



# **NUA Strategies:**

## **A Comprehensive Overview**







## Foreword

As educators, our role is not to make things easier for our students. Instead, we must learn to guide, monitor, culturally reinforce and adjust our interventions to align with the incessantly shifting winds experienced in learning. We must deepen our resilience while providing comfort and instilling the strength of will. When asked questions about learning, the late, great Susan Sontag borrowed from an Italian philosopher to say: “We should be driven less by the pessimism of the intellect, more by the optimism of the will.”

The scope of the material in this handbook is wide, ranging from highly specific to broad approaches to learning and teaching, from strategies that promote group interaction to those that are primarily content-centered. Overall, the effort calls attention to the vital role teachers play in student achievement.

As we know, teacher quality is the single most important in-school factor related to student achievement. In using the strategies and practices summarized here, students can transfer what they learn to a variety of learning circumstances. Doing so, they establish a “growth mindset” that enables them to push toward deliberative excellence. This volume reminds educators of how to achieve that while meeting the needs of diverse learners.

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# National Urban Alliance

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The NUA was formalized in 1989 as an extension of the College Board to improve access to higher education for urban nonwhite students. In 1991 NUA was first launched at Teachers College, Columbia University as a center for collaboration with the College Board and targeted school districts.

## **NUA's Mission**

The NUA's mission is to substantiate in the public schools of urban America an irrefutable belief in the capacity of all children to reach the highest levels of learning & thinking demanded by our ever-changing global community.

## **NUA's Focus**

- NUA's work is focused on learning & teaching. We build toward high intellectual performance through students' culture, language, and cognition. The focus is on **STUDENTS!**

## **NUA's Beliefs**

- Intelligence is modifiable.
- All students benefit from a focus on high intellectual performance.
- Learning is influenced by the interaction of CULTURE, LANGUAGE, and COGNITION.

## **NUA's Goals**

- Expectation of high intellectual performance for all students.
- Student learning and growth that demonstrates HIP on a variety of measures.
- Professional development that motivates teaching toward HIP.



## NUA's 5 Critical Experiences

- Responding to a variety of texts (fiction, non-fiction, expository, etc.)
- Composing texts (oral and written)
- Sustained reading of a variety of self-selected texts
- Studying and mastering language patterns
- Learning how to learn

## NUA's 3 Stages of Learning

- Priming—getting ready to learn, recalling prior knowledge
- Processing—interacting with new information
- Retaining for mastery—review, apply new information in new contexts

# NUA Pedagogical Flow Map

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The Pedagogical Flow Map is a frame for lesson planning and unit design. It consists of 12 distinct parts organized into three major sections: **Priming**, **Process**, and **Retain for Mastery**. Using the PFM can help you design your unit of study for maximum impact and learning. The 12 parts are outlined below.

- **Priming**
- **Introduction**

The introduction is primarily used for three things:

  - Articulating and introducing students to the standard(s) and objectives that you will be teaching. (Let your standards and objectives pick your strategies.)
  - Letting students know how they will be assessed at the end of the lesson(s). Provide them with an example.
  - Examine the entire process of the lesson from whole to part.
- **Concept Development**

This section introduces the students to the big idea or concept that you are teaching under. Using a big idea or concept helps students to make connections and think conceptually. It also helps to provide a frame of reference as to why they are being asked to learn what is being taught, as well as, engage them more deeply in the curriculum. For concept ideas please see the Concept List at the end of the book.

- **Vocabulary Development**  
The vocabulary development section of the PFM is used for teaching new vocabulary and connecting to prior knowledge. You are trying to build on what they already know and help them make connections to the material. You want to set them up for success.
- **Skill Development**  
Use the skill development section to teach the new strategy that students will be learning to learn the new material. Use already learned material to teach the new strategy. This way, students can focus on learning the strategy and not learning the strategy *and* new material. Let your standard and purpose pick the strategy you will use. For example, if the standard asks students to compare and contrast, choose a strategy that compares and contrasts like a Double Bubble.
- **Process**
  - **Introduce the Text**  
This is where the process section of the PFM begins. It may be introducing a text, doing a lab, or solving a problem.
  - **Mediate for Mastery**  
This section is for examining how well did students process whatever was taught. Who's got it and who does not? Who needs more? For someone lost, ask where was the last place you understood? Go back to the PFM and find that spot and work from there.
  - **Teacher (Self) Reflection**  
In this section, examine the lesson as if you have no evidence of learning. Ask yourself if you have done everything possible to ensure success. Are there changes that need to be made? "What practices have I used to ensure that student behaviors will support successful learning?"
  - **Release the Lesson**  
This section is for independent practice of the material taught during the lesson. Ensure that students are practicing correctly.

