



# Differentiating Instruction for Today's Learners

Terie Engelbrecht

@mrsebiology

RSCON3 July 30<sup>th</sup>, 2011

# 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*

---



# 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 & Differentiation

# 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
- ▶ 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?

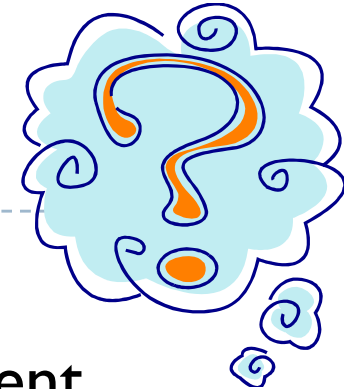
---

- ▶ **Asynchronous Learning**
  - ▶ Allows for different pacing
- ▶ **Teaching students various modes of interaction**
  - ▶ Some students more likely to interact online than in the classroom
- ▶ **Helps develop critical thinking in an online environment if tasks are designed correctly & proper tool used for the intended learning**
- ▶ **Access to resources inside and outside of class**
- ▶ **Puts the work of learning on the student**
  - ▶ Creation, not memorization
- ▶ **Promotes a differentiated learning mindset**



# 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.

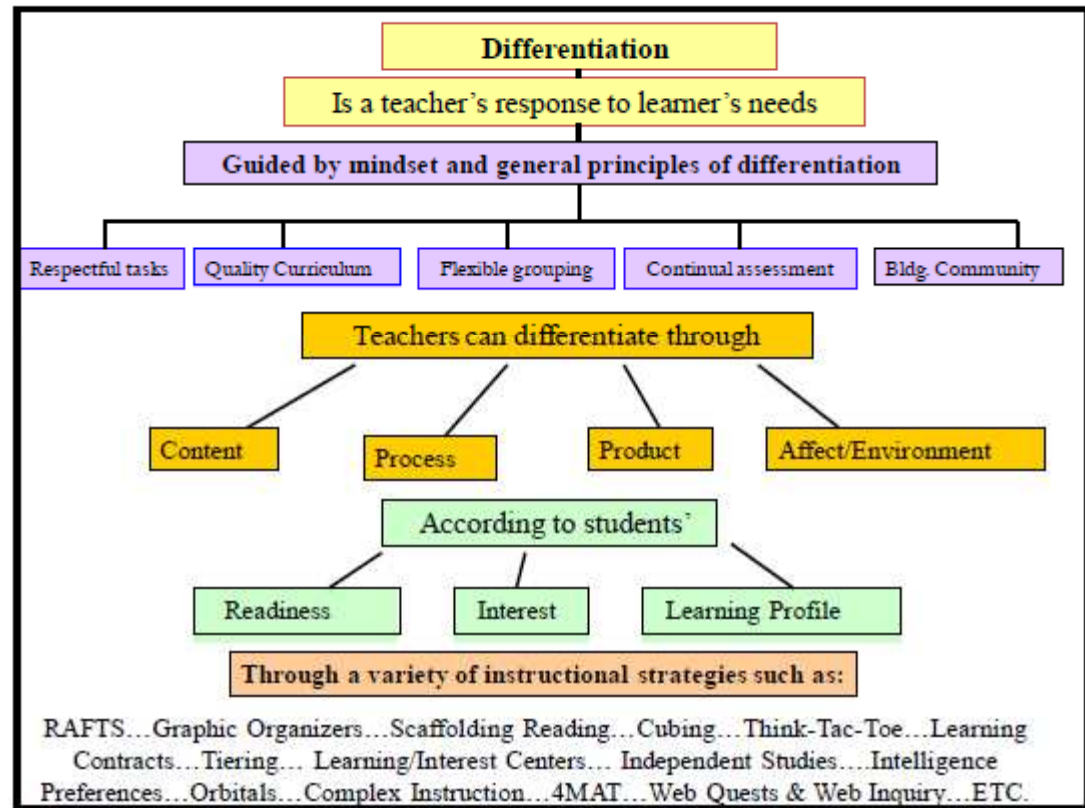
D = Meeting students where they are with challenging tasks.



