Differentiating Instruction

Using Web Tools Kids Know & Love

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Background

- Science/Social Studies Teacher for 15 years
- Science Division Chair
- Teacher/Technology Coach
- Adjunct Professor--Curriculum & Assessment

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- Blog: www.crazyteacherlady.com

Who are you?

Teachers/Admins/Other professionals?

Grade levels?

Use of web tools?

Differentiation with web tools?

What do you want to walk away with from this session?

Some food for thought….

- The secret lies in respecting the pupil.
  - *--Ralph Waldo Emerson*
- When children know uniqueness is respected, they are more likely to put theirs to use.
  - *--Dorothy Briggs*
- When the students of tomorrow sit in the classrooms of yesterday, it is our teachers who are failing.
  - *--Bill Ferriter*
- If we teach today's students as we taught yesterday's, we rob them of tomorrow.
  - *--John Dewey*

We can respect student uniqueness and ability to show what they know in their own way using

## BLENDED LEARNING

True or False?

1. Blended learning involves offering online classes.

2. Blended learning involves encouraging teachers to create their own websites for student and parent use.

3. Blended learning involves basic word processing, spreadsheet, and presentation skills that are done in Google Apps.

4. Blended learning enables schools to standardize curriculum by having it online.

Blended Learning

What is it?

Why use it?

Photo courtesy of tgbarrett

Blended Learning

- Combines the best ways to learn online with the best ways to learn in a face-to-face classroom
  - It's all about balance
  - Learning online ≠ sit (in front of a computer) & get
  - Examples: WebQuests, PBL units, Online discussion tools (Vyew, Google Hangout), Backchannelling using LMS
- What it's not:
  - A class with a website
  - Entirely online
  - The same between units, classes, or schools
  - Doing the same thing we've been doing on computers, only now it's in the cloud

Why Use Blended Learning?

- Asynchronous Learning combined with Synchronous Learning
  - Allows for different pacing and different avenues for sharing ideas and learning
- Teaching students various modes of interaction
  - Some students more likely to interact online than in the classroom
  - Digital citizenship
- Helps develop critical thinking in an online environment if tasks are designed properly & proper tool used for the intended learning
  - Online tools used for creation, synthesis, and evaluation
  - Include face-to-face activities
- Access to resources inside and outside of class

Blended Learning Promotes a Differentiated Mindset
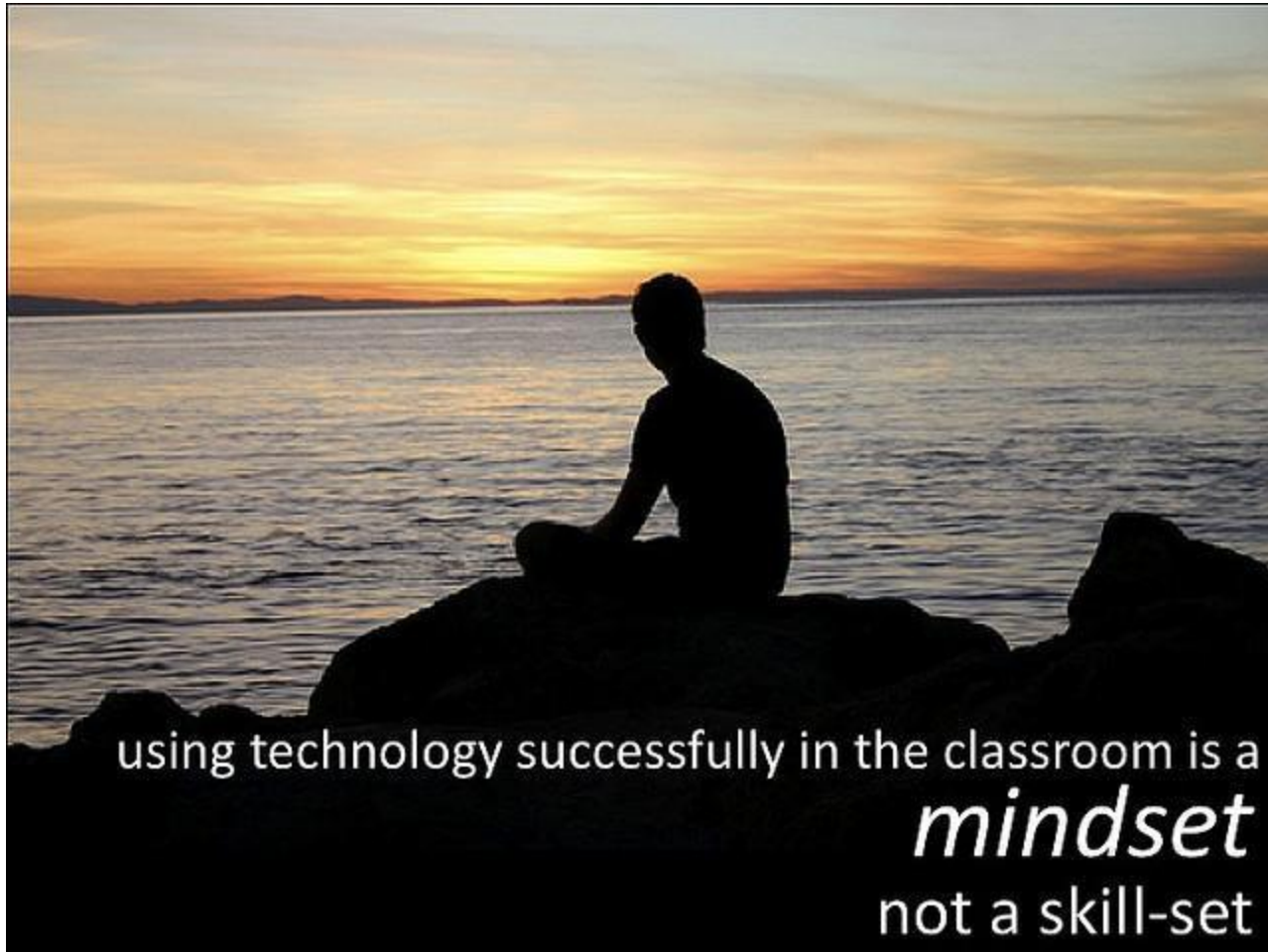
using technology successfully in the classroom is a *mindset* not a skill-set

Principles of Differentiation

The reasons behind the choices

What is differentiation?