- **Retain for Mastery**
  - **Review**

This portion is for reviewing the lesson so far. How did we get here? What did we learn and how did we learn it? Provide students with opportunities to re-examine what they learned in Introduce the Text and practiced in Release the Lesson.
  - **Student Reflection**

How do the students feel about the work they have done so far? Do a confidence check. How ready are you to...? If the confidence is not there, more practice might be in order. If they are really unsure, you may have to go further back. The idea here is to find out from the class where they are with the material and if they are feeling success with it. We are trying to develop confidence and competence in our students.
  - **Concept Confirmation**

Here, we go back to the supra-concept to review and connect. Given what we have learned, how does that inform what we know about our concept? Make sure you connect the specifics to the big picture.
  - **Assessment**

Assess the students using the assessment, you shared with them in the introduction. Use this information to examine where the class is and where to go next.

## NUA Instructional Strategies

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- The instructional strategies that are at the heart of NUA are:
  - Research-based
    - > Cognitive Research on how people learn
    - > Literacy Research
  - Draw on the understanding that children bring different skills and strengths to the learning experience.
  - Based on the approach that there is no single strategy or approach that is universally effective for all grade levels, subject areas, classroom, etc.
  - In addition, a strategy may or may not be useful or effective for every teacher or student.

- There is no definitive list of strategies.
- Strategies are used as vehicles for encouraging teachers to think about instruction in more effective ways.


## **NUA Explicit Strategy Instruction**

The “Explicit Strategy Instruction” frame provides learners with vital information about a strategy and why it is being taught in a particular learning situation. As you use the frame it becomes a scaffold for the student. This scaffold aids students in recalling information about a particular strategy and what the strategy does.

- Today I am going to teach you about <insert name of strategy>.
- A <insert name of strategy> is used for \_\_\_\_\_.
- It is \_\_\_\_\_.
- This is how you draw the primitive: <draw primitive>.

## **NUA Strategy Sources**

The NUA Strategies primarily come from four sources. These are listed below. The author of a strategy that does not come from one of these sources is noted under the strategy title. There is a bibliography of these titles and more at the end of the book.

- **NUA Essential Strategies**—meant to be introduced in the first two years. These are found in the booklet they gave participants. These strategies are marked by a “.”
- **Thinking Strategies for Student Achievement** by Nessel and Graham provides many strategies listed below and are endorsed by NUA.
- **Writing As Learning** by Rothstein and Lauber provides many writing strategies listed below and are endorsed by NUA.
- **Thinking Maps Tools for Learning** by David Hyerle
- **Phonics & Vocabulary Building Guidebook** by Augusta Mann
- **The Rhythm of Cognition: Strategies for Student Engagement** by Norman Merrifield

# Comprehension

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## Pre-reading


- **Key Word Prediction**

 *Thinking Strategies* p.115

This priming activity is best used with expository text to activate prior knowledge and generate interest in reading the assigned text.

Choose a topic and put the topic and 8-15 words related to that topic that appear in the text. Students speculate how these terms relate to the topic. Student read the text and then review what they have learned compared to their earlier predictions.

- **Strip Story (Scrambled Sentences)**

 *Thinking Strategies* p.177

This priming activity helps students develop familiarity with a topic and structural features of text. They must reason logically about the order of ideas in a text.

Prior to reading a passage, students receive sentence strips that make up a passage. Groups arrange the sentences in the way they think makes the most sense. Groups review each other's arrangements and then revise their own. Students read the original text, revise their arrangement and discuss the information. Students reflect on what they learned about the topic. With younger students use 3-4 sentences.


- **Anticipation Guide**

 *Thinking Strategies* p.19

This priming activity helps students activate prior knowledge and reflect on the topic being studied.

Students receive a sheet with several declarative sentences about the topic they will be reading about. The students decide if they 'agree' or 'disagree' with each of the sentences by putting an 'A' or 'D' after each statement. After completing the sheet, students gather in groups to discuss their answers and share why they 'agreed' or 'disagreed' with the topic. Students read the text and then review, revise and discuss what they learned from the text with their answers in the Anticipation Guide. Typically anticipation guides are used with informational text to prepare students for new information.

