

**Metaphors &
Analogies:
Power Tools
for Teaching
any Subject**

Rick Wormeli
rwormeli@cox.net
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"We went to school. We were not taught how to think; we were taught to reproduce what past thinkers thought....Instead of being taught to look for possibilities, we were taught to exclude them. It's as if we entered school as a question mark and graduated as a period."

-- Michael Michalko, *Creative Thinking*, Michalko, 2011, p. 3

"Square peg pushed into a round hole" metaphor as a student trying to learn in a factory model classroom...

I have two fears about formative assessment: First, unless we're careful, it will become a buzz phrase lost to the cacophony of jargon that surrounds every teacher, generating indifference. Second, there are many educators who think they are incorporating formative assessment when they are not. This spreads cynicism on what should be a very healthy and non-negotiable tool of learning. Let's do what we can to make sure these fears don't see the light of day.

True formative assessment is not safe or passive; it provokes. It compels a response in the teacher and student. "You earned a 92%, Joel," says the teacher as she passes back test papers. "Better than most of the class." Here, there's no spark that ignites further contemplation. There's no specific feedback, no invitation to engage with the results or the material any further. The assessment was instructionally inert.

Metaphors Gone Bad...

Ms. Green: So these elements were stacked in concentric sets like Babushka dolls.

Student #1: Like what?

Ms. Green: You know, those wooden dolls from Russia many of us played with when we were younger. They looked like "Weebles."

Student#2: Weebles? What's a Weeble? I never had a Weeble or a wooden doll, Ms. Green.

Student #3: How do you say it, "Bab-ush-ka?" That sounds alien.

Metaphors Gone Bad...

Ms. Green: Well, how about that magic trick with cups and red, foam balls -- you know, when you stack them?

Student#1: I always wondered how they get the balls through the bottoms of the cups.

Student#4: I haven't seen that trick. Can you do it now?

Student #1: What's "concentric" mean?

Ms. Green: You know, like circles on an archery target. Okay, let's take a look at tonight's homework...

Grades are ?

Look Around your Classroom and Give it a Shot...

- Is that coffee cup a soothing friend or a catalyst for creativity?
- Is the open classroom door an invitation for the rest of the world to join in your discussion, or is it a momentary lapse in security?
- Is the computer sitting in the corner gathering dust an albatross around your neck, or does it represent emancipation from tedium and conventional practice?

From Professor Alane Starko in her book, *Creativity in the Classroom*:

Gutenberg developed the idea of movable type by looking at the way coins were stamped.

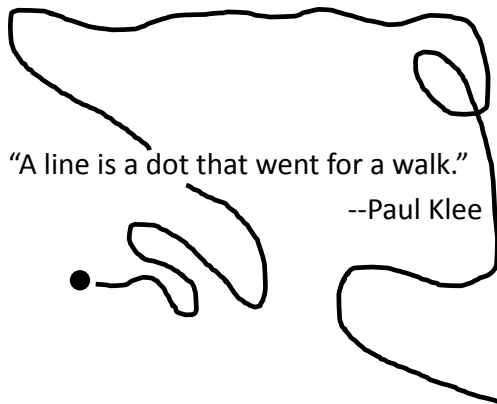
Eli Whitney said he developed the idea for the cotton gin while watching a cat trying to catch a chicken through a fence.

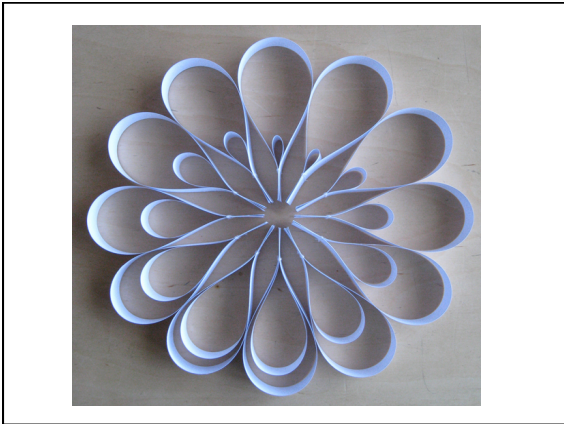
Pasteur began to understand the mechanisms of infection by seeing similarities between infected wounds and fermenting grapes.

