Meeting Students Where They Are:
Using Technology to Make Learning Accessible and Engaging

Tyler DeWitt

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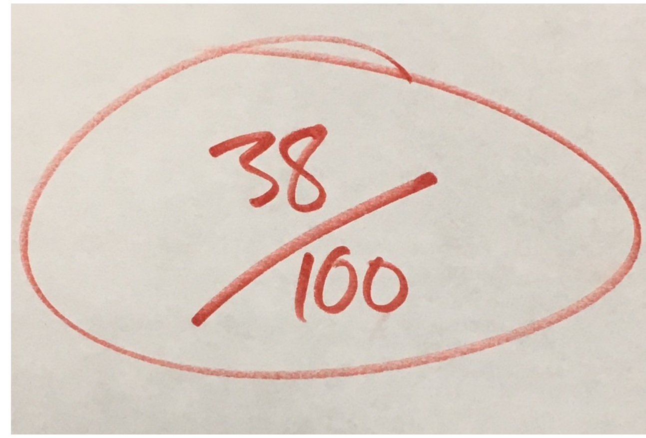

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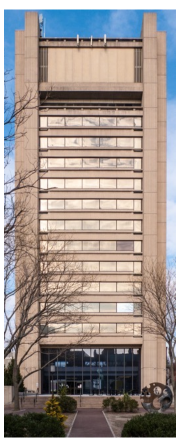

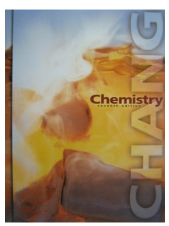

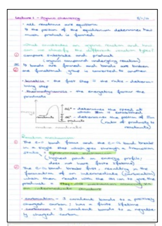

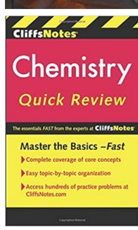

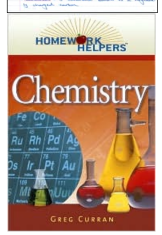

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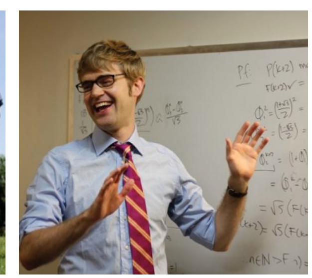

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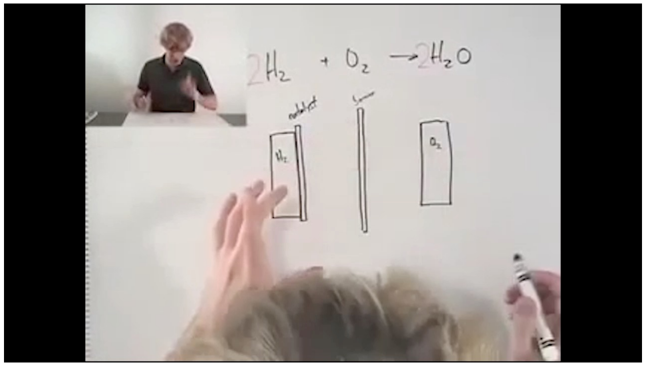
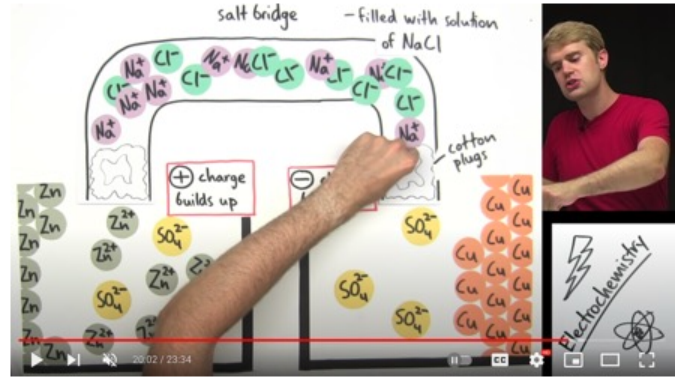
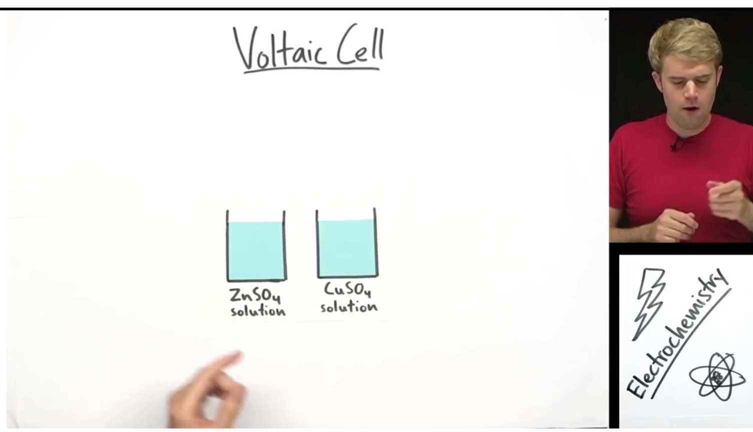

