“Student agency means that learners are in control and feel in control of their own problem solving process. Our task as educators is to help them to build an awareness of their own identity as independent thinkers. Not to tell them how to think but help reveal their thinking, by reflecting back to them what we are observing, to notice and name their acts of problem solving. Such feedback builds a metacognitive awareness that reinforces their identity as an agent of their own learning, as the constructor of their own understanding.” (Peter Johnston, Choice Words, 2003)

Series Learning Targets

<table>
<thead>
<tr>
<th>Learning Targets</th>
<th>Reflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can plan so that students are engaged in reading, writing, and discussing for more minutes of the class period or day than I am talking.</td>
<td></td>
</tr>
<tr>
<td>I can demonstrate for students how I make sense of and repair meaning of text that I ask students to read and write.</td>
<td></td>
</tr>
</tbody>
</table>
Good Feedback Is ...

Timely. It arrives while the student is still thinking about the work and while there's still time for improvement.

Descriptive of the work, not the student personally. It focuses on one or more strengths of the work and provides at least one suggestion for a next step. Don't assume that your students know what they did well and that they only need corrections or fixes.

Positive. It shows how learning is a journey forward, and it's honest about both strengths to build on and weaknesses to improve. Its tone conveys to the student that the teacher thinks of him or her as an active learner.

Clear and specific. It's specific enough so the student knows what to do next, but it leaves the student with some thinking to do.

Differentiated. It meets the needs of each student with respect to the current work. For some students, a reminder is all that's needed for a next step; others may need prompts or examples.


How does feedback fit into your instruction? When it comes to feedback what challenges do you face and what are your areas of success?
Match the definition with the word:

21. lucid    a. having a keen understanding, observant
22. aesthetic b. moral corruption
23. inclined c. to make faster or easier
24. prodigal d. clear; easy to understand
25. uniform e. constant; without variety
26. provincial f. tending toward one direction
27. perceptive g. extravagant; wasteful
28. redundant h. concerned with art or beauty
29. depravity i. narrow minded; unsophisticated
30. expedite j. repetitive; unnecessary; superfluous

Complete each sentence with the correct word.

provocative enduring fallacious adversary phenomenon

31. Haley's Comet was a modern day phenomenon that many people wanted to see.

32. On September 11, Americans showed their enduring patriotism.

33. Most Broncos fans view the Oakland Raiders fans as their adversary.

34. The lawyer was able refute the fallacious claim that she was at home the night of the murder. He had found a witness who saw her in town that night.

35. The girl's shirt was so provocative that she was asked to leave the restaurant.
**INNER VOICE SHEET**

**Title of Book:** The Five People You Meet in Heaven  
**Author of Book:** Mitch Albom

**Directions:** Begin reading on page 91. Record the conversation you have in your head as you read. Be sure to have at least four (4) sentences per box. If you catch yourself using a reading strategy, add that at the bottom of the box. Also decide if the conversation inside your head distracts you from making meaning or if the voice helps you interact with the text.

<table>
<thead>
<tr>
<th>Inner Voice on page 92</th>
<th>Inner Voice on page 96</th>
</tr>
</thead>
<tbody>
<tr>
<td>That thing on Adam and Eve thing was cool did he really know what to do when he was put on this world. When you die people are waiting does that mean who is there for these people.</td>
<td>The captain was there to give him somethin to remember the girl that Eddie was in love with. What happens to her and does he meet her? I think he did save the girl.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inner Voice on page 101</th>
<th>Inner Voice on page 110</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why was eddie farther so hard on him. I guess that's how dads are my dad is hard on me because he doesn't want to be like him when I have a family of my own.</td>
<td>When it said all family damage their kids could be true. My family has helped me the most but has hurt me the worst too.</td>
</tr>
</tbody>
</table>
“It is not research-based comprehension strategy instruction to have students fill out worksheets after reading a text—in which they report, for example, the predictions they made, images that occurred to them, questions that occurred to them, and/or a summary. Comprehension processes must be employed in real time, and the best evidence of their use is students’ responses as they read, not in response to questions (or worksheets) afterward. There is no evidence that a steady diet of completing such post-reading sheets, in fact, leads to active reading.”  