Einstein used moving trains to gain insight into relationships in time and space.

“Consider Einstein’s Theory of Relativity. He did not invent the concepts of energy, mass, or speed of light. Rather he combined these ideas in a new and useful way.”

-- Michael, Michalko, *Creative Thinking*, Machalko, 2011, p. xvii,





"The assignment: Build a [paper-based data visualization](#), as directed by the [infosthetics.com](#) website...The inspiration: Strips of paper discarded next to the school's paper trimmer. My yearning for sunlight.

"Description: I currently live in Umeå, a city at latitude 63° 50' N in northern Sweden. Our winter days are short and summer days are long. Using the actual and predicted lengths of daylight for the first of each month in 2009, I created a visualization with 12 "petals". The outer loop of each petal represents the 24 hours in the day; the inner loop is the length of daylight, ranging from 4h 33m on January 1 to 20h 34m on July 1. The white thread where the loops are joined is the start/end point. Each outer loop is 24 cm from start to end point, representing 24 hours. The inner loop for January is a little over 4.5 cm, representing the 4h 33m. When assembled, like a clock, the top loop is 12 (December 1); the bottom one opposite it is 6 (June 1).

"I like how the simple lines suggest the passing of time and the cycle of the months as well as the promise of spring to come. There are multiple flower forms suggested, from the symmetrical outer petals to the drooping flower formed by the inner loops, to the spikier poinsettia-like flower formed by the negative space in the middle."

From: <http://infosthetics.com/archives/2009/02/paper-based-visualization-competition-the-winner-and-more.html>, and from, www.charlenelam.com

- Let's frame today's conversation...
- I'm a bit rusty on this...
- Let's peel away the layers and see what lies in the center.
- It was anarchy in the cafeteria!
- There was an upturn in the economy.
- Breaking news...
- Are you on the fence about it?
- Attack the arguments, not the person.
- If $x = 2$ and $y = 4$, what does $3x + 6y$ equal?
- Toss the idea around.
- The sinking of the Lusitania was the catalyst for...
- You need to have parallel structure in this sentence
- Wouldn't it be great to harness the power of the sun?
- What's our benchmark for this standard?
- How many main body paragraphs do you have?
- We're not on the same wavelength.
- Can I grab two minutes of your time today?
- This is a lot to absorb.
- I was floored by his behavior.
- Google it.
- Endoplasmic Reticulum is like the circulatory system of the cell.
- What's the root of the word?
- Do you get the point of this?

Examples from Around the School

- “Notice how the integer number line is similar to a thermometer turned on its side.”
- “Let’s frame the argument.”
- “Stop acting so squirrely.”
- “This character is explaining that innocence is fleeting, almost like the wisp of a cloud suddenly caught in a breeze. It dissipates completely and often without notice.”

Consider devoting space on a bulletin board for a display of the collected samples, and encourage students to read and comment on the choices.

From Friedrich Nietzsche:

Metaphor is humanity’s greatest flaw because of its subliminal power to persuade people into believing it on its own terms.

– As summarized from Marcel Danesi, Poetic Logic, 2004

Historian and war veteran Paul Fussell, *The Great War and Modern Memory* (Oxford University Press, New York, 2000) notes that British soldiers and the media used diction during World War I that was as heavy-handed as Arthurian legends. In the vernacular of the times, “horse” became “steed,” “danger” begat “peril,” and dead soldiers were memorialized as “the fallen.” (pp. 21-22). Such persuasive metaphors glossed over the war’s true brutality.

Metaphor

From the Greek, *metapherein*, which means "to transfer" and "to bear" (*Merriam-Webster's Collegiate Dictionary, 11th Edition, 2004*).

We "transfer" or "bear" one concept/object/attribute to another, comparing something in one domain with an element in another domain. By domain, we refer to the larger categories or themes into which items fit. A metaphor re-imagines or re-expresses something in one category (domain) in terms of another category (domain) to clarify or further thinking: "She is my rock." "That test was a monster." "Reading those books created my ladder of success."

Good metaphors give us *new* information (Glucksberg, 2001), not the same information. They don't restate the obvious: *cars are like automobiles*. To be useful, they must provide fresh perspective or insight: *My son's car is a sports locker on wheels*.