2H2 + O2 → 2H2O

5


salt bridge
- filled with solution of NaCl
cotton plugs
charge builds up
Electrochemistry

6


Voltaic Cell
ZnSO4 solution
CuSO4 solution
Electrochemistry

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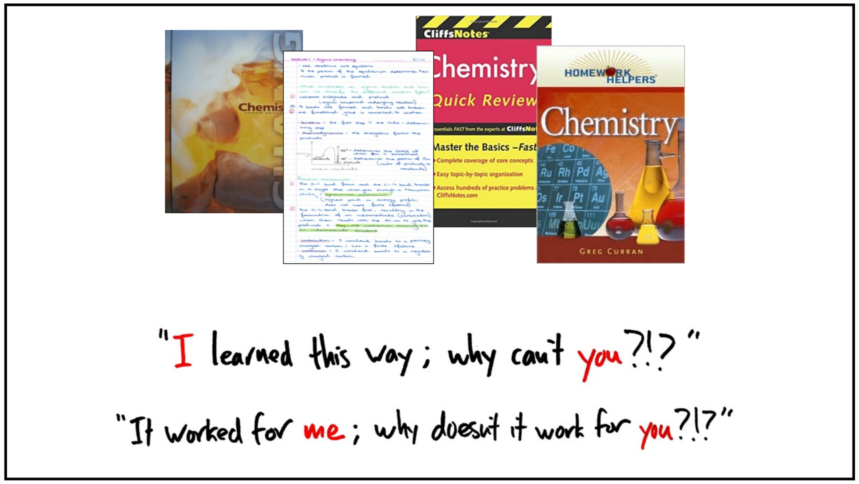
Cellscape VR
Socratic by Google
Interactive General Chemistry
Micropipette Aid Procedure
VIRTUOSI

8


CliffsNotes
Chemistry
Quick Review
Master the Basics – Fast
HOMEWORK HELPERS
Chemistry
GREG CURRAN
"I learned this way; why can't you?!?"
"It worked for me; why doesn't it work for you?!?"

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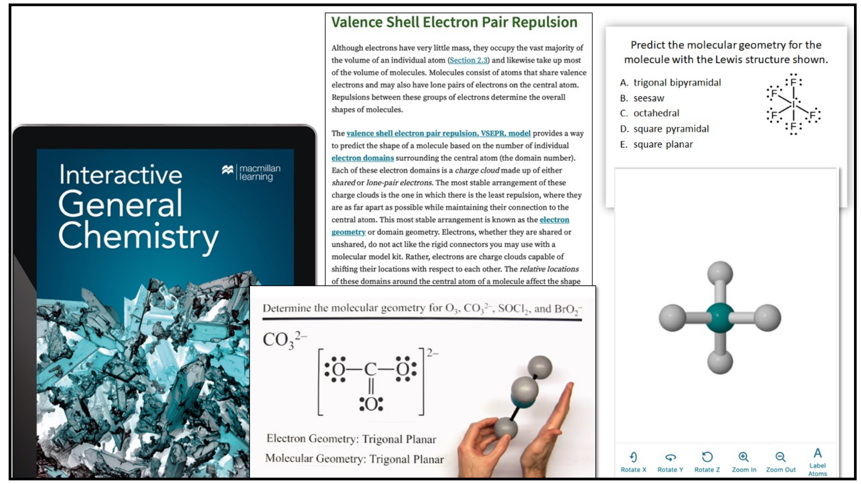
Interactive General Chemistry
macmillan learning
Valence Shell Electron Pair Repulsion
Predict the molecular geometry for the molecule with the Lewis structure shown.
A. trigonal bipyramidal
B. seesaw
C. octahedral
D. square pyramidal
E. square planar
Determine the molecular geometry for O3, CO3 2–, SOCl2, and BrO2–
CO3 2–
Electron Geometry: Trigonal Planar
Molecular Geometry: Trigonal Planar

