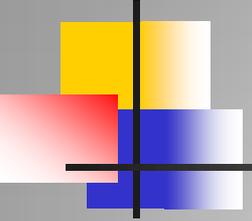


Mentoring Readers, Writers, & Thinkers in Academic Disciplines

Doug Buehl
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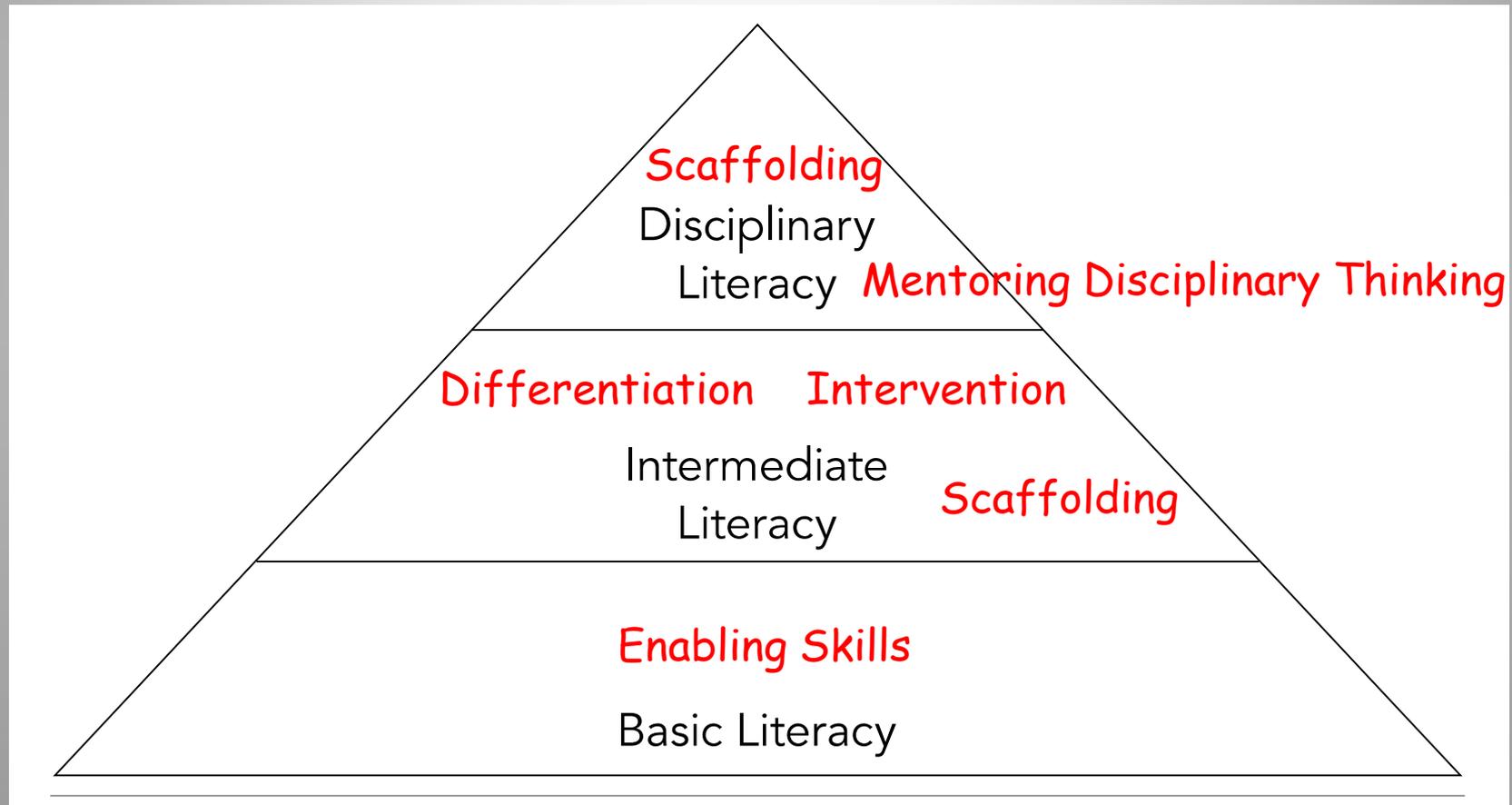