- A = Providing students with choices.
- B = Giving students different ways to acquire content.
- C = Giving students different tasks based on their ability.
- D = Meeting students where they are with challenging tasks.

Differentiation is…

A sequence of common sense decisions made by teachers with a *student-first orientation*

It's a MINDSET

| Differentiation |
| Is a teacher's response to learner's needs |
| Guided by mindset and general principles of differentiation |

Respectful tasks | Quality Curriculum | Flexible grouping | Continual assessment | Bldg. Community

Teachers can differentiate through

Content — Process — Product — Affect/Environment

According to students'

Readiness — Interest — Learning Profile

Through a variety of instructional strategies such as:

RAFTS…Graphic Organizers…Scaffolding Reading…Cubing…Think-Tac-Toe…Learning Contracts…Tiering… Learning/Interest Centers… Independent Studies…Intelligence Preferences…Orbitals…Complex Instruction…4MAT…Web Quests & Web Inquiry…ETC.

Retrieved from: http://www.caroltomlinson.com/Presentations/Amherst_Secondary.pdf

Technology or not....

Differentiation starts with some basic fundamental principles and beliefs

Image courtesy of

Differentiation Principles #1 & #2

- *All students can learn. Teachers must know how their students learn, and teach students how to improve their ability to learn.*
  - Pre-assessments
  - Surveys-MI, Learning Styles, Interest Inventories
  - Informal assessments
  - Knowing the tech needed to help students learn

- *It is the teacher's job to provide opportunities so all students can learn. Therefore, a teacher needs to know where his/her students' learning is at all times.*
  - Ongoing formative assessments using technology to keep track of learning progress

Differentiation Principle #3

- *The standards are the floor, not the ceiling. Differentiation should take place upwards FROM the standards, not up TO the standards.**
  - **<u>Everyone</u>** needs to meet the standards.
  - Plan differentiated activities for on target and above target students 1st; plan for below target as needed

▶ *Standards = objectives, learning goals, targets, or state standards or benchmarks

Differentiation Principle #4

- *Differentiate using engaging, cooperative methods, teaching students learning strategies & skills using current collaborative Web 2.0 technology.*
    - Teach more than content using Web 2.0 tools
    - Teach collaboration, critical thinking, synthesis, evaluation skills through the CREATION of web content

Image courtesy of **fishbrain.randy**

What you need to remember is…

- Different web tools will challenge learners to think in different ways.

- It's up to the teacher to provide students with the tools they can use to succeed.

- It's up to the teacher to teach students how to make the right choices when choosing their tools for learning.

Using Web Tools for Differentiation

Image courtesy of bensheldon

So many tools, so many choices....

Which web tools have you used/seen?

Animoto   Google sites ToonDoo
Evernote   Prezi   GoAnimate
Juno   Voicethread Creately
Diigo   Glogster EDU   Wisemapping
Socrative   WebDoc   Mindomo
Blabberize Museum Box   Mindmeister
Fotobabble Weebly   Edmodo
Sliderocket   Jing   Schoology
Google Docs Gliffy   Timetoast
Audacity   Stupeflix   Crocodoc
AudioPal   Pixton   SumoPaint

Examples

- **Assessment Tools**: Socrative, Testmoz, Juno
- **Productivity Tools**: Google Docs, Evernote, Diigo, Typewith.me
- **Poster makers**: Glogster EDU, WebDoc
- **Video/presentations**: Animoto, Stupeflix, Voicethread, Prezi, Voki, Blabberize, Present.me, Qwiki
- **Mindmapping**: Wisemapping, Mindomo, Creately, Popplet, Gliffy
- **Photo editing/drawing**: Pizap, SumoPaint, Dabbleboard, PicMonkey
- **Cartoon makers**: Pixton, ToonDoo, KerPoof
- **Website tools**: Google Sites, Weebly, Webs, Wix

Assessment Tools-Socrative (socrative.com)

My room number

Active users in room

Multiple Choice
Ask a MC question, display results.

True/False
Ask a T/F question, display results.

Short Answer
Open-ended question, display responses.

Quick Quiz ⟵
Run a self-paced quiz.

Exit Ticket
Get an end-of-class pulse-check.

Space Race
Run a quiz as game.

Manage Quizzes
Create, Edit, Delete Quizzes & Races.

Clear room
Remove all users from room.

Change room number
Change your room number

Training Tour
Take a tour of Socrative's platform

**Feedback**
Make Socrative better for you.

Socrative Results

Spreadsheet emailed or downloaded

Pink = wrong answer

Pre-assessments, checks for understanding, quizzes, Review (Space Race)

Great for informing your instruction!

| B	C	D	E	F	G	H
ACT Ques	ACT Ques	ACT Ques	ACT Ques	ACT Ques	Number of	Total Scor
B	H	A	J	C	2	40
D	F	B	G	C	0	0
B	G	A	G	A	2	40
B	H	C	G	C	2	40
B	H	D	F	A	5	100
B	F	B	J	B	1	20
B	J	D	H	C	2	40
A	H	A	G	A	2	40
B	F	A	J	A	2	40
B	H	B	J	A	3	60
C					0	0
A	J	B	G	A	1	20
A	H	B	H	B	1	20
A	G	C	G	B	0	0
B	H	D	G	A	4	80
D	H	A	J	A	2	40
D	G	C	J	C	0	0
B	H	D	F	A	5	100
B	J	D	J	B	2	40
A	J	D	F	C	2	40
B	G	D	F	A	4	80
B	J	D	H	A	3	60
B	G	C	H	B	1	20
A	J	A	J	B	0	0
B	J	B	J	C	1	20
A	J	A	F	C	1	20
B	J	A	H	A	2	40
B	H	D	J	C	3	60
B	H	A	G	B	2	40
					0	0

Assessment Tools-Testmoz (testmoz.com)

Testmoz Test

This quiz determines if you know anything about Testmoz.

