

Rigor, Relevance and Reading for Content Mastery CESA 7 ~ Green Bay WI

Rigor, Relevancy and Reading for Content Area Mastery



Peter Pappas

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Peter Pappas
DESIGNS FOR LEARNING

SHOWCASE
BLOG
ABOUT
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Photo by Earl Pappas - [Look at it!](#)

**Writer / Trainer
Consultant**

By Blog, Copy / Paste
Comments, lessons and material from my recent presentations

Search my sites

Washington, DC Peter Pappas will serve as an advisor to the Bill of Rights Institute, based in Arlington, Virginia. The Institute is the recipient of a 2008 National Endowment for the Humanities "Why the People" grant designed to encourage the study of American history. It received \$100,000 to develop a Web site on landmark U.S. Supreme Court cases: "Empowering Landmark Supreme Court Cases: A Document-Based Questions Approach." [more](#)

NYLeans.org From: NYLeans.org - March 2008
International Leadership Through
Sharing Work: The Spirit of NYLeans.org

*Peter Pappas is no stranger to public education. In addition to his twenty-five years as a high school social studies teacher, Peter has served as Assistant Superintendent of Instruction at Elmwood Park Public Schools, and worked as a County controller for Village Trustees.

Essential questions:

1. What does rigor and relevance look like in the classroom? Does it extend to all students?
2. To what extent is learning student- or teacher-directed?
3. How can I help build literacy and still teach my content?
4. Rigor, relevance, and student-centered learning are good in theory, but how do we get past the challenges – lack of time, students who can't (or won't do) independent work, overcrowded curriculum, state tests, etc

 **International Center for Leadership in Education**
Committed to Rigor & Relevance for ALL Students

Suggested Resources from the ICLE

- Strategic Writing Across the Curriculum 7 - 12
- Strategic Reading in the Content Areas 7 - 12
- Leading with Reading in Grades 7 - 12

Agenda

1. Rigor, relevance and reading
2. Defining
3. Summarizing
4. Comparing
5. Implications for the classroom



We'll tap into the collective instructional and leadership experience in the room

Learn, Affirm and Share

- Share practical strategies and validate ones you're already using.
- Make organizational plans for moving forward.
- Have some fun.

Audience Response System
courtesy of:



Mike Venrose
Turning Technologies
(330) 884-6044
mvenrose@turningtechnologies.com

What I do:

77%	1. Teacher
6%	2. Principal / AP
9%	3. Curriculum leader
9%	4. Other

Curricular area

10%	1. Math
9%	2. Science
17%	3. Social Studies
23%	4. ELA
29%	5. Special areas
12%	6. Special education

Feather is to peacock as scale is to:

1%	1. shark
99%	2. bass
0%	3. dolphin
0%	4. whale

Brain is to processor as eyes are to:

5%	1. hard drive
10%	2. mouse
51%	3. webcam
34%	4. monitor

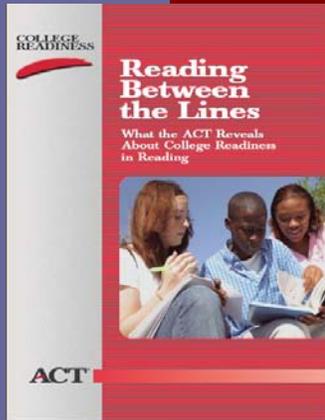
As a workshop participant, I could best be described as a:

25%	1. Sponge – I'll soak it up
32%	2. Pioneer – I'm quick to adopt new ideas
16%	3. Skeptic – Better convince me
16%	4. Vacationer – I'm treating this as a break
11%	5. Prisoner – They're making me go to this

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When I go to a workshop, I like to:
You can pick 2

- 5% 1. Focus on the theory of instruction
- 40% 2. Get ideas I can use in my classroom
- 15% 3. Interact with my peers
- 23% 4. Be inspired
- 18% 5. Reflect on my practice



Only 51 percent of 2005 ACT-tested high school graduates are ready for college-level .

More students are on track to being ready for college-level reading in 8th and 10th grade are actually ready by the time they reach 12th grade.

“Not enough high school teachers are teaching reading skills or strategies”

Overwhelmed by higher content standards, many . . . high school teachers feel under pressure to “cover” more content than ever before and are resistant to “adding” literacy responsibilities to their crowded course calendars. . . .

Since literacy is not “visible” as a content area, it is not “owned” by any specific department. The **English department**, it is wrongly assumed, “takes care of that.”

Reading Between the Lines ~ ACT Report

We all rely on reading skills

- | | |
|---|---|
| <p>Math</p> <ul style="list-style-type: none"> • Analyze statistical reports • Solve word problems | <p>Science</p> <ul style="list-style-type: none"> • Understand and use formulas • Apply data from reading to practical problems |
| <p>Health and Physical Education</p> <ul style="list-style-type: none"> • Read and apply procedures • Read training manuals or play guides | <p>Music</p> <ul style="list-style-type: none"> • Read music notations and interpret music symbols • Evaluate and critique music |
| <p>Vocational Studies</p> <ul style="list-style-type: none"> • Interpret recipes, training and assembly manuals • Read charts, diagrams, pictures, drawings, and plans | |

The single highest failure rate in high school is Algebra I

“After pregnancy, it’s the leading indicator of high school dropout.

The leading indicator of success in Algebra I is English 8.

The Algebra I test is a reading test with numbers”

~ Doug Reeves, *District Administrator* April '05

Do I have to become a reading teacher?

1. Subject-area teachers **reinforce instruction strategies** that are effective in their subject areas
2. Students are encouraged to **read and write like subject-area experts**
3. Student achievement will improve - as their skills improve, they **become independent learners**

You can choose to support literacy skills while you teach your content

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**NAEP
assessment of
8th graders**



Only 36% can proficiently:

- Understand beyond the literal level
- Make connections to personal experience and background knowledge
- Monitor their own comprehension and learning

STRATEGIES FOR STRUGGLING READERS

Meet the "Word-Caller"



The "word-caller" reads orally with accuracy and fluency. Silent reading appears rapid, attentive and purposeful. These students can respond to "right-there" questions when they are allowed to reread but their responses are disorganized and tenuous; they cannot generalize, summarize, synthesize, analyze, infer or evaluate. They do not grasp the relationship of ideas or their importance or relevance. "Word Callers" need support to realize that reading is about constructing meaning and to develop and apply those tools.

The "word-caller" also:

- Provides minimal written responses; their work lacks elaboration.
- Seldom volunteers responses; or raises hand to answer but "forgets."
- Performs poorly on tests that require comprehension or understanding.
- Prefers group work for answers.
- Exhibits poor comprehension skills; may read widely and frequently but without understanding.
- Has limited language and vocabulary; does not grasp multiple meanings, connotative meanings, or figurative language.
- Can decode words.
- Appears attentive.

In your handout packet

What the "word-caller" says about reading and themselves:

"I can read it, but I do not know what it says."
 "I can read it, but I do not know the answers to these questions."
 "I understand more when someone reads to me."
 "I don't understand what is expected of me."

www.edteck.com/read

content reading strategies THAT WORK

Literacy and Content Area Reading Strategies For Academic Success

Boost student achievement with rigor, relevance and literacy strategies for academic success. Designed for high school teachers of all disciplines, the session will demonstrate that teachers don't have to sacrifice content or become a reading teacher. Teachers will find out how to support their subject area while building student literacy skills in mastering vocabulary, comprehension and analysis. Custom workshops available - from a few hours to a few days.

by Peter Pappas
Senior Consultant International Center for Leadership in Education

Teachers comment on Peter's Workshop

- "Informative and inspirational"
- "With the reminder of these strategies, I'm seeing how I can be a better teacher."
- "It's great to get new ideas that are directly related to practice and can be used right away."
- "Great examples and wonderful tools. Applicable to all disciplines."
- "After today's presentation, I'm thinking about changes that I want to make in my teaching strategies."
- "Helped me to think about Bloom's taxonomy in a real way -- what is that!"