*Michael Pressley/ Best Practices in Literacy Instruction Third Edition*

## How Do They Differ?

<table>
<thead>
<tr>
<th>Think Sheets</th>
<th>Worksheets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Inner Voice Sheet**

**Title and Author of Text:**

**Directions:** Begin on page _________

Record the conversation you have in your head as you read. Be sure to record at least four sentences per box. If your mind wanders as you read, stop and go back to the place you last remember. Reread that portion with a specific purpose in mind. See if you can ask a question or listen to your inner voice with the intent to connect, give an opinion, or draw an inference.

<table>
<thead>
<tr>
<th>Inner Voice on page</th>
<th>Inner Voice on page</th>
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<tbody>
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<td></td>
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<table>
<thead>
<tr>
<th>Inner Voice on page</th>
<th>Inner Voice on page</th>
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<table>
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<tr>
<th>Inner Voice on page</th>
<th>Inner Voice on page</th>
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<tbody>
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<td></td>
<td></td>
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</tbody>
</table>
**Mathematical Inner Voice Sheet**

Possible ways to record mathematical thinking:
- Identify skills or processes needed to solve the problem.
- Record what is known about solving the problem.
- Show calculations.
- List questions to isolate confusion.
- Explain why the solution is reasonable and valid.
- Draw a picture or diagram.

Pick four areas you would like to see students’ thinking. For example:

<table>
<thead>
<tr>
<th>Record what you know about solving the problem.</th>
<th>Record questions to isolate any confusion.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Show you calculations.</th>
<th>Explain why you answer is reasonable &amp; valid.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Double Entry Diary Options for Fiction

<table>
<thead>
<tr>
<th>Lift a quote or description from the text.</th>
<th>Share your thinking about the quote or the description.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• This reminds me of…</td>
</tr>
<tr>
<td></td>
<td>• I’m wondering…</td>
</tr>
<tr>
<td></td>
<td>• This is important because…</td>
</tr>
<tr>
<td></td>
<td>• My thinking has changed in this way…</td>
</tr>
<tr>
<td></td>
<td>• I’m inferring that…</td>
</tr>
<tr>
<td></td>
<td>• I’m picturing…</td>
</tr>
</tbody>
</table>

### Double Entry Diary Options for Non-Fiction

<table>
<thead>
<tr>
<th>Lift a fact or piece of information from the text.</th>
<th>Share your thinking about the fact or information.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• This new fact/information connects to the topic in this way…</td>
</tr>
<tr>
<td></td>
<td>• I’m wondering…</td>
</tr>
<tr>
<td></td>
<td>• The “so what” of this fact or information is…</td>
</tr>
<tr>
<td></td>
<td>• My thinking has changed in this way…</td>
</tr>
<tr>
<td></td>
<td>• I think this means…</td>
</tr>
<tr>
<td></td>
<td>• Now, I think I have to find out…</td>
</tr>
</tbody>
</table>
Double Entry Diary: **67 minutes a day grows good readers!**

**Learning Targets:**
1. I can increase my reading endurance to finish a book.
2. I can monitor my inner voice to share what I remember reading.
3. I can articulate how my reading reflects new thinking.

Date:

Title of Text:

Page I started on________ Page I ended on_________ Pages read_________
Time I started________ Time I stopped_________ Total minutes___________

<table>
<thead>
<tr>
<th>Copy a line from the text that strikes you. Record the page number.</th>
<th>Why does this line strike you? If you are confused, ask a question. If you are able to draw a conclusion about something, record what you think. If you make a connection to something in your own life, write the connection.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
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<tr>
<td>2.</td>
<td>2.</td>
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<tr>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>4.</td>
</tr>
</tbody>
</table>
Why Bother to Annotate or Show Your Thinking?