# Differentiation is...

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

**It's a MINDSET**



Retrieved from: [http://www.caroltomlinson.com/Presentations/Amherst\\_Secondary.pdf](http://www.caroltomlinson.com/Presentations/Amherst_Secondary.pdf)



# 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
  - ▶ Building relationships
  
- ▶ *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



# Differentiation Principle #3

---

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



## What you need to remember is...

---

- ▶ Different web tools will challenge learners to think in different ways.
- ▶ It's up to the teacher, based on their students, to pick the right tool for each learner.



What web 2.0 tools are you familiar with?

---



# Differentiation & Web 2.0

Examples

Resources

# What tools do what jobs?

The image is a screenshot of a Wikispaces page. At the top, the title "Web 2.0: Cool Tools for Schools" is written in large, green, stylized font. Below the title, there is a navigation bar with "home", "Protected", "page", "History", and "notify me" buttons. A sidebar on the left lists various tool categories: Home, Presentation Tools, Collaborative Tools, Research Tools, Video Tools, Slideshow Tools, Audio Tools, Image Tools, Drawing Tools, Writing Tools, Music Tools, Organising Tools, Converting Tools, Mapping Tools, Quiz and Poll Tools, Graphing Tools, Creativity Tools, Widgets, and File Storage & Web Pages. The main content area features a photograph of a classroom where students are sitting at a table with laptops, engaged in a collaborative activity. Overlaid on this photo is green text that reads: "and learners who are connected, motivated, global citizens, literate, lifelong, confident, collaborative, independent, engaged, communicators". The bottom of the screenshot shows a Windows taskbar with several open applications, including "TweedDeck", "cooltoolsforscho...", "Technology As Th...", "Track and Field -...", "TedSmith | Snag...", "Digital Science Mo...", and "Microsoft PowerP...". The system clock in the bottom right corner shows "11:43 PM".

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

# Determine the learning, then the tools.

---

## WHAT do you want them to learn?

The KUDs (Refined through pre-assessing)

Rigor

## WHY are they learning it?

Relevancy

## 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 it?

---





# 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)**



## Example 1: Write vs. Draw (mix)

*I can make connections between events in the cell cycle.*

---

- ▶ Choose ONE of the following activities below:

--Write a story that matches ONE of the titles below. Do this in Google Docs. When you are finished, share it in Google Docs with another person of your choosing. Make sure you include the phases of mitosis in your answer. Have them score your understanding of all the I can statements, and then give you feedback on how you can improve your understanding.

*A Day in the Life of Sarah Skin Cell*

*A Day in the Life of Ned Neuron*

HINT: You may have to do a little research about those types of cells before you write your story!

OR

--Go get some colored pencils and a blank copy of the cell cycle diagram. Choosing one of the titles above, DRAW your story on the blank cell cycle diagram. Illustrate each part of your story (which should line up with the stages of the cell cycle) as well as write what's happening to your main character. Include the phases of mitosis in your story. Have another student look at it, score it, and give you feedback on how to improve your understanding of the I can statements.

The story should show your understanding (not memorizing) of the answers to Objectives #2b & c. **You will be assessed on how well you make connections between concepts, not how well you simply answer the I can statements.**

---



# Example 2: Differentiated Final Exam

*Goal: Create connections that show evidence of synthesis, evaluation, and analysis of concepts.*

---

## ▶ **CHOICE #1: Create a Blog**

Create a blog using a free blogging site. Blogger, WordPress, or Weebly are all good sites to start a blog. You must write 6 posts—a post for each unit listed above stating connections between all the I cans in that unit, and 1 post that discusses connections between the 5 units above. Make as many quality, Level 4 connections as you can. See [this site](#) for help on writing good blog posts. Have your fellow students read your blog posts and comment on how well you made connections between the I cans, and what could be improved upon. E-mail Mrs. E the link to your blog when you are finished.