Teacher's Toolbox

**Tool 16:
Skim and Scan**

Class:
Unit:
Date:
Source Reading:

Use this tool:
 ▶ Pre-reading
 ▶ While reading
 ▶ Post-reading
 This tool will help my students:
 Define
 Summarize
 Compare

Teacher's Toolbox

How to use this tool
 The skim and scan strategy helps students quickly preview readings to develop a better sense of text format and to thoughtfully set their own purpose for reading.

1. Give students an expository reading assignment such as the chapter of a textbook.
2. Have students skim the reading, an activity like preview in PQIR (Tool 5), scanning the titles, headings, sub-headings, visuals, hyperlinks, first and last paragraphs.
3. Use the form to gather initial thoughts and impressions about the reading in the First Impressions column.
4. Ask students to recall several facts that they used to generate their first impressions. Put these facts in the First Facts column.
5. Have students review their first two columns and then decide what questions they think the chapter will answer. List those in reading purpose questions column.

First Impressions	First Facts	Reading Purpose Questions

To Increase Rigor and Relevance:

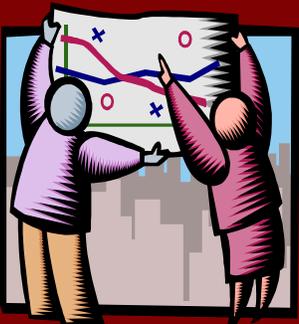
1. Allow students to compare forms and discuss how their ideas are similar or different. Also discuss why their thinking is different and whether it is equal. Ask them to explain what it was in the text that generated their impressions of the reading.
2. Have students revise their responses after reading the assignment.
3. Ask students to evaluate the author's success at effectively communicating their main ideas to the reader.

Why do students struggle?

The problem is not illiteracy, but **comprehension**.
 The bulk of struggling secondary readers can read, but **cannot understand what they read**.

~Reading Next

Rigor and Relevance in the 21st Century



**Students must take on the challenge of intellectual work
.....rather than just look for the right answer.**

Rigor: Bloom's taxonomy

- Evaluation*: appraise, defend, predict
- Synthesis*: compose, design, develop
- Analysis*: compare, contrast, categorize
- Basic Skills -----
- Application*: demonstrate, illustrate, solve
- Comprehension*: describe, explain
- Knowledge*: memorize, name, recognize, recall

When can students start doing higher level thinking?

- You give the students a selection of familiar objects and ask them to classify them
- You scaffold / model the task, but they develop the classification independently
- They should be able to describe reasons for classification
- When adding a new object they can put in correct category or modify system to accommodate the new object

What's the earliest level that a student of average ability could design a classification system using familiar objects.

30%	1. Age 1 - 2
48%	2. Age 3 - 4
8%	3. Kindergarten
6%	4. Grade 1 - 2
2%	5. Grade 3 - 4
0%	6. Grade 5 - 6
2%	7. Grade 7 - 8
1%	8. Grade 9 - 10
1%	9. Grade 11 - 12
1%	0. Not until post High School (use "0")

Higher-level thinking skills

Complex use of knowledge



In School:
Test scores,
class credits,
academic progress

In life:
Performance,
ability to adapt
to change

Recall of knowledge

Justin, a second grader, talks about math

Justin
Math is when you add or subtract numbers. And your teacher will make sure you have the right answer.



Only right answers count.
Teachers tell you how to get those right answers.
You work by yourself to solve problems.

From: Math Is Language Too:
Talking and Writing in the
Mathematics Classroom
Phyllis Whittin

Question: A cruise ship carries 200 passengers and crew. Each life boat carries 30 passengers. How many lifeboats will the ship need?

Almost one-third of the 8th graders who took a NAEP math test answered

"6 remainder 20"



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From a high school valedictorian:
 "I could **memorize very easily**, and became valedictorian.
 But I was **embarrassed that I understood much less** than some other students who cared less about grades.
 I felt that **my brain was a way station for material** going in one ear and (after the test) out the other."
 ~ High School Student quoted in Wiggins and McTighe
Understanding by Design

And make it relevant with **real-world application**



Using skills and knowledge in school Using skills and knowledge for myself in the real world

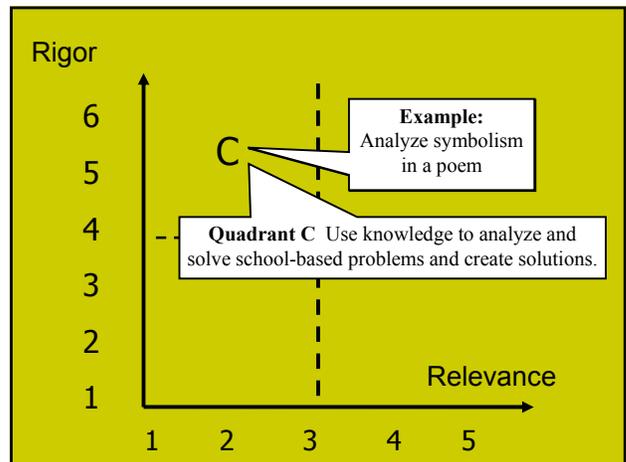
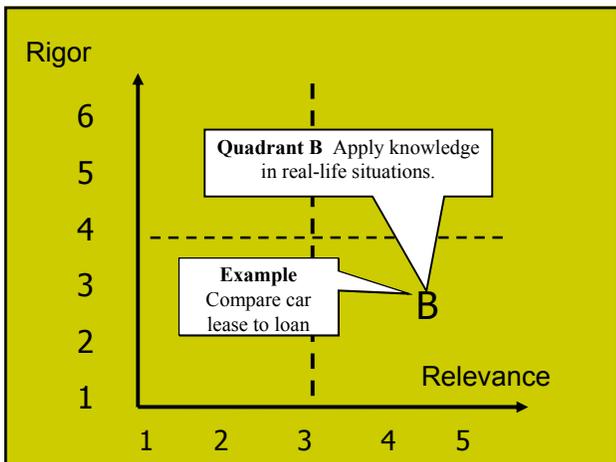
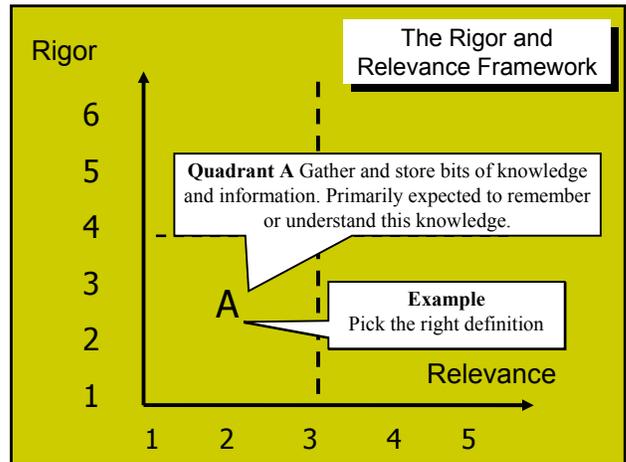
1 2 3 4 5

