Cultivating Creativity in the Differentiated Classroom

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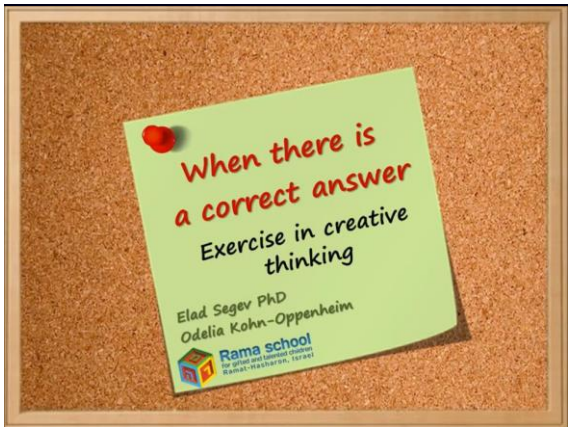


Consider:
Rhodes Scholarship
Candidate struggles

Could you teach the differences between architecture in the Middle Ages and architecture in the Renaissance period in such a classroom?

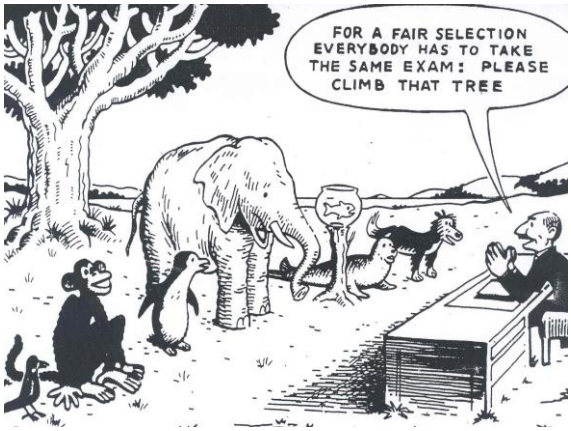
How about the principles of algebra here?

Tomlinson: “If I laid out on my kitchen counter raw hamburger meat still in its Styrofoam container, cans of tomatoes and beans, jars of spices, an onion, and a bulb of garlic *[and told guests to eat heartily]*….My error would be that I confused ingredients for dinner with dinner itself.”

Tomlinson: “One can make many different dishes with the same ingredients, by changing proportions, adding new ingredients, using the same ingredients in different ways, and so on.”

Definition

Responsive teaching, i.e. differentiating instruction, is doing what’s fair for students. It’s a collection of best practices strategically employed to maximize students’ learning at every turn, including giving them the tools to handle anything that is undifferentiated. It requires us to do different things for different students some, or a lot, of the time. It’s whatever works to advance the student if the regular classroom approach doesn’t meet students’ needs. It’s highly effective teaching.



To Increase (or Decrease) a Task's Complexity, Add (or Remove) these Attributes:

- Manipulate information, not just echo it
- Extend the concept to other areas
- Integrate more than one subject or skill
- Increase the number of variables that must be considered; incorporate more facets
- Demonstrate higher level thinking, i.e. Bloom's Taxonomy, William's Taxonomy
- Use or apply content/skills in situations not yet experienced
- Make choices among several substantive ones
- Work with advanced resources
- Add an unexpected element to the process or product
- Work independently
- Reframe a topic under a new theme
- Share the backstory to a concept – how it was developed
- Identify misconceptions within something

To Increase (or Decrease) a Task's Complexity, Add (or Remove) these Attributes:

- Identify the bias or prejudice in something
- Negotiate the evaluative criteria
- Deal with ambiguity and multiple meanings or steps
- Use more authentic applications to the real world
- Analyze the action or object
- Argue against something taken for granted or commonly accepted
- Synthesize (bring together) two or more unrelated concepts or objects to create something new
- Critique something against a set of standards
- Work with the ethical side of the subject
- Work in with more abstract concepts and models
- Respond to more open-ended situations
- Increase their automacity with the topic
- Identify big picture patterns or connections
- Defend their work