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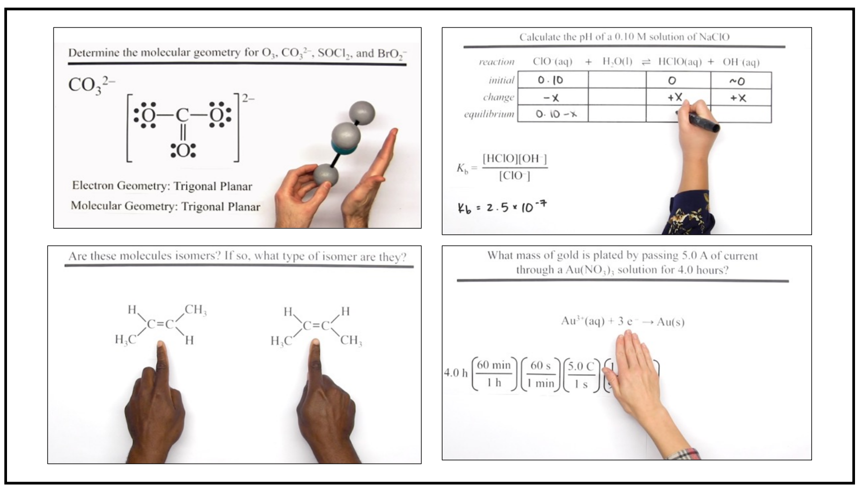
Determine the molecular geometry for O3, CO3 2–, SOCl2, and BrO2–
CO3 2–
Electron Geometry: Trigonal Planar
Molecular Geometry: Trigonal Planar
Calculate the pH of a 0.10 M solution of NaClO
reaction ClO–(aq) + H2O(l) ⇌ HClO(aq) + OH–(aq)
initial 0.10 0 ~0
change –x +x +x
equilibrium 0.10 – x
Kb = [HClO][OH–] / [ClO–]
Kb = 2.5 × 10–7
Are these molecules isomers? If so, what type of isomer are they?
What mass of gold is plated by passing 5.0 A of current through a Au(NO3)3 solution for 4.0 hours?
Au3+(aq) + 3 e– → Au(s)

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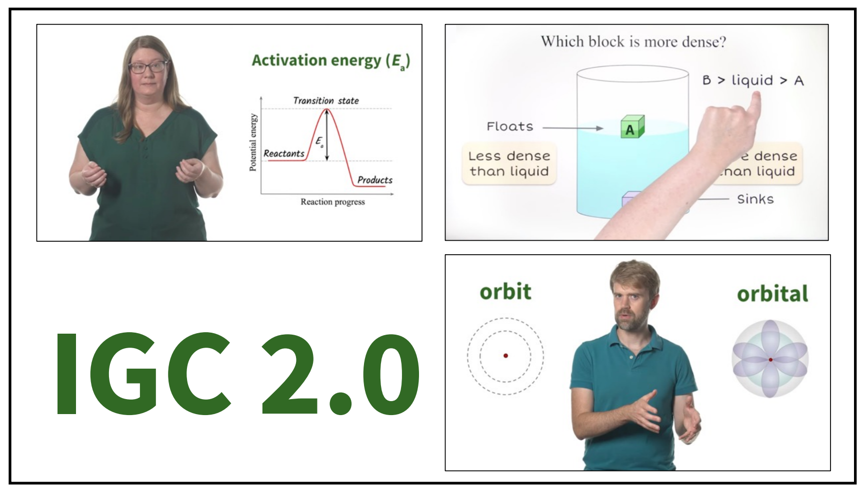
Activation energy (Ea)
Transition state
Reactants
Products
Potential energy
Reaction progress
Which block is more dense?
B > liquid > A
Floats
Less dense than liquid
Sinks
IGC 2.0
orbit
orbital

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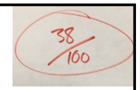

The student with the lowest grade on your Chem 101 exam isn't necessarily intellectually incapable. With the right resources, he could go on to earn a Ph.D from MIT, and might even end up being an author of the textbooks you use in your class.