Reading Complex Texts

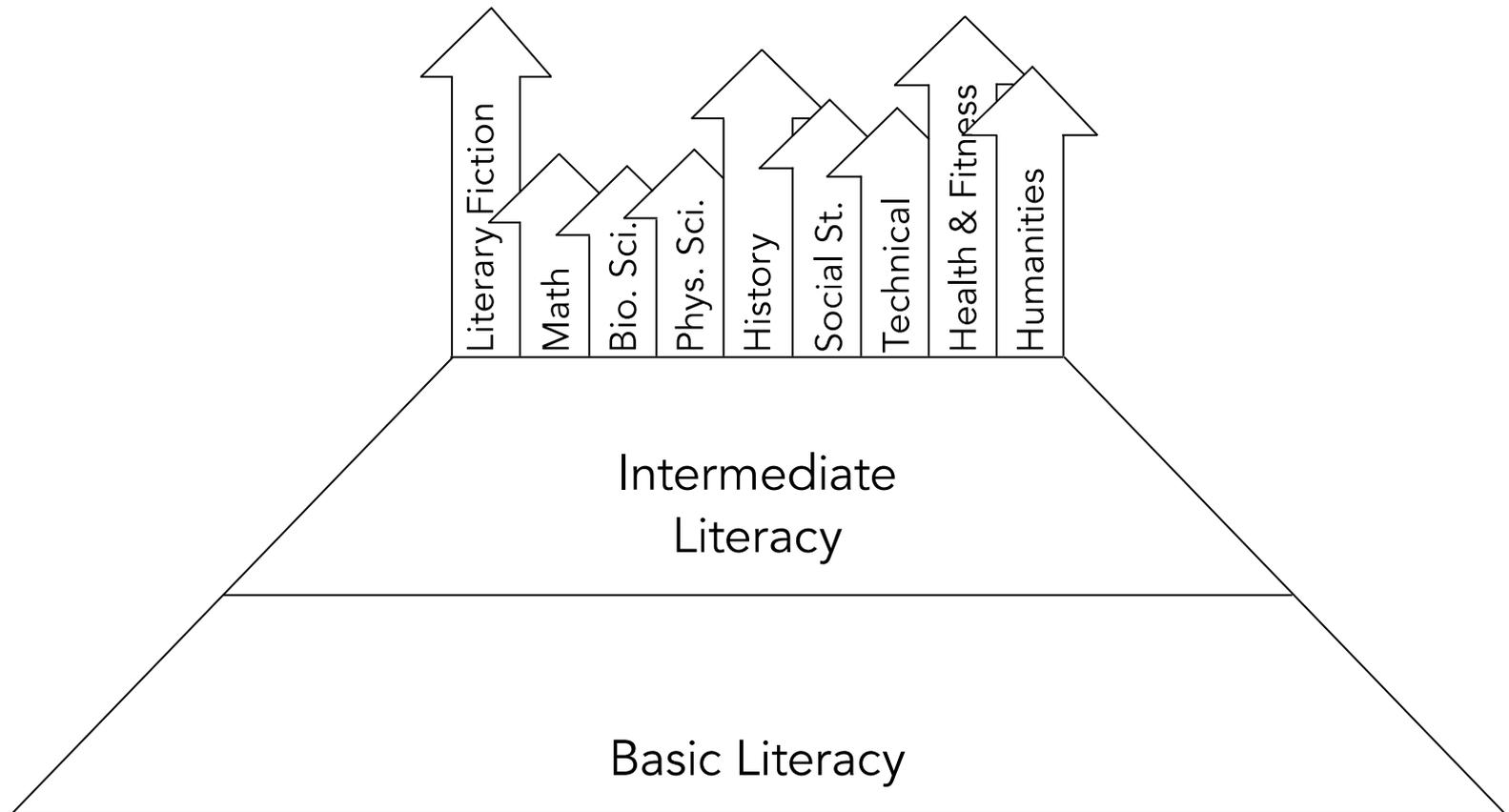
What makes this text challenging?