Question #1 (1 point)

Testmoz is:

- ○ a self-aware computer network
- ○ a monster terrorizing Japan
- ○ an online test generator
- ○ an ultra-modern hair style

Question #2 (1 point)

Testmoz is really easy to use:

- ○ True
- ○ False

Question #3 (1 point)

Testmoz features: (check all that apply)

- ☐ 4 question types
- ☐ lots of advertisements
- ☐ password protected tests
- ☐ detailed reports

Question #4 (2 points)

Testmoz requires you to keep track of your quiz URLs. If you don't know what one is, you will have a hard time using Testmoz. What is the URL of this page? (hint: you can copy and paste it from your address bar)

Answer: [_____]

Submit   Logout

Assessment Tools-Juno (www.junoed.com)

New Question   New Slide   Copy   Delete   Media   Format   Preview   Settings   Revert   Done

Cell Chem Pre-Assess Objective #1 CS

Objective #1: Cell Chemistry

1. Use ALL of the following words below in a flow chart (use --> for arrows) that organizes the words from smallest... (1 pt)

2. A covalent bond is MOST connected to which of the words below? (1 pt)

3. What word is connected MOST to amino acids, fatty acids, and monosaccharides? (1 pt)

4. Which of the following pairs of words is NOT correctly matched? (1 pt)

5. What's the difference between covalent, ionic, and hydrogen bonds? (1 pt)

6. Which does NOT correctly match the macromolecule listed to its correct function in cells? (1 pt)

7. Study the picture below: (1 pt)

8. What sets proteins and nucleic acids apart from carbohydrates and lipids? (1 pt)

9. blank_atom_diagram.jpg (1 pt)

10. Describe the structure of an atom. (1 pt)

11. Explain how covalent and ionic bonds are: (1 pt)

12. a) How are hydrogen bonds SIMILAR to covalent & ionic bonds? (1 pt)

13. What causes hydrogen bonds to occur? (1 pt)

14. Match the subunit on the left that gets hooked together repeatedly in big long chains to make the macromolecule on the r... (1 pt x4)

Multiple Choice ▾   Points [1]   ☐ Partial or extra credit

Question

What word is connected MOST to amino acids, fatty acids, and monosaccharides?

Choices   **Correct**

proteins	○
nucleotides	●
nucleic acids	○
ionic bond	○

More   Explain   Annotate

Objective [Vocab ▾]

☑ Choices in random order
☐ Questions in random order
☐ Show copy of preceding slide

4th hour Biology ▼

5th hour Biology ▲

☑ Online	Done	Score/120	
☐	✓	107	89%
☐	✓	96	80%
☐	✓	96	80%
☐	✓	115	96%
☐	✓	112	93%
☐	✓	111	93%
☐	✓	113	94%
☑	▰▰▱	52	43%
☐	✓	113	94%
☐	✓	109	91%
☐	✓	107	89%
☐	✓	77	64%
☐	✓	117	98%
☐	✓	109	91%
☐	✓	105	88%
☑	▰▰▱	101	84%
☐	✓	111	93%
☑			
☐	✓	109	91%
☐	✓	110	92%
☑			
☐	✓	111	93%
☐	✓	105	88%
☐	✓	102	85%

Student names would appear here.

A progress bar indicates students who are not done with the assessment. A check mark indicates they are finished. You can see their progress as they take the assessment.

Ecology Test 2011-2012

Title: Ecology Test 2011-2012

- ● Assessment: Test, Quiz
- ● Exercise: Worksheet, Homework
- ● Lesson: Slideshow, Textbook

☑ Subtotal test scores by objective
List objectives covered, one per row:

```
1a
1b
1c
1d
2a
2b
2c
3a
3b
3c
3d
4a
4b
4c
4d
5a
5b
5c
5d
```

List objectives by number or list out completely

- ☐ Math
- ☑ Science
  - ☑ Life Sciences
    - ☐ Anatomy, Physiology
    - ☐ Cells
    - ☑ Ecology
    - ☐ Evolution
    - ☐ Genetics
    - ☐ Other
    - ☐ Test
  - ☐ Physical Sciences
  - ☐ Earth Sciences
- ☐ Social Studies

Edit Ecology Test 2011-2012

New Question | New Slide | Delete | Media | Format

Ecology Test 2011-2012

1. What is ecology? (1a, 1-4) (4 pt)

2. A breeding pair of rabbits escaped from their cage behind a farmer's barn. (4 pt)

3. What kind of population growth is shown in the graph below, and why? (2a, 1-4) (4 pt)

4. If the deer had unlimited resources in their habitat, what would the graph above look like? (2a, 2/4) (4 pt)

5. The area where the deer live starts to go into a drought in month 5. (4 pt)

6. Study the graph below. (4 pt)

7. A student grew a yeast culture on sterilized nutrient medium in a closed dish for five days. (4 pt)

8. In Figure 4-2 (below) how could the carrying capacity of the culture dish be increased? (2a, 2/4) (4 pt)

9. Which is a valid conclusion you can draw from the data presented in this student's experiment? (Sci Inq 1F, Ecology 2c, ... (4 pt)

10. When you are reading about community ecology in your spare time, you come across the chart below. (4 pt)

11. The symbiotic relationship between a flower and the insect that feeds on its nectar is most likely an example of: (3b, ... (4 pt)

