

old dog new tricks!

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39 years of
Chemistry +
27 years of AP
Chemistry +
15 years of Honors
Chemistry +
8 years of
ChemCom =

**A whole lot of Chemistry
goin' on!**

1. On-line homework
2. iPad use
3. Flipped classroom
4. Microscale revisited
5. Guided inquiry



What is left to learn?

- OWL (Online web-based learning) for General Chemistry
- developed at the University of Massachusetts by Roberta Day and Beatrice Botch in the 1980's
- supports mastery learning
- numerical, chemical and contextual parameterization
- simulations, tutorials, visualizations, end-of-chapter problems

On-line homework

www.cengage.com/owl





- Mercy H.S. has been a tablet school for many years.
- Fall of 2012: All freshmen required to have iPads
- Chem/AP Chem: a mix of iPads and tablet computers!

Technology changes: Tablets → iPads

1. Note-taking: Evernote, iAnnotate, CloudOn
2. Teacher: Dropbox, ShowMe, Explain Everything
3. Chemistry: EMD PTE (Periodic Table), Mild EleMints, Nova Elements, Molecules, Gas Laws HDLite, ChemApp Lite, Lewis Dots, Graphical Analysis

iPads: Apps

At the beginning of the year we created a video on “use of lab equipment” using iMovie and linked it to YouTube

http://www.youtube.com/watch?v=rkdXZfFiEtk&feature=youtuibe_gdata_player

Also, I made a “movie” of the Gases Mini Stations Lab for the students who missed the lab to watch.

<http://www.youtube.com/watch?v=9ZFH5BP7uw>

iPads... other uses

- What?
- Why?
- When?
- How?



I used Explain Everything on the iPad to create the “flips”, then downloaded them to YouTube, and connected them to Moodle.

Students had a notes outline that they needed to complete as they watched each “flip”.

Flipped lessons

<p>“Hints for Balancing Equations” notes. Work on pp. 4-6 of equations packet.</p>	<p>Watch “FLIP: Reaction Types Part I” (on Moodle) and take notes. Do pp. 4-6 of equations packet.</p>
<p>Discuss Reaction Types Part I. Do p. 7: 1-4 on equations packet.</p>	<p>Read pp. 262-269. Watch “FLIP: Reaction Types Part II” (on Moodle) and take notes.</p>
<p>Do p. 7 #5 and pp. 9-10 of equations packet.</p>	<p>Read pp. 270-276. Watch “FLIP: Reaction Types Part III” (on Moodle) and take notes.</p>
<p>Do p. 8 #6-8 and pp. 11-12 of equations packet.</p>	<p>Finish equations packet. Complete packet is due on Day H.</p>

Flipped lessons (cont.)

“Flips” on **Reaction Types**: required of all students

Reaction Types Part I: combustion, synthesis,
decomposition

Reaction Types Part II: single replacement

Reaction Types Part III: double replacement

<http://www.youtube.com/watch?v=zV1RCpPq9Dc>

Stoichiometry notes: available to all; primarily intended for those who missed class or needed reinforcement of the concepts

Flipped Lessons (cont.)

Gas Laws: required of all students

Flip 1: Boyle's, Charles'

Flip 2: Gay-Lussac's, Combined Gas Law

Flip 3: Dalton's Law of Partial Pressures

<http://www.youtube.com/watch?v=6hxu1Nq37VA>

Solutions: primarily for those students who missed class

Flip 1: Molarity

Flip 2: Solution Stoichiometry

Flipped lessons (cont.)

- Why? Looking for new AP labs to do
- Purchased An Inquiry and Forensic Approach Towards Chemical Experimentation by Jesse Bernstein, Jeffrey Bracken, and Paul Price
- Tried: #11 The Peroxide Problem, #13 Equilibrium Constant Determination, and #16 How Fast Do You Want the Reaction to Go
- Also: Microscale Titration of Vinegar and K_{sp} of $\text{Ca}(\text{OH})_2$



Microscale revisited

Jason Neil, chemistry teacher in Michigan

<http://www.chemistryinquiry.com/index.htm>

Ex: ChemQuest 36: Gases and the Mole

Target Inquiry, Grand Valley State University

<http://www.gvsu.edu/targetinquiry/>

Ex: My Acid Can Beat Up Your Acid

AP Chemistry curriculum & lab changes for 2013-2014 and on...

AP Chemistry Guided-Inquiry Experiments: Applying the Science Practices (College Board)

http://media.collegeboard.com/digitalServices/pdf/ap/2012advances/12b6215_APChemFlyer.pdf

Guided Inquiry

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**And there will be more,
I'm sure...**

Slide 1:

http://celiasue.files.wordpress.com/2010/10/1496949592_9dc327ae77.jpg

Slide 3: <http://images.huggintonpost.com/2809-09-03-JonesSkateboards.jpg>

Slide 12: <http://www.environmentalgraffiti.com/news-funny-pics-dogs-catching-frisbees-mid-air>

Slide 13: <http://www.top-dogs-names.com/images/dog-jumping-a-hoop.jpg>

Slide 14: <http://missallottasclassroom.blogspot.com/>

Other photos: K. Kitzmann

Image sources



**“Teaching is humbling. The more I teach, the more I have to learn. Life is humbling. The more I live, the more I have to learn.”
Phua Geok Kuan**