<table>
<thead>
<tr>
<th>It helps the reader:</th>
<th>It helps the teacher/administrator:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Engage with the text when his or her mind is wandering</td>
<td>• Distinguish who is reading and who is “fake” reading</td>
</tr>
<tr>
<td>• Hold thinking so it can be referred to later</td>
<td>• “See” what strategies readers are using to access meaning</td>
</tr>
<tr>
<td>• Recall thinking so he/she can share with an expert what he/she needs</td>
<td>• Diagnose what learners need in order to better comprehend text</td>
</tr>
<tr>
<td>• Remember what he/she thought was important while reading</td>
<td>• Assess what learners know and can do</td>
</tr>
<tr>
<td>• Notice patterns, synthesize new thinking, and ask questions</td>
<td>• Notice how the reader is attacking the text</td>
</tr>
</tbody>
</table>

When I annotate, what do I write?

Sometimes I:

Record a **REACTION**

Ask a **QUESTION**

Give an **OPINION**

Make a **CONNECTION**

Respond to how I would **RELATE** if I were in that situation

What are some other ways to record thinking?
Interrogating Texts: 6 Reading Habits to Develop in Your First Year at Harvard

Critical reading--active engagement and interaction with texts--is essential to your academic success at Harvard, and to your intellectual growth. Research has shown that students who read deliberately retain more information and retain it longer. Your college reading assignments will probably be more substantial and more sophisticated than those you are used to from high school. The amount of reading will almost certainly be greater. College students rarely have the luxury of successive re-readings of material, either, given the pace of life in and out of the classroom.

While the strategies below are (for the sake of clarity) listed sequentially, you can probably do most of them simultaneously. They may feel awkward at first, and you may have to deploy them very consciously, especially if you are not used to doing anything more than moving your eyes across the page. But they will quickly become habits, and you will notice the difference—in what you “see” in a reading, and in the confidence with which you approach your texts.

1. Previewing: Look “around” the text before you start reading.

You’ve probably engaged in one version of previewing in the past, when you’ve tried to determine how long an assigned reading is (and how much time and energy, as a result, it will demand from you). But you can learn a great deal more about the organization and purpose of a text by taking note of features other than its length.

Previewing enables you to develop a set of expectations about the scope and aim of the text. These very preliminary impressions offer you a way to focus your reading. For instance:

- What does the presence of headnotes, an abstract, or other prefatory material tell you?
- Is the author known to you already? If so, how does his (or her) reputation or credentials influence your perception of what you are about to read? If the author is unfamiliar or unknown, does an editor introduce him or her (by supplying brief biographical information, an assessment of the author’s work, concerns, and importance)?
- How does the disposition or layout of a text prepare you for reading? Is the material broken into parts—subtopics, sections, or the like? Are there long and unbroken blocks of text or smaller paragraphs or “chunks” and what does this suggest? How might the parts of a text guide you toward understanding the line of inquiry or the arc of the argument that’s being made?
- Does the text seem to be arranged according to certain conventions of discourse? Newspaper articles, for instance, have characteristics that you will recognize; textbooks and scholarly essays are organized quite differently. Texts demand different things of you as you read, so whenever you can, register the type of information you’re presented with.

2. Annotating: Make your reading thinking-intensive from start to finish.

Annotating puts you actively and immediately in a “dialogue” with an author and the issues and ideas you encounter in a written text. It’s also a way to have an ongoing conversation with yourself as you move through the text and to record what that encounter was like for you. Here’s how:

- Throw away your highlighter: Highlighting can seem like an active reading strategy, but it can actually distract from the business of learning and dilute your comprehension. Those bright yellow lines you put on a printed page one day can seem strangely cryptic the next, unless you have a method for remembering why they were important to you at another moment in time. Pen or pencil will allow you do to more to a text you have to wrestle with.

- Mark up the margins of your text with words and phrases: ideas that occur to you, notes about things that seem important to you, reminders of how issues in a text may connect with class discussion or course themes. This kind of interaction keeps you conscious of the reasons you are reading as well as the purposes your instructor has in mind. Later in the term, when you are reviewing for a test or project, your marginalia will be useful memory triggers.

- Develop your own symbol system: asterisk (*) a key idea, for example, or use an exclamation point (!) for the surprising, absurd, bizarre. Your personalized set of hieroglyphs allow you to capture the important -- and often fleeting -- insights that occur to you as you’re reading. Like notes in your margins, they’ll prove indispensable when you return to a text in search of that perfect passage to use in a paper, or are preparing for a big exam.