- Sophisticated language structures
- Unfamiliar vocabulary
- Lack of knowledge of the topic
- Have to “work it” to understand it
- Low interest & motivation to put in top effort
- Are confronted with “outsider” status as readers

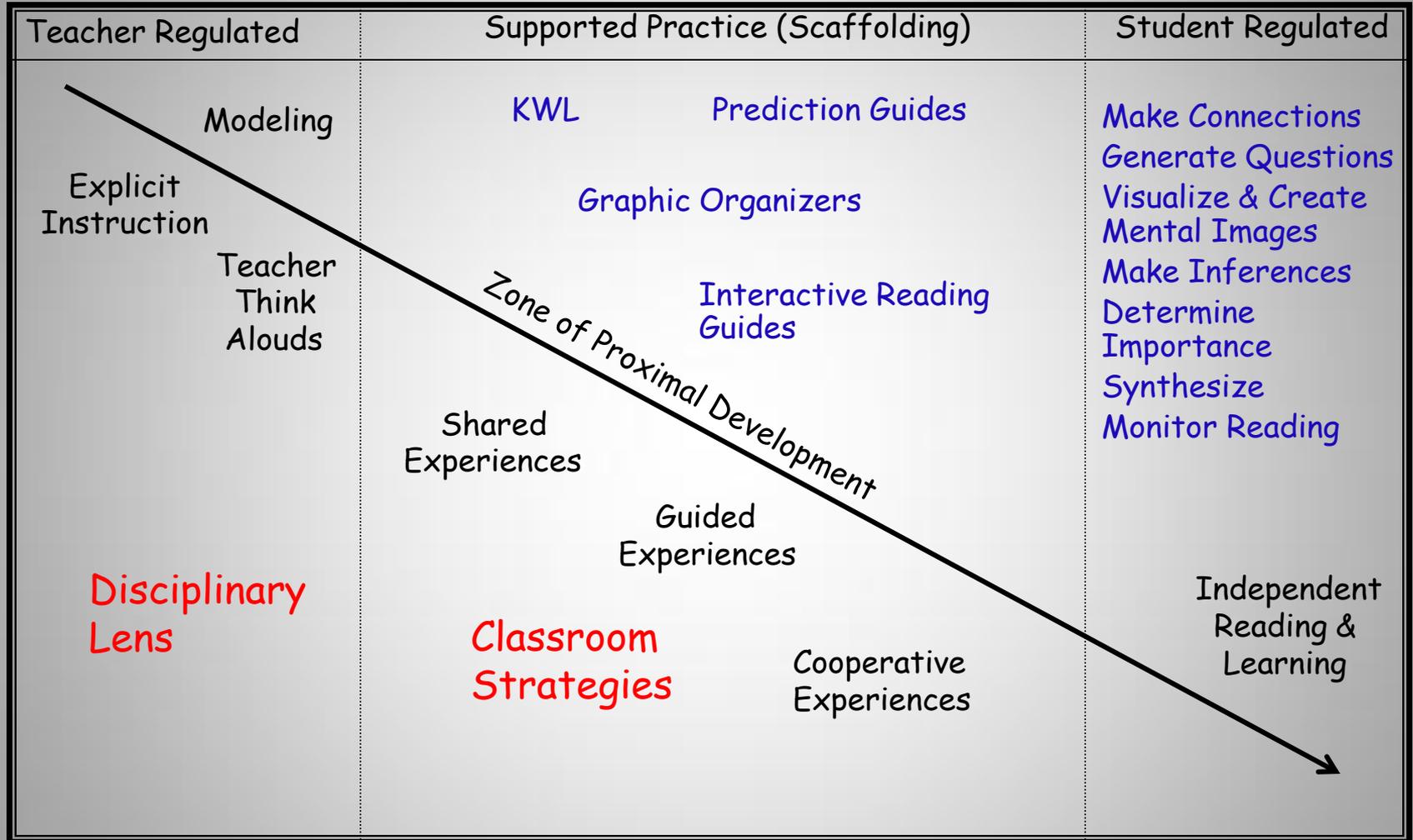
The Increasing Specialization of Literacy Development



