

GIFTS: Team Trivia Review Activity to Enhance Student Engagement

Dr. Robin A. M. Hensel, West Virginia University

Robin A. M. Hensel, Ed.D., is a Teaching Professor in the Benjamin M. Statler College of Engineering and Mineral Resources at West Virginia University and an ASEE Fellow Member. As a mathematician and computer systems analyst, she collaborated in engineering teams to support energy research before entering higher education where she taught mathematics, statistics, computer science, and engineering courses, secured over \$6.6M to support STEM education research, led program development efforts, and served in several administrative roles. She has been recognized for her teaching, advising, service, and research and as an Exemplary Faculty Member for Excellence in Diversity, Equity, and Inclusion.

GIFTS: Team Trivia Review Activity to Enhance Student Engagement

This Great Ideas for Teaching (and Talking With) Students (GIFTS) paper describes an adaptation of a common restaurant or bar game to the classroom environment. The Team Trivia game is adapted and utilized to create an energetic and fun environment for reviewing content before major exams in a general education *Engineering in History* course. The course focuses on how engineering and technology have influenced societal development throughout history. This review activity can also be used to engage students in team problem-solving.

1.0 Introduction

Faculty are always trying to find new ways to engage students in learning and to make learning more fun. In my *Engineering in History* course, I look for ways to (1) help students see the connections between technological innovation and societal advancement and (2) make learning the important “facts” more engaging. While playing Team Trivia at a restaurant with friends, I thought of adapting that game to review for tests in my course.

The **objective** of this activity is to promote content review before an exam. Students review content during class and develop an awareness of topics they need to review more before taking the upcoming exam. The activity was **motivated** by my desire to create a more engaging and active content review experience for students in an *Engineering in History* course. Students often find learning the many “facts” related to inventions, their inventors, the dates or time periods of inventions, and their influence on societal development to be tedious and difficult. I wanted to help them engage with the content in a “fun” way.

2.0 Practical Implementation Details

This activity is modeled after the Team Trivia game played in many restaurants and bars, with content adapted from general trivia to specific course material. The course has 2 “regular” exams and a final exam. This activity takes place during the class session before each exam. In the activity, students compete in teams to answer questions quickly. Background music plays for approximately 1 minute while the teams work to find the correct response. Teams must agree on an answer and turn it in before the music stops. No points are awarded for late or incorrect responses. Correct responses earn the number of points the team wagered on that response, usually indicating the level of confidence they have in their answer. During the first half, teams can wager 5, 3, or 1 point(s) once in each round of three questions. During the second half, the wagers change to 6, 4, or 2 points per question per round. Points are recorded in a spreadsheet, and team point totals are announced at half-time and directly before the final question. The final question differs in that each team can wager 0 to 15 points on their response, and the question is often more difficult or may include multiple parts (which must all be correct to earn the points wagered).

2.1 Materials

Materials for this classroom exercise include: (1) a PowerPoint presentation with the questions, divided into “rounds,” (2) individual team “response cards,” (3) individual team score sheets, and (4) an instructor’s spreadsheet to record each team’s points. Each item is described below.

(1) A PowerPoint slide presentation comprised of 6 or 8 “rounds” of questions, with each “round” containing 3 questions. As shown in Figure 1, below, the question slide contains embedded 60-second music clips and is followed by an answer slide to provide students with immediate feedback. No answers are accepted after the answer slide appears.



Figure 1. Sample question PowerPoint slides

Half-time and final questions have multiple parts, require more information, and have a higher point value than a typical “round” question. More time, usually two or three minutes, is allotted for half-time questions. An example of a half-time question is provided in Figure 2.

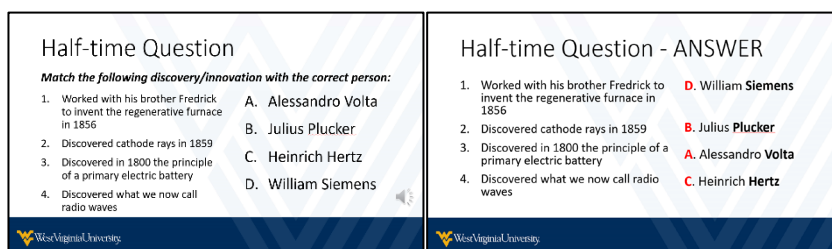


Figure 2. Sample half-time question PowerPoint slides.

(2) Individual team response cards. Teams hand in their “final answer” using these cards. Each card provides space for the team number and the number of points wagered for that answer. An example of a team response card is presented in Figure 3 (below left).

Team Trivia Response Card	
TEAM NUMBER _____	POINTS _____
ANSWER:	

Figure 3. Sample Team “Response Card”

(3) A Team Response Tracking and Score Sheet. The score sheet, as shown in Figure 4 (right), is used by each team to record their answers and track their overall score during the exercise. At the end of class, it is submitted to the instructor and serves as a record of team membership. Each team’s final game score is recorded at the top. The placement and corresponding extra credit points for the top three teams are

ENGR 140 Team Trivia REVIEW	
Team Number: _____	Team Name: _____
Team Members:	
1. _____	2. _____
3. _____	4. _____
First Half: Point selection for each round: 1, 3, 5	
Round 1: _____ (9 points)	Round 6: _____ (12 points)
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
Round 2: _____ (9 points)	Round 6: _____ (12 points)
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
Round 3: _____ (9 points)	Round 7: _____ (12 points)
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
Round 4: _____ (9 points)	Round 8: _____ (12 points)
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
Half-Time Question (9 points)	Final Question (0-15 points)
_____	_____
Amount Wagered: _____	
Please hand in this paper at the end of class.	

