Partial assembly required

I’ll use examples from many academic areas, grades and student ability levels – but you’ll need to make it relevant to your instructional needs.

Put this workshop to the test. Will it be rigorous and relevant to your teaching?

“The flow of information in the classroom has changed since I got started.”

New technologies have put students in charge of the information they access, store, analyze and share.

by Peter Pappas ~ www.peterpappas.com
Flow of digital information is both personal and collaborative.

Students can become their own researcher, editor, and entertainment director.
And join new digital communities – linking them to the people who share their interests.

Schools function as if they still controlled the flow of information.

Schools should recognize the realities of the information rich world our students live in:

- Offer students skills and context to make some sense of all of it
- Structure learning environments that let students use information to make decisions and solve problems

Offer equity for student who can’t afford new media tools.

Literacy in the 21st century will mean the ability to find information, decode it, critically evaluate it, organize it into personal digital libraries and find meaningful ways to share it with others.

Information is a raw material – students will need to learn to build with it.

Rigor, Relevance, and Learning Strategies

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

Bloom's different levels of rigor

**Evaluation:** appraise, defend, predict

**Synthesis:** compose, design, develop

**Analysis:** compare, contrast, categorize

**Application:** demonstrate, illustrate, solve

**Comprehension:** describe, explain

**Knowledge:** memorize, name, recognize, recall

by Peter Pappas ~ www.peterpappas.com
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

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

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 incoming 9th graders who took a NAEP math test answered "6 remainder 20"

Put students in charge of their learning

- What am I learning today?
- Why am I learning it?
- How can I use this knowledge and these skills to make a difference in my life?
- How can I work with teachers and other students to improve my learning?

Goal – students who can function in an academic or real-world setting that is unpredictable and vital

Learn to research, think, problem-solve and write like a scientist, engineer, coach, artist, historian, mathematician, writer, musician, ....

by Peter Pappas ~ www.peterpappas.com
A Rigor and Relevance Framework

**Quadrant A** Gather and store bits of knowledge and information. Primarily expected to remember or understand this knowledge.

**Example**
Pick the right definition

**Quadrant B** Apply knowledge in real-life situations.

**Example**
Compare car lease to loan

**Quadrant C** Use knowledge to analyze and solve school-based problems and create solutions.

**Example**
Analyze symbolism in a poem

**Quadrant D** Apply knowledge and skills in complex ways to analyze and solve real problems and create solutions. Confront real-world unknowns.

**Example**
Take part in a classroom role-playing debate

Assessments exist in each quadrant

Best to mix a variety of approaches

by Peter Pappas ~ www.peterpappas.com
Strategies for Rigor, Relevance and Reading For Struggling Students

Rigor

Students think, in complex ways; analyze, compare, create, and evaluate.

Teachers work to create and assess learning activities. The student may be a passive learner.

Students think & work in more complex and unscripted settings.

Students work applying knowledge and skills in real-world tasks.

Relevance

1. Reading is thinking. Well-written materials model good thinking.
2. Foundation for expressive writing.
3. Thoughtful readers become thoughtful problem solvers and better students.

Have you heard this before?

I can't understand this assignment.
I can read it, but I don't know what it says.
Why would anyone waste time reading this garbage?

Brandon
Lauren
Tevin

Strategies for Struggling Readers

Meet the ‘Word-Caller’

The ‘word-caller’ works well with accuracy and fluency. Silent reading appears rapid, accurate and purposeful. These students use repeated ‘signaling’ questions when they are asked to summarize. Their responses are disorganized and hasty; they cannot perceive, comprehend, synthesize, analyze, order or evaluate. They have great trouble reading for the meaning of the text instead of learning to read and develop a sight word vocabulary.

Rigor

‘Word-Caller’ characteristics:

- Provides written summaries; fairly well-organized.
- Does not become discouraged easily; can entertain self for long periods.
- Paraphrases poorly; tends to express comprehension in underlistening.
- Often have trouble with sequences.
- Exhibits poor comprehension skills, may be well-organized but not understanding.
- High level language and vocabulary; does not use multiple meanings, converts meaning, or significant language.
- Can decode words that are not in vocabulary.
- Appears to be using ‘reading’ for enjoyment when instruction is required.

What the ‘word-caller’ says about reading and themselves:

- "I understood it, but I don’t know what it means.”
- "I understood it, but I don’t have the questions to form questions.”
- "I understood more when someone else reads the text.”

by Peter Pappas ~ www.peterpappas.com
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

---

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 1 test is a reading test with numbers”
~ Doug Reeves, District Administrator April ’05

We’re all relying on reading skills

**Math**
- Analyze statistical reports
- Solve word problems

**Science**
- Understand and use formulas
- Apply data from reading to practical problems

**Health and Physical Education**
- Read and apply procedures
- Read training manuals or play guides

**Vocational Studies**
- Interpret recipes, training and assembly manuals
- Read charts, diagrams, pictures, drawings, and plans

**Music**
- Read music notations and interpret music symbols
- Evaluate and critique music

---

How can we work together across the disciplines to help our students master new vocabulary?