- **Manipulate information, not just echo it:**
  - **"Once you've understood the motivations and viewpoints of the two historical figures, identify how each one would respond to the three ethical issues provided."**
- **Extend the concept to other areas:**
  - **"How does this idea apply to the expansion of the railroads in 1800's?" or, "How is this portrayed in the Kingdom Protista?"**
- **Work with advanced resources:**
  - **"Using the latest schematics of the Space Shuttle flight deck and real interviews with professionals at Jet Propulsion Laboratories in California, prepare a report that…"**
- **Add an unexpected element to the process or product:**
  - **"What could prevent meiosis from creating four haploid nuclei (gametes) from a single haploid cell?"**

- **Reframe a topic under a new theme:**
  - **"Re-write the scene from the point of view of the antagonist," "Re-envision the country's involvement in war in terms of insect behavior," or, "Re-tell Goldilocks and the Three Bears so that it becomes a cautionary tale about McCarthyism."**
- **Synthesize (bring together) two or more unrelated concepts or objects to create something new:**
  - **"How are grammar conventions like music?"**
- **Work with the ethical side of the subject:**
  - **"At what point is the Federal government justified in subordinating an individual's rights in the pursuit of safe-guarding its citizens?"**

The Equalizer

(Carol Ann Tomlinson)

Foundational ---------- Transformational
Concrete ---------- Abstract
Simple ---------- Complex
Single Facet/fact ---------- Multi-Faceted/facts
Smaller Leap ---------- Greater Leap
More Structured ---------- More Open
Clearly Defined ---------- Fuzzy Problems
Less Independence -------- Greater Independence
Slower ---------- Quicker

What tethers us to ineffectiveness and low morale? What is no longer supportable in modern education?

Denying student access to personal technology

Factory Model of Schooling

Large class size

No annual PD for Teachers

Teachers as the sole arbiters of all there is to know

Succumbing to Intellectual Bias

Pacing mandates

Honor Roll

Reducing everything to a number

Denying student access to Vocational Training in Middle school

Allowing people who are untrained in education to mandate how teachers teach

Staying quiet when education pundits/bullies distort the truth

Removing students from p.e./fine and performing arts for test preparation

Confusing compliance with engagement

Diminshed teacher autonomy

Not being creative because it makes others look bad

Many classrooms are not set-up to meet all students' needs.

Our future depends on this one here.

If we find ways for colleagues and ourselves to experience curiosity, awe, induction, deduction, analysis, synthesis, resilience, empathy, extrapolation, juxtaposition, and other mental dexterities in their own development, they are better thinkers of our discipline. They can solve their own problems, connect with others and among ideas, innovate their way to meaningful contributions, and persevere in the midst of challenge.

"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 Thinkering,* 2011, p. 3

It's <u>not</u> an *answer chase*.

It's a *question journey.*

What should a lawyer never do in a court trial?

Get students to ask more questions than we do

Embrace the fact that, "[l]earning is fundamentally an *act of creation*, not *consumption of information*."

-- Sharon L. Bowman, Professional Trainer

Remember, whoever does the editing, does the learning!

Active Creators, NOT Passive Consumers!

"The Inner Net"

By David Bowden

Information Age is old school. We're in the *High Concept* Age, and we have the tech to pursue it:

- Twitter and other social media
- Daily newspapers downloaded for analysis
- Museum school partnerships and Virtual Tours
- QR codes attached to classroom activities
- Student-designed apps
- Khan Academy and similar on-line tutorials
- Graduation in four states now requires one course taken completely on-line
- Google Docs
- Google Glass/Eyes – wearables, implantables, augments

- MOOCS – Massive Open On-line Course
- Crowd-Sourcing
- MIT Open Courseware
- TED talks and ed.Ted.com
- Screencasts (ex. Camtasia Studio)
- Voicethread
- Moodle
- PBL's
- Prezi
- iMovie
- Edmodo

Our job is not to make up anybody's mind, but to open minds and to make the agony of decision-making so intense you can escape only by thinking." - *Fred Friendly, broadcaster*

"All thinking begins with wonder."
-- Socrates

These dreamers, creators, innovators are in our classrooms right now. Would we recognize their talents and cultivate them?