Relevance

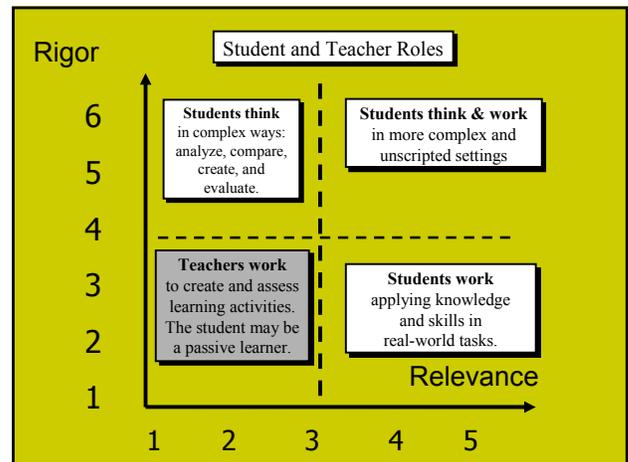
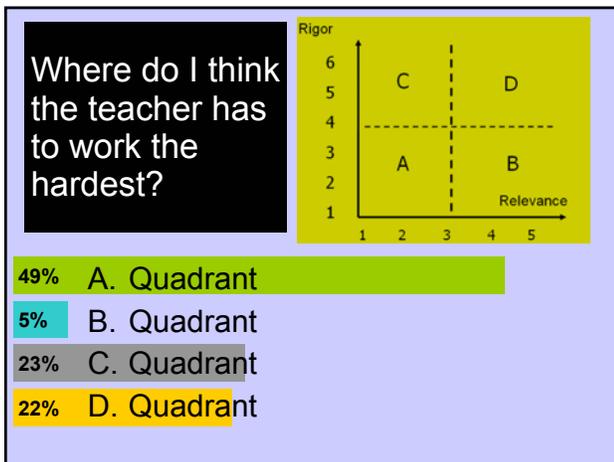
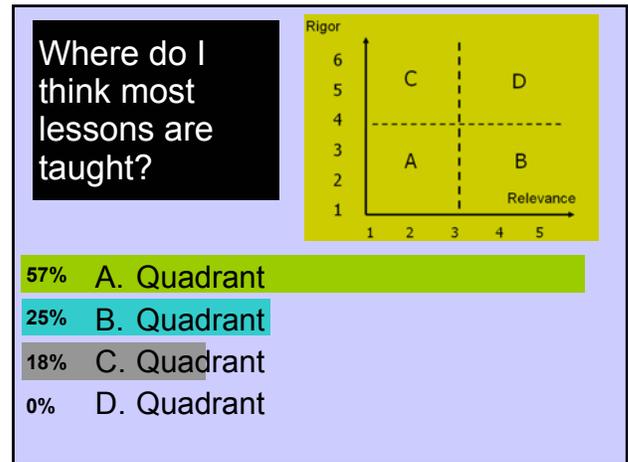
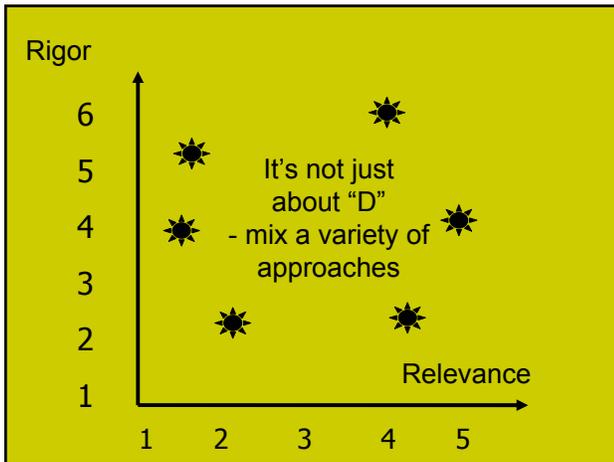
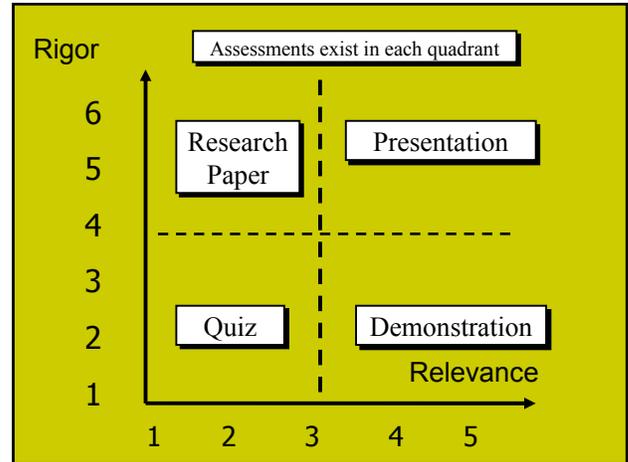
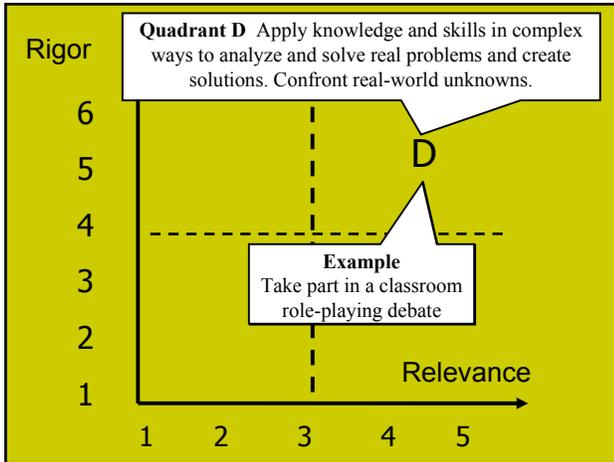
I understand how this information or skill has some application in life.

I have an opportunity to construct my own understanding rather than just learn "the facts."

In addition to learning content and skills, I am learning how to learn .



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Program for International Student Assessment (PISA) is an assessment (begun in 2000) that focuses on 15-year-olds' capabilities in reading literacy, mathematics literacy, and science literacy.

<http://nces.ed.gov/surveys/pisa/>

Countries participating in PISA 2003:

PISA studied students in 41 countries and assessed how well prepared students are for life beyond the classroom by focusing on the application of knowledge and skills to problems with a real-life context.

From PISA Math Literacy

Speed of a racing car along a flat 3 km track (second lap)

Distance along the track (km)	Speed (km/h)
0.0	150
0.2	150
0.4	100
0.6	150
0.8	150
1.0	150
1.2	150
1.4	80
1.6	150
1.8	150
2.0	150
2.2	150
2.4	150
2.6	100
2.8	150
3.0	150

Here are pictures of five tracks:

Along which one of these tracks was the car driven to produce the speed graph shown earlier?

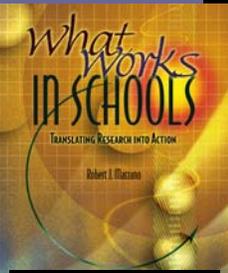
S: Starting point

United States percent full credit: 23%
All country average: 30%
8 Countries between 55 – 36%

PISA Defines Problem solving as:
...an individual's capacity to use cognitive processes to **confront and resolve real, cross-disciplinary situations where the solution is not immediately obvious.**
... and where the literacy domains or curricular areas that might be applicable are **not within a single domain of mathematics, science, or reading.**

1. Brainstorm all the words, phrases you think of when you hear "Rigor and Relevance."
2. Put each on a single post-it
3. Wait for instructions

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Robert Marzano:
What Works in Schools

“35 years of research concretely identifies the factors that are the **primary determinants of student achievement.**”

Robert J. Marzano, What Works in Schools: Translating Research into Action, 2003

Instructional strategies that work

We'll focus on three strategies

- 1. Defining:** negotiating meaning
- 2. Summarizing:** synthesis and judgment
- 3. Comparing:** assessing similarities and differences

One Part Theory / Three Parts Strategies

*Share practical strategies
Validate ones you're already using.
Have some fun.*

Learning strategies are tools.

What's in the toolbox?

