improve:** conceptual understanding , problem-solving skills , lab skills

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



**Compatible Methods**

[PhET](#), [JiTT](#), [Physlets](#), [SCALE-UP](#), [Modeling](#), [OSP](#), [LA Program](#), [MBL](#), [CPU](#), [PUM](#), [Clickers](#), [Responsive Teaching](#)



**Similar  
Methods**

[PUM](#)



**Developer(s)**

Eugenia Etkina, Alan Van Heuvelen



**Website**

<http://www.islephysics.net/>