12. Some birds are known as honey guides because they may be followed by humans to wild beehives. (4 pt)

13. Which of the following is FALSE about the roles of autotrophs and heterotrophs in ecosystems? (4a, 2/4) (4 pt)

14. Which of the following is a food chain that the food web below? (4b, 2/4) (4 pt)

Multiple Choice ▾   Points [4]   ☑ Partial or extra credit

Question

In Figure 4-2 (below) how could the carrying capacity of the culture dish be increased? (2a, 2/4)

Day 0 | Day 1 | Day 2 | Day 3 | Day 4 | Day 5

A | B | C
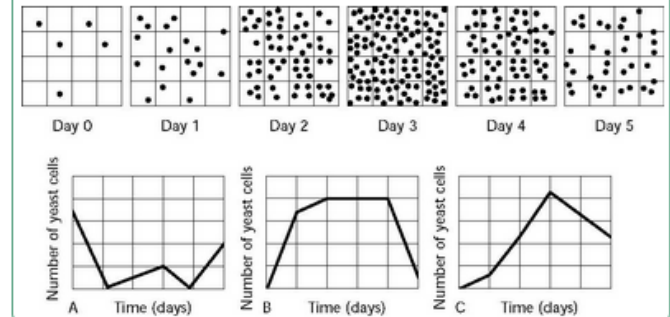
Choices | Points

Add more organisms to the culture dish.	2
Let the experiment run for a longer amount of time.	2
Add more culture media that they use for food.	4
Introduce another species of yeast to the dish.	2

More Annotate

Objective [2a ▾]

- ☐ Choice
- ☐ Quest

None
1a
1b
1c
1d
2a
2b
2c
3a
3b
3c
3d

After entering objectives, you get a drop down while creating your questions.

List Scores ▾

All Classes ▾

Show Raw Percent ▾

Text Size 12 ▾

Print   Done

Can also see scores by normalized percents or raw points.

Objective numbers

Ecology Test 2011-2012

4th hour Biology		1a	2a	2c	3a	3b	4a	4b	4c	4d	5a	5b	5d
	120	4	28	4	20	8	4	12	8	12	4	12	4
	82	100	89	25	100	75	50	83	38	83	100	83	75
	98	100	89	100	100	100	100	100	100	100	100	100	100
	80	50	68	50	100	75	50	83	75	100	100	83	75
	87	75	89	100	90	75	100	83	38	92	100	100	100
	69	100	75	75	85	63	50	50	50	50	100	67	75
	75	50	61	100	80	88	50	67	75	100	100	67	100
	93	50	89	50	100	100	100	83	100	100	100	100	100
	66	100	57	100	70	75	50	50	50	83	50	67	75
	88	75	86	50	100	100	50	100	50	92	100	100	100
	96	100	86	100	100	100	100	100	100	100	100	100	75
	94	100	96	50	90	100	50	100	100	100	100	100	100
	90	100	89	100	80	100	100	100	38	100	100	100	100
	83	25	93	50	80	100	100	100	75	75	100	67	100
	73	100	64	50	95	38	50	67	50	75	100	100	75
	96	100	82	100	100	100	100	100	100	100	100	100	100
	79	100	71	100	70	75	50	83	38	100	100	100	100
	89	100	86	75	100	75	100	83	88	83	100	100	75
	89	100	86	100	90	88	100	83	100	75	100	100	75
	79	100	75	50	80	63	100	83	88	75	100	83	75
	88	100	86	100	90	75	50	83	75	100	100	100	100
	73	100	71	75	75	75	50	67	75	67	100	67	75
	81	100	57	50	100	100	100	83	88	92	100	67	75
	82	75	75	100	75	75	50	100	38	100	100	100	100
	90	100	64	75	100	100	100	100	88	100	100	100	100
	97	100	96	100	100	100	50	100	100	92	100	100	100
	93	100	82	50	100	75	100	100	100	100	100	100	100
	94	100	82	100	100	100	100	100	75	100	100	100	100
	99	100	100	100	100	100	100	100	88	100	100	100	100
	93	100	93	50	100	100	100	83	63	100	100	100	100
	77	50	82	50	85	75	100	100	50	75	50	67	75

Ecology Test 2011-2012

Norm wanted to know if adding peat mass to sand would affect its ability to hold water. He put 200 mL of pure sand into container A. He put a mixture of 80% sand and 20% peat moss into container B. He put a mixture of 60% sand and 40% peat moss into container C. He put a mixture of 40% sand and 60% peat moss into container D. He added water to each container and measured the amount of water the contents would absorb. He dried the sand and peat moss and repeated the experiment 5 times. He collected the following data:

Can increase/decrease font size in the options menu

This is actually a picture that was inserted

Composition of Mixture	Water Holding Capacity (mL)				
100% sand	74	80	70	71	74
60% sand, 40% peat moss	86	88	90	92	94
40% sand, 60% peat moss	110	116	104	108	112
80% sand, 20% peat moss	84	82	86	82	84

Based on Norm's data, what can he conclude? (Sci Inq, 2e)

- Norm should conclude that the more peat mass that was added to the sand the less amount of water the mixture could hold.

- Norm should conclude that the peat moss had a negative affect on sand's ability to hold water, meaning the sand with peat moss held less water than sand alone.

- Norm should conclude that added peat moss had no affect on sand's ability to hold water.

- Norm should conclude that the more peat moss that was added to the sand the more water the mixture could hold.

Navigation buttons

Progress bar

So, how could you use these tools in a DI classroom?