Navigating Creativity with Today's Diverse Thinkers

1
1 1
2 1
1 2 1 1
1 1 1 2 2 1
3 1 2 2 1 1
1 3 1 1 2 2 2 1
1 1 1 3 2 1 3 2 1 1

Discern the Pattern and Fill in the Last Row of Numbers

- From, *Creative Thinkering*, 2011, Michael Michalko, p. 44

Consider:

Immigrants invent patents at double the rate of non—immigrants. (p. 240, Lehrer)

(Sampling from Innocentive.com, page 1, downloaded June 24, 2012)

- ❑ Seeking Orthogonally Functionalized Cyclobutanes
- ❑ Navigating the Inside of an Egg Without Damaging It
- ❑ Cleveland Clinic: Method to Reconnect Two Tissues Without Using Sutures
- ❑ Seeking 1H-pyrazolo[3,4-b]pyridin-3-amides
- ❑ Synthetic Route to a Benzazepinone
- ❑ My Air, My Health: An HHS/EPA Challenge
- ❑ Mechanistic Proposals for a Vanadium-Catalyzed Addition of NMO to Imidazopyridazines
- ❑ Seeking Highest and Best Commercial Application for Breakthrough Innovation in Building Technology/Structural Optimization
- ❑ Desafio da Educação: Como atrair pessoas talentosas para se tornar professor na rede pública brasileira

"The problem solvers...were most effective when working at the margins of their fields….While these people were close enough to understand the challenges, they weren't so close that their knowledge held them back and cause them to run into the same stumbling blocks as the corporate scientists." (p. 121, Lehrer)

Check out InnoCentive at www.innocentive.com/ar/challenge/browse

What would this look like in education?

Question the Status Quo: Break the rules once in a while.

Transcend models.

Writer and educator, Margaret Wheatley, is correct:

"We can't be creative unless we're willing to be confused."

Creativity is making connections between dissimilar things in such a way as to create something new.

It's often about recombining old ideas and things for new purposes or perspectives.

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 Thinkering*, Machalko, 2011, p. xvii,

Combination and Re-Combinination

- **Hall duty and Teacher Advisory**
- **Service Learning and Students in danger of dropping out**
- **Miniature Golf and lesson sequence**
- **Students' cafeteria behavior and architecture**
- **Unmotivated faculty and farming, astronomy, marble tabletops.**
- **Parental involvement and medicine**

Grades are communication.

"I used to think…, but now I think…"

William's Taxonomy

Fluency
Flexibility
Originality
Elaboration
Risk Taking
Complexity
Curiosity
Imagination

Frank Williams' Taxonomy of Creative Thinking

Fluency – We generate as many ideas and responses as we can

Example Task: Choose one of the simple machines we've studied (wheel and axle, screw, wedge, lever, pulley, and inclined plane), and list everything in your home that uses it to operate, then list as many items in your home as you can that use more than one simple machine in order to operate.

Flexibility – We categorize ideas, objects, and learning by thinking divergently about them

Example Task: Design a classification system for the items on your list.

Frank Williams' Taxonomy of Creative Thinking

Originality – We create clever and often unique responses to a prompt

Example Task: Define life and non-life.

Elaboration – We expand upon or stretch an idea or thing, building on previous thinking

Example: What inferences about future algae growth can you make, given the three graphs of data from our experiment?

Frank Williams' Taxonomy of Creative Thinking

Risk Taking – We take chances in our thinking, attempting tasks for which the outcome is unknown

Example: Write a position statement on whether or not genetic engineering of humans should be funded by the United States government.