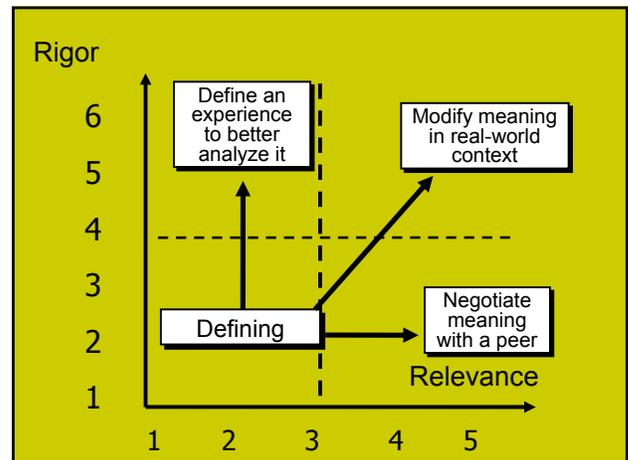


Strategy #1:
Defining negotiating meaning



My school has agreed on a set of common defining strategies to use with our students

3%	1. Strongly Agree
4%	2. Agree
34%	3. Disagree
58%	4. Strongly Disagree



The relationship between vocabulary and academic achievement is well established ~ Bob Marzano, *What Works in Schools*

- Students with **large vocabularies** have **more background knowledge**
- Some students come to us from **home environments that are not academically rich**
- Vocabulary can be taught:
 - **Wide reading:** more engaging, but may lack sufficient word exposure
 - **Direct instruction:** should be student-centered rather than rote-memorization

Strategies for teaching defining skills

1. Connect new vocabulary with *prior knowledge*
 - What they **think they know**
 - Brainstorm **their own explanations** of terms
 - **Introduce with story, current event, image**
2. Give students a chance to more *deeply process* vocabulary to internalize meaning
 - Create their own **non-linguistic models** of terms
 - Activities that **explore, restate, discuss terms with peers**
 - Finalize with **reflection and revisions to vocabulary notebooks**

Pre - reading: Let students **work together** to compare **preliminary definitions**.
(Visual, auditory and text-based definitions)

- Students develop their own definition
- Compare to peer definition
- Similarities
- Differences

Use a **visual organizer** to map out and preview text

Reading for Academic Success ~ Strong and Silver

Students **negotiate a definition for *refugee***

Student 1: A person who come has come to the US from another country

Student 2: An immigrant looking to come here.

Student 3: A person who runs away from one country, to find safety.

Negotiated Definition: *An immigrant fleeing political conditions in one country to find safety in another.*

Negotiating meaning: “Adolescent”

- Work in a small group to develop a definition for “Adolescent”
- Work together until you can agree on a definition
- Group roles
 - “Definers” (2 or 3 of you) discuss possible meaning
 - “Recorder” captures evolving meaning

Adolescent, n.,
a 24-year old too busy playing Halo 2 on his Xbox or watching SpongeBob at his parents' house to think about growing up.

Adolescent



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List, Group, Label *Example "Revolution"*

- List all the words they can think of related to the subject
- Group the words that you have listed by looking for word that have something in common
- Once grouped, decide on label for each group

Use a variety of skills - prior knowledge, identifying, listing
Use words in multiple contexts allow to be creative.
Group work exposes students to thinking of others

Words, Words, Words ~ Allen

Students **internalize** new vocabulary when they **explore** the words –

- Think about terms, examine and reexamine in new ways.
- Apply their understanding - opposites and analogies.
- Create multiple formats for which students can elaborate on the meaning of new terms.

Increase rigor and relevance with **non-linguistic definitions**
– Charades, role play, tableau

Increase rigor and relevance with a personal vocabulary notebook

Term:
"My" definition:
Dictionary Definition:
Comparison:

Reading for Academic Success ~ Strong and Silver

Reading: "Letters from a Birmingham Jail" Martin Luther King Jr

Term: <i>Segregation</i>
"My" definition: <i>A time when African-Americans used to have separate schools</i>
Dictionary Definition:
Comparison:

"A time when African-Americans used to have separate schools." This student has a good understanding for the meaning of "segregation."

4%	1. Strongly Agree
49%	2. Agree
37%	3. Disagree
10%	4. Strongly Disagree

Term: <i>Segregation</i>
"My" definition: <i>A time when African-Americans used to have separate schools</i>
Dictionary Definition: <i>The policy or practice of forcing racial groups to live apart from each other</i>
Comparison: <i>I thought of segregation more as a time period, but the dictionary calls it a practice or policy</i>

Be sure to consider the use of familiar terms in a specialized context

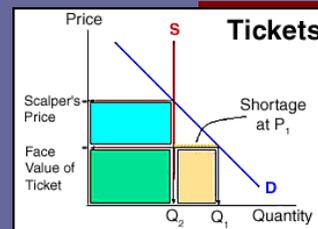
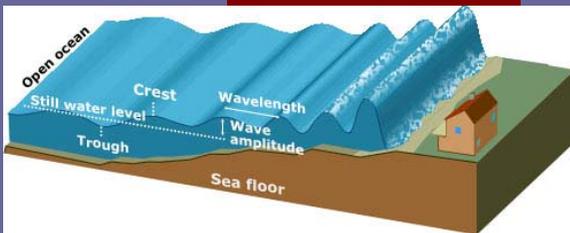
- Identify **key words** in passage
- Ask students to read the passage with **special attention to the context** in which the term is used
- Ask students to discuss **how the author has used the term** in this specific context
- Ask them to **refine their preliminary definition** of the word

Refining meaning in an academic discipline ...

“Model”



Model of how a tsunami develops



“The market model provide a base from which mathematical models can be constructed and refined.

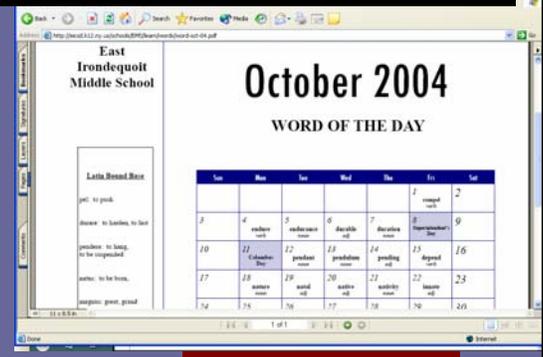
— Michael H. Best, *The Politicized Economy*

How does it compare to the dictionary definition?

Model - n.

1. a standard or example for imitation or comparison.
2. a representation, generally in miniature, to show the structure or serve as a copy of something.
3. a person or thing that serves as a subject for an artist, sculptor, writer, etc.
4. a person, esp. an attractive young woman, whose profession is posing with, wearing, using, or demonstrating a product for purposes of display or advertising.
5. a pattern or mode of structure or formation.

Teamwork! Organize a school or department **academic vocabulary list**



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Latin Bound Base	Mon	Tue	Wed	Thu	Fri
pel: to push					1
durare: to harden, to last	4 endure verb	5 endurance noun	6 durable adj	7 duration noun	8 Super
pendere: to hang, to be suspended	11 Columbus Day	12 pendant noun	13 pendulum noun	14 pending adj	15
natus: to be born,	18 nature noun	19 natal adj	20 native adj	21 nativity noun	22
magnus: great, grand	25 magnificent adj	26 magnify verb	27 magnanimous adj	28 magnitude noun	29

I think it would be a good idea if my school organized a **common vocabulary list**

41% **1. Strongly Agree**

47% **2. Agree**

9% **3. Disagree**

3% **4. Strongly Disagree**

Teachers must monitor accuracy of student work

1. Use introductory activities as a chance to “pre-test” their understanding
2. Circulate to check work and vocabulary notebooks during group time
3. During review activities listen for misconceptions and areas of confusion. Clear them up!