Productivity Tools-Google Drive

Productivity Tools-Evernote (evernote.com)

JULY 18, 2012 · 1:26 PM

↓ Jump to Comments

Flipping The Classroom... A Goldmine of Research and Resources To Keep You On Your Feet

☆☆☆☆☆ ⓘ Rate This

The Flipped Classroom

Greetings from Boston and BLC12 (Alan November's Building Learning Communities Conference). If you wish to follow the happenings at BLC12 check out the hashtag #BLC12 on Twitter. Welcome to another post rich in resources on the Flipped Classroom. If you have come here looking for links that will guide you to videos and multimedia to use in a Flipped Classroom you will find that in the second half of this post. Perhaps you have tried a little Flip

21CenturyEdTech

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Flipping The Classroom... A Goldmine of Research and Resources To Keep You On Y

Web pages

Click to add tags

Click to add comment

Save Article

Productivity Tools-Diigo (diigo.com)

Productivity Tools-Diigo

So, how could you use these tools in a DI classroom?

Poster Makers-Glogster EDU (edu.glogster.com)

- Glogster is pretty, but…

- WebDoc [www. webdoc.com](http://www.webdoc.com)

- Infographics
- Easl.ly, Venngage, Piktochart

Presentation Tools-Animoto & Voicethread

- Animoto-watch example
- Voicethread:

Presentation Tools-Prezi

- See Example Prezi

Presentation Tools-Present.me
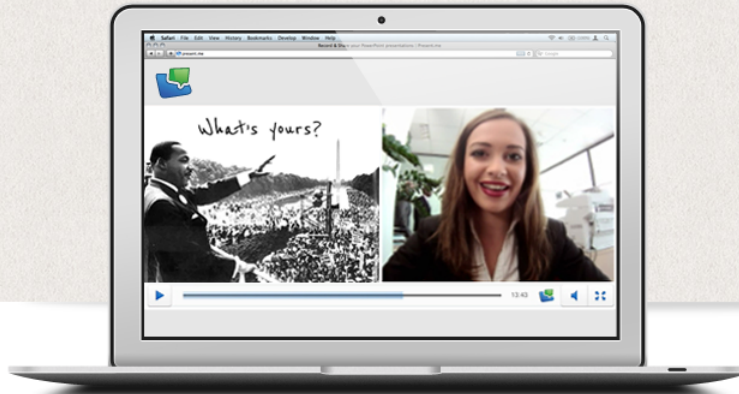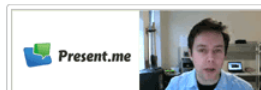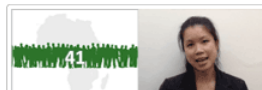
Presentation Tools-Qwiki (qwiki.com)

So, how could you use these tools in a DI classroom?

Mindmapping Tools-Wisemapping
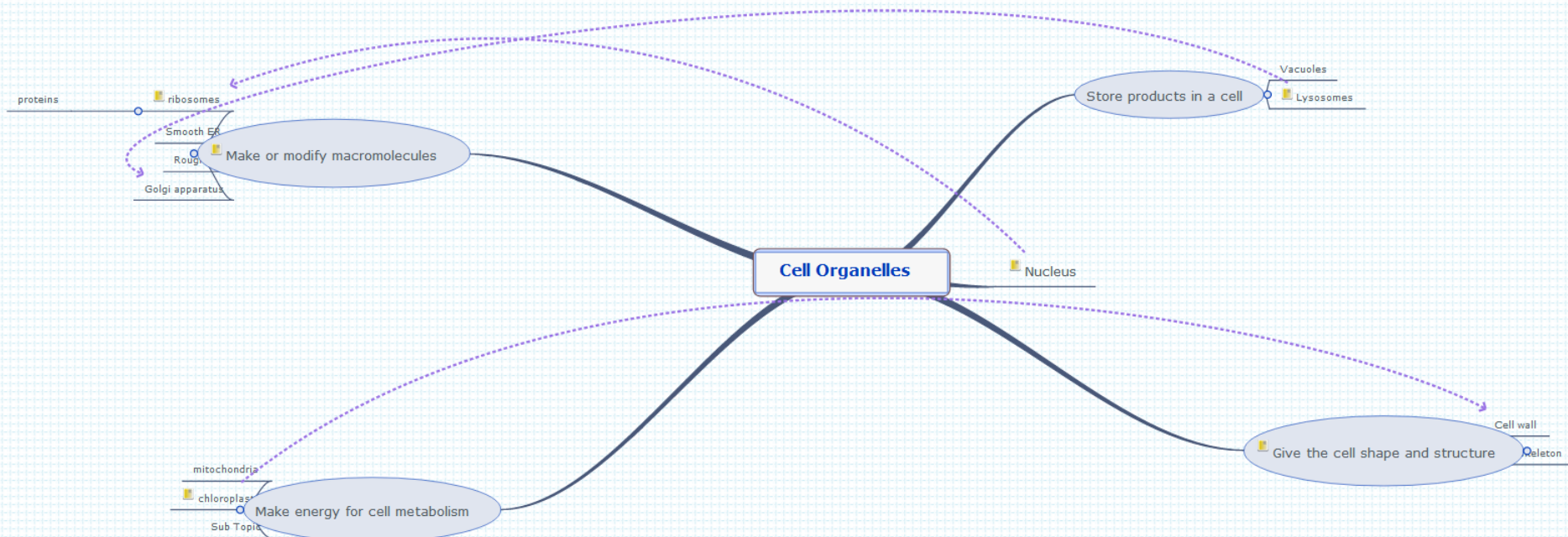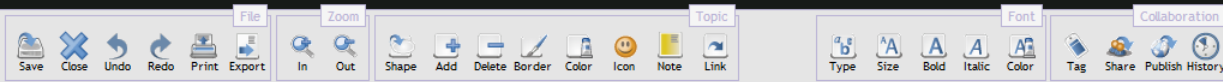
- www.wisemapping.com

