Visual Learning: Turning our Lessons, Classroom & Schools into

A Virtual Vista

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“Time is your enemy” – too much or too little in the classroom

3 Parts: Pedagogical basis – using visualization in teaching - research says…

Audience Participation

Hands on

Language is the key to successful teaching > AER publication

* Language use in content areas: not common in practicum areas

Look for sample Marketing ad: BICKS – helping kids cheat since 1965 (polynomial equations on their hand)

PART 1 – the visual competition (loose students in 3-5 minutes)

Commits to cell phones to fetal pig motel

Always use more than one copy of a test – guarantee your test will be circulated

A student memorized all answers but got them in the wrong order

“Exam view” - McGraw Hill, Nelson (other name) – software for test generation ($150/CD)

* Do we have this at Killarney?
* Select questions in the test bank or add your own – MC/matching/blanks
* Tell it to generate a 2nd test

Videos – always download first – prior to playing

History Channel – fake moon landings???

**AUDIENCE PARTICIPATION TIME:**

* Seeing is believing
* Most of what we say is “seeing based” but teaching is based on talking

What is visual learning – a set of teaching methods, which ideas, concepts , data and other info. are represented graphically – make it VISIBLE !!!

Represent ideas/concepts/procedures VISUALLY

Make info. More visually appealing to students – present spatially, students focus on MEANING, ORGANIZING & RELATIONSHIPS. Improves students performance in the following areas:

1. Critical thinking (connections, relationships and recall details)
2. Information retention
3. Comprehension
4. Organization – students can organize info. for themselves

Increased retention, thinking and learning, comprehension

Flowcharts, graphic organizers,

Graphic.org

W5 chart – **W6 chart (Wow!)**

Ask them the W 5 – where’s the WOW for you! What impressed you? – easy way to tell if cheating

Comparison – attribute matrix

* Characteristics (on top) – not memorizing – comparing & categorizing

e.g. ????

* Items to be compared e.g. person, dog, cat, fish e.g. Energy – wind, water, sun, oil

Gr. 10 – radioactivity hardest to teach

Gaphic.org - BILL , RAMONA, NIGEL

Schema theory of Learning > memory , networks of info.

Great for ELL and other students:

Visual Math Dictionary teachers.ash.org (Visual Math Dictionary)

+ Science visual Dictionaries - Wolfram

Dual coding theory – more inputs into the brain, the more retention

WHAT IS YOUR GOAL AS A JUNIOR SCIENCE TEACHER?

* Get them into senior sciences (they only need 1 higher level science)

**HANDS ON** – part of workshop

Goal: Try to do cross-curricular info. with other teachers. Socials 8,9,10,11 / Language Arts

It’s amazing how much of socials can relate with science. (Viruses, resources, epidemics)

Important to learn about elem. Science curriculum

PART 2: Classroom Connections – not being critical of colleagues

* Create a visual potpourri
* Magazines: The Science Teacher (posters)
* Conferences - free posters – Catalyst (Oct. 23) Cambie Secondary School

BCTF new teachers conference (3-5 years or under)

* TL display there?

Periodic table CLOCK w/elements

Literary Genius Award - Senteacher.org/certificates “Sen Teacher”

This award is presented for your outstanding achievement in \_\_\_\_\_\_\_\_\_\_\_\_over the past half-term

**CREATIVITY PROJECTS –**

Body systems Unit & nutrition – mind map – different form of art (Science 8 – body systems summary)

Concept mapping – limited by vocabulary

1. Assign 1 student to do respiration & breating
2. 1 nutrition & fat
3. Digestion
4. Circulation breathing

Only assign accountable work - Don’t end lesson with go home & read your notes – no accountability, no marks – why bother?