- Get in the habit of hearing yourself ask questions: “What does this mean?” “Why is the writer drawing that conclusion?” “Why am I being asked to read this text?” etc. Write the questions down (in your margins, at the beginning or end of the reading, in a notebook, or elsewhere. They are reminders of the unfinished business you still
Annotating Historical Text: Recording thinking so that it can be remembered and reused

“It’s all about cause and effect.” Joe Colacioppo

Recording thinking while reading helps a reader remember what he has read. It also provides an opportunity for the reader to wrestle with meaning. Knowing what to write when annotating gives the reader a purpose and also helps the reader determine what is important. Below are some options for annotation:

- Record the **Who**. Define who are “biggies” in the selection and why they important. Consider their political affiliation, special interests, and with whom they align.

- Record the **What**. Describe what is significant about the event and what conditions made the event possible.

- Record the **When**. Pinpoint when the event occurred and consider when the issue(s) concerning the event will resurface.

- Record the **Where**. Where in the world is this happening? Is the geography significant and have other significant events happened here before?

- Record questions.

- Record connections.

- Record opinions.
Annotating Literary Text: A way to record thinking so that it can be remembered and reused

“The brilliance is in the question.” Barbi Bess

Recording thinking while reading helps a reader remember what he or she has read. It also provides an opportunity for the reader to wrestle with meaning. Knowing what to write when annotating gives the reader a purpose and also helps the reader determine what is important. Below are some options for annotation:

- Record the **Action**. What is happening in the story? Who is involved in the conflict and has anyone changed as a result of the struggle?

- Record the **Who**. Identify the protagonist and the antagonist. Examine how other characters fit into the plot. What purposes do they serve?

- Record the **Literary Elements**. Choose a literary element and consider how the author is using it to convey meaning.

- Record the **Where and When**. Setting gives the story context. It helps the reader know why characters respond the way they do.

- Record connections to other texts and personal experiences.

- Record questions.

- Record opinions.

- Record your response. What emotions does the work evoke?

What works in education – Hattie’s list of the greatest effects and why it matters  
By Grant Wiggins, Author of Understanding by Design  
January 7, 2012

I have been a fan of John Hattie’s work ever since I encountered Visible Learning. Hattie has done the most exhaustive meta-analysis in education. Thanks to him, we can gauge not only the relative effectiveness of almost every educational intervention under the sun but we can compare these interventions on an absolute scale of effect size.

Perhaps most importantly, Hattie was able to identify a ‘hinge point’ (as he calls it) from exhaustively comparing everything: the effect size of .40. Anything above such an effect size has more of an impact than just a typical year of academic experience and student growth. And an effect size of 1.0 or better is equivalent to advancing the student’s achievement level by approximately a full grade.

Here is the rank-ordered list of the top effect sizes, with a half-dozen removed by me because they either refer to programs unknown outside of Australia & New Zealand – Hattie’s home base – or they refer to sub-sets of students (e.g. the learning disabled). And I am going to provide a bit of suspense with this list. I want you to guess which two factors come next after what is listed below; you’ll see why I wanted to add a bit of intrigue by the end. (I have also starred the factors that have an effect size of .7 or greater since these are significant gains):

- Student self-assessment/self-grading*
- Response to intervention*
- Teacher credibility*
- Providing formative assessments*
- Classroom discussion*
- Teacher clarity*
- Feedback*
- Reciprocal teaching*
- Teacher-student relationships fostered*
- Spaced vs. mass practice*

Below .7 effect size:
- Meta-cognitive strategies taught and used
- Acceleration
- Classroom behavioral techniques
- Vocabulary programs
- Repeated reading programs
- Creativity programs
- Student prior achievement
- Self-questioning by students
- Study skills
- Problem-solving teaching
- Not labeling students
- Concept mapping
- Cooperative vs individualistic learning
- Direct instruction
- Tactile stimulation programs
- Mastery learning
- Worked examples
- Visual-perception programs
- Peer tutoring
- Cooperative vs competitive learning
- Phonics instruction
- Student-centered teaching
- Classroom cohesion
- Pre-term birth weight
- Peer influences
- Classroom management techniques
- Outdoor-adventure programs

Can you guess the next two items on the rank order list? “Home environment” and “socio-economic status.” In other words, everything on the list has a greater effect on student achievement than the student’s background.