Mindmapping Tools-Mindomo
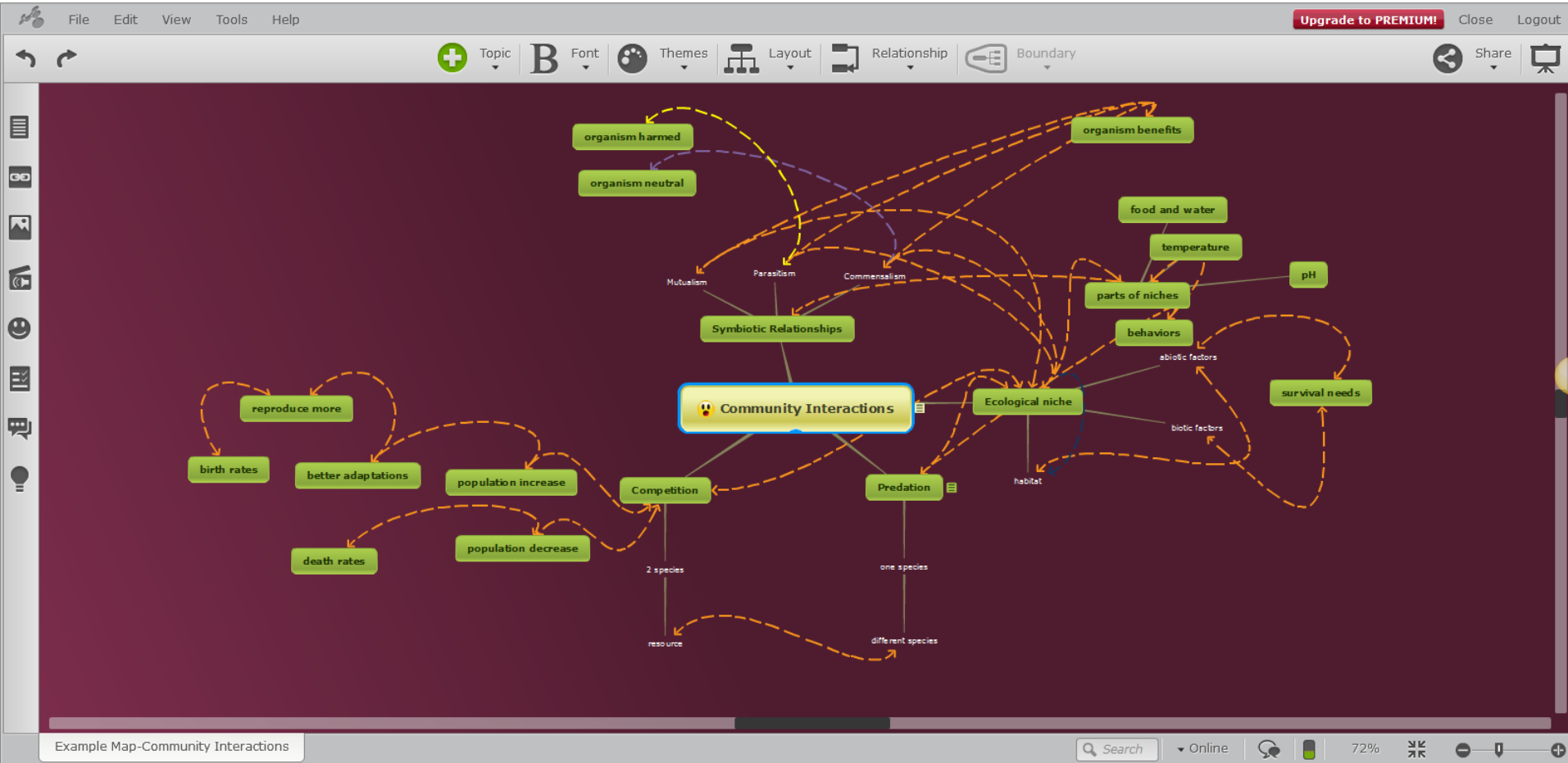
- www.mindomo.com

