




Open Source Tutorials

 Indicates a research-demonstrated benefit

Overview

Guided-inquiry worksheets for use in small groups in introductory physics courses. These tutorials emphasize refining students' productive intuitions and developing metacognitive thinking. Tutorials come with resources to help instructors modify them effectively and train teaching assistants: comments from developers, advice from experienced instructors, annotated video clips of students using the materials, homework and solutions, complete instructors' guides, pretests, and exam questions.




Type of Method

Curriculum supplement



Level


Designed for: Intro College Algebra-based  , TA/faculty professional development

Can be adapted for: High School, Intro College Calculus-based, Intro College Conceptual, LA development



Setting

Designed for: Recitation/Discussion Session  , Homework

Can be adapted for: Lab  , Lecture - Large (30+ students), Lecture - Small (<30 students), Studio



Coverage

Many topics with less depth



Topics

Mechanics, Electricity / Magnetism, Waves / Optics, Pedagogy



Instructor Effort

Medium




Resource Needs

Teaching Assistants / Learning Assistants








Skills






Designed for: Conceptual understanding of physics content  , Understanding how physics relates to the real world, Reflecting on one's own learning, Reconcile intuitions and everyday experiences with formal physics knowledge

Can be adapted for: Coherent framework for physics, Think like a scientist

 **Research Validation**

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

Demonstrated to improve: scores on multiple choice conceptual tests  , scores on written conceptual tests  , beliefs about physics 

Studied using: conceptual pre/post exams  , beliefs pre/post exams  , video of students  , research conducted at multiple institutions  , research conducted by someone other than developers 

 **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](#), [Thinking Problems](#), [Workbook for Introductory Physics](#), [LA Program](#), [CAE](#), [TPS](#), [MBL](#), [CPU](#), [SCL](#), [TEFA](#), [Tools for Scientific Thinking](#), [Tutorials](#), [Clickers](#)

 **Similar Methods**

[UW Tutorials](#), [ABP Tutorials](#), [Lecture-Tutorials](#), [QuILTs](#), [Thermal Tutorials](#), [Mechanics Tutorials](#), [Tutorials](#)

 **Developer(s)**

Rachel E. Scherr and Andrew Elby

 **Website**

<http://www.spu.edu/depts/physics/tcp/tadevelopment.asp>