**Time to Reflect:** What are you thinking now?
IDEAS ABOUT INNER VOICE

**Conversation Voice (useful voice)**

**This voice helps readers to:**
- Relate to the text
- Make connections between the book and the reader
- Ask questions
- Give opinions
- Talk back to the text
- Remember what is read

**Reciting Voice (waste of time voice)**

**This voice causes readers to:**
- Lose track of what is being read
- Stray from the text
- Forget what is read
- Not care about the reading

Turn off the reciting voice by **rereading** and giving yourself a job or a **purpose** to read for.

**Reading Purposes**

**Some purposes are:**
- Ask a question
- Look for the answer to a question
- Make a connection
- Look for clues to help draw an inference
- Retell what has been read
- Try to visualize a picture
What do you wonder or think you get about the above diagram:
Thinking Strategies Used by Proficient Readers
(Based on the research synthesis of P. David Pearson and Janice A. Dole)

A strategy is an intentional plan that is flexible and can be adapted to meet the demands of the situation.

Proficient Readers:

- **Activate background knowledge** and make connections between new and known information.

- **Question the text** in order to clarify ambiguity and deepen understanding.

- **Draw inferences** using background knowledge and clues from the text.

- **Determine importance** in order to distinguish details from main ideas.

- **Monitor comprehension** in order to make sure meaning is being constructed.

- **Reread and employ fix-up strategies** to repair confusion.

- **Use sensory images** to enhance comprehension and visualize the reading.