Consider having students keep records of their own progress

Tracking Vocabulary Progress

Rubric Level	Description
4	I understand even more about the term than what I was taught. I know multiple meanings.
3	I understand the term and I’m not confused about any part of what it means.
2	I’m a little uncertain about what the term means, but I have a general idea.
1	I really don’t understand what the term means.

My Understanding Rubric 4 | **3** | 2 | 1

Term: *Segregation*

“My” definition: *A time when African-Americans used to have separate schools*

Dictionary Definition: *The policy or practice of forcing racial groups to live apart from each other*

Comparison: *I thought of segregation more as a time period, but the dictionary calls it a practice or policy*

Student Progress Chart Unit 3

Student Name _____ Date _____

Rubric 4	X	X	X					
Rubric 3	X	X	X	X	X			
Rubric 2	X	X						
Rubric 1	X							

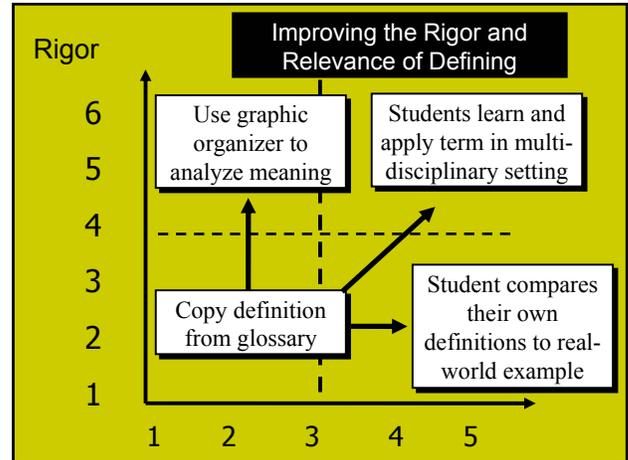
Building Academic Vocabulary - Bob Marzano

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“Finalize” the mastery by asking students to make connections to the new term

1. How the term is **related to previous subject matter** they have learned
2. Identify **something from their personal life** associated with the term
3. How the term is **used in real-life situations**
4. How their **understanding of the term has evolved**

An essential part of this elaboration process is having the students explain the connection.



Thinking about Defining Strategies

They might be strategies you now use, strategies you saw in the presentation, or others you'd consider using.

1. How can we find the time to use them?
2. How can they be modified to work in my discipline?
3. How can they be modified to use with students of different ability levels?

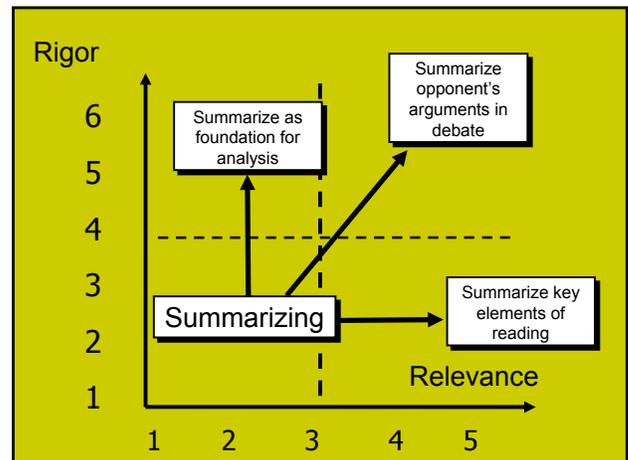
The screenshot shows a 'Teacher's Toolbox' for 'Tool 16: Skim and Scan'. It includes sections for 'Name', 'Unit', 'Date', 'Source Reading', 'Use this tool', and 'How to use this tool'. Below the text is a table with columns for 'Final Impressions', 'Final Facts', and 'Reading Purpose Questions'.

Strategy #2: Summarizing synthesis and judgment

The illustration shows a silhouette of a person's head and shoulders. A thought bubble above the head contains the text 'What's important?'.

In my school we have agreed on a set of common summarizing strategies to use with our students

1%	1. Strongly Agree
1%	2. Agree
31%	3. Disagree
66%	4. Strongly Disagree



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Research shows student use of summarizing skills results in a 34-percentile gain in student performance.
Classroom Instruction that Works, ASCD, 2001

Case 1:
Teacher lectures on the essential characteristics of mammals

Case 2:
Teacher lectures and then students do a summarizing exercise on the essential characteristics of mammals

+ 34% gain in content mastery

Summarizing is an active task calling for more than accuracy

- Calls for active, **creative thinking** and writing.
- Engages student **judgment**.
- Works in **coordination with other strategies**.

Example: use a summary when making a comparison

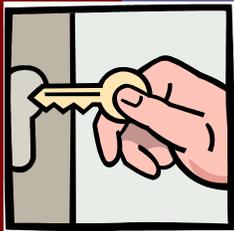


If we expect our student to synthesize the essential information, do we help them set a purpose for their reading?

Think of purpose we set for our reading

Students need to know what they should expect to learn

- Main points or details?
- Sequence of events?
- Author's viewpoint?
- Connections to previous learning?



Would your students benefit from standardized reading assignment form?

1. **Specific passage and due date**
2. **Purpose** – what should they know or be able to do?
And pay special attention to:
 - **New vocabulary** that they will encounter
 - **Text features** – headings, bold face, images, data, graphs, footnotes
 - **Reading tips** – skim, make predictions, summarize, organize details, take notes

Model **active viewing, listening, and reading** as a foundation for summarizing

Getting the **visual message** right
“So what the artist is saying is...”

Getting the **spoken message** right
“So what you’re saying is...”

Getting the **written message** right
“So what the author is saying is ...”

Link visual, listening, reading skills

- **Identify details** – can you identify key symbols, words, visual elements?
- **Recognizing context** –where is this taking place, time period, who’s involved?
- **Identify relationships** –who are these people, what is their relationship to one another?

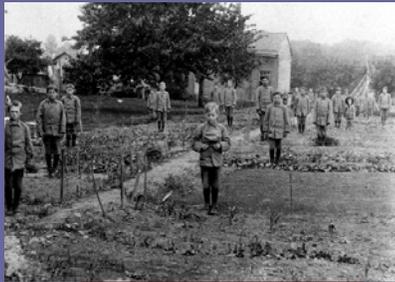
Link visual, listening, reading skills

- **Identify opinions** – is there a point of view expressed in the source information?
- **Infer meaning** – is there meaning that can be extracted from what's between the lines?
- **Make predictions** – based on the information, what will happen next?

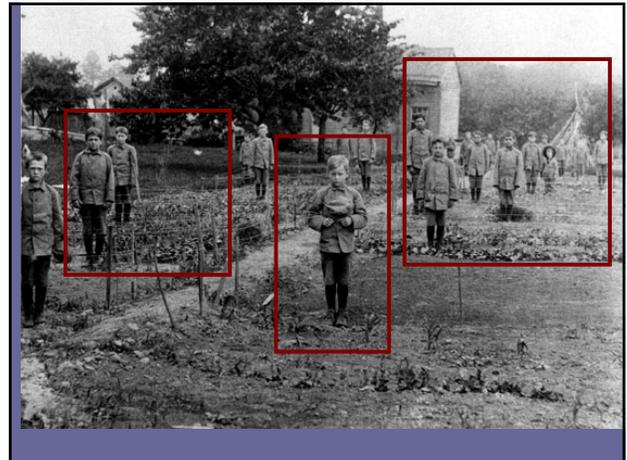
Which skills would be most challenging for your students **You can pick 2**

- 5% 1. Identify details
- 16% 2. Recognizing context
- 18% 3. Identify relationships
- 13% 4. Identify opinions
- 35% 5. Infer meaning
- 13% 6. Make predictions

