

Tools for Scientific Thinking

 Indicates a research-demonstrated benefit

Overview

Laboratory activities that use MBL tools to develop both a conceptual understanding and quantitative laboratory skills. Each guide consists of a series of guided investigations suitable for either the high school or introductory college laboratory. For a more complete set of materials that incorporate activities from Tools for Scientific Thinking, see [RealTime Physics](#)





Type of Method

Curriculum supplement



Level

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



Setting

Designed for: Lab 
Can be adapted for: Studio



Coverage

Many topics with less depth



Topics

Mechanics, Thermal / Statistical



Instructor Effort

Low








Resource Needs

Computers for student use in class, Lab equipment for student use - professional, Cost for students, Tables arranged for group work



Research Validation

Based on research info: how students learn  , student ideas about specific topics 
Demonstrated to improve: scores on multiple choice conceptual tests 
Studied using: conceptual pre/post exams  , research conducted 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](#), [OST Tutorials](#), [Workbook for Introductory Physics](#), [LA Program](#), [CAE TPS](#), [MBL](#), [CPU](#), [TEFA](#), [Tutorials](#), [Clickers](#), [SDI Labs](#)



Similar Methods

[ILDs](#), [RealTime Physics](#), [SDI Labs](#), [MBL](#), [SCL](#)

 **Developer(s)** Ron Thornton and David Sokoloff

 **Website** http://pages.uoregon.edu/sokoloff/Active_Learning.html