Consider this, too: In order to be a good metaphor, they must factually be false!

"Mathematics is not a way of hanging numbers on things so that quantitative answers to ordinary questions can be obtained. It is a language that allows one to think about extraordinary questions...getting the picture does not mean writing out the formula or crunching the numbers, it means grasping the mathematical metaphor."

- James Bullock

“Metaphor is often used as a teaching tool, or to convey difficult concepts,Since metaphor allows for the substitution of ideas across differing areas of study, it is considered by some to be an interdisciplinary **Rosetta Stone.**”


-- from <http://knowgramming.com/metaphor>

Moving Content into Long-term Memory

Students have to do both,

Access → Sense-Making

Process → Meaning-Making



We think primarily in physical terms. Over time we become adept at translating symbolic and abstract concepts into meaningful structures or experiences.

Have Some Fun – Anything Can Be A Metaphor!

An apple

- a star (the birth place of energy on our planet) in the middle (the seed pattern makes a star if we cut it the right way)
- we must break the surface to get to the juicy good parts
- the outside doesn't reveal what lies inside
- the apple becomes soft and mushy over time
- the apple can be tart or sweet depending on its family background
- its parts are used to create multiple products

A cell phone

- lifeline to the larger world
- an unapologetic taskmaster
- an unfortunate choice of gods
- a rude child that interrupts just when he shouldn't
- a rite of passage
- a declaration of independence
- a secret language encoder (text messaging abbreviations unknown to adults)
- delineation of generations

A pencil sharpener

- Whittler of pulp
- Tool diminisher
- Mouth of a sawdust monster
- Eater of brain translators
- Cranking something to precision
- Writing re-energizer
- Scantron test enabler

Railroad

- Circulatory system of the country
- Enforcer of Manifest Destiny
- Iron monster
- Unforgiving mistress to a hobo
- Lifeline
- Economic renewal
- Relentless beast
- Mechanical blight
- Movie set
- A foreshadow of things to come
- A hearkening to the past

Curtains

- Wall between fantasy and reality
- Denied secrets
- Anticipation
- Arbiter of suspense
- Making a house a home
- Vacuum cleaner antagonist
- Cat's "Jungle Gym"

Students must have a frame of reference to understand the metaphor:

"He flozzled his Website."

-- Is this a good or a bad thing? We don't know.

"He flozzled his Website, and the fallout was considerable."

Activate or create the prior knowledge needed to make sense of instructional metaphors!

With hocked gems financing him,
Our hero bravely defied all scornful laughter
That tried to prevent his scheme.
Your eyes deceive, he had said;
An egg, not a table
Correctly typifies this unexplored planet.
Now three sturdy sisters sought proof,
Forging along sometimes through calm vastness
Yet more often over turbulent peaks and valleys.
Days became weeks,
As many doubters spread
Fearful rumors about the edge.
At last from nowhere
Welcome winged creatures appeared
Signifying momentous success.

-- Dooling and Lachman (1971)
pp. 216-222

***Which one leads to more learning
of how microscopes work?***

1. Kellen plays with the microscope, trying out all of its parts, then reads an article about how microscopes work and answers eight comprehension questions about its content.
2. Kellen reads the article about how microscopes work, answers eight comprehension questions about its content, then plays with the microscope, trying out all of its parts.

Creating Background Where There is None

- Tell the story of the Code of Hammurabi before discussing the Magna Charta.
- Before studying the detailed rules of baseball, play baseball.
- Before reading about how microscopes work, play with microscopes.
- Before reading the Gettysburg Address, inform students that Lincoln was dedicating a cemetery.

Creating Background Where There is None

- Before reading a book about a military campaign or a murder mystery with references to chess, play Chess with a student in front of the class, or teach them the basic rules, get enough boards, and ask the class to play.
- In math, we might remind students of previous patterns as they learn new ones. Before teaching students factorization, we ask them to review what they know about prime numbers.
- In English class, ask students, *"How is this story's protagonist moving in a different direction than the last story's protagonist?"*
- In science, ask students, *"We've seen how photosynthesis reduces carbon dioxide to sugars and oxidizes water into oxygen, so what do you think the reverse of this process called, 'respiration,' does?"*

"To a person uninstructed in natural history, his country or seaside stroll is a walk through a gallery filled with wonderful works of art, nine-tenths of which have their faces turned to the wall."