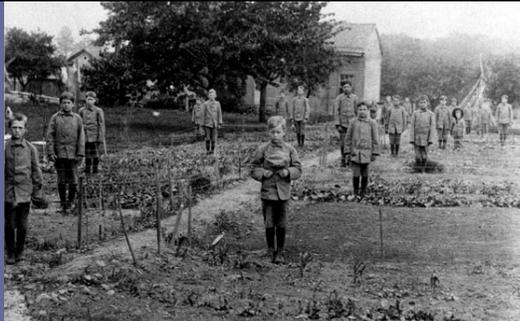
Focus on accurate observation:
Inventory the Image



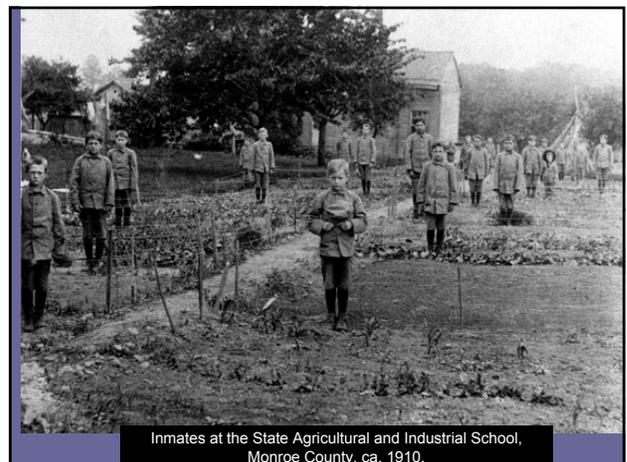
- Study the image for 2 minutes. Form an overall impression of the image and then examine individual items.
- Next, divide the image into sections and study each to see what new details become visible.
- List **people**, **objects**, and **activities** in the image.



Increase rigor with inference - Based on what you have observed, list three things you might infer from this image.



What questions does this image raise?
Where could you find answers to them?



Differentiate the objective

Using the visual document supplied by the teacher

- Identify - **comprehension**
- Compare - **analysis**
- Draw your version - **synthesis**
- Judge based on criteria - **evaluation**

Choose image appropriate to student ability

Make it more rigorous and relevant with **Evaluation**



Which photo would you use?
What's in the images? What's left out?



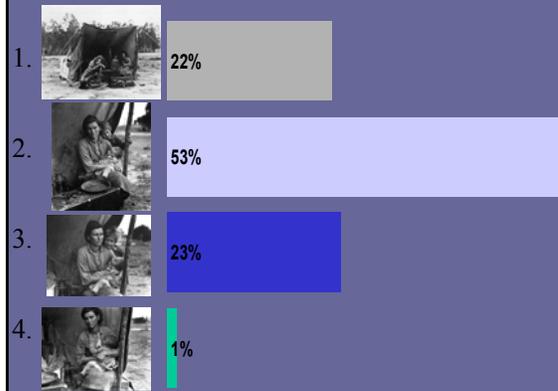
1 

2 

3 

4 

Which photo would you select?

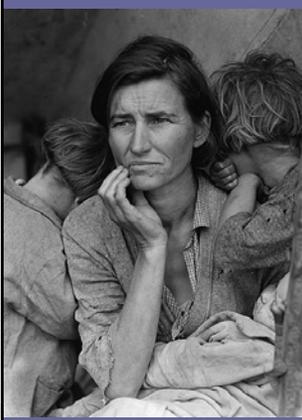


1 

2 

3 

4 



"I approached the hungry and desperate mother, as if drawn by a magnet. I do not remember how I explained my presence ... she asked me no questions. ... I did not ask her name.

She told me that she was thirty-two. They had been living on vegetables from the surrounding fields, and birds that the children killed.

She seemed to know that my pictures might help her, and so she helped me. There was a sort of equality about it." Dorothea Lange

"Migrant Mother" 1936 Nipomo, California

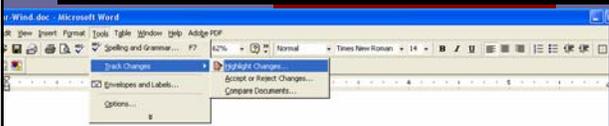
Rigor, Relevance and Reading for Content Mastery
CESA 7 ~ Green Bay WI

Effective discussion groups give students a chance to learn by verbally **rehearsing their thinking**.

Learning happens during the work of **negotiating meaning**.

The key is **consistent structure and training for discussion groups**.

Support summarizing skills with technology



Why Does Studying Solar Wind Tell Us About the Origin of Our Solar System?
Example from Reading for Academic Success ~ Strong and Silver, 2002

Most scientists believe our solar system was formed 4.6 billion years ago with the gravitational collapse of the solar nebula, a cloud of interstellar gas, dust, and ice created from previous generations of stars. As time went on the grains of ice and dust bumped into and stuck to one another, eventually forming the planets, moons, comets, and asteroids as we know them today.

Tools / Track Changes / Highlight Changes

Support summarizing skills with technology

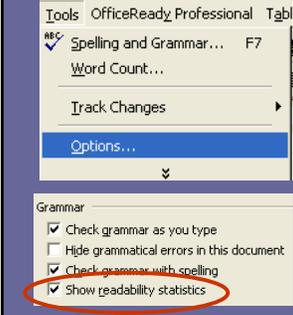
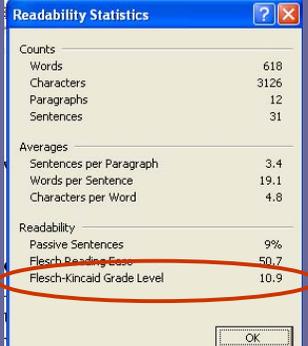


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Tools / Track Changes / Highlight Changes

Add Reading Level to Spell Check
Tools / Options / Show readability statistics

Readability Statistics

Counts	
Words	618
Characters	3126
Paragraphs	12
Sentences	31
Averages	
Sentences per Paragraph	3.4
Words per Sentence	19.1
Characters per Word	4.8
Readability	
Passive Sentences	9%
Flesch Reading Ease	50.7
Flesch-Kincaid Grade Level	10.9

Writing a summary matched to text structure

Recognizing how a piece of writing is organized helps to summarize it

Students may need to first map out the main points in a rough outline so that they can see the relationships

Critical Strategies for Academic Thinking and Writing
by Mike Rose, Malcolm Kiniry

Pattern	Description	Cue Words
Description	Describes a topic by listing characteristics, features, and examples	for example, characteristics are
Comparison	Explains how two or more things are alike and/or how they are different.	different; in contrast; alike; same as; on the other hand
Cause and Effect	Lists one or more causes and the resulting effect or effects.	reasons why; if...then; as a result; therefore; because
Problem and Solution	States a problem and lists one or more solutions for the problem.	problem is; dilemma is; puzzle is solved; question... answer
Sequence	Lists items or events in numerical or chronological order.	first, second, third; next; then; finally

Rigor, Relevance and Reading for Content Mastery CESA 7 ~ Green Bay WI

Description: listing characteristics, features, and examples

Comparison: how two or more things are alike or different

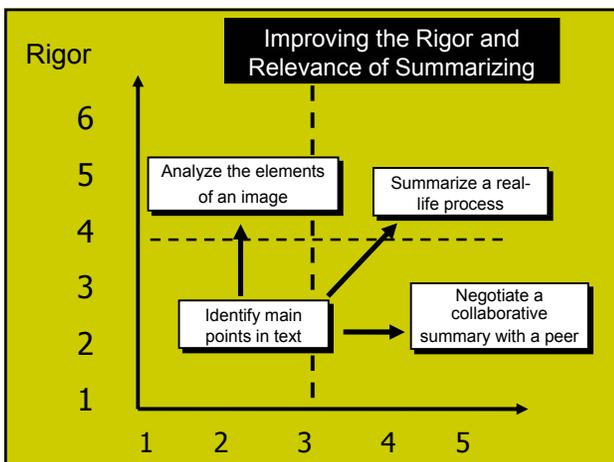
Cause and Effect: one or more causes and the resulting effect or effects

Problem and Solution: States a problem and lists one or more solutions for the problem

Sequence: Lists items or events in numerical or chronological order

Remember to teach students to evaluate their own summaries

- Are the ideas in the **right sequence** / organization?
- Is it too **narrow or broad**?
- Would **someone else** reading my summary **understand** the subject?
- Does it convey the information **accurately and fairly**?
- Did my summary **suit my purpose**?
- Did I use **my own words and style**?



