

# CHEMISTRY

## Does it Compute?

- My action research was to answer the question "Do computer-based simulations/animations increase students' learning of chemistry?" The research was completed in two sections of Chemistry 1. In most schools this is a college preparatory, elective class. However, at Saint Thomas Aquinas High School it is a required class. There is a wide gap in the academic abilities of the students in Chemistry 1. Does the use of computer simulations/animations keep the students engaged in chemistry? Does it help them to see the connection between chemistry and the real world?

### Student Opinions:

#### Phase 1

	Learned the most	Favorite
Lecture and Demonstrations	45.2%	77.4%
Laboratory Activities	19.4%	22.6%
Computer Assignments	35.5%	0%

#### Phase 2

	Learned the most	Favorite
Worksheets	62.1%	11.1%
Laboratory Activities	24.1%	37.0%
Computer Assignments	13.7%	51.8%

### STUDENT QUOTES:

"I would rather have a computer assignment because I find it more eye-catching and more interesting than a plain paper that you write with a paper and pencil."

"I would prefer a computer-based assignment because it is hands on."

"...computer-based assignment because they normally have more pictures to illustrate."

"...it was realistic and we could redo any step if we thought that we messed up."

"My favorite was the virtual laboratory because it was fun to do a lab w/o having to actually do a lab."

"Sometimes getting the computers to work cause a delay."

"I did not really care for the computer ones. Sometimes they don't work and it was hard to follow and boring."

### FINDINGS

#### Phase 1:

Material was taught twice, once using traditional lecture and note format and once using computer animations and simulations.

#### Phase 2:

Material was taught once, blending traditional methods with computer assignments.

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As part of the MSSE program at Montana State University

- Students want hands on activities (Chemistry Attitude Survey).
- Students use computers daily but think of computer assignments as research and /or typing only (Pre Computer Use Survey).
- Students, and teacher, are more engaged for a longer period of time with a computer activity than lecture (teacher journal).
- Technological difficulties affected student attitudes. (teacher journal).
- Students learn more with worksheets but the computer assignments hold their interest. (Assignment Assessment B)