Complexity – We create order from chaos, we explore the logic of a situation, we integrate additional variables or aspects of a situation, contemplate connections

Example: Analyze how two different students changed their lab methodology to prevent data contamination.

Frank Williams' Taxonomy of Creative Thinking

Curiosity – We pursue guesses, we wonder about varied elements, we question.

Example: What would you like to ask someone who has lived aboard the International Space Station for three months about living in zero-gravity?

Imagination – We visualize ideas and objects, we go beyond just what we have in front of us

Example: Imagine building an undersea colony for 500 citizens, most of whom are scientists, a kilometer below the ocean's surface. What factors would you have to consider when building and maintaining the colony and the happiness of its citizens?

Analyze…	**Construct…**
Revise…	**Rank…**
Decide between…	**Argue against…**
Why did…	**Argue for…**
Defend…	**Contrast…**
Devise…	**Develop…**
Identify…	**Plan…**
Classify…	**Critique…**
Define…	**Rank…**
Compose…	**Organize…**
Interpret…	**Interview…**
Expand…	**Predict…**
Develop…	**Categorize…**
Suppose…	**Invent…**
Imagine…	**Recommend…**

Suspend judgment.

Humans naturally categorize and judge. Fight the urge to label or automatically dismiss something – which are both hard to do when in survival mode, agreed. Discern between exploring and judging, and lean toward exploration only. "Tell me more about…" "What would happen if we…?" "Have you considered…?" Choose "Yes, and…" over, "Yes, but…." comments.

Share freely.

We are often better served by connecting ideas than we are by protecting them. (P. 22, Johnson)

P.61 – "Instead, most important ideas emerged during regular lab meetings, where a dozen or so researchers would gather and informally present and discuss their latest work. If you looked at the map of idea formation…., **the ground zero of innovation was not the microscope. It was the conference table**."

The Fox televsion show, "House," used this model frequently.

Regularly do automatic tasks and let the mind roam.

Walk, run, drive a long distance without listening to music, take an extended shower or bath, wash a lot of dishes, mow the lawn, weed the garden, paint a room, crochet, clean gutters, shovel snow, stare at the ocean, watch birds for 45 minutes, swim freestyle, water walk, or tread water for an extended time. All of these put us in a more associative state.

Feed your intellectual self.

Participate in the larger profession.

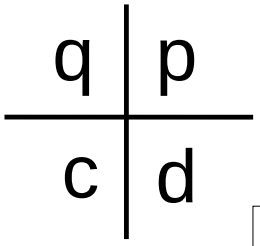
Professional inquiry via personal action research projects, Professional Learning Communities, subscriptions to professional journals, participation in on-line communities: listervs, Twitter, Blogosphere, Webinars, Nings, and Wiki's; professional conferences, instructional roundtables in the building

We get more ideas/tools, and creative people are inspired by people around them.

Do activities that have no extrinsic reward associated with them.

In *Drive*, Daniel Pink reminds us that, "Rewards, by their very nature, narrow our focus." (p. 44) Creativity happens more often because people are curious, not because it satisfies financial incentives. Yes, we do some things in order to increase our salary step or receive a bonus, but creativity is usually a casualty of such approaches.

Teachers can write articles and blogs on topics they enjoy, not just on topics that get pay. As we have time and interest, we can mentor new teachers, sponsor a club or sport of interest, write articles and blogs on topics of interest, and we can participate in training and teach a class about ELL, gifted, technology, coding, library/media services, learning disabilities, and drama.



Which letter does not belong, and why?

Rigor versus

Difficult
Difficult
Difficult
Difficult
Difficult
Difficult

Does providing more support mean it's less rigorous?

On the contrary, providing support for complex, multi-faceted applications is MORE rigorous.