Thinking about Summarizing Strategies

They might be strategies **you now use**, strategies you **saw in the presentation**, or others you'd **consider using**.

1. How can we find the time to use them?
2. How can they be modified to work in my discipline?
3. How can they be modified to use with students of different ability levels?

Teacher's Toolbox

Tool 16: Skim and Scan

Use this tool:

- Pre-reading
- While reading
- Post-reading

This tool will help my students:

- Organize
- Summarize
- Compare

How to use this tool:

The skan tool is an strategy helps students quickly generate evidence to develop a better sense of text structure and to identify what they need prepare for reading.

1. Give students an exemplary reading organizer such as the chapter of a textbook.
2. Have students read the reading, or section that organize in PQRI (Text 1), marking the title, headings, sub-headings, words, symbols, first and last paragraphs.
3. Use the data to gather initial thoughts and impressions about the reading in the First Impressions column.
4. Ask students to recall several facts that they need to generate their first impressions.

Put these facts in the First Facts column.

1. Have students review their first two columns and then decide what questions they think the chapters will answer. List these in reading organizer questions column.

First Impressions	First Facts	Reading Purpose Questions

Strategy #3:
Comparing /
Classifying
assessing similarities and differences



Reflecting on comparing / classifying

- What **comparing skills** do I teach?
- What **strategies** do I use?
- What **strategies** are working?

What do you observe?
How do things compare?
Can you effectively write about it?

Comparison	Square		Rectangle		
	1 x 1 cm	2 x 2 cm	4 x 6 cm	3 x 7 cm	3 x 8 cm
Perimeter	4 cm	8 cm	20 cm	20 cm	22 cm
Area	1 sq cm	4 sq cm	24 sq cm	21 sq cm	24 sq cm

Two rectangles can have the same perimeter, but different areas. That also means that a square and a rectangle could have the same perimeter, but different areas. Also, two rectangles can have the same area, but different perimeters. If you double the size of a square, the perimeter doubles, but the area increase by four times.

Handbook for Classroom Instruction that Works,
Robert Marzano

Research shows student use of comparison skills results in a 45 - percentile gain in student performance.
Classroom Instruction that Works, ASCD, 2001

Case 1:

Teacher lectures on the essential characteristics of mammals

**+ 45% gain
in content mastery**

Case 2:

Teacher lectures and then students do exercise comparing the essential characteristics of mammals to birds



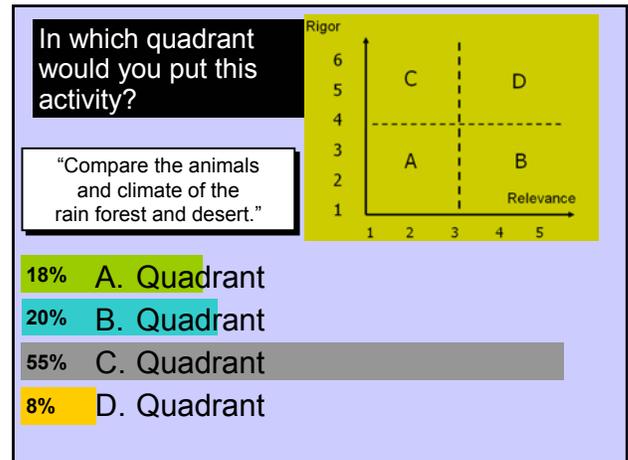
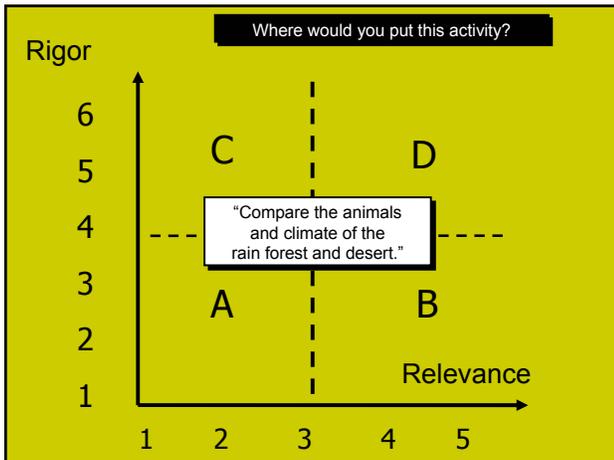
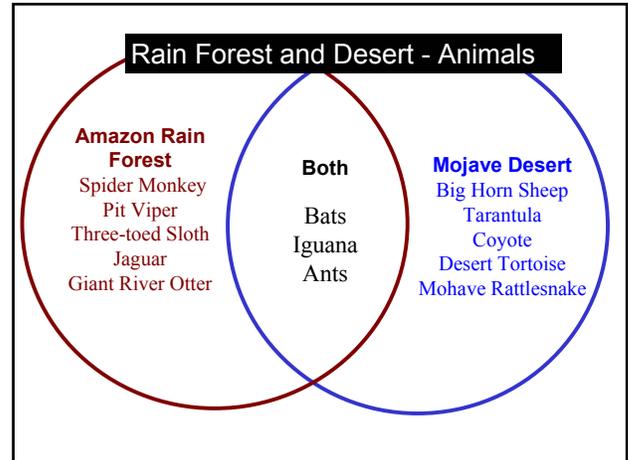
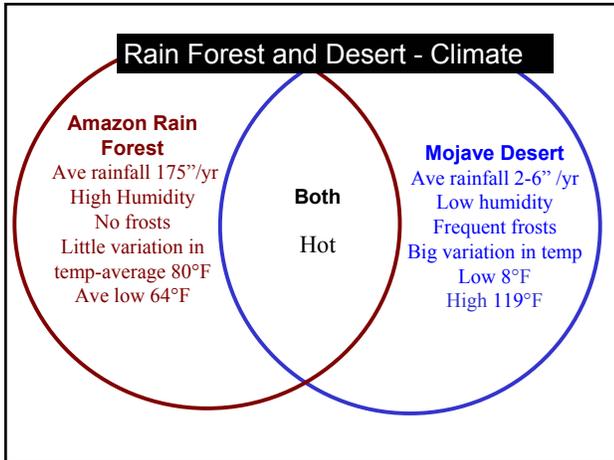
We are always comparing

"Compare the animals and climate of the rain forest and desert."