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What does it mean to "Meet Students Where They Are?"

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Meeting Students Where They Are:

- Use medium they're fluent in
- Low-tech, high-tech
- Patient, step-by-step
- Casual language
- Lots of visuals
- Metacognitive

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You almost certainly do NOT know the best solution for your students.

(They probably don't know either.)

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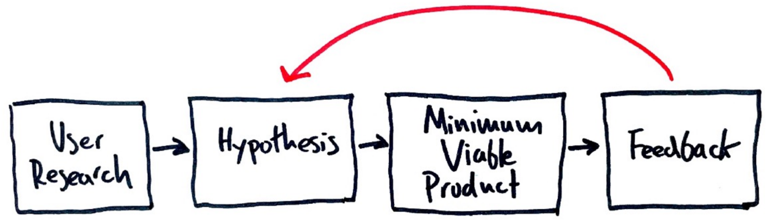

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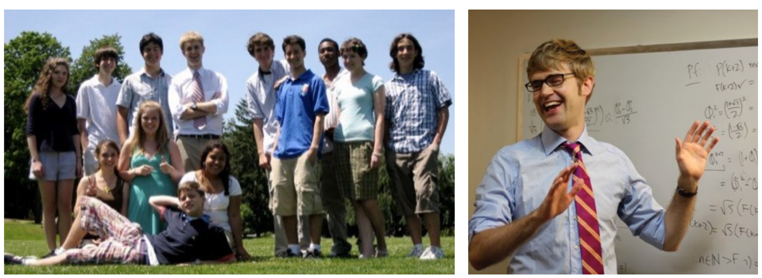

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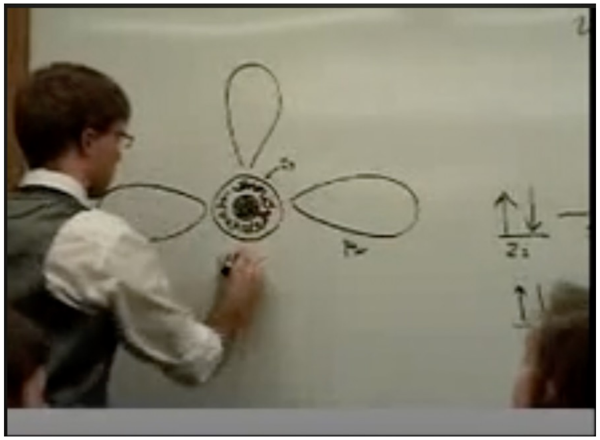

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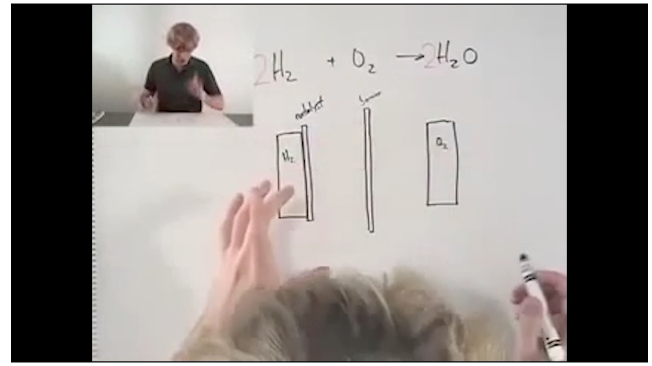
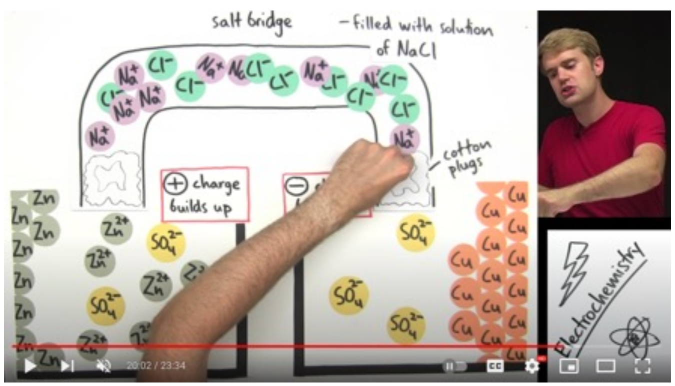

$2H_2 + O_2 \rightarrow 2H_2O$

22


salt bridge
– filled with solution of NaCl
cotton plugs
⊕ charge builds up
Electrochemistry

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Reading Skills
Discussions
Laboratory Exercises
Confidence
Free Up Class Time
Variety in Classroom

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Minimum Viable Product (Prototype really…)

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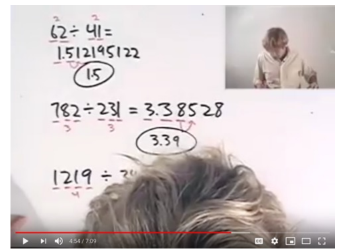
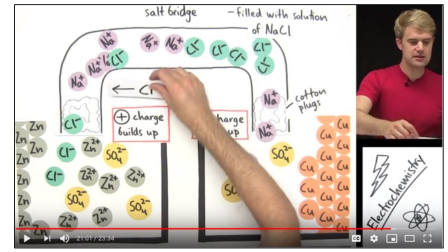
it's not going to be perfect: get over it





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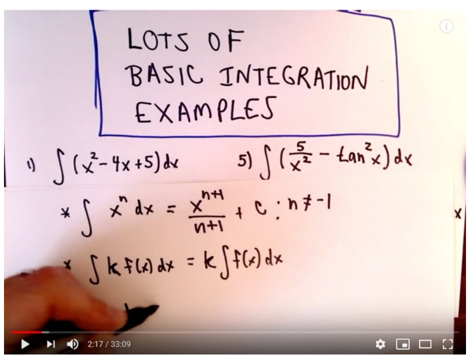
low-tech is often more effective than high-tech



YouTube: PatrickJMT

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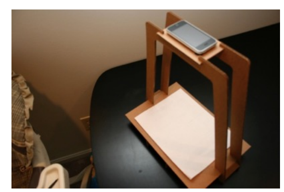

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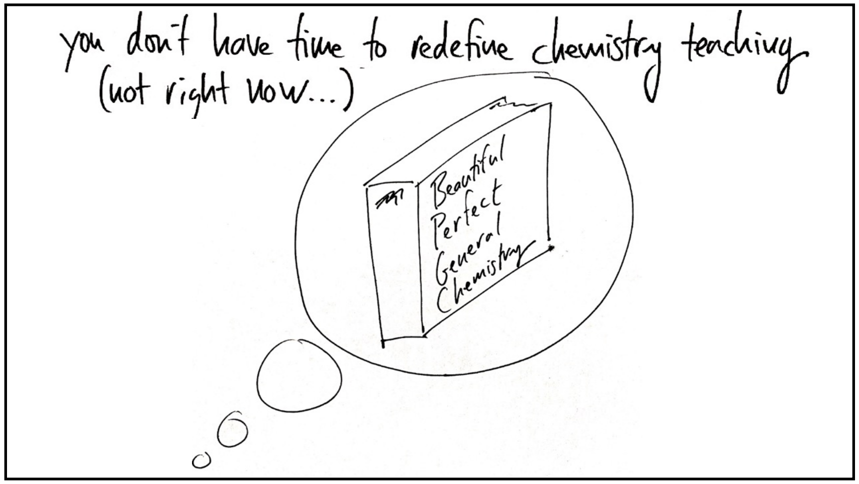

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Audiobooks?

(Run with it!)

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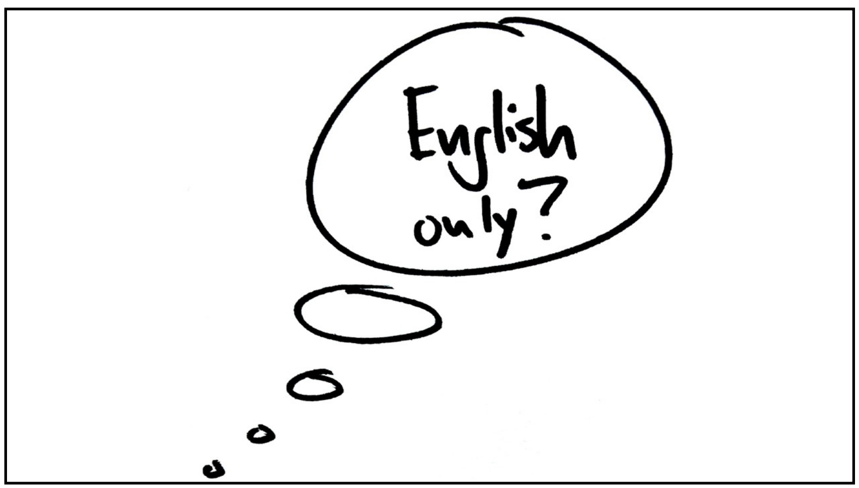

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Metacognition

(Tech can help scale meaningful interactions)

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QUIZ

You're heating a pot of water on the stove. From the point of view of the water (the water is the "system"), is this an endothermic or an exothermic reaction? In order to receive credit, you must explain your reasoning.

When you heat up a pot of water, what happens to the movement of the molecules that make it up?

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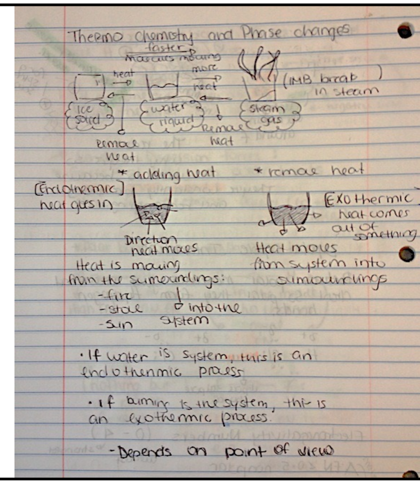

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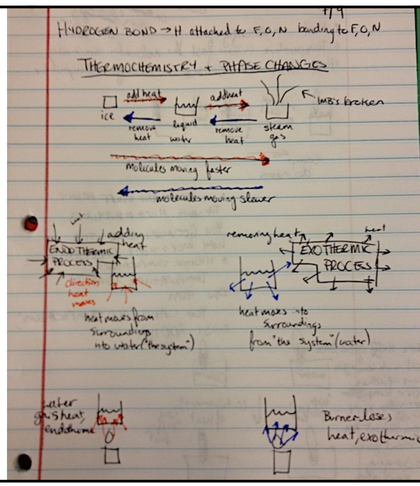

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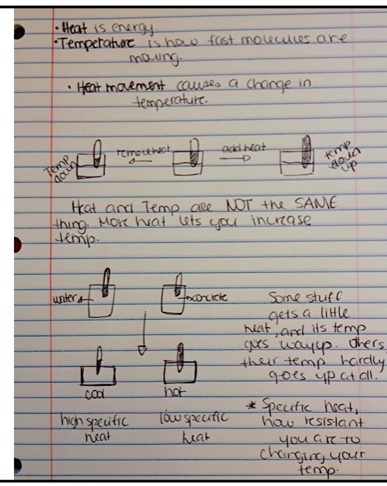

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"Walk me through your notes.
Explain this diagram."

37

What is happening in that beaker?

Video report/documentary of laboratory activities

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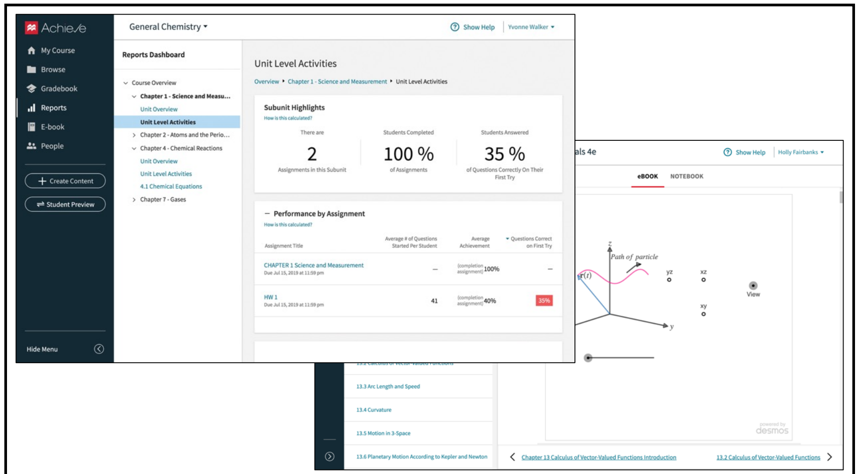

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