<table>
<thead>
<tr>
<th>Math Vocabulary</th>
<th>Social Studies Vocabulary</th>
<th>Student writes a sentence using both terms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Median:</strong> The middle number in a set of numbers ordered from smallest to largest.</td>
<td><strong>Demographic:</strong> Characteristics of the people of geographic region.</td>
<td>The demographics of the area show that the median age is 62, meaning that half the population is near retirement.</td>
</tr>
</tbody>
</table>

1. Given the “denominator” of each measure, write in the “numerator.”
2. Then add or subtract, and simplify as factions.

---

Do we offer students the chance to problem solve across the curriculum?

by Peter Pappas ~ www.peterpappas.com
Do we help our students 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
3. Text features – headings, bold face, images, data, graphs, footnotes
4. Reading tips – skim, make predictions, summarize, organize details, take notes

We’ll focus on three strategies

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

We’ll use the Rigor and Relevance Model as a framework

Strategy #1: 
**Defining negotiating meaning**

Rigor

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</tr>
</tbody>
</table>

- Define an experience to better analyze it
- Modify meaning in real-world context
- Negotiate meaning with a peer

Poor word choice?

by Peter Pappas ~ www.peterpappas.com
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.

Add a graphic organizer – How well do I know these words?

- Don’t know this word at all
- Have seen or heard, but don’t know meaning
- I think I know meaning
- I know meaning of this one

List, Group, Label Example “Revolution”

1. List all the words they can think of related to the subject
2. Group the words that you have listed by looking for word that have something in common
3. 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

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

by Peter Pappas ~ www.peterpappas.com
**Target word in sentence**
The explanation is **preposterous**.

**Related word / examples**
- Unbelievable, no way
- Begging for more homework

**Opposites / examples**
- Average, boring
- Doing something I do every day

I’ll remember this word by connecting it to:
Thinking of a platypus. That animal makes no sense at all.

---

**Target word in sentence**
The outcome of the competition was **unpredictable**.

**Word part and meaning**
- "Un" means "not"
- "Predict" means "to know about something ahead of time"

**Words I know that have one of these word parts**
- Unpopular, unhealthy, prediction

**My definition for the target word**
Nobody could guess ahead of time what he would do when he got mad.

---

**Let them design pictures or symbols to represent terms**

**Draw a definition for “Inspiration”**

---

**Students master new terms when they can more deeply process them**

**Frayer Model**

- Define in your own words
- Characteristics
- Example from life
- Non-example from life

Frayer Model from: Teaching Reading in the Content Areas ~ McRef

---

**Increase rigor and relevance with student generated real-world connections**

- “Way of life of a group of people”
- “Culture”
- “What my friends and I wear. What music we listen to”
- “Color of my skin, the weather”

---

**“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.

---

by Peter Pappas ~ www.peterpappas.com
Do you use a common academic vocabulary list?

Teamwork! Organize a school or department academic vocabulary list

Build background knowledge 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

Ask the students to explain the connection.

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!
4. Consider having students keep records of their own progress

by Peter Pappas ~ www.peterpappas.com
I really don’t understand what the term means.

I’m a little uncertain about what the term means, but I have a general idea.

I understand the term and I’m not confused about any part of what it means.

I understand even more about the term than what I was taught.

Building Academic Vocabulary - Bob Marzano

Rubric 1

Rubric 2

Rubric 3

Rubric 4

Improving the Rigor and Relevance of Defining

Student Progress Chart

Student Name __________ Date ______

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

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

+ 34% gain in content mastery

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

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by Peter Pappas ~ www.peterpappas.com

Strategies for Rigor, Relevance and Reading For Struggling Students
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 ...*”

**Visual, listening, and 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?

**Visual, listening, and 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?

We can all give students a chance to **observe and summarize**?

“**Telling Board**” Each frame is a place for the writer to put information, pictures, text, symbols to sequence a story Roger Essley - Author, Illustrator

by Peter Pappas ~ www.peterpappas.com
Build more powerful summaries with Paired Reading

1. Reader reads 1st paragraph to listener
2. Listener gives a summary
3. Check back to text for accuracy
4. Record summary
5. Switch roles

Modify Paired Reading into: Peer Reading Coach

- Select a reading - break into smaller sections
- Teacher develops two guiding questions for each section
- Pair students up and have them alternate role of
  - Coach ~ reads teacher’s questions
  - Summarizer ~ uses questions to develop summary
- Switch roles with each paragraph to summarize entire reading

Increase relevance – have student groups negotiate a collaborative summary

- Reading pairs develop summary
- Meet with additional groups to negotiate a collaborative summary
  - My key ideas
  - My partner’s key ideas
  - Our joint key ideas
  - Key ideas we agree on with another group

Increase relevance – use a 4-2-1 Free Write to collaborate and reflect on a main idea

- Student 1 Idea
- Student 2 Idea
- Student 3 Idea
- Student 4 Idea
- Pair A Central Idea
- Pair B Central Idea

Group of Four: One Big Idea

All 4 students do a free write “explaining” the big idea to someone who wasn’t in the group

Open-ended questions to deepen understanding … “What’s going on here? What do you see that makes you think so?”

