



## CAE Think/Pair/Share

 Indicates a research-demonstrated benefit

### Overview

Engage students in lecture classes by asking cognitively engaging multiple-choice questions to challenge their thinking and foster deep discussion.



**Type of Method**

Instructional strategy



**Level**

**Designed for:** Intro College Conceptual

**Can be adapted for:** Teacher Prep Course, Teacher Professional Development, Middle School, High School, Intro College Calculus-based, Intro College Algebra-based, Intermediate, Upper-level Undergraduate



**Setting**

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

**Can be adapted for:** Lecture - Small (<30 students)  , Studio



**Coverage**

Many topics with less depth



**Topics**

Astronomy



**Instructor Effort**

Low





**Skills**


**Designed for:** Conceptual understanding  , Using multiple representations


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

**Studied using:** research 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](#), [SDI Labs](#), [OST Tutorials](#), [Thinking Problems](#), [Workbook for Introductory Physics](#), [LA Program](#), [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](#), [Clickers](#)

 **Similar Methods**     [Peer Instruction](#), [ILDs](#), [Workbook for Introductory Physics](#), [TEFA](#), [PI QM](#), [Clickers](#)

 **Developer(s)**     Center for Astronomy Education

 **Website**     <http://astronomy101.jpl.nasa.gov/teachingstrategies/teachingdetails/?StrategyID=23>

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## **Teaching materials**

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