Integrating Writing in CTE

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Chapter 1
Rigor/Relevance Framework

Introducing the Rigor/Relevance Framework

The Rigor/Relevance Framework© is a tool developed by the International Center for Leadership in Education to examine curriculum, instruction, and assessment. The Rigor/Relevance Framework is based on the two dimensions of higher standards and student achievement.

First, a continuum of knowledge describes the increasingly complex ways in which we think. This Knowledge Taxonomy is based on the six levels of Bloom’s Taxonomy: (1) knowledge/awareness, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation.

The low end of this continuum involves acquiring knowledge and being able to recall or locate that knowledge in a simple manner. Just as a computer completes a word search in a word processing program, a competent person at this level can scan thousands of bits of information in the brain to locate that desired knowledge.

The high end of the Knowledge Taxonomy labels more complex ways in which individuals use knowledge. At this level, knowledge is fully integrated into one’s mind, and individuals can do much more than locate information — they can take several pieces of knowledge and combine them in both logical and creative ways. Assimilation of knowledge is a good way to describe this high level of the thinking continuum. Assimilation is often referred to as a higher order thinking skill: at this level, the student can solve multi-step problems, create unique work, and devise solutions.

The second continuum, created by Willard Daggett, is known as the Application Model. The five levels of this continuum are: (1) knowledge in one discipline, (2) apply in discipline, (3) apply across disciplines, (4) apply to real-world predictable situations, and (5) apply to real-world unpredictable situations. The Application Model describes
putting knowledge to use. While the low end is knowledge acquired for its own sake, the high end signifies action — use of that knowledge to solve complex real-world problems and create projects, designs, and other works for use in real-world situations.

The Rigor/Relevance Framework has four quadrants.

Quadrant A represents simple recall and basic understanding of knowledge for its own sake. Quadrant C represents more complex thinking but still knowledge for its own sake. Examples of Quadrant A knowledge are knowing that the world is round and that Shakespeare wrote Hamlet.

Quadrant C embraces higher levels of knowledge, such as knowing complex math and science, analyzing literature, and examining the benefits and challenges of the cultural diversity of this nation versus other nations.

Quadrants B and D are based on action or high degrees of application. Quadrant B would include knowing how to use math skills to make purchases and count change or how to perform physical tasks in art or music. The ability to apply knowledge from a variety of sources to solve complex problems or create real-world products are types of Quadrant D learning.

Each of these four quadrants can also be labeled with a term that characterizes the learning or student performance.

**Quadrant A — Acquisition**

Students gather and store bits of knowledge and information. Students are primarily expected to remember or understand this acquired knowledge.

**Quadrant B — Application**

Students use acquired knowledge to solve problems, design solutions, and complete work. The highest level of application is to apply appropriate knowledge to new and unpredictable situations.

**Quadrant C — Assimilation**

Students extend and refine their acquired knowledge to be able to use that knowledge automatically and routinely to analyze and solve problems and create unique solutions.
Quadrant D — Adaptation

Students have the competence to think in complex ways and also apply knowledge and skills they have acquired. Even when confronted with perplexing unknowns, students are able to use extensive knowledge and skill to create solutions and take action that further develops their skills and knowledge.

A Fresh Approach

The Rigor/Relevance Framework is a fresh approach to looking at curriculum standards and assessment. It is based on traditional elements of education, yet encourages movement to the application of knowledge instead of maintaining an exclusive focus on the acquisition of knowledge.

The framework is easy to understand. With its simple, straightforward structure, it can serve as a bridge between the school and the community. It offers a common language with which to express the notion of a more rigorous and relevant curriculum and encompasses much of what parents, business leaders, and community members want students to learn. The framework is versatile; it can be used in the development of instruction and assessment. Likewise, teachers can use it to measure their progress in adding rigor and relevance to instruction and to select appropriate instructional strategies to meet learner needs and higher achievement goals.