Figure 4. Sample Team Response Tracking Form

also noted. These records are used later to assign extra credit to the appropriate team members after the exam.

(4) Spreadsheet. A spreadsheet is used to record team scores for each question and to summarize total team scores both at half-time and the game's conclusion. An example of my spreadsheet is shown in Figure 5 below. It contains spaces to record the number of points each team wagered and earned in each round, summary columns, plus the total score and ranking for each time. Having the round summary, halftime and final scores, and ranking columns saves time during a fast-paced game!

ENGR 140 TEAM TRIVIA SCORE SHEET																																
Review: FINAL EXAM: Wednesday, 12/07/2022 In-Class																																
1, 3, or 5 points													2, 4, or 6 points																			
	Round 1			Sum R1	Round 2			Sum R2	Round 3			Sum R3	Half-time Question	Time Score	Time Ranking	Round 4			Sum R4	Round 5			Sum R5	Round 6			Sum R6	2nd-Half Score	FINAL Question	TOTAL SCORE	FINAL RANK	
Team Number	Q1	Q2	Q3	Max = 9	Q1	Q2	Q3	Max = 9	Q1	Q2	Q3	Max = 9	Max = 6			Q1	Q2	Q3	Max = 9	Q1	Q2	Q3	Max = 12	Q1	Q2	Q3	Max = 9		Max = 10			
1				0				0					0		0	1				0				0				0	0		0	1
2				0				0					0		0	1				0				0				0	0		0	1
3				0				0					0		0	1				0				0				0	0		0	1
4				0				0					0		0	1				0				0				0	0		0	1
5				0				0					0		0	1				0				0				0	0		0	1
6				0				0					0		0	1				0				0				0	0		0	1
7				0				0					0		0	1				0				0				0	0		0	1
8				0				0					0		0	1				0				0				0	0		0	1
9				0				0					0		0	1				0				0				0	0		0	1
10				0				0					0		0	1				0				0				0	0		0	1

Figure 5. Sample Team Trivia Competition Spreadsheet

2.2 Playing the Game

Students break into teams (of their choosing) with three (3) or four (4) students per team. Each question is displayed and read aloud. A 1-minute segment of music is played while the question is displayed. Before the music stops, all team responses – including the “answer” and the number of points wagered – must be submitted to the instructor. The instructor determines if the answer is correct or incorrect. If the answer is incorrect, the team earns zero points. If the answer is correct, the team earns the points wagered. During the first half of the game, teams can wager 1, 3, or 5 points per question, but can use each value only once in each round of three questions. During the second half of the game, teams wager 2, 4, or 6 points per question per round. At the end of the game, the team with the most points wins. In my implementation of this game, I award the top three teams extra credit points on the upcoming exam, for which this activity provides review: 5 points (first place), 3 points (second place), and 1 point (third place).

3.0 Assessment Methods

The assessment of this activity has been informal. Casual observation indicates that this activity helps students perform better on tests (those who participate in the review activity earn higher test scores), however, there may be a selection bias since the students who come to class regularly and participate in any review activity, tend to be those students who would be most likely to do well on tests.

However, several students have commented, both in person and on course evaluations, that this activity was fun and helped them learn what they knew and didn't know before each exam, so they had a better idea of what they still needed to study to prepare for the exam. An observation of this activity indicates that the students are very engaged and enthusiastic about this review. It is fast-paced and fun, and the music provides added energy.

In addition to the university-level course/instructor evaluation by students, I lead students in a Course Review Activity in which I list the course activities and ask students to provide feedback. For the Team Trivia Review, I ask the following questions appearing in Figure 6, at right. Student feedback on both the university course evaluation and the in-class review activity indicates that the “review games in class” helped students study for exams and made the class more “fun.”

Team Trivia Reviews	
<input type="checkbox"/> I did not attend the Team Trivia Review classes	
<ul style="list-style-type: none">• Did the Team Trivia Review sessions help you review for the Exams?• Did you enjoy the Team Trivia Review sessions?• Should I keep those review sessions in the course for future classes?	<div><input type="checkbox"/> YES <input type="checkbox"/> NO</div> <div><input type="checkbox"/> YES <input type="checkbox"/> NO</div> <div><input type="checkbox"/> YES <input type="checkbox"/> NO</div>
Comments/Suggestions: What did you like (or dislike) about the Team Trivia Reviews?	

Figure 6. Team Trivia Questions on Course Review Activity

4.0 Transferability

While I use this activity for “fact recall” in an *Engineering in History* course, it can be adapted for problem-solving in any engineering class. Asking students to solve problems in groups engages them in discussing the problem, their approach to the solution, the relevant concepts and formulas, and ultimately computing the solution. These activities help each team member build problem-solving skills related to the topic. The length of time the music plays can be adjusted to accommodate the problem-solving time expected, and the number of questions can be adjusted to fit the timeframe allotted for the game. This activity can be a stand-alone review activity outside of class or can be part of any class.

5.0 Conclusion

The Team Trivia Review engages students in working together to recall content or solve problems under a time constraint, is an effective tool for reviewing content before an exam, and can be adapted to many different courses.