Amazon Rain Forest	Mohave Desert
Ave rainfall 175"/yr High Humidity	Ave rainfall 2-6" /yr
No frosts	Low humidity
Little variation in temp-average 80°F	Frequent frosts
Ave low 64°F	Big variation in temp
Hot	Low 8°F
Spider Monkey	High 119°F
Pit Viper	Bats
Three-toed Sloth	Iguana
Jaguar	Ants
Giant River Otter	Big Horn Sheep
Bats	Tarantula
Iguana	Coyote
Ants	Desert Tortoise
	Mohave Rattlesnake

Classroom Instruction that Works, ASCD

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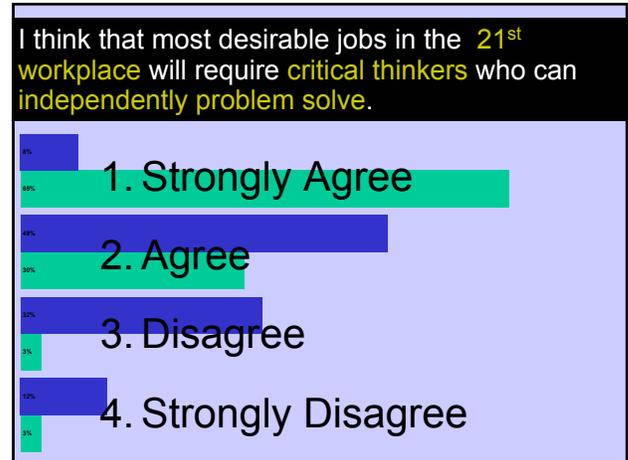
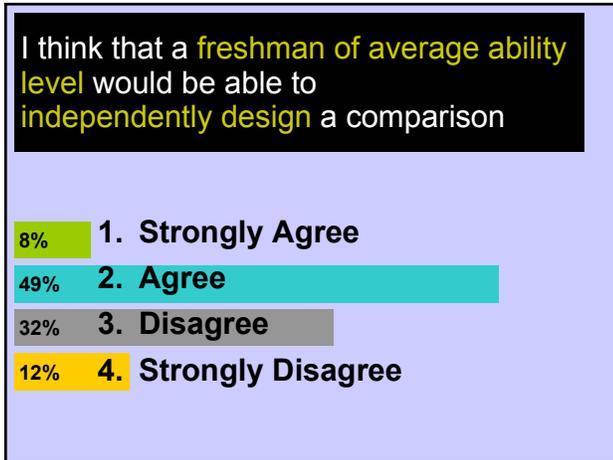
Who is doing the thinking in this exercise?
"Compare the animals and climate of the rain forest and desert."

- Did students select **the information** and **decide on the categories**?
- Did they **design the graphic organizer**?
- Is it **really an exercise in memorizing and repeating** the appropriate (complex) information that others have told the student?

What's the point of the comparison?
What does it enable us to do or see?

How would students independently compare regions?

- Select two geographic regions of the world
- Develop a model to compare the regions
- Select at least two factors to compare
- Develop a graphic organizer to display your comparison.



Do you give students an opportunity to **develop their own analytic models** for comparison?

- They could **select items to compare** from a teacher-produced list.
- They could independently decide **what to compare**.
- Can include some combination of **selecting both the items and / or characteristics**.
 - Of what use is the comparison
 - What does it enable us to do or see?

Develop a comparative analysis of **What's more important in sports ...strength or agility?**

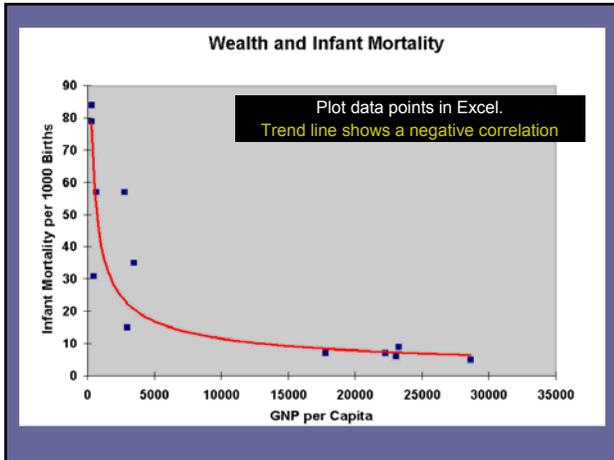
Add a peer review of research proposals

Is **Tuesday's school lunch better than Wednesday's lunch?**

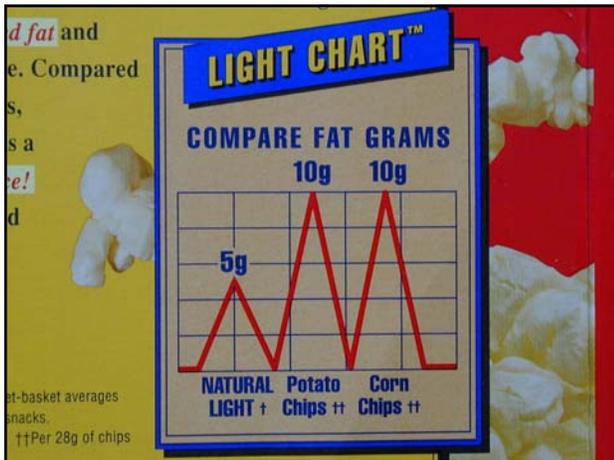
Design comparison
Select characteristics
Rating system

Conduct quantitative comparisons of real-world problems

What is the relationship between wealth and infant mortality?



Do we teach students how to create effective visual displays of data?



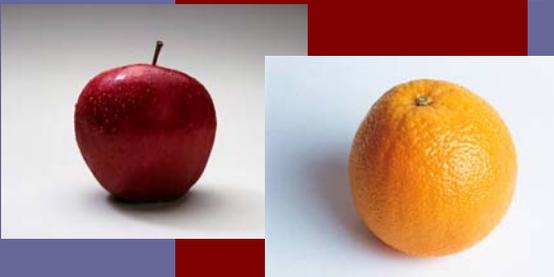
Move from Comparing to Classifying



1. **Comparing** is the process of **identifying similarities and differences** between or among things or ideas (technically contrasting is looking for differences.)
2. **Classifying** is the process of **grouping things** that are **alike into categories** on the basis of the **characteristics**

Comparison depends on classification.
The student may not be aware of the connection, because the teacher did the classifying in advance, leaving only the comparing for the student.

It's like comparing **apples** and **oranges**



Can your students move from comparing to **designing classifications systems**?

- We typically ask students to **take someone else's classification system** and apply it.
- We rarely ask students to **generate a classification system of their own**.
- Creating categories gives them a chance to **assert their intellectual independence**.

- Of what use is the classification system?
- What does it enable us to do or see?

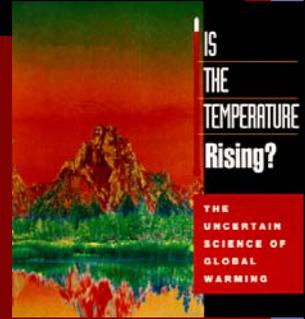
Rigor, Relevance and Reading for Content Mastery
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"Post it" classification strategy. Give students a reading. They each write key info from reading on sticky notes. They then work in groups to *silently* classify the info.



Quantify classification with a content analysis of news reports on Global Warming

- How will you **category** your observations?
- How will you **organize** your team to gather and evaluate the information?
- How will you **record and present** your findings?



How will you quantify your observations?



- Time the **length** of news stories?
- Record the **frequency** of certain categories you develop?
- Just an announcer talking vs live footage of the event?
- **Order** of presentation in news program?

Rigor and relevance in practice:
Student-designed classifying exercise

1. What do I want to classify?
2. What **things are alike** that I can put into a group?
3. **Does everything fit** into a group now?
4. Would it be better to **split up any of the groups** or put any groups **together**?

Increase rigor of classification
– add evaluation and decision-making

Decision	Criteria for evaluation		
	Criteria 1	Criteria 2	Criteria 3
Option 1			
Option 2			
Option 3			

Make it relevant - Choose an Mp3 Player	Criteria		
	Cost	Battery	Memory
iPod			
Creative Zen			
Zune			

What criteria will you use?
Are they of equal importance?
How can your evaluations be quantified?

I think that our students should have more opportunities to **design their own comparisons and classifications**

- 66% **1. Strongly Agree**
- 31% **2. Agree**
- 0% **3. Disagree**
- 3% **4. Strongly Disagree**

Constructing Meaning
Define, summarize
and compare



How do we prepare our
students for
**a future we cannot
describe?**

What skills will the 21st
century workplace require?

Literacy / numeracy

Self-discipline

Creativity

Adaptability – independent learner