— Thomas Huxley, 1854

Expertise aids metaphor genesis and understanding. (Physics students example)

“Every age has a keyhole to which its eye is pasted.”
-- Mary McCarthy, 1953

Process for Generating Metaphors and Analogies

1. Break the topic into its component pieces.
2. Identify comparisons with the topic that are relevant to students’ lives, making abstract ideas as concrete and personally affecting as possible. Create a common frame of reference in students if necessary.
3. “Test drive” the metaphor or analogy with others whose opinions you trust. Make sure the person can identify the metaphor and message on his own.
4. Double-check that the metaphor or analogy furthers your cause, won’t confuse students, and actually adds to instruction instead of weakens it.
5. After using a metaphor or analogy, ask students to evaluate its helpfulness.

Metaphors – Analysis Chart

- **Symbol to Represent**
- **Explanation of Symbol**
- **How this Symbol Connects to Character/Event**
- **Passages Cited to Support this Connection**

-- Based on an idea from Kelly Gallagher’s *Deeper Reading*

_____ is (are) a _____
 because _____.

Ask students to include something intangible, such as suspicion or an odyssey, in the first blank. The tangible comparison---a combination lock or an elliptical trainer---would fit in the second section.

Ask students to justify their choices:

"Suspicion is a combination lock because it secures a possession's well-being that cannot be assured through trust alone. Odyssey is an elliptical trainer because it has a beginning, middle, and end, and along the way, we encounter moments of endurance, doubt, despair, and elation, leaving comfort and returning again."

Questioning the Metaphor

Find a way to improve the metaphor or analogy:

"Man has been here 32,000 years. That it took a hundred million years to prepare the world for him is proof that that is what it was done for. I suppose it is. I dunno. If the Eiffel tower were now representing the world's age, the skin of paint on the pinnacle-knob at its summit would represent man's share of that age; & anybody would perceive that that skin was what the tower was built for. I reckon they would. I dunno. - "Was the World Made for Man?" (from, www.twainquotes.com)

Metaphors Break Down

"You can't think of feudalism as a ladder because you can climb up a ladder. The feudal structure is more like sedimentary rock: what's on the bottom will always be on the bottom unless some cataclysmic event occurs."

-- Amy Benjamin, *Writing in the Content Areas*, p. 80

"A classroom is like a beehive." Where does the simile sink?

- Students are not bees.
- Students have a variety of readiness levels and skill sets for completing tasks. Bees are more uniform.
- Students don't respond blindly or purely to the pheromones of the queen bee.
- Students are busier throughout the day and night than bees.
- Students don't swarm when angered.

How Do these Metaphors Fall Apart?

1. Life is like an apple tree.
2. The structure of an essay is like a hamburger.
3. The lawyer harvested the information from three witnesses.
4. She broke the glass ceiling.
5. Cancer is an unwelcome house guest.
6. Eyes are windows to the soul.
7. Urban renewal was the engine that powered the committee.
8. Their conversation was as risky as Russian roulette.
9. That remark was the tipping point in the debate.
10. The purpose of a neuron's myelin sheath is the same as the Police Department's motto: To serve and protect.

- Analyze...
- Revise...
- Decide between...
- Why did...
- Defend...
- Devise...
- Identify...
- Classify...
- Define...
- Compose...
- Interpret...
- Expand...
- Develop...
- Suppose...
- Imagine...

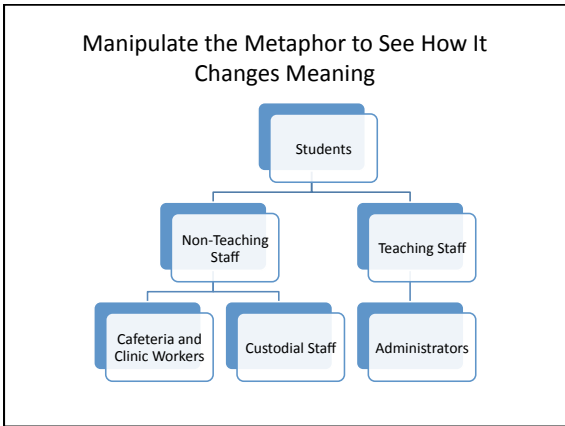
- Construct...
- Rank...
- Argue against...
- Argue for...
- Contrast...
- Develop...
- Plan...
- Critique...
- Rank...
- Organize...
- Interview...
- Predict...
- Categorize...
- Invent...
- Recommend...