Mindmapping Tools-Creately

- www.creately.com

Mindmapping Tools-Popplet
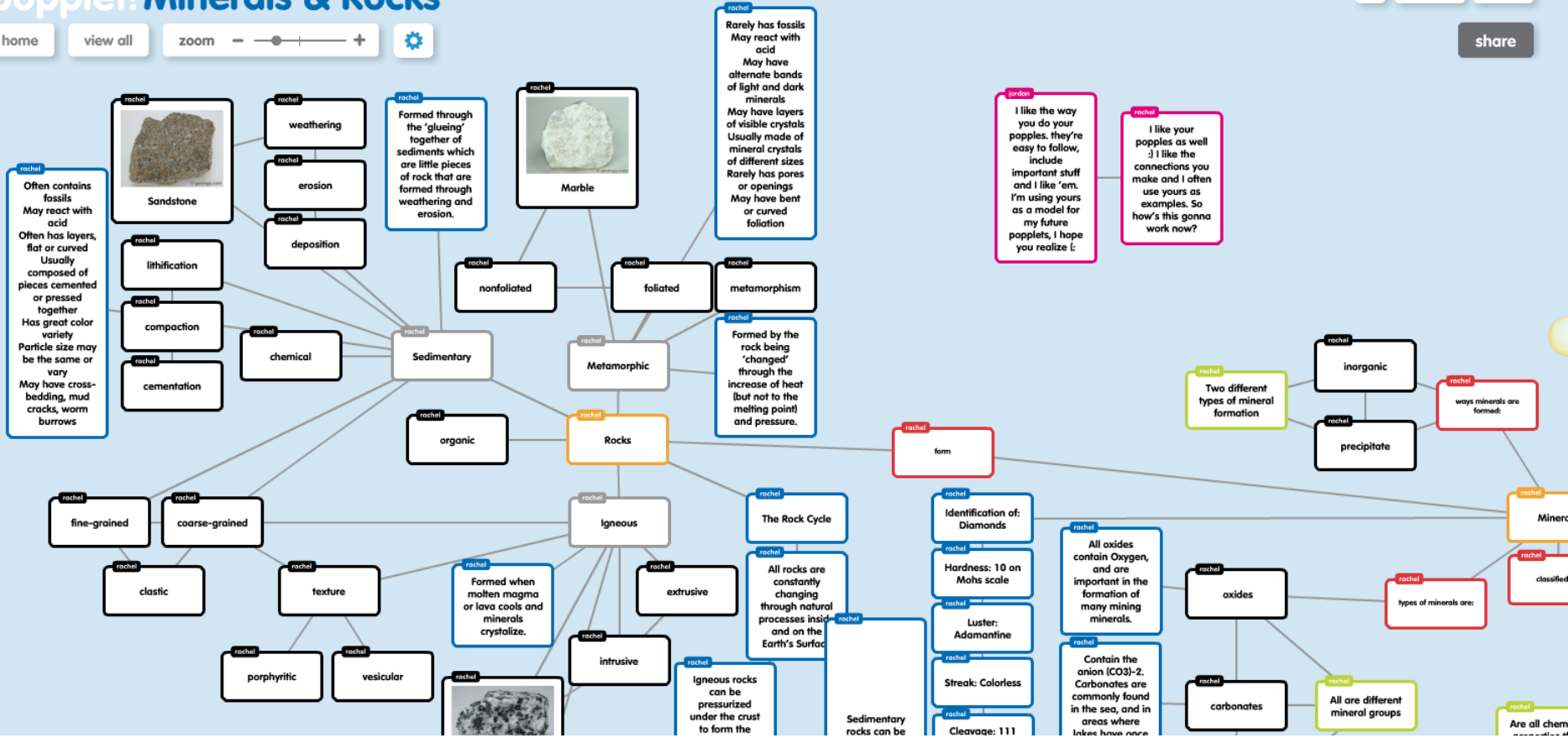
- Popplet.com

Photo/drawing/cartoon tools-Pizap

- Pizap.com

Photo/drawing/cartoon tools-Sumo
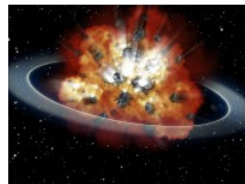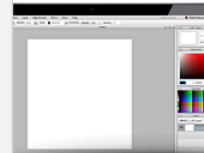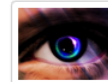
- sumo.fm

Photo/drawing/cartoon tools-Picmonkey
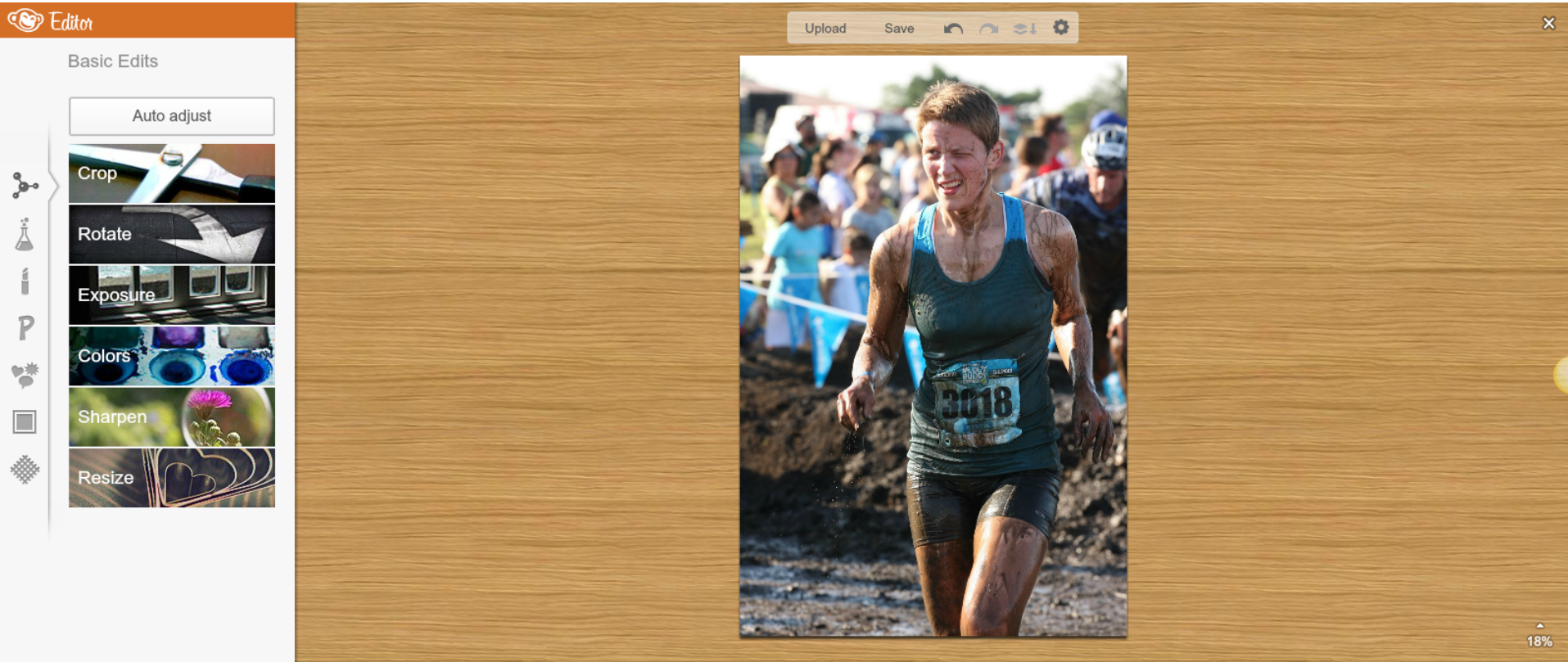
- picmonkey.com

Photo/drawing/cartoon tools-Pixton

- pixton.com

Photo/drawing/cartoon tools-ToonDoo

- toondoo.com

Photo/drawing/cartoon tools-KerPoof

- kerpoof.com

So, how could you use these tools in a DI classroom?