## **CHOICE #2: Create Diigo Lists**

Create your own Diigo lists for each of the unit above, finding resources that go beyond the I cans to help enrich your learning. You must have at least 3 resources per unit. Read each page, highlight, and sticky note the pages with how this information is connected to the I cans, but also how it goes beyond them. (By "going beyond them," I mean what questions do you have about the content? What questions do the sites answer for you? What other ideas does the content on the page bring to mind?) Share your lists with Mrs. E by either sharing directly with her using [mrsebiology@gmail.com](mailto:mrsebiology@gmail.com), or by sending her the links to your lists (make them public if you do this). See the video below for how to create lists and share them using Diigo.

## **CHOICE #3: Create a Prezi**

Create a free Prezi account at [www.prezi.com](http://www.prezi.com) if you don't already have one. View their tutorials to learn the basics, and create a Prezi that connects and goes beyond all of the I can statements we have studied this semester. You can think of original connections, or do research and summarize that research in the prezi, being sure to point out which concepts/I can statements are connected.

---



## Example #3: Differentiating Advanced Mastery Tasks

*I can demonstrate how cell transport concepts are connected to how organisms live.*

---

Redesign a frog's lungs at the cellular level to help them overcome their lack of surface area design flaw. The relationship between surface area, volume, surface area-to-volume ratios, cell size, and cell transport efficiency should be shown implicitly in the redesign itself, and should reflect the fact that the student did some independent research. Make a diagram using Google Drawings, and annotate the drawing with labels and explanations. Then, create a story in Google Docs of how amphibian evolution could produce amphibians with your lungs.

OR

Design an experiment (in other words, fill out the first two pages of the Lab Write-Up Form) that answers this question: How would heat transfer differ between two people of the same volume—one person being tall and thin, with long arms and legs, and the other person being short with thicker and shorter arms and legs? Do this collaboratively in Google Docs.

---



## Example #4: Options within options (basic)

*I can sequence and describe the steps of meiosis.*

---

- ▶ Using bubbl.us or Popplet, map out the steps of meiosis, inserting pictures (that you draw!) or descriptions.

OR

- ▶ Using a PowerPoint or Google Presentation, create an adventure story that puts the stages of meiosis in order and describes what happens in each stage. Pick a main character, and then think about what could happen to him/her. Your main character cannot be human!



## Example #5: Options within options (complex)

*PBL Unit: How can the fossil from the story be our future?*

---

Students are working to answer the driving question by making an informative booklet or timeline. The booklet can be a paper booklet, or it can be created in Word, saved as a PDF (upload it into Google Docs and then save it as a PDF from there) and uploaded into [Flipsnack](#). Another online booklet maker you can try is [simplebooklet](#), which is very easy to use. The timeline can be created on paper as well, or made using [Capzles](#) or [Popplet](#).

It is up to each team to decide how to answer the question; each team will follow a different path in their reasoning and execution. One thing all teams **MUST** have is a plan that involves:

- 1) A summary of the answer to the question
  - 2) Independent research on what they need to know
  - 3) Seeking help on some need-to-knows from the instructor
  - 4) Steps in how the final product will be created that demonstrates their understanding of the connections between the I can statements.
- 



# What do the examples have in common?

---

- ▶ Focus on the learning goal, not the tool
- ▶ Respectful tasks
- ▶ Geared toward learning styles and ability
- ▶ Challenging all learners at their level
- ▶ Improving student technical literacy
- ▶ Allowing students to practice thinking skills



What did you learn today?

---





# THANK YOU!

---

Terie Engelbrecht-Marengo Community High School #154  
Marengo, IL

- ▶ E-mail: [mrsebiology@gmail.com](mailto:mrsebiology@gmail.com)
- ▶ Twitter: @mrsebiology
- ▶ Skype: mrsebiology
  
- ▶ Blog: [www.crazyteacherlady.com](http://www.crazyteacherlady.com)
- ▶ Biology website: [www.mrsebiology.weebly.com](http://www.mrsebiology.weebly.com)