Defining Rigor

Rigor refers to academic rigor — learning in which students demonstrate a thorough, in-depth mastery of challenging tasks to develop cognitive skills through reflective thought, analysis, problem solving, evaluation, or creativity. Rigorous learning can occur at any school grade and in any subject.

A versatile way to define the level of rigor of curriculum objectives, instructional activities, or assessments is the Knowledge Taxonomy Verb List. The Verb List can be used either to create a desired level of expected student performance or to evaluate the level of existing curriculum, instruction, or assessment.

An example of student performance at various levels follows. Notice each statement starts with a verb that comes from the appropriate section of the Knowledge Taxonomy Verb List. The expected achievement level for teaching about nutrition can vary depending on the purpose of the
# Knowledge Taxonomy Verb List

## Knowledge
- arrange
- check
- choose
- find
- group
- identify
- label
- list
- locate
- match
- name
- point to
- recall
- recite
- repeat
- say
- select
- write

## Comprehension
- advance
- calculate
- change
- contemplate
- convert
- define
- explain
- extrapolate
- infer
- interpret
- outline
- project
- propose
- reword
- submit
- transform
- translate
- vary

## Application
- adopt
- capitalize on
- consume
- devote
- employ
- exercise
- handle
- maintain
- make use of
- manipulate
- mobilize
- operate
- put to use
- relate
- solve
- start
- take up
- utilize

## Analysis
- assay
- audit
- break down
- canvass
- check out
- deduce
- dissect
- divide
- examine
- include
- inspect
- look at
- scrutinize
- sifting
- study
- survey
- test for
- uncover

## Synthesis
- blend
- build
- cause
- combine
- compile
- compose
- conceive
- construct
- create
- develop
- evolve
- form
- generate
- make up
- originate
- produce
- reorder
- structure

## Evaluation
- accept
- appraise
- arbitrate
- assess
- award
- classify
- criticize
- decide
- determine
- grade
- judge
- prioritize
- rank
- rate
- reject
- rule on
- settle
- weigh
Teacher Questions by Quadrant

Ask questions to summarize, analyze, organize, or evaluate:

- How are these similar/different?
- How is this like ____?
- What's another way we could say/explain/express that?
- What do you think are some reasons/causes that ____?
- Why did ____ changes occur?
- How can you distinguish between ____?
- What is a better solution to ____?
- How would you defend your position about ____?
- What changes to ____ would you recommend?
- What evidence can you offer?
- How do you know?
- Which ones do you think belong together?
- What things/events lead up to ____?
- What is the author's purpose?

Ask questions to predict, design, or create:

- How would you design a ____ to ____?
- How would you compose a song about ____?
- How would you rewrite the ending to the story?
- What would be different today, if that event occurred as ____?
- Can you see a possible solution to ____?
- How could you teach that to others?
- If you had access to all the resources, how would you deal with ____?
- How would you devise your own way to deal with ____?
- What new and unusual uses would you create for ____?
- Can you develop a proposal that would ____?
- How would you have handled ____?
- How would you do it differently?

Ask questions to recall facts, make observations, or demonstrate understanding:

- What is/are ____?
- How many ____?
- How do/does ____?
- What did you observe ____?
- What else can you tell me about ____?
- What does it mean ____?
- What can you recall ____?
- Where did you find that ____?
- Who is/was ____?
- In what ways ____?
- How would you define that in your own terms?
- What do/did you notice about this ____?
- What do/did you feel/see/hear/smell ____?
- What do/did you remember about ____?
- What did you find out about ____?

Ask questions to apply or relate:

- How would you do that?
- Where will you use that knowledge?
- How does that relate to your experience?
- How can you demonstrate that?
- What observations relate to ____?
- Where would you locate that information?
- Calculate that for ____?
- How would you illustrate that?
- How would you interpret that?
- Who could you interview?
- How would you collect that data?
- How do you know it works?
- Can you show me?
- Can you apply what you know to this real-world problem?
- How do you make sure it is done correctly?