ePortfolios: Pulling it all together
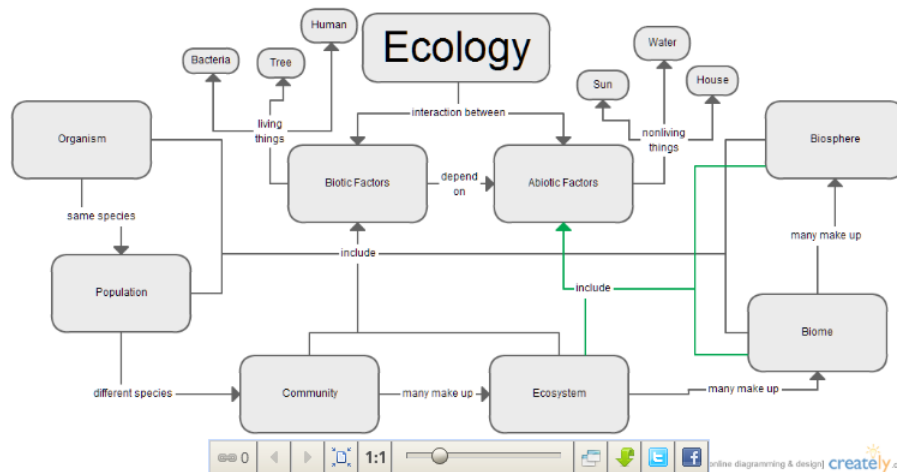
What if your students are new to tech?

cooltoolsforschools.wikispaces.com; thanks to @chrisludwig for the idea

Other Web **2.0** Resources

- Web Tools 4 You 2 Use
  - http://webtools4u2use.wikispaces.com/

- Go 2 Web 2.0
  - http://www.go2web20.net/

- K-12 Tech Tools
  - http://edutechdatabase.wikispaces.com/

- And there's many, many more…..

Getting students comfortable with tech

- Allow them some "play time" with each new tool

- If you want them to learn the tool--have them use the tool.

- Make or find tutorials for tools (YouTube and Twitter can be your best friends for this.)

- YOU DON'T HAVE TO KNOW HOW TO OPERATE EVERY TOOL.

Don't make the tool your learning goal.

- The goal of the lesson plan is to teach the targeted content and skills, NOT the tool

- Set up the right environment for learning, and students will learn to use the tool—because they need to learn it to master the content and skills.

- Plan for learning, including the right tools at the right time. (Sometimes the right tool is not a Web 2.0 Tool)

Determine the learning, then the tools.

- **WHAT do you want them to learn?**
- The KUDs (Refined through pre-assessing)
- Rigor--Creation, Evaluation, Synthesis
- Tech skills with thinking skills & content
- **WHY are they learning it?** Relevancy & connections
- **HOW do you want them to learn it?**
- What thinking skills do you want them to practice?
- Pick the tool(s) that do the job
- Pick a variety of tools according to student interest,
- readiness, and learning profile
- **HOW will you assess the learning?**
- Rubrics, presentations, traditional methods

21st Century Educators Don't Say, "Hand It In." They say, "Publish It!

--Lisa Neilsen, "The Innovative Educator"

Create, Synthesize, Evaluate, and….

Image courtesy of mediamolecule

Designing Technologically Differentiated Lessons

- Determine content & skills to be learned
- Write/plan assessments (Web 2.0 tool for final display of understanding?)
- Pre-assess on content & skills
- Plan the differentiated learning activities that are needed
  - Determine which Web 2.0 Tools will do the learning you require
- Plan for students to do the work of learning

Some Words of Advice…

- Backwards design of lessons
- Student creation of evidence of understanding
- It will not always go as planned
- Create a culture of "everyone gets what they need to succeed."
- You don't need to know how to use every tool.

Example 1: Process

I can categorize different forms of energy as either potential or kinetic and explain my reasoning.

Physical Science Activity

Example 2: Product Semester Assessments

- Creating [different products using a specific Web 2.0 Tool](#)

- Creating different products using the same web tool: [ePortfolios](#)
  - [Example #1](#)-Google site (variety of tools displayed)
  - [Example #2](#)-Voicethread

It's the student's job to provide evidence of understanding

Web 2.0 Tools allow students to choose how they display that evidence

Example #3: Choice
Demonstrating Advanced Mastery

- Students must provide evidence that they know, own, and can use/apply knowledge on their portfolios
  - [Directions](#)
- Get choice of how they do that and what tool to use

DO NOT allow students "free reign" on choice until they have been taught how to make the RIGHT choice for THEIR LEARNING

Example #4: Content/Readiness
PBL Unit: Paging Dr. You

- Problem: Find the cause of a little girl's death and explain the cellular complications that caused her death to the parents in a 5-minute presentation
- Directions
- Some students went very deep into the cellular explanations, others not so deep
    - But all students had to reach a pre-determined level of understanding (using activities that all did)
- Allows for students who are ready to delve deeper to do so

What did you learn today?

A final thought....

- ## Teaching well without technology is possible, but....

- "There can no longer be an "opt out" clause when dealing with technology in our schools...We need to prepare our kids to live in this world *now* and in the future. Change may feel hard, but it is part of learning. We expect it from our kids, we need to expect it from ourselves."
  - *--George Couros*

List of Related Citations

"Differentiating Instruction using Web Tools Kids Know & Love"

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Terie R. Engelbrecht

Ferriter, W. G. & Garry, A. (2010). *Teaching the iGeneration: 5 Easy Ways to Introduce Essential Skills Using Web 2.0 Tools*. Bloomington: Solution Tree.

Frey, N., Fisher, D, Gonzalez, A. (2010). *Literacy 2.0: Reading & Writing in 21st Century Classrooms*. Bloomington: Solution Tree.

Solomon, G. & Schrum, L. (2007). *Web 2.0: New Tools, New Schools*. Washington: International Society for Technology in Education.