Ways for Students to Transcend Rubric Criteria:

- Demonstrate divergent thinking.
- Add your own voice: If we left your name off the project, would we know it was you that created it?
- Make meaningful connections that the rest of us did not consider.
- Extend your investigation beyond the parameters put forth in the descriptors

Ways for Students to Transcend Rubric Criteria:

- Give the teacher alternative proposals for how to demonstrate evidence of your learning.
- Teach the teacher and your classmates something they did not know about the topic.
- Express content from a different perspective or through a different domain:
  - 'Norse mythology expressed through careful cultivation of Bonsai trees?
  - Debate as a form of dance?
  - The human circulatory system could be used as a form of cryptography?
  - Cultures, furniture, languages, and technology experience entropy?

Ways for Students to Transcend Rubric Criteria:

- **Make the content your own, not something you borrow from the teacher and return passively at the end of the unit. Let the teacher see what YOU bring to learning's table. Don't subordinate who you are for the sake of what a previous generation thought was salient.**

And best of all: There are no penalties for giving all of these a try, even when you fail in the first attempts.

From Assessment/Grading Researcher, Doug Reeves, *The Chronicle of Higher Education*, September 18, 2009:

"The Class of 2013 grew up playing video games and received feedback that was immediate, specific, and brutal – they won or else died at the end of each game. For them, the purpose of feedback is not to calculate an average or score a final exam, but to inform them about how they can improve on their next attempt to rule the universe."

Feedback vs Assessment

Feedback: Holding up a mirror to students, showing them what they did and comparing it what they should have done – There's no evaluative component!

Assessment: Gathering data *so we can make a decision*

Greatest Impact on Student Success:

Formative feedback

Affirm effort and perseverance, not intelligence or capability. Give feedback on *decisions* made, *NOT quality* of product or performance.

Two Ways to Begin Using Descriptive Feedback:

"Point and Describe"

(from ***Teaching with Love & Logic,*** **Jim Fay, David Funk)**

"Goal, Status, and Plan for the Goal"

1. **Identify the objective/goal/standard/outcome**
2. **Identify where the student is in relation to the goal (Status)**
3. **Identify what needs to happen in order to close the gap**

Effective Protocol for Data Analysis and Descriptive Feeddback found in many Schools:

Here's What, So What, Now What

1. Here's What: *(data, factual statements, no commentary)*
2. So What: *(Interpretation of data, what patterns/insights do we perceive, what does the data say to us?)*
3. Now What: *(Plan of action, including new questions, next steps)*

Item	Topic or Proficiency	Right	Wrong	Simple Mistake?	Really Don't Understand
1	**Dividing fractions**		✓		✓
2	**Dividing Fractions**		✓		✓
3	**Multiplying Fractions**		✓	✓	
4	**Multiplying fractions**	✓			
5	**Reducing to Smplst trms**	✓			
6	**Reducing to Smplst trms**	✓			
7	**Reciprocals**	✓			
8	**Reciprocals**		✓	✓	
9	**Reciprocals**		✓	✓	

Date

Mr./Mrs./Miss _____,

I understand….

I need assistance in….

I suggestion the following four steps for me to take in order to learn these content and skills:

Sincerely,

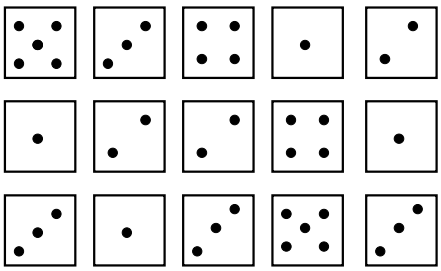
_____

Novelty, Surprise, Curveballs, Whoops, and the Unexpected

Petals Around the Rose

The name of the game is, "Petals Around the Rose." The name is very important. For each roll of the game, there is one answer, and I will tell you that answer.