Note: Quadrants B and D involve students "doing" as well as answering questions, but these questions help to move students toward increased relevance.
Revised Bloom’s Taxonomy – Question Starters

**Remembering- Knowledge**
*Recall or recognize information, and ideas*

The teacher should:
- Present information about the subject to the student
- Ask questions that require the student to recall the information presented
- Provide verbal or written texts about the subject that can be answered by recalling the information the student has learned

**Question prompts**
What do you remember about ____________?
How would you define ____________?
How would you identify ____________?
How would you recognize ____________?
What would you choose ____________?
Describe what happens when ____________?
How is (are) ____________?
Where is (are) ____________?
Which one ____________?
Who was ____________?
Why did ____________?
What is (are) ____________?
When did ____________?
How would you outline ____________?
List the ____________ in order.

**Understanding-Comprehension**

*Understand the main idea of material heard, viewed, or read. Interpret or summarize the ideas in own words.*

The teacher should:
- Ask questions that the student can answer in his/her own words by stating facts or by identifying the main idea.
- Give tests based on classroom instruction

**Question prompts:**
How would you compare ____________? Contrast ____________?
How would you clarify the meaning ____________?
How would you differentiate between ____________?
How would you generalize ____________?
How would you express ____________?
What can you infer from ____________?
What did you observe ____________?
How would you identify ____________?
How can you describe ____________?
Will you restate ____________?
Elaborate on ____________.
What would happen if ____________?
What is the main idea of ____________?
What can you say about ____________?

**Applying-Application**

*Apply an abstract idea in a concrete situation to solve a problem or relate it to prior experience.*

The teacher should:

- Provide opportunities for the student to use ideas, theories, or problem solving techniques and apply them to new situations.
- Review the student’s work to ensure that he/she is using problem solving techniques independently.
- Provide questions that require the student to define and solve problems.

**Questioning prompts:**

What actions would you take to perform ____________?

How would you develop ____________ to present ____________?

What other way would you choose to ____________?

What would the result be if ____________?

How would you demonstrate ____________?

How would you present ____________?

How would you change ____________?

How would you modify ____________?

How could you develop ____________?

Why does ____________ work?

How would you alter ____________ to ____________?

What examples can you find that ____________?

How would you solve ____________?

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**Analyzing - Analysis**

*Break down a concept or idea into parts and show relationships among the parts.*

The teacher should:

- Allow time for students to examine concepts and ideas and to break them down into basic parts.
- Require students to explain why they chose a certain problem solving technique and why the solution worked.

**Questioning prompts:**

How can you classify ____________ according to ____________?

How can you compare the different parts ____________?

What explanation do you have for ____________?

How is ____________ connected to ____________?

Discuss the pros and cons of ____________.

How can you sort the parts ____________?

What is the analysis of ____________?

What can you infer ____________?

What ideas validate ____________?

How would you explain ____________?

What can you point out about ____________?

What is the problem with ____________?

Why do you think ____________?
Evaluating - Evaluation

Make informed judgments about the value of ideas or materials. Use standards and criteria to support opinions and views.

The teacher should:

• Provide opportunities for students to make judgments based on appropriate criteria.
• Have students demonstrate that they can judge, critique, or interpret processes, materials, methods, etc. using standards and criteria.

Questioning prompts:
What criteria would you use to assess _____________?
What data was used to evaluate ____________?
What choice would you have made ____________?
How would you determine the facts ____________?
What is the most important ____________?
What would you suggest ____________?
How would you grade ____________?
What is your opinion of ____________?
How could you verify ____________?
What information would you use to prioritize ____________?
Rate the ____________.
Rank the importance of ____________.
Determine the value of ____________.

Creating - Synthesis

Bring together parts of knowledge to form a whole and build relationships for new situations.

The teacher should:

• Provide opportunities for students to assemble parts of knowledge into a whole using creative thinking and problem solving.
• Require students to demonstrate that they can combine concepts to build new ideas for new situations.