- **Synthesize** and extend thinking.
<table>
<thead>
<tr>
<th>Thinking Strategies</th>
<th>Disciplinary Reading Strategies: Mini-Lessons and Modeling</th>
</tr>
</thead>
</table>
| Activating & Building Background Knowledge | • What do I know about the topic, time period, concept, or issue and how do I use it to make sense of new information?  
• How does the text relate to what I know and to current events?  
• Where do I go to build background knowledge about the time period and topic?  
• What do noted historians think about this time period? How does that connect to what I know? |
| Asking Questions | • What questions do I need to ask?  
• What factual information do I need to make sense of this topic, time period, and concept?  
• What questions can be answered in the text and which ones require an inference?  
• What are the major debates among noted historians, economists, politicians…? |
| Inferring to Draw Conclusions | • How can I generalize the information to draw conclusion or make predictions about the future?  
• What information can I glean from the graphs, data, and pictorial representations?  
• How does factual information help me predict and generalize trends or patterns?  
• How do past performances compare to actions of the day? |
| Determining Importance | • From whose perspective is the text written? What biases might he/she hold?  
• How do I use the information I already have to suggest possible solutions?  
• What relevant information is held in the datum, graphs, charts, and tables?  
• How will I record my thinking so that I can remember and reuse it?  
• How do I organize the information in a useful fashion?  
• What are the historical facts and what are the historical interpretations? |
| Monitoring Comprehension | • What makes sense and where am I confused?  
• How do I explain my position to someone else?  
• What is the essential vocabulary?  
• What names, dates, and places are necessary to remember?  
• Based on my purpose, what information matters most? |
| Rereading to Repair Meaning | • How can I reread from a different perspective?  
• What question can I ask to drive my research?  
• Is source accurate? What story path is it following? |
| Using Sensory Images | • How can I use diagrams and maps to enhance my background knowledge?  
• How can I create diagrams and maps to communicate my understanding? |
| Synthesizing & Extending Thinking | • How has my thinking grown and changed?  
• What is my version of the truth?  
• What generalizations can I make about the current state of affairs?  
• What different sources/perspectives can I use to grow my thinking?  
• How will I use what I’ve figured out to continue my research?  
• Based on multiple sources, what is my best version of the “truth?” |
<table>
<thead>
<tr>
<th>Thinking Strategies</th>
<th>Disciplinary Reading Strategies: Mini-Lessons and Modeling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activating &amp; Building</td>
<td>• What do I already know about the topic?</td>
</tr>
<tr>
<td>Background Knowledge</td>
<td>• How do I connect what I know to what I need in order</td>
</tr>
<tr>
<td></td>
<td>to solve this problem?</td>
</tr>
<tr>
<td></td>
<td>• How does what I already know connect to the topic?</td>
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<tr>
<td></td>
<td>• How is this analogous to something I am familiar with?</td>
</tr>
<tr>
<td></td>
<td>• How is what I’ve learned like what I know?</td>
</tr>
<tr>
<td></td>
<td>• What patterns and relationships do I notice?</td>
</tr>
<tr>
<td>Asking Questions</td>
<td>• What is my hypothesis? How do I confirm or disconfirm</td>
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<tr>
<td></td>
<td>it?</td>
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<tr>
<td></td>
<td>• What am I wondering about how certain process work?</td>
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<td></td>
<td>• How does new information fit with what I know?</td>
</tr>
<tr>
<td></td>
<td>• What information do I need to solve this problem?</td>
</tr>
<tr>
<td></td>
<td>• Where can I go to get more information?</td>
</tr>
<tr>
<td>Inferring to Draw</td>
<td>• How can I estimate, predict, and generalize information</td>
</tr>
<tr>
<td>Conclusions</td>
<td>to solve a problem or make sense of a concept?</td>
</tr>
<tr>
<td></td>
<td>• What information do I glean from the graphs, data,</td>
</tr>
<tr>
<td></td>
<td>and diagrams? What do I see and what does it mean?</td>
</tr>
<tr>
<td></td>
<td>• How do the graphs, data, and diagrams help me predict</td>
</tr>
<tr>
<td></td>
<td>and generalize trends or patterns?</td>
</tr>
<tr>
<td></td>
<td>• How does my conclusion compare to what I know to be</td>
</tr>
<tr>
<td></td>
<td>true?</td>
</tr>
<tr>
<td>Determining Importance</td>
<td>• What text features are emboldened or accentuated and</td>
</tr>
<tr>
<td></td>
<td>how do they help me know what the author is emphasizing?</td>
</tr>
<tr>
<td></td>
<td>• What do the diagrams and pictures tell me about the</td>
</tr>
<tr>
<td></td>
<td>processes, datum, formulas, and cycles I am studying?</td>
</tr>
<tr>
<td></td>
<td>• How do I use the information I already have to find</td>
</tr>
<tr>
<td></td>
<td>the unknowns?</td>
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<tr>
<td></td>
<td>• Based on my purpose, what relevant information is held</td>
</tr>
<tr>
<td></td>
<td>in the datum, graphs, charts, and tables?</td>
</tr>
<tr>
<td></td>
<td>• How will I record my thinking so that I can remember</td>
</tr>
<tr>
<td></td>
<td>and reuse it?</td>
</tr>
<tr>
<td></td>
<td>• How will I visually represent a new concept?</td>
</tr>
<tr>
<td>Monitoring Comprehension</td>
<td>• What do I understand about the diagrams, data, and</td>
</tr>
<tr>
<td></td>
<td>graphs? Where am I confused?</td>
</tr>
<tr>
<td></td>
<td>• Can I explain to someone how I solved the problem? Is</td>
</tr>
<tr>
<td></td>
<td>my solution reasonable?</td>
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<tr>
<td></td>
<td>• What specific vocabulary do I need to know most?</td>
</tr>
<tr>
<td></td>
<td>• Have I accurately read the units?</td>
</tr>
<tr>
<td>Rereading to Repair</td>
<td>• What different ways can I reread the text?</td>
</tr>
<tr>
<td>Meaning</td>
<td>• What question can I ask to isolate my confusion?</td>
</tr>
<tr>
<td></td>
<td>• How does what I read connect to lab work &amp; notes from</td>
</tr>
<tr>
<td></td>
<td>class?</td>
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<td></td>
<td>• What can I sketch to help me “see” what I am reading?</td>
</tr>
<tr>
<td>Synthesizing &amp; Extending</td>
<td>• What new hypothesis and thinking do I have?</td>
</tr>
<tr>
<td>Thinking</td>
<td>• What am I wondering now?</td>
</tr>
<tr>
<td></td>
<td>• How can I use new reading and research to complete a</td>
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<tr>
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<td>task or theorize possibilities?</td>
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## MATH THINKING STRATEGIES