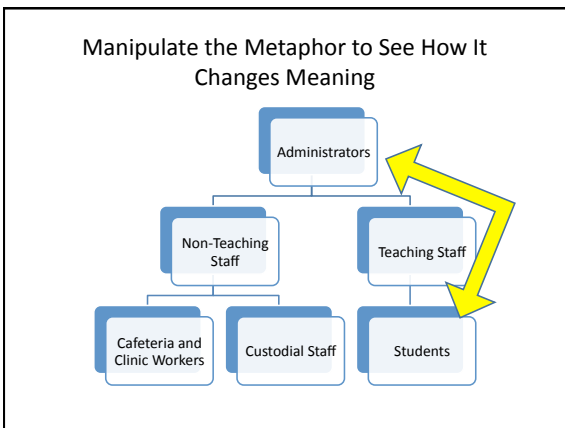
Change
your
verbs!

Test the Verb Strength

Did we *invade* the country, or did we *liberate* it? The choice of verbs frames our thinking. Ask students to change only the verb and explain how the reader or listener's interpretation of the topic would change as a result.

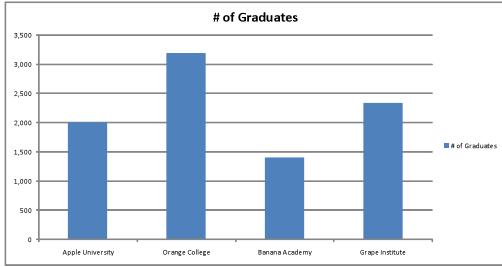
- The senator *corralled* her constituents.
- The senator *coddled* her constituents.
- The senator *ignited* her constituents.
- The senator *stonewalled* her constituents.
- The senator *suckered* her constituents.
- The senator *mollified* her constituents.
- The senator *lifted* her constituents.



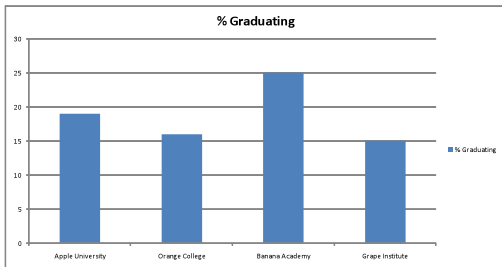


College	# of Students	Graduating Seniors	% Graduating
Apple University	10,500	2,009	19
Orange College	20,223	3,189	16
Banana Academy	5,600	1405	25
Grape Institute	15,171	2,335	15

Presenting like this, which one looks better for graduating?



Presented like this, which one looks better for graduating?



Do these metaphors serve our profession well?

- | | |
|----------------------------|----------------------------|
| The child as a blank slate | Benchmarks and Standards |
| No child left behind | Factory model of schooling |
| Cultural literacy | Cookie-cutter approach |
| Teacher as trainer | School climate |
| Teacher as nurturer | Teacher as police officer |
| molding lives, youth | accelerated learner |
| teacher as rebel | parallel curriculum |
| Teacher as gatekeeper | study hall |
| Bag of tricks | locus of control |
| Covering the curriculum | Ivory tower |
| School system | top-down mandates |
| Teacher as entertainer | Teacher as coach |
| Jigsaw | inclusion |
| Chunking learning | Weighted grades |
| Computer lab | grading curve |
| Electives | core subjects |
| Block schedule | Subject integration |
| High stakes | steering committee |
| Achievement gap | in-, pre-service |
| Site-based management | accomodation |

Ask Students to Practice Explaining Metaphors

Metaphor: "Google it."

Definition: Google is a common Internet search engine. Instead of the longer statement, "Go to the Internet, find a search engine, and look for the topic using that search engine," people shorten it to something that represents that whole process---the name of a common search engine, Google.