Advanced mind-mapping – if a concept appears more than once in the mind map (they draw a link between the two concepts saying their relation)

YOUR CHOICE – bonus marks

BIOGRAPHY of a NOBEL PRIZE-WNNING FEMALE SCIENTISTS

* Not limited to science – not only the work of the scientist, but events during the world when the scientist lived. Famous poets, musicians,
* E.g. Barbara McClintock (1983) under-representation of women
* Marie Geppart-Meyer (atoms)
* 50% of students are women (enrollment in science at UBC is over 50%)
* E.g. UBC Engineering classes (40:60) F:M – more males dropped out

October – Nobel Prize month

Story of how the Nobel Prizes came to be – wealthy inventor of dynamite – relation died and papers thought that he died. Money from all Nobel Prizes – interest on the money he donated (principal is untouched)

DISPLAYS – OCT. Nobel Prizes – invite classes to come in to library to see winners of the past.

Example #2 – NAME THAT NUTRIENT!! Nutrient Advertising Project

Your group has been given the opportunity to manufacture o/ sell a food product. Your product will contain the ntrutient that you have bene studying. Research the ingredients –

**Your Choice / OPTIONS / Special Features (add to rubric)**

* Ask students if they have any ideas –
* Choose at least 1-2 items (then they will blow your mind away of the quality of the work)
* Alter brochure shape, special features of your store, restaurant, factory selling their project
* Games / puzzles (not a word search) OK for crossword puzzle
* Actual photographs of store employees/ job description

BANNED LIST: 4 G’s – get, got, guy, gonna

PRIDE – stands for…

Pupil, Responsibility In Daily Exercises / Experiments

Language Arts is very important – includes editing, (words, sentences, paragraphs), proof-reading, spelling, grammar) submitting the original evaluation page with your project and special creativity.

**CPR Official Railway Board Game**

You have just been hired to construct a railroad board game to help our customers pass their time across Canada

e.g. Congratulations you have been hired by BC Educational Gaming Associationi to create a board game

1. main ones: Circulation. Digestion, Respiration

Criteria for Game Board:

1. Creative title 2. Game path 3. Question cards 4. Game rules 5. Package of hand-made playing pieces

Give signposts – 2 classes from today (I want to see…)

Consider giving no homework or little homework when a large project is in progress (assign 3 weeks in advance)

Collaborative Approach –

Group accountability

Important to have students reflect at the end and fill in a circle representing their contributions (out of a whole) 25% vs. 50% vs. 100%

“Creativity Rocks” – sample creative projects in science

Solar System Scenes & Planet Plays –

Digital Life Cycle of a Start

Biology Project as a CD – European robin f: An extraordinary singer

First Aid Kid (vs. Kit) Make a book in cartoon format.

CONSTRUCTIVISIM IN THE CLASSROOM

Elicitation “mini-poster:”

1 format: Four squares: What do students already know about a topic (4 things)

2) Trapezoids – A. What do we already know? B. What do I want to know? C. W

3) Draw what you think what the heart and circulatory system looks like

I want to know what you know about Astronomy? A, B, C, D

What do I know about this project? What do you want to learn about this unit?

Save the reflection (mini poster). Turn it over at the end of the unit, draw what they learned.

SCHOOL SOLUTIONS: Display student projects throughout the school

* Install bulletin boards and display cases ( buy for Killarney)

STDs – science & technology display project – won a Reader’s Digest national display project

Students built a display case (Oct. – display March/April/May) Changed every two weeks.

Diorama – plus announcements “This weeks display projects are up” on 2nd floor (3 display cases)

e/g/ students built a cardboard bridge, volcano, cardboard camera built into the display case,

Find a company doing something in the community related to their project

Pre and Post teaching comparison – demos learning progress

CEEBRATION OF LEARNING – integrated learning - evening celebration for all Gr. 9 students

Grade 9 English & Science students collaborated – Journals for all science experiments

English students had to produce a magazine/journal – Science students produced a science fair type projects

Opened the school – parents, friends, visitors came into the school to celebrate English and Science, Einstein’s Birthday

Scientists, explorers, athletes, artists, musicians, politicians in the schools,