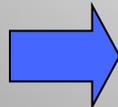
The Increasing Specialization of Literacy Development



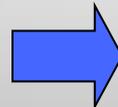
Gradual Release of Responsibility (Pearson & Gallagher, 1983)



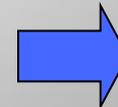
*I Do
You Watch*



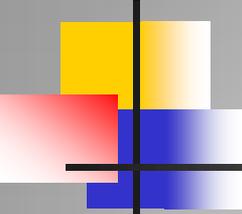
*I Do
You Help*



*You Do
I Help*



*You Do
I Watch*



Mental Model of Reading Through a Mathematics Lens

"A quadratic function *[OK, this is the new concept I am learning]* is a type of nonlinear *[what do they mean by nonlinear—non-line, not a straight line, so when this is graphed it is not a straight line]* function *[what exactly is meant by function, am I clear what a function is, what are other functions I have learned about]* that models *[how do mathematicians model things, this connects to the cat & flowerpot example, they can show mathematically how the pot falls]* certain situations *[like the cat & flowerpot example, I wonder what other situations work here]* where the rate of change *[what do I understand rate to mean, what are some things where the rate might change]* is not constant *[what does constant mean, stays the same, so if the rate or speed of something changes, it doesn't stay the same rate while this change happens]."*

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge.	How has this author changed what I understand?
Evaluating	I can critically examine this author's message.	What perspective or authority does the author bring to what he/she tells me?
Analyzing	I can explore deeper relationships of the author's message.	How is this similar to (or different from) other texts I've read?
Applying	I can use my understanding in a meaningful way.	How can I connect what this author tells me to understand something better?
Understanding	I can understand what the author is telling me.	What does this author want me to understand?
Remembering	I can recall ideas, details, information from this text.	What do I need to remember to make sense of this text?

Self-Questioning Taxonomy for Literary Fiction

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have developed an interpretation of what this story means.	Why is the author telling me this story? What theme or idea might the author be exploring in this story? What does the story mean to me?
Evaluating	I can critically examine this author's story.	Who is the author and how has author perspective influenced the telling of this story? What does the author's choice of words indicate about what the author might be thinking? What emotions is the author eliciting? Does the author have an attitude, and if so, about what?
Analyzing	I can notice how the author wrote this story.	What literary devices does the author use? What seems to be the purpose for using these literary devices?
Applying	I can use my life experiences to understand the author's story.	How can I connect this story to my life and experiences? Why might the author have the characters say, or do, this? What point might the author be making about the characters' actions? Why might the author place this story in this setting?
Understanding	I can understand what the author is telling me.	How does the author have the characters interact with each other? How do the characters feel about each other? How do character feelings and interactions change? How does the author use conflict in this story? How does the author resolve this conflict?
Remembering	I can follow what happens in the story.	Who are the characters?? Where does the story take place? What are the major events of the story? What is the sequence of these events? What event initiates the action of the story?

Self-Questioning Taxonomy for Historical Texts

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge about the past.	How has this author changed what I understand? Why does this matter to the author? To me?
Evaluating	I can critically examine this author's conclusions/interpretations/explanations.	Who is the author and how has author perspective influenced the telling of this history? What conclusions/interpretations/explanations does the author provide? How did the author find out? What is the evidence? How can we evaluate this evidence? What other conclusions/interpretations/explanations could be justified by the evidence? Does the author have an attitude, and if so, about what? Whose viewpoints are not presented? What might be their perspective?
Analyzing	I can understand why.	What happened? What caused it to happen? What changed and what remained the same? Who benefitted from the changes? Who didn't? How does the author talk about the effect of past decisions or actions on future choices?
Applying	I can use my understanding to better understand how the past influences my life and world.	How can I connect my experiences and knowledge to what this author is telling me? How does studying the past help me understand my life and my world?
Understanding	I can understand what the author is telling me about the past.	What does this author want me to understand about the past? What questions does the author ask of the past? How did people in this time period view their lives and world?
Remembering	I can recall specific details, information, and ideas from this text.	What do I need to remember to make sense of the past?