Petals Around the Rose



Answer:

6

0

10

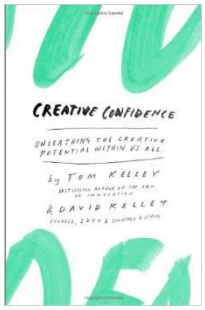
Petals Around the Rose

Clues to give students if they struggle:

1. ***All the math you need to slve this problem you learn in kindergarten or before.***
2. ***The sequence of the dice patterns has no bearing on the answer.***

One way to embrace creativity…is to let go of comparison. If you are concerned about conforming or about how you measure up to others' successes, you won't perform the risk taking and trailblazing inherent in creative endeavors.

-- P. 57, *Creative Confidence*, Kelley and Kelley, 2014



Sleep.

Seriously, 'a lot. Sleep aids creativity in many ways: It creates the relaxed, associative state of mind. It improves alertness, working and long-term memory, and positive, "Can do" attitude. It may be one of the most influential factors in thinking.

Challenge assumptions.

Get your personal Socrates going. Why can't students re-do final exams? Look at limitations of the research study, and ask to see the raw data from which conclusions are drawn. Are we sure the classic was symbolizing man's inhumanity to man? Develop data analysis skills. Look for what the writer/speaker is NOT saying just as much as for what he IS saying. Ask colleagues to articulate positions thoroughly – Don't let them get away with generalizations. Explore layered meanings, consider the source of information and possible bias.

Exposure to a wide array of experiences creates is the basis for creative solutions. Insulation embalms the sentiment that the world we know is the only one that matters.

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

Curtains

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

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

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

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.

Same Concept, Multiple Domains

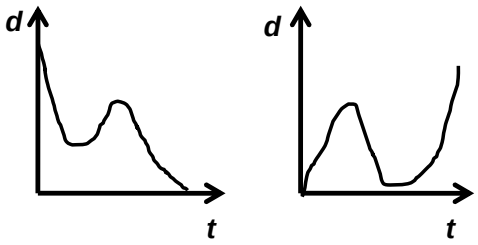
The Italian Renaissance: Symbolize curiosity, technological advancement, and cultural shifts through mindmaps, collages, graphic organizers, paintings, sculptures, comic strips, political cartoons, music videos, websites, computer screensavers, CD covers, or advertisements displayed in the city subway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

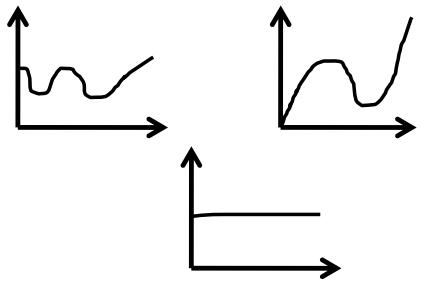
Creating and interpreting patterns of content, not just content itself, creates a marketable skill in today's students. A look at data as indicating "peaks and valleys" of growth over time, noticing a trend runs parallel to another, or that a new advertising campaign for dietary supplements merges four 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)



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.



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

4-Square Synectics

Brainstorm four objects from a particular category (examples: kitchen appliances, household items, the circus, forests, shopping malls).

In small groups, brainstorm what part of today's learning is similar in some way to the objects listed.

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

Fingers and hands can be associated with dexterity, omnidirectional aspects, working in unison and individually, flexibility, or artwork.

Feet can relate to things requiring "footwork" or journey.

Anything that expresses passion, feeling, pumping, supplying, forcing, life, or rhythm could be analogous to the heart.

Those concepts that provide structure and/or support for other things are analogous to the spinal column.

Body Analogies

Those things that protect are similar to the rib cage and cranium.

The pancreas and stomach provide enzymes that break things down, the liver filters things, the peristalsis of the esophagus pushes things along in a wave-like muscle action.

Skin's habit of regularly releasing old, used cells and replacing them with new cells from underneath keeps it healthy, flexible, and able to function.

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

Meaning Matters ☺

An English professor wrote the words, "A woman without her man is nothing," on the blackboard and directed the students to punctuate it correctly. The men wrote: "A woman, without her man, is nothing," while the women wrote, "A woman: without her, man is nothing."

"Let's eat, Dad!"

