



Cooperative Group Problem-solving

 Indicates a research-demonstrated benefit

Overview

Students work in groups using structured problem-solving strategy to solve complex, context-rich problems too difficult to solve individually.



Type of Method

Instructional strategy



Level

Designed for: Intro College Calculus-based 

Can be adapted for: Any



Setting

Designed for: Recitation/Discussion Session 

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



Coverage

Many topics with less depth



Topics

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



Instructor Effort

Medium





Resource Needs

Tables for group work





Skills



Designed for: Conceptual understanding  , Problem-solving skills  , Making real-world connections, Group work

Can be adapted for: Using multiple representations



Research Validation

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

Demonstrated to improve: conceptual understanding  , problem-solving skills 


Studied using: classroom observations 



Compatible Methods

[Peer Instruction](#), [PhET](#), [UW Tutorials](#), [JiTT](#), [Ranking Tasks](#), [ILDs](#), [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](#), [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](#), [MOP](#), [Responsive Teaching](#)

 **Similar Method**

[Context-Rich Problems](#)



Developer(s) University of Minnesota Physics Education Research Group



Website <http://groups.physics.umn.edu/phyped/Research/CGPS/CGPSintro.htm>

Teaching materials

The University of Minnesota has created an [online archive of context-rich problems](#), where you can find problems for many topics in introductory mechanics and electromagnetism to use with cooperative group problem-solving.

You can also use the cooperative group problem-solving approach with [many other types of research-based activities](#).