- What do you think the story will be about?
- What might you do in a similar situation?
- What does this remind you of in your own life?
- How might this be different if it happened in another time period?
- If you were telling this story, how might you end it?
- What do you think would happen if… ?

Comprehension, summarizing and the spoken message

The teacher models strategies then transfers responsibility to students working in small groups.

- Pair – share
- 4-2-1 - Free write
- Jigsaw
- Fishbowl
- Clarifying
- Predicting
- Peer Reading Coach

Students learn to independently and flexibly apply the strategies on their own.

by Peter Pappas ~ www.peterpappas.com
Specify basic text summarizing skills – delete, substitute, and keep

1. Focus on the important information.
2. Delete trivial info that is unnecessary to understanding.
3. Delete redundant information.
4. Use category terms for lists (“flowers” for “daisies, tulips, and roses”).
5. Select a topic sentence (or invent one if it is missing).

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

Does your school use common strategies to map text structure?

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

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

by Peter Pappas ~ www.peterpappas.com
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 components of nutrition + 45% gain in content mastery

Case 2:
Teacher lectures and then students design a comparison of the essential components of nutrition

Strategy #3: Comparing assessing similarities and differences

“Compare the animals and climate of the rain forest and desert.”

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

Classroom Instruction that Works, ASCD

Strategies for Rigor, Relevance and Reading For Struggling Students

by Peter Pappas ~ www.peterpappas.com
Rain Forest and Desert - Climate

Amazon Rain Forest
Ave rainfall 175”/yr
High Humidity
No frosts
Little variation in temp-average 80°F
Ave low 64°F

Mojave Desert
Ave rainfall 2-6”/yr
Low humidity
Frequent frosts
Big variation in temp
Low 8°F
High 119°F

Both
Hot

Rain Forest and Desert - Animals

Amazon Rain Forest
Spider Monkey
Pit Viper
Three-toed Sloth
Jaguar
Giant River Otter

Mojave Desert
Big Horn Sheep
Tarantula
Coyote
Desert Tortoise
Mohave Rattlesnake

Both

Alligator
Ants

Where would you put this activity?

But who is doing the thinking in this exercise?
“Compare the animals and climate of the rain forest and desert.”

1. Did students select the information and decide on the categories?
2. Did they design the graphic organizer?
3. 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 models for comparison?

1. They could select items to compare from a teacher-produced list.
2. They could independently decide what to compare.
3. 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?

by Peter Pappas ~ www.peterpappas.com
Develop a comparative analysis of What’s more important in sports …strength or agility?

Is Tuesday’s school lunch better than Wednesday’s?

Add a peer review of research proposals

Design comparison
Select characteristics
Rating system

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 thing 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

Who determines the categories and “rules” for membership?

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 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?

by Peter Pappas ~ www.peterpappas.com
Start by classifying buttons?

“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.

Increase rigor of classification – add evaluation and decision-making

<table>
<thead>
<tr>
<th>Decision</th>
<th>Criteria for evaluation</th>
<th>Criteria 1</th>
<th>Criteria 2</th>
<th>Criteria 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
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<tr>
<td>Option 3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Make it relevant - Choose a Career

<table>
<thead>
<tr>
<th>Criteria for Selecting a Career</th>
<th>Pay</th>
<th>Growth</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career choice 1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Career choice 2</td>
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</tr>
<tr>
<td>Career choice 3</td>
<td></td>
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</tr>
</tbody>
</table>

What criteria will you use? Are they of equal importance? How can your evaluations be quantified? How can you use your analysis to justify a decision?

Quantify classification with a content analysis

**What types of stories are found in magazines?**
- How will you categorize your observations?
- How will you organize your team to gather and evaluate the information?
- How will you record and present your findings?

Measure classification: How will you quantify your observations?

- What categories?
- Frequency of categories?
- Length of story?
- Illustrations?
- Cover story?

by Peter Pappas ~ www.peterpappas.com
A rigorous and relevant presentation plan for content analysis

1. Why you’re interested in finding the answer.
2. How you gathered your data.
3. Graphic representation of the data.
4. The answer to the research question.
5. What you learned from the project.