"Let's eat Dad."

"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

Journalistic vs. Encyclopedic Writing

"**The breathing of Benbow's pit is deafening, like up-close jet engines mixed with a cosmic belch. Each new breath from the volcano heaves the air so violently my ears pop in the changing pressure – then the temperature momentarily soars. Somewhere not too far below, red-hot, pumpkin size globs of ejected lava are flying through the air."**

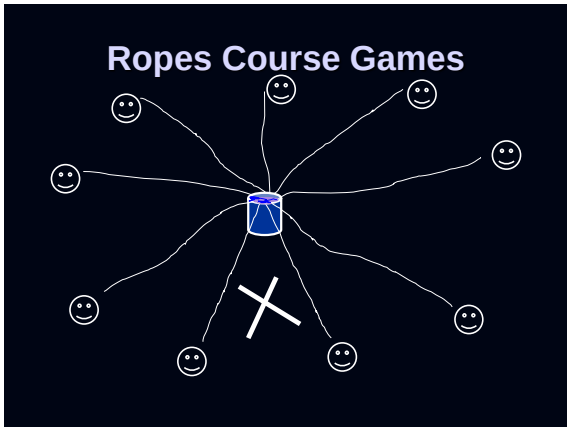
-- ***National Geographic***, **November 2000, p. 54**

"A volcano is a vent in the Earth from which molten rock (magma) and gas erupt. The molten rock that erupts from the volcano (lava) forms a hill or mountain around the vent. Lava may flowout as viscous liquid, or it may explode from the vent as solid or liquid particles…"

-- ***Global Encyclopedia***, **Vol. 19 T-U-V, p. 627**

Meaningful Arrangement and Patterns are Everything

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



Ropes Course Games

- ***Electric Fence*** **(Getting over triangle fence without touching)**
- ***Spider Web*** **(Pass bodies through "webbing" withot ringing the attached bells)**
- ***Group Balance*** **(2'X2' platform on which everyone stands and sings a short song)**
- ***Nitro-glycerin Relocation*** **(previous slide)**
- ***Trust Falls*** **(circle style or from a chair)**

Line-up

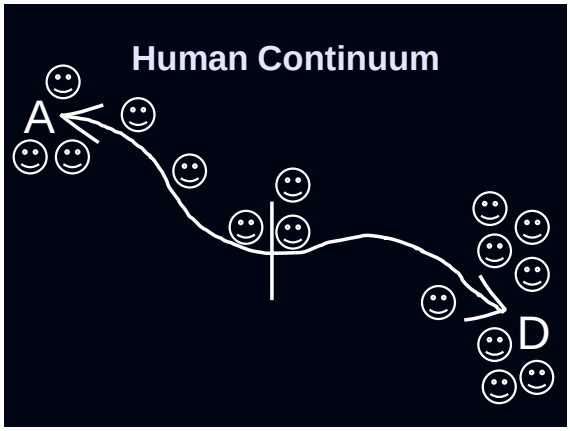
Groups of students line up according to criteria. Each student holds an index card identifying what he or she is portraying.

Students discuss everyone's position with one another -- posing questions, disagreeing, and explaining rationales.

Line-up

Students can line-up according to:

chronology, sequences in math problems, components of an essay, equations, sentences, verb tense, scientific process/cycle, patterns: alternating, category/example, increasing/decreasing degree, chromatic scale, sequence of events, cause/effect, components of a larger topic, opposites, synonyms



Human Continuum

Use a human continuum. Place a long strip of masking tape across the middle of the floor, with an "Agree" or "Yes" taped at one end, and "Disagree" or "No" at the other end. Put a notch in the middle for those unwilling to commit to either side. Read statements about the day's concepts aloud while students literally stand where they believe along the continuum. Be pushy – ask students to defend their positions.

Creativity Reminder from a Myth-buster

- http://www.ted.com/talks/how_simple_ideas_lead_to_scientific_discoveries.html