### Tovani 2019

<table>
<thead>
<tr>
<th>Thinking Strategies</th>
<th>Disciplinary Reading Strategies: Mini-Lessons and Modeling</th>
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</table>
| **Activating & Building Background Knowledge** | • What do I already know about this type of problem, function, logarithm, or formula?  
• How do I connect what I know to what I need to solve this problem?  
• What information do I need to find out in order to solve this problem?  
• How is what I’m solving for similar to what I’ve done before?  
• What patterns and relationships do I notice? |
| **Asking Questions** | • What is the problem asking me to do?  
• What would a reasonable answer be?  
• How is what I’m solving for fit in the world outside of school?  
• What information do I need to solve this problem?  
• Where can I go to get more information? |
| **Inferring to Draw Conclusions** | • How can I estimate, predict, and generalize the information in front of me to solve the problem?  
• What information do I glean from the graphs/data and what might it mean?  
• How do the graphs and data help me predict and generalize trends or patterns?  
• How does my solution compare to what I know to be true? |
| **Determining Importance** | • What do I need to do first?  
• How do I use the information I already have to find the unknowns?  
• What relevant information is held in the datum, graphs, charts, and tables?  
• How will I record my thinking so that I can remember and reuse it? |
| **Monitoring Comprehension** | • What do I understand about the diagrams, data, and graphs? Where am I confused?  
• Can I explain to someone how I solved the problem? Is my solution reasonable?  
• What specific vocabulary do I need to know?  
• Have I accurately read the units and correctly labeled my solution?  
• How can I check to see if my work is accurate? |
| **Rereading to Repair Meaning** | • What different ways could I attack the problem?  
• What question can I ask to isolate my confusion?  
• Are my calculations and conversions correct?  
• What could I sketch that would help me “see” what I am trying to solve? |
| **Synthesizing & Extending Thinking** | • How has my thinking changed?  
• What am I wondering now?  
• How will I use what I’ve figured out to complete a task or theorize other possibilities? |
• November 9, 2020 4:00-4:45 EST  **Conversations with Cris**

This session is designed to give participants who attended the November 2\textsuperscript{nd} workshop, **Tasks**: How Do We Know What Students Know and Need? a chance to chat with Cris and share successes, ask questions, and get feedback on instructional moves. **Space is limited.**

• November 16, 2020 4:00-5:30 **Texts**: Finding the Right Text So Students Can Access Content and Curriculum

In order for students to grow their comprehension, vocabulary, and background knowledge they need a variety of text structures that match their reading level. When students can “uncover” curriculum and content they grow as readers, writers, and thinkers. This session will focus on how to build text sets and find a variety of reading material to meet a variety of students’ needs.

• November 17, 2020 4:00-4:45 EST  **Conversations with Cris**

This session is designed to give participants who attended the November 16\textsuperscript{th} workshop, **Texts**: Finding the Right Text So Students Can Access Content and Curriculum a chance to chat with Cris and share successes, ask questions, and get feedback on instructional moves. **Space is limited.**

• November 30, 2020 4:00-5:30 EST  **Tying it All Together**: Long-Term Planning Drives the Day-to-Day

The last workshop in this series will focus on how long-term planning can make day-to-day instruction less grueling. Cris will show how anticipating a few student needs will help teachers plan ahead for those tough to engage students.

• December 7, 2020 4:00-4:45 EST  **Conversations with Cris**

This last conversation with Cris is open to anyone who attended any of the series workshops. Participants will have a chance to chat with Cris and share successes, ask questions, and get feedback on instructional moves. **Space is limited.**