




## Teaching with Clickers

 Indicates a research-demonstrated benefit

### Overview

Students use electronic devices to answer questions and instructors collect and display responses, facilitating student engagement and collaboration.



#### Level

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

**Can be adapted for:** Any



#### Setting

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

**Can be adapted for:** 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, Modern / Quantum, Mathematical, Astronomy, Other Science, Pedagogy



#### Instructor Effort

Medium



#### Resource Needs

Clickers / polling method, Cost for students



#### Skills

**Designed for:** Conceptual understanding




**Can be adapted for:** Problem-solving skills, Making real-world connections, Using multiple representations, Metacognition



#### Research Validation

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

**Demonstrated to improve:** attendance 

**Studied using:** research at multiple institutions  , research by multiple groups  , 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](#), [Modeling](#), [OSP](#), [SDI Labs](#), [OST Tutorials](#), [ISLE](#), [Thinking Problems](#), [Workbook for Introductory Physics](#), [LA Program](#), [LEPS](#), [CAE TPS](#), [Lecture-Tutorials](#), [Astro Ranking Tasks](#), [MBL](#), [New Model Course](#), [CPU](#), [SCL](#), [TEFA](#), [CU Modern](#), [CU E&M](#), [CU QM](#), [QuILTs](#), [IQP](#), [Thermal Tutorials](#), [Mechanics Tutorials](#), [Paradigms](#), [Tools for Scientific Thinking](#), [PI QM](#), [M&I](#), [Tutorials](#), [MOP](#), [Responsive Teaching](#)

 **Similar Methods**     [Peer Instruction](#), [CAE TPS](#), [TEFA](#), [PIQM](#)

 **Website**     <http://stemclickers.colorado.edu>

 **Intro Article**     9085

 **Intro Article**     [Research-based Practices For Effective Clicker Use](#)

---

## **Teaching materials**

---

See our [Expert Recommendation on finding good questions to use with clickers or Peer Instruction](#) for an extensive list of databases of clicker questions, as well as suggestions for writing your own questions.