Descriptions With and Without Metaphors

- | | |
|--------------------------|------------------|
| Friendship | Family |
| Infinity | Imperialism |
| Solving for a variable | Trust |
| Euphoria | Mercy |
| Worry | Trouble |
| Obstructionist Judiciary | Honor |
| Immigration | Homeostasis |
| Balance | Temporal Rifts |
| Economic Principles | Religious fervor |
| Poetic License | Semantics |
| Heuristics | Tautology |
| Embarrassment | Knowledge |

Same Concept, Multiple Domains

The Italian Renaissance: Symbolize curiosity, technological advancement, and cultural shifts through mindmaps, collages, graphic organizers, paintings, sculptures, comic strips, political cartoons, music videos, websites, computer screensavers, CD covers, or advertisements displayed in the city subway system.

The economic principle of supply and demand: What would it look like as a floral arrangement, in the music world, in fashion, or dance? Add some complexity: How would each of these expressions change if were focusing on a bull market or the economy during a recession?

Same Concept, Multiple Domains

Geometric progression, the structure of a sentence, palindromes, phases of the moon, irony, rotation versus revolution, chromatic scale, Boolean logic, sine/cosine, meritocracy, tyranny, feudalism, ratios, the relationship between depth and pressure, musical dynamics, six components of wellness, and the policies of Winston Churchill can all be expressed in terms of: food, fashion, music, dance, flora, fauna, architecture, minerals, weather, vehicles, television shows, math, art, and literature.

"To teach the skills of thinking without the analogy is like removing buds from a flowering tree," Bob Stanish writes in Mindanderings (Good Apple, 1990, p. 92). 'More Stanish'ism's:

- Which is more tense---a graph or a chart? (p.91)
- In what ways is a circumference like a shoe? (p. 90)
- Which is more athletic---a fiord or a strait? (p. 86)
- Which has greater intelligence---an exclamation mark or a question mark? (p. 82)
- Which is more durable---an entrance or an exit? (p. 80)

Learning is to Analogy as Teaching is to _____

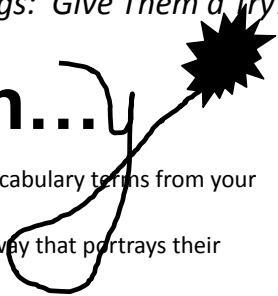
- Identify the relationship between two elements: *"Light sprinkle is to torrential downpour"* -- the second item is a more intense version of the first one
- Determine what would constitute that same relationship in a completely different domain – In what other pair of items in a different domain is the second item a more intense version of the first one? How about: phrase/essay? smile/laughter? penlight/lighthouse? Battery power/nuclear power? bench/recliner? Seed/tree?

Common Analogous Relationships

- Antonyms
- Synonyms
- Age
- Time
- Part : Whole
- Whole : Part
- Tool : Its Action
- Tool user : Tool
- Tool : Object It's Used With
- Worker: product he creates
- Category : Example
- Effect : Cause
- Cause : Effect
- Increasing Intensity
- Decreasing Intensity
- Person : closely related adjective
- Person : least related adjective
- Math relationship
- Effect : cause
- Action : Thing Acted Upon
- Action : Subject Performing the Action
- Object or Place : Its User
- Object : specific attribute of the object
- Male : Female
- Symbol : what it means
- Classification/category : example
- Noun : Closely Related Adjective
- Elements Used : Product created
- Attribute : person or object
- Object : Where it's located
- Lack (such as drought/water – one thing lacks the other)

Shape Spellings: Give Them a Try!

iron...



- Choose three vocabulary terms from your curriculum.
- Spell them in a way that portrays their meaning.
- Share them with the group, asking for critique.

Meaningful Arrangement and Patterns are Everything

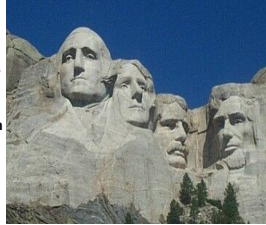
d-a-o-o-u-i-d-y-v-l-e

Visuals and Graphics are Powerful!

Examples:

When students are learning vocabulary terms, significantly more are learned when students portray the words graphically (ex: Shape spellings) instead of defining terms and using them in a sentence.

