



## Technology-Enhanced Formative Assessment

 Indicates a research-demonstrated benefit

### Overview

A pedagogy using clickers for interactive, student-centered science instruction that engages students in extended whole-class discussion.



Type of Method

Instructional strategy





Level

**Designed for:** Pretty much anything, especially (but not only) for larger class sizes.



Setting

**Designed for:** Lecture - Large (30+ students) 

**Can be adapted for:** Lecture - Small (<30 students)  , Studio  ,  
Recitation/Discussion Session, Lab



Coverage

Few topics with great depth, Many topics with less depth



Topics

Mechanics, Electricity / Magnetism, Waves / Optics, Thermal / Statistical, Modern / Quantum, Mathematical, Astronomy, Other Science



Instructor Effort

Medium



Resource Needs

Clickers / polling method, Projector



Skills





**Designed for:** Conceptual understanding  , Making real-world connections

**Can be adapted for:** Problem-solving skills, Metacognition



Research Validation

**Based on research into:** theories of how students learn 

**Studied using:** student interviews  , classroom observations  , research at multiple institutions  , peer-reviewed publication 



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](#), [Workbook for Introductory Physics](#), [LA Program](#), [CAE TPS](#), [Lecture-Tutorials](#), [Astro Ranking Tasks](#), [MBL](#), [CPU](#), [SCL](#), [CU Modern](#), [CU E&M](#), [CU QM](#), [QullTs](#), [Paradigms](#), [Tools for Scientific Thinking](#), [PI QM](#), [M&I](#), [Tutorials](#), [Clickers](#), [MOP](#), [Responsive Teaching](#)

 **Similar  
Methods**

[Peer Instruction](#), [ILDs](#), [Workbook for Introductory Physics](#), [CAE TPS](#), [PI QM](#), [Clickers](#)

 **Developer(s)**

Ian D. Beatty & William J. Gerace

 **Intro Article**

11261

 **Intro Article**

[Technology-enhanced formative assessment: A research-based pedagogy for teaching science with classroom response technology](#)