



Chesapeake Section of the  
American Association of Physics Teachers  
Fall 2022 Semi-Virtual Meeting  
October 22, 2022 in Falls Church, VA

Contribution ID: 15

Type: **talk (15-minute)**

## Collaborative Group Quizzes as a Novel Formative Assessment

*Saturday, October 22, 2022 9:30 AM (15 minutes)*

Collaborative learning has proven to be an effective pedagogical approach that is gaining broad acceptance across STEM disciplines. While classroom activities are often the focus for such collaborative work, assessments have primarily remained the province of individual effort. For summative assessment, this is entirely appropriate, but for formative assessment, it is reasonable to “bend the rules” a bit. Since the latter can be treated more like a training exercise than a formal evaluation, the notion of incorporating a collaborative element into such an assessment can offer advantages beyond the range of regular classroom activities.

We are leveraging low-stakes quizzes as opportunities for meaningful student learning by instituting a novel and dynamic method that combines individual student accountability with the benefits of collaborative group learning. Quizzes consist of two parts: (1) students work alone to answer 10 multiple-choice questions worth 50 points, then (2) students work together in groups on the same questions using IF-AT scratch-off cards worth another 50 points. These cards are similar to lottery tickets, with 5 covered answer boxes hiding the one correct answer. In their groups, students discuss the questions, converge to a collective answer, and then scratch off that box to get instant feedback. If correct, they get full credit. If incorrect, they continue to discuss and scratch off a second (or third) box for reduced credit. A student’s total quiz score (out of 100 points) is based on the individual portion plus the group portion.

Students find the group interactions highly engaging and the suspense of revealing the hidden answer boxes quite stimulating. They take the answer selection very seriously (for fear of losing valuable points!), and this helps focus their attention on the relevant physics concepts that are being probed by the questions. Upon completion of the quiz, all correct answers are revealed, and each student knows his/her score. This feedback loop, coupled with the group discussion and the self-correction option, provides a powerful learning experience for the students.

**Primary author:** FELDMAN, Gerald (George Washington University)

**Presenter:** FELDMAN, Gerald (George Washington University)

**Session Classification:** Morning Session (Chair: Jason Sterlace, Zoom Monitor: Juliana Butler)