Students can portray Aristotle's Rhetorical Triangle (ethos, pathos, logos) by juggling.



Create an Archeological Symbol Key

≈, ¶, ♪, H₂O, ñ, Ω, 6³

“Pictures are the pillars that support meaning making, and we can use this visibility to our advantage as we attempt to make comprehension strategies obvious in our instruction.”

-- Terry Thompson, *Adventures in Graphica: Using Comics and Graphic Novels to Teach Comprehension*, Stenhouse Publishers, 2008

Extreme Vocabulary

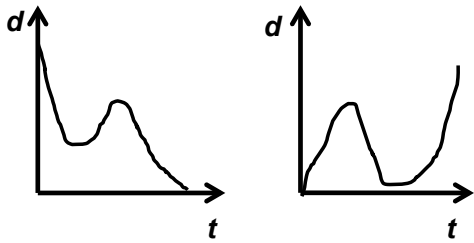
(Making Words Their Own: Building Foundations for Powerful Vocabulary, 2008)

1. Distribute word pairs of opposites.
2. In partners, students place these words at opposite ends of a continuum drawn on paper (or hung as tent cards on rope), and in between the extremes, they place words that fall along the continuum of meaning. For example -- extremes of temperature: Freezing --- Cold --- Tepid --- Warm --- Hot --- Boiling.
3. Once students get the idea, try something more complex, such as *inconsolable* and *carefree*. Where would *despondent* fit? How about *concerned*, *content*, *worried*, and *satisfied*? As students discuss the proper positioning of the words and physically move the tent cards back and forth, students draw on visual cues and cement the definitions in their minds. If finding the specific words to go between the two extremes is difficult at first, provide suggestions that students study then place in the sequence.
4. Ask students to explain their rationale for their choices and positions. Classmates critique their decisions. Does “inconsolable---despondent---worried---concerned---content---satisfied---carefree” work sequentially? Why or why not?

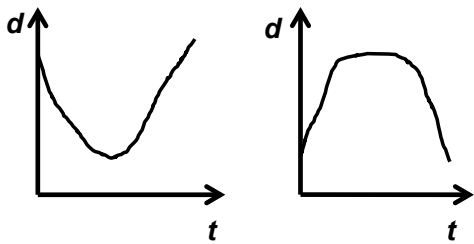
Creating and interpreting patterns of content, not just content itself, creates a marketable skill in today's students. A look at data as indicating "peaks and valleys" of growth over time, noticing a trend runs parallel to another, or that a new advertising campaign for dietary supplements merges four distinct worlds -- Greco-Roman, retro-80's, romance literature, and suburbia -- is currency for tomorrow's employees.

To see this in a math curriculum, for example, look at algebraic patterns. Frances Van Dyke's *A Visual Approach to Algebra* (Dale Seymour Publications, 1998)

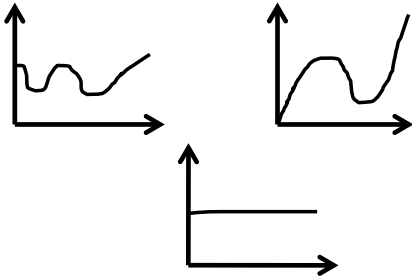
A submarine submerges, rises up to the surface, and submerges again. Its depth d is a function of time t . (p.44)



A submarine submerges, rises up to the surface, and submerges again. Its depth d is a function of time t . (continued)



Consider the following graphs. Describe a situation that could be appropriately represented by each graph. Give the quantity measured along the horizontal axis as well as the quantity measured along the vertical axis.



Charades – Either individually or working in groups, give students concepts to define, using pantomime and cues that will help their classmates guess the term.

Visualize -- Write sentences with parallel logic and structure, one above the other, so students can see the similar verb tenses, adjective/noun placements, number of items, et cetera that make the sentences comparable. Use the same method to study dependent and independent clauses as well as appositives (adding and subtracting them).

Premise:

There is not any curriculum so symbolic or abstract that we cannot “physicalize” it for better student learning.

