

The Great Debate

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## **Innovative Pedagogy Example: The Great Debate**

Scientific communication is required for any scientific career, thus I heavily incorporate activities involving communication in my courses. Students not only practice oral communication in small group discussions, but also give more formal presentations in front of the whole class. As an example, in BIOL351 and BIOL477 the students choose a hot topic in science to debate such as the safety of genetically modified organisms. In this case the activity correlated with our section on DNA replication, repair and recombination.

A debate with 54 students is quite an accomplishment, so I have a series of ground rules.

1. Students are divided into fact-checkers, judges, time keeper, question askers, and the remaining students are split between the pros and cons. This allows even the shy students to become involved in the activity. All students are responsible for bringing several journal articles to support their claim of pro or con regardless of their role in the debate. Students do not know what role they will play until the day of the debate which forces them all to prepare heavily for the activity.
2. To keep the discussion short and involve everyone, each person receives three cards at the beginning of the debate. They have to give up a card each time they speak. Once the cards are used up that person is not allowed to vocalize further points. This is interesting because the students on the quieter side often end up with the final say on the topic.
3. Students must use evidence from reputable journals and must cite that source during the debate. The fact checkers work to make sure that the stated facts are true and keep the discussion honest.
4. A traditional debate structure is used, however more than one student can speak for each section by quickly raising their hand after another student has made their point. Sometimes five or six students are able to make key points within a three minute period.

From this experience students achieve learning outcomes that include how to research a scientific topic using the primary literature, communicate the findings, and debate using logic instead of emotion. Students often state that this is one of the highlights of the course.

## Genetically Modified Organisms Debate Organizational Sheet

Volunteers:

Time keeper

2 fact checkers

10 Question Askers

2 Graders (one for each side)

Moderator

2 Graphic Organizers (one for each side)

15 or so Pro

15 or so Con

Debate Schedule:

Each side meets together	5 min
Intro for Pro	3 min
Intro for Con	3 min
Evidence for Pro	3 min
Rebuttal for Con	3 min
Questions	3 min
Evidence for Con	3 min
Rebuttal for Pro	3 min
Questions	3 min
Evidence for Pro	3 min
Rebuttal for Con	3 min
Questions	3 min
Each side meets together	5 min
Concluding argument Con	3 min
Concluding argument Pro	3 min

Summary of debate:

Winner?

**Genetically Modified Organisms Debate Scoring Sheet**

[for audience and instructor]

Debate Topic: \_\_\_\_\_

Date: \_\_\_\_\_ Pro or Con (circle one)

Team Member Names:

(1) \_\_\_\_\_

(2) \_\_\_\_\_

(3) \_\_\_\_\_

(4) \_\_\_\_\_

Criteria	Rate: 1-10	Comments
<b>Opening statement</b> was clear, well organized, factual, and relevant.		
<b>First</b> argument in support of its position was stated clearly, was relevant, and well informed.		
<b>Rebuttal</b> to opposing side's first argument was clear, relevant, well informed, and effective.		
<b>Second</b> argument in support of its position was stated clearly, was relevant, and well informed.		
<b>Rebuttal</b> to opposing side's second argument was clear, relevant, well informed, and effective.		
<b>Third</b> argument in support of its position was stated clearly, was relevant, and well informed.		
<b>Rebuttal</b> to opposing side's third argument was clear, relevant, well informed, and effective.		
<b>Closing statement</b> was stated clearly, was relevant, and effectively summarized the team's position.		
<b>Answers</b> to audience questions were clear, well-informed, and relevant.		
<b>Overall</b> preparedness, effectiveness, and professionalism in the debate.		

**Total Points Earned:** \_\_\_\_\_ **divided by 10 =** \_\_\_\_\_  
 (score for debate)