- **Essential Summaries**

 *Augusta Mann*

This strategy is a comprehension strategy meant to expose students to the major ideas in an upcoming chapter or unit of study using recitation, discussion and repetition.

First you must have a written summary of important concepts and information of a chapter, unity or section of a text to be read. The summary is edited so that it contains only essential information and its length and rhythmic flow make it memorable when read aloud. The summary is written on a chart. Identify all vocab that students will need to know for the text selection. Prepare to introduce these words to students for study. Next introduce the topic to the students and introduce and discuss the vocab. On day 2 review the vocab and introduce the summary of the text in a rhythmic voice/style. Model the way you want the students to recite the passage with you. After they have recited the passage – put it away and go on with your day. The next day – repeat the process. On the third day, begin again in the same way but continue by discussing what the students know about the topic. Finally - read the text. Teachers can develop this introduction for each unit of study/ topic to be studied and it can be given to those students who are academically behind so that they can begin to study and learn the major concepts to be taught prior to the other students.

- **Flash Cards for Mastery**

 *Phonics and Vocabulary Building p. 57*

This strategy helps students build fluency of key vocabulary for a text or passage. This strategy is used to master the words – not to introduce the words. The words used for this activity/ strategy should have first been introduced using a companion strategy such as Highly Recurring Phonic Elements and Phonic Pattern Hopscotch (see pages 57-62 in Mann's Intensified Accelerated Reading System: Phonics and Vocabulary Building Guidebook). Make three flashcards for each word. One card has just the word. The other two cards have the word plus one or more of the phonic clues (written in small print at the top) or phonograms. A pack of flash cards generally has 65-85 cards (about 20-30 words). Flash the cards to the students at a very quick pace. The ones that are not instantly recognized need to be re-taught and the ones that are considered mastered. After the students have mastered all of the words, then begin to read the words in phrases and sentences and practice the first page of the story/ text that will be introduced. Once this has been completed – the students are ready to read the text and they will dramatically improved their chance of being

able to read the text independently and comprehend what has been read.

- **List Group Label**

 *Thinking Strategies p.129*

This strategy helps students familiarize themselves with the vocabulary of the text prior to reading and helps them predict what the text will be about. First, choose 20 – 25 important words from the text or the upcoming unit of study. Pass out the words to students organized in small groups – the words should be on separate cards. Students will read the cards and try to organize them in logical groups and then label each group and then predict what we will be reading or learning about in this unit of study.

- **Possible Sentences**


 *Thinking Strategies p.145*

This pre-reading strategy gives students several words from the text prior to reading and they are asked to create plausible sentences with them, which they share and discuss with a partner or in small groups. It sets a purpose for reading and provides motivation for reading. Researchers found that the discussion of their sentences was the key factor in increasing comprehension of the text – especially for ESL students.

Select 5-6 important words from the text that can be used in different ways. Choose some words that are familiar to students and some that may not be. Each students should write sentences that contain at least two of the words in each sentence. Share sentences with the whole class. Underline or highlight the provided words in the sentences. Have students read the text and see how the author used the words. Highlight the words in the text and discuss the author's sentences. After reading the text, ask the students to decide if the sentences they created are a reasonable fit for the text or not. You can ask students to write new sentences, not looking at the text, that help them remember key concepts and ideas from the text using the 5-6 words.

## During Reading

- **Read Talk Write**

 Thinking Strategies p. 155

This 'during' reading strategy supports comprehension through short, focused reading and discussion and writing.

Students establish partners and decide who is A and who is B. Students read a short passage individually and silently. When both partners have completed the passage they close the book and each person re-tells what they read. After each person shares, each person records a summary of the passage. In K-1 teachers may need to do this as a whole group and read and write for students.

- **Read Draw Talk Write**



This strategy is a variation of Read Talk Write and its basically the same idea with the exception that before students re-tell what they read they draw representations of what they read.

- **Key Word Notes**

 Thinking Strategies p.109

This 'during' reading strategy supports comprehension and focuses attention on important and relevant information.

Students work in pairs with a Key Word Notes from. Everyone reads assigned passage individually and silently. Students record, in Box 1, 4 key words that help them remember the important points of the assigned passage. Students compare their 4 words with a partner and tell why they chose the words they chose. Students repeat this process until the all segments of the text have been read. In the final box (5), students close the book and choose 4 key words that summarize the entire text read so far. This strategy is best used with students in grade 3 and older.

