

IN THE CLASSROOM: AP BIOLOGY, AP CHEMISTRY STUDENTS AT FREMD PARTICIPATE IN UNIQUE SCIENTIST MARCH MADNESS



Mad Scientist Madness bracket

A unique assignment for students in AP Biology and AP Chemistry at Fremd High School has students representing 64 different historical scientists and dueling it out to be at the top of a March Madness bracket. However, the assignment has nothing to do with basketball.

The Mad Scientist Madness assignment allows students to rally behind an randomly assigned scientist from the areas of Earth Science, Chemistry, Biology, or Physics. Students research the scientist, defend why their scientist should be tops in the bracket, and vote for a winner on Schoology, an online classroom portal.

“Sometimes in AP classes the fun that science really is can get lost while preparing for AP tests. This is a reminder that we are there to have fun,” said FHS science teacher Brad Graba. “The depth of knowledge students gain is much greater when they take ownership in a project like this. When they are finding the information and synthesizing it into a presentation, it helps stick with them for a longer time.”

Graba created the assignment with science teacher Karl Craddock. The two combined their AP Chemistry and AP Biology courses through Schoology, and students are in the first round of voting. As students’ scientists get voted out, students will be required to continue commenting on their peer’s posts and participate in the discussions. Graba said next year when they present this assignment, they will focus on more female representation in the bracket. He wants to reflect how the gender stereotype is changing in the scientific field.

Read a humorous sample debate of scientists Watson and Crick vs. Norman Borlaug below (click to enlarge).





FREMD SCIENCE TEACHER USES TWITTER TO EXPAND CLASSROOM PROJECT



Image of student's twitter page campaigning for the organelle Golgi Apparatus.

While classrooms and curriculum across the world continue to look at how technology and social media influence learning, a science class at William Fremd High School experienced how new social platforms can enhance a school project.

Students in Brad Graba's accelerated freshman biology classes at Fremd High School were assigned a project called Organelle Wars that involved using Twitter. The content of their projects revolved around organelles, which are differentiated structures within a cell that perform a specific function. Students were to use Twitter as a campaigning platform to get their organelle elected as "president of the cell" by campaigning and "smearing" other organelles in the process, much like political elections.

"Students expect to be tweeting amongst their friends, and it turned into them tweeting with biologists around the globe," Graba said. "It was an authentic learning experience for them. They were involved with real people doing real research on what they were learning about in biology class."

Graba said he carefully instructed his classroom to create anonymous Twitter accounts on behalf of their chosen organelle. Then, Graba used his own Twitter account to monitor the activity. Roughly 12 hours after students' accounts went live online, Graba noticed that a professor from Oxford Brookes University in Great Britain started responding, or "tweeting," to students.

The professor searched to see if anyone posted information on social networking websites about an organelle she is researching. Graba immediately wanted to know who had taken interest in his classroom's project, and after he realized it was safe communication, the professor started campaigning for her own organelle and helping students smear their competition.

Soon, students were tweeting and creating dialogue using the hashtag, which is used to mark keywords or topics in a Tweet, "#organellewars" after each message. Those tags started gaining popularity, and soon other researchers, professors, and professionals in the scientific community were interacting with Graba's students from all over the world. They even caught the eye of a BBC radio host where Fremd High School received a mention on his show, and of well-known science blogger at Discover Magazine, Ed Yong.

"Scientists were just as excited to be working with the students as the students were with them," Graba said. "They were just amazed when the radio show had mentioned the project, Palatine, and kids were tweeting that they didn't know biology could be so fun."

Graba said Twitter turned out to be a very powerful tool, and he is working on different ways to incorporate social networking and technology into future projects. Several colleagues of his are also looking into ways to apply it in their lessons. Graba is excited about the future of these types of projects and hopes to add a one-to-one component to the classroom next year, which will allow students to work on Apple iPad 2s to use throughout the duration of their course.

"Social networking and technology is where students are at right now, so this is bringing education to them in accessible ways because they are on Twitter and Facebook already," Graba said. "To use those tools in school, which traditionally have been forbidden, students get excited and are more engaged in the learning process."