Physicalizing Process:

- Identify essential components, pieces, or definition of whatever we're teaching
- Physicalize those pieces and present them to the class.
- Class critiques the physicalization in terms of accuracy, comprehensiveness, appropriateness, and clarity. 'Makes suggestions for improvement.

All three steps are learning experiences that help students internalize the knowledge.

Statues (Body Sculpture)

Students work in small groups using every groupmember's body to symbolically portray concepts in frozen tableau.

Where does the learning occur?

Model Construct/Deconstruct – Building, using, and breaking down models. Example: An *iconoclast* in modern times is someone who breaks with conventional thinking or dogma, and it's usually done very publicly. Nelson Mandela, Maya Angelou, Norman Lear, and Wyclef Jean have all been referred to as modern iconoclasts. What model would best express their iconic contributions?

What physical shapes and connections would we use to build trust? Iambic Pentameter? Government? Dedication? Gravity? Water cohesion? Cell respiration?

Synecotics

(William J. Gordon)

"The joining together of different and apparently irrelevant elements," or put more simply, "Making the familiar strange."

1. Teach a topic to students.
2. Ask students to describe the topic, focusing on descriptive words and critical attributes.
3. Teacher identifies an unrelated category to compare to the descriptions in #2. (*Think of a sport that reminds you of these words. Explain why you chose that sport.*) Students can choose the category, too.
4. Students write or express the analogy between the two: *The endocrine system is like playing zones in basketball. Each player or gland is responsible for his area of the game.*

4-Square Synectics

1. Brainstorm four objects from a particular category (examples: kitchen appliances, household items, the circus, forests, shopping malls).
2. In small groups, brainstorm what part of today's learning is similar in some way to the objects listed.
3. Create four analogies, one for each object.

Example: How is the human digestive system like each household item: sink, old carpet, microwave, broom

Example: How is the Pythagorean Theorem like each musical instrument: piano, drum set, electric guitar, trumpet?

Body Analogies

- With your table group, choose a topic one of you has to teach.
- Draw a human body in the paper provided – stick figures are fine. Be thoughtful, though: It's shape and posture can be used to communicate content!
- Make at least four connections between your topic and different elements of the body.
- Be prepared to explain them to the larger group.

Using Metaphors to Assess

If we want to know if students recognize the larger structure or big picture of expository paragraph writing, perhaps its sequence or overall structure, a metaphor or analogy could demonstrate their understanding. Their chosen metaphors or analogies would reveal their sense of the big picture and that, in turn, can also expose faulty reasoning that we can correct with targeted instruction.

If we want to know if students can write an expository paragraph, however, they must actually write an expository paragraph; waxing metaphorical doesn't cut it when we need the tangible product.

Metaphors and their defense (or lack thereof) make great formative assessments!

"Define the terms, rotation and revolution" doesn't reveal much about what students know and can do.

Try this instead:

Compare the concepts of rotation and revolution to a favorite sport or to society in general. Demonstrate the comparisons by clearly mapping the characteristics of each concept with the characteristics of each element. Once you've shown the appropriate correlation, identify one misconception about each concept, rotation and revolution, which classmates might develop if your metaphor or analogy was the only thing they knew about each concept. In other words, identify one limitation for each of your comparisons.

A picture is worth a thousand words, but the right metaphor is worth a thousand pictures.

-- Daniel Pink, 2008

Great Resources on Metaphors

- *From Molecule to Metaphor: A Neural Theory of Language* by Jerome Feldman
- *Metaphor: A Practical Introduction* by Zoltan Kovecses
- *Poetic Logic: The Role of Metaphor in Thought, Language, and Culture* by Marcel Danesi
- *Metaphors & Analogies: Power Tools for Teaching any Subject* by Rick Wormeli
- *I Is an Other: The Secret Life of Metaphor and How It Shapes the Way We See the World* by James Geary

Great Resources on Metaphors

- *Metaphors We Live By* by George Lakoff
- *The Political Mind: Why You Can't Understand 21st-Century American Politics with an 18th-Century Brain* by George Lakoff
- *A Bee in a Cathedral: And 99 Other Scientific Analogies* by Joel Levy
- *On Metaphor (A Critical Inquiry Book)* edited by Sheldon Sacks

Know your students
so well, you can
incorporate meaningful
metaphors.

And help them
invent new ones.