Self-Questioning Taxonomy for Biological Texts

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge about the biological world.	How has this author changed what I understand? How has this author corrected previous misunderstandings?
Evaluating	I can critically examine this author's conclusions/theories/explanations.	What conclusions/theories/explanations does the author provide? How do we know? What is the evidence? What other conclusions/theories/explanations could be justified by the evidence?
Analyzing	I can understand why.	What happened? Why did it happen? How did it happen? How does this [biological concept] "work"? Why does this [biological concept] "work" the way it does? What are the defining characteristics? How is this similar to (or different from) other related biological concepts?
Applying	I can use my understanding to better understand the biological world.	How can I connect my experiences to what this author is telling me? How can I use what this author is telling me to better understand living things? How is what the author is telling me different from what I previously understood?
Understanding	I can understand what the author is telling me about the biological world.	What does this author want me to understand about living things? What do I currently understand about what the author is telling me?
Remembering	I can recall specific details, information, and ideas from this text.	What biological concepts do I need to remember for future understandings? What biological vocabulary do I need to become comfortable using?

Self-Questioning Taxonomy for Physical Science Texts

<i>Level of Thinking</i>	<i>Comprehension Self-Assessment</i>	<i>Focusing Question</i>
Creating	I have created new knowledge about the physical world.	How has this author changed what I understand? How has this author corrected previous misunderstandings? How do I "see" the world I live in differently now?
Evaluating	I can critically examine this author's conclusions/theories/explanations.	What conclusions/theories/explanations does the author provide? How do we know? What is the evidence? How can we test these scientific principles? How can we collect our own evidence? What do our observations tell us? Are our observations consistent with the scientific principles we are examining? What are possible limitations of our investigations? What other conclusions/theories/explanations could be justified by the evidence?
Analyzing	I can understand why.	What happened (or happens)? Why does it happen? How does it happen? What process do objects go through? What happens at each stage of the process? What are the relationships that cause each effect in this process? How can we model this process? How can these scientific principles be demonstrated?
Applying	I can use my comprehension to better understand the physical world.	How can I connect my experiences to what this author is telling me? How do these scientific principles explain the world I live in? Where might I encounter these scientific principles "in action"? How is what the author is telling me different from what I previously understood?
Understanding	I can understand what the author is telling me about the physical world.	What does this author want me to understand about the physical world? What do I currently understand about what the author is telling me? Can I use my imagination to "see" what the author wants me to understand?
Remembering	I can recall specific information and ideas from this text.	What scientific principles do I need to remember for future understandings? What science vocabulary do I need to become comfortable using?

Self-Questioning Taxonomy for Mathematical Concepts Text

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge.	What do I understand now that I didn't understand before about mathematics? How does this concept help me "think mathematically"?
Evaluating	I can critically examine this mathematics concept.	Why is this definition needed? What can we do with this concept? How does the author use the concept in mathematics problem solving? What kinds of problems can I solve using my understanding of this concept?
Analyzing	I can follow the logic of what the author tells me.	What are the defining characteristics of this concept? How can I explain why this concept makes sense? How does this concept relate to other mathematics concepts I have learned?
Applying	I can use my mathematics understanding in some meaningful way.	Where in my life might I encounter this mathematics concept? What are some examples of this mathematics concept from my life? How can I use this concept to describe, inform, or explain some part my life?
Understanding	I can understand what the author is telling me.	How can I explain the mathematics concept? In mathematics language? In everyday language? How can I use visual information (diagrams or pictures or graphs) of the concept to understand its definition? What examples of this mathematical concept does the author provide?
Remembering	I can recall specific terms and mathematics concepts presented by the author.	What mathematics vocabulary does the author introduce? What definitions does the author provide for new mathematics concepts? What are the undefined terms (such as <i>whole number</i> , <i>point</i> , <i>line</i> , <i>plane</i> , <i>group operation</i> , <i>set</i>) in the definitions? What previous mathematics learning do I need to review to make sense of the definitions? What do the symbols and notation mean in the definitions?