- **DRTA: Directed Reading-Thinking Activity**

 Thinking Strategies p. 45

This 'during' reading strategy supports comprehension by generating and justifying predictions while reading the text. It helps students infer what might come next and allows students to develop the ability to make reasonable and thoughtful predictions.



Divide text into multiple parts. Students read part 1 and make predictions on what will happen next and why. Students should present their ideas in a small group and share predictions. Students read the next part of the text and confirm/revise their predictions and then make new predictions for the next part of the story.

This strategy works best with narrative text and also works with films.

- **CLOZE Procedure**

 Thinking Strategies p. 31

This strategy provides students an opportunity to use context clues to identify words that have been deleted from the text. It can be used to practice a reading strategy or it can be used as an assessment for comprehension.

The teacher provides a passage with the first and last sentence intact and starting with the second sentence, delete every \_nth word (typically 9<sup>th</sup>). Students read text individually and fill in the blanks. After completing the passage, students discuss the words they chose and why in small groups. Provide the deleted words after everyone has shared what they think.

If using it as an assessment:

- 60% correct = independent level
- 41-59% correct = instructional level
- 40% or less = frustration level

On p. 35 there is a list of accommodations that can be made for students who struggle with this strategy. FYI Sudoku puzzles are non-linguistic analogues of the cloze procedure. They develop and refine the same kind of inferential thinking abilities and can be an interesting alternate way of engaging students in this important thinking process.

- **Facts and Inferences**


 Thinking Strategies p. 53

Helps students learn to distinguish between explicitly stated information and information that can be inferred from available evidence. Start with a few simple sentences that can be used to make one or more inferences. Explain the difference between explicit and implicit information. As students get more comfortable making inferences, choose longer text that requires the student to recognize

more subtle inferences. As students feel comfortable with this skill help them identify between explicit information, implicit information and opinions.

Example: The sky darkened as gray clouds gathered overhead, and a strong wind began to blow. The people on the street opened their umbrellas.

- **Note-taking**

 Thinking Strategies p. 135

Note-taking while reading is a strategy for recording and organizing important information in order to understand and remember it. There are several different methods for note-taking explained in the chapter which include:

- Double-entry notes – one side is key ideas and information – the other side is summaries and graphics
- Notes as graphics – notes kept in the form of thinking maps
- Main idea/ Detail notes – main idea goes at the top of a page and supporting details go under
- Cornell system – Students record as many facts/ideas in the right hand column, after class they reduce or question the info to key words, phrases or questions in the left hand column, students cover up the right hand column and use the words in the left to help them recall as much as the inform as they can, next they reflect on the info, review the notes several times using this method, and then at the bottom of the page they should summarize the notes with key ideas.

In order to increase the effectiveness of comprehension and memory of the content – the students should use their notes after completing the reading. Students can engage in Read Talk Write with their notes, they can complete a Thinking Map using their notes, they can produce a thinking map and cover it up and see if they can reproduce it independently, and they can review all their notes and try to condense them to one page of the most essential words and phrases that help the student recall key ideas, facts and concepts.

- **Paraphrasing**

 Thinking Strategies p. 135

This strategy provides students practice restating content in their own words without opinion. To teach paraphrasing, read a text aloud and after reading each sentence – paraphrase it in your own words and

write it down (model). Repeat the procedure with a new paragraph or text and ask students to help you paraphrase each sentence. Finally, before having students paraphrase independently ask them to practice this strategy with a partner using a new paragraph or text. Ask students to read aloud what they produced to the class.

When reading expository text aloud – continuously ask students – What does that actually mean? Say it in your own words.

SQ3R is a paraphrasing activity – survey, question, read, recite, review.

Read Talk Write is a paraphrasing activity.

PQRST is a paraphrasing activity – preview, question, read, summarize, test.

- **Reciprocal Teaching**

 *Thinking Strategies p. 165*

This strategy trains students to independently participate in a literature group or the reading of text in a very structured and guided text discussion process. As students read a text they engage in predicting, questioning, clarifying and summarizing. Choose a text that can be divided into several parts with natural breaks. Ask students to read the first part. One student will be responsible for asking Questions about that section. The second students will ask clarifying questions. The third student will ask everyone to predict what will happen next