Questioning prompts:
What alternative would you suggest for ____________?
What changes would you make to revise ____________?
How would you explain the reason ____________?
How would you generate a plan to ____________?
What could you invent ____________?
What facts can you gather ____________?
Predict the outcome if ____________.
What would happen if ____________?
How would you portray ____________?
Devise a way to ____________.
How would you compile the facts for ____________?
How would you elaborate on the reason ____________?
How would you improve ____________?

# Learning Log

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Summary: The MVP journal is intended to help students track the vocabulary words they learn. The goal is for students to focus on words unfamiliar to them and not study words they already know.

Directions:
Teacher provides students with an opportunity to read informational text which includes the vocabulary focus words/phrases.

Teacher provides students a with a list of the Tier II and Tier III focus vocabulary words/phrases from the text and a copy of the MVP organizational chart.

Students choose the most difficult words from the list and use those words to complete the MVP chart.

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# My Vocabulary Progress
## Journal Entry

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Talk the Talk

Summary: For this activity, students must create a conversation between two individuals utilizing the Tier II and Tier III vocabulary words/phrases provided by the teacher. Correctly utilizing the vocabulary terms in context will demonstrate understanding of the term.

Directions:
Teacher provides students with an opportunity to read informational text which includes the vocabulary focus words.

Teacher provides students a with a list of the Tier II and Tier III focus vocabulary words/phrases from the text.

Teacher prompts students to create a dialogue which correctly incorporates the provided words.
Talk the Talk: Weed Control in No-Tillage Systems

Directions: Read the article *Weed Control in No-Tillage Systems by D. Childs, T. Jordan, M. Ross, T. Bauman*. Then create a conversation between an extension agent and a farmer. In the conversation, the farmer and the extension agent should discuss the proper way to control weeds using a no-tillage system. Be sure to use the following vocabulary terms/phrases in your dialogue: no-tillage, germinate, early preplant herbicide, postemergence, canopy closure, burndown, and cover crop.

Farmer: ________________________________________________________________

______________________________________________________________

Extension Agent: ______________________________________________________

______________________________________________________________

Farmer: ______________________________________________________________

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Extension Agent: ______________________________________________________

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Farmer: ______________________________________________________________

______________________________________________________________

Extension Agent: ______________________________________________________

______________________________________________________________

Farmer: ______________________________________________________________

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Extension Agent: ______________________________________________________

______________________________________________________________

Farmer: ______________________________________________________________

______________________________________________________________
Talk the Talk: Weed Control in No-Tillage Systems

Sample Conversation:

Farmer: Hi. I’m thinking about moving to a no-tillage system this spring. Can you give me some details as to how to best do that?

Extension Agent: Sure. There’s a lot to consider. Let me walk you through some of the steps. First, you want to make sure you apply an early preplant herbicide before germination of weeds.

Farmer: Why? How does that help?

Extension Agent: A preplant herbicide will ensure your fields are free from weeds when you plant your crop. This will allow your plants a better chance at growing successfully.

Farmer: What if I still have weeds germinate after a preplant herbicide?

Extension Agent: If this happens, you should consider applying a burndown herbicide which control weeds before or just after planting.

Farmer: Anything else I should consider?

Extension Agent: You may need to apply a postemergence treatment if you have perennial weeds. For a postemergence treatment to work properly, you must correctly identify the perennial weeds.

Farmer: Thanks.

Extension Agent: Once your crops are established, they will create a canopy closure which keeps many weeds from growing. In the fall, you may want to consider planting a cover crop which will keep many of the spring weed problems from occurring.

Farmer: Sounds great. I will work with these recommendations.
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**Jigsaw**

Name ________________________________

Date ________________________________

Text ________________________________

Group Members ________________________________

Directions: As you carefully read the text, write down important information about your topic and the page where the information was found. Once all group members are finished reading, each will share what they learned with the rest of the group.

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<th>Important Information</th>
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Summary of Article:
Directions: Read the text closely. Then write a response, giving special consideration to your role, audience, format, and topic.

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