Self-Questioning Taxonomy for Mathematical Problem Solving

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created new knowledge.	How can my understanding be used to describe, inform, or explain information, objects, or situations in a mathematical way? How have I expanded my ability to create solutions using mathematics?
Evaluating	I can monitor my effectiveness in applying this problem-solving procedure.	Do the example problems make sense when I examine them? What results have I obtained from applying the problem-solving procedure? How close is the result to what I predicted or estimated? What confusions did I encounter during problem-solving? What actions can I take to overcome any confusions?
Analyzing	I can follow the logic of what the author tells me.	What is the logical reasoning justifying the mathematics statement? How can I use this statement to explain mathematical facts that I already know to be true? How can I use this statement as "proof"? How can I link this statement to similar mathematics statements I have learned? Is the converse of the statement ("if B then A") true? What predictions or estimations do I have when I am problem-solving?
Applying	I can use my understanding for solving mathematical problems.	What kinds of problems can I solve using this mathematics statement? How can I apply this problem-solving procedure to a variety of problems? What are similar mathematics statements that I have previously learned?
Understanding	I can understand what the author is telling me.	How can I explain the mathematics statement in the form "if A then B"? How can I rephrase the statement using other symbols or other notation, without changing its meaning?
Remembering	I can recall specific terms and mathematics procedures presented by the author.	What mathematics vocabulary does the author use? What are the symbols, notations, and definitions of the terms used? What mathematics statement (formula, theorem, rule, principle) does the author introduce? What problem-solving procedure does the author introduce? What are the steps I need to follow in this problem-solving procedure?

Self-Questioning Taxonomy for Technical Texts

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created a product or completed a task.	What have I been able to create or accomplish? How can I use my understanding in future applications?
Evaluating	I can critically examine my completion of this task.	To what extent have I been able to apply my understanding to complete the task? To what extent have I been able to meet the author's expectations? To what extent does my application of the author's instructions achieve the intended final outcome?
Analyzing	I can examine the text & determine what I need to do to accomplish the task.	What is not clear to me? What can I do to problem-solve lack of understanding? What visual information does the author provide? How does the visual information help me visualize (create a mental model) of what I need to do? How do the visuals connect to written portions of the text? To unfamiliar vocabulary? What might happen if I do not follow specified procedures?
Applying	I can use my previous experiences to understand procedures & instructions.	How can I connect my previous experiences to performing this task? What must I read especially carefully? What help does the author provide for understanding key terms? What can I do to develop an understanding of unfamiliar terms?
Understanding	I can understand how to follow the procedures & complete the task.	What is the task I need to accomplish? What should the final outcome look like? Can I imagine myself completing the procedures the author describes?
Remembering	I can follow the author's instructions.	What steps do I need to follow? What key terms are used? What do I remember about these key terms?

Self-Questioning Taxonomy for Music Performance

Level of Thinking	Comprehension Self-Assessment	Focusing Question
Creating	I have created an interpretation of this music.	What might the composer be telling listeners through this music? How can my performance communicate this music to my listeners?
Evaluating	I can critically examine my performance of this music.	What expectations does the composer have for the musicians playing (or singing) this piece? How have I met the composer's expectations?
Analyzing	I can understand how the composer created the musical effects of this composition.	How does the composer use the elements of music (form, rhythm, melody, harmony, timbre, texture, and expression)? Why did the composer make these particular musical choices?
Applying	I can use my understanding to perform and appreciate this music	How can I connect my experiences to performing this music? What emotional responses to the music does the composer seem to be indicating?
Understanding	I can understand the background of the composition.	When did the composer write this piece and how might the times have influenced this music? Why did the composer write this piece, and for whom? What do we know about the composer, and was the piece characteristic of this individual's work?
Remembering	I can follow the composer's instructions.	How has the composer indicated that this piece should be performed? What attention do I need to pay to time signatures, key signatures, note values, dynamics, tempo markings, and pitches?