Building a Blended Culture in a Secondary Science Classroom

Please take the following survey: https://goo.gl/KTtVGf

Follow along: https://goo.gl/NtSMtH
HELLO! I am Dan Meyers

You can find me at @MeyersChemistry

Building a Blended Culture in a Secondary Science Classroom
GOALS

- Survey
- Background to blending
- Current practices
  - Curriculum modifications
  - NGSS and MSS
  - 1:1 Chromebooks
  - GAFE
- Building a CULTURE
- Resources
- Networking
Background to blending

- 2012-2013
- iPad + EduCreations
- Wacom Bamboo tablet + web cam + USB microphone to create videos
- Posted on Edmodo (LMS of choice at school)
- Attended “Flipped Classroom” PD via HASTI Conference
Background to blending

Fall 2013

- Desires to “flip” teaching met with resistance from parents
  - Enough $$ for paper copies
  - Restricted or no tech/internet access at home
- Students not used to watching videos for homework
Background to blending

Spring 2014

- Abandoned “flipping” due to Fall 2013 reasons
Background to blending

- Gradually began creating a library of tutorial videos using Touchscreen PC in classroom, HoverCam, and Google HOA
Background to blending

2014-2015

- Purchased Camtasia 8 thanks to PEF grant
- Purchased Wacom Intuos tablet during summer to make videos from home
Background to blending

2015-2016

- Participated in my district’s Blended Learning HS pilot
  - Received an Acer Chromebook
  - 2016 semester saw the arrival of a Chromebook cart for each pilot teachers’ classroom
Background to blending

2015-2016
Background to blending

2015-2016
Background to blending

2016-2017

- Teachers receive a Dell Chromebook district-wide
- Participated in Gizmos Grant Pilot with MS Science teachers from district
- Purchased headset with inline mic via PEF Grant → headset doesn't work so good
- Purchased Logitech headset from GR-based store with my almost namesake.
What is blending by the way?
Think-Pair-Share
What is blending by the way?

The definition of blended learning is a formal education program in which a student learns...

Christensen Institute
What is blending by the way?

To Learn More, Click Here
Current Practices

- Curriculum modifications
- NGSS and MSS
- 1:1 Chromebooks
- GAFE
- Daily digital agenda showing Learning Target, Performance Task, Success Criteria, Agenda, Warm-up
  - Examples
Monday 3/13/17 - Chromebook

Learning Target = By the end of today’s lesson, you will be able to distinguish between elements using periodic trends.

Performance Task = Students will fill out a March Madness bracket of elements using periodic trends.

Success Criteria = You will know if you achieved this target if you correctly identify the “winning” element using periodic trends.

Agenda - Warm-up in notes, Discuss Trend Setter ?s, March Madness Bracketology, HW: Study and review vocabulary

Warm-up:
How many valence e- does Si have?

How many valence e- does F have?

Which atom has the smaller electronegativity: Cu or Zn?

Which atom has the larger atomic radius: Cl or Br?
Tuesday 2/21/17

**Learning Target** = By the end of today’s lesson, you will be able to write elements in isotope notation and identify the number of protons, neutrons, and electrons in an atom.

**Performance Task** = Students will conduct practice problems.

**Success Criteria** = You will know if you achieved this target if you can correctly write in isotope notation.

**Agenda** - Go over 1st test, Collect labs, Review Isotope video from last night, practice problems on board, HW: Isotope WS #1

**Warm-up**: Write the following in isotope notation
- Bromine-80
- An element that has 56 protons and 82 neutrons
Typical Practices

- Limit PowerPoint lectures (1-3 days per unit)
- Vocabulary self-awareness (2-3 units)
- Tutorial videos accessible via Google site, YouTube channel, and Google Classroom - act as supplement rather than assigned homework
- EdPuzzles (2 units)
- Target Inquiry lab activities (GVSU)
  - About 3 in Chem 1 and 2-3 in Chem 2
Typical Practices

- Lab reports via Google Classroom (~1 per unit)
  - Typically avoid full reports in order to build on fundamentals of technical writing skills, build up to full report
- Think-Pair-Share
- WebQuests (2x Nuclear Chemistry unit)
- Warm-ups (in notes or on Google Classroom for instant feedback)
Typical Practices

- Gizmos
- Formative assessments
  - Gizmos, Google Forms with Quiz option enabled

1. The graph below shows the decay of a radioactive isotope. What is the half-life of the isotope?

   ![Graph of isotope decay](image)

   
   - A. 15 seconds
   - B. 25 seconds
   - C. 40 seconds
   - D. 200 seconds

2. Which of the following is the best definition of half-life for a radioactive substance?

   - A. Half of the amount of time required for all of the radioactive atoms to decay.
   - B. The amount of time required for half of the radioactive atoms to decay.
   - C. The amount of time required for each radioactive atom to decay halfway.
   - D. All of the above.
Concept mapping for Final Exam review - no more “packet” discussed in class

- ChemEdX
- In 1st semester doing this, MC scores went up 5% average and written was up 10% on average
- Since then, average scores have been either similar or within 5% better than without concept mapping
BUILDING A CULTURE
Building a CULTURE

Roadblocks/Concerns

● Student responsibility
● Helicopter parents
● We don’t have a “whole school” culture - not all staff use a Google Site effectively or utilize their Google Classroom, perhaps clinging to tradition with a fear of change or apathy toward change.
"Tradition is the living faith of the dead; traditionalism is the dead faith of the living. Tradition lives in conversation with the past, while remembering where we are and when we are and that it is we who have to decide. Traditionalism supposes that nothing should ever be done for the first time, so all that is needed to solve any problem is to arrive at the supposedly unanimous testimony of this homogenized tradition."

Building a CULTURE

Roadblocks/Concerns

- Assessment data easier to obtain but requires initial input and development
- Training district-wide or building-wide (PPS Tech Camp, Tech Integration Specialists are available, few teachers in building can coach)
- Training is ANOTHER thing to do
THINK-PAIR-SHARE

Building a CULTURE

1. What are some challenges that you’ve encountered in building a blended learning culture?

2. What are some of your anxieties related to building a blended learning culture?
Building a CULTURE

Take a moment and process on your own…

▫ What does blended learning look like in my classroom?
▫ What do I need to be successful?
▫ What do I still need to know?
▫ How am I going to start?
  ▫ Class
  ▫ Subject
  ▫ Grade
  ▫ Lesson
Resources

- Nuclear Chemistry Unit Plan
- Periodicity Unit Plan (includes Vocabulary Self-Awareness)
- Chemical Reactions Unit Plan (includes Vocabulary Self-Awareness)

Available on website
Resources

Website featuring conference resources and video tutorial library

meyerschem.weebly.com

Chemical Education XChange

https://www.chemedx.org/
1. Divide the room into content areas

2. Introduce yourself to a new colleague in your content area

3. Share lessons/units that you currently using within a blended learning environment - what is working well, what needs improvement

4. Create a new lesson/unit for blended learning

5. Delve deeper into “Building a Blended Learning Culture” conversation

6. Add notes to Google Slides comments/Q&A
Any questions?

You can find me at

- @MeyersChemistry
- meyerschem.weebly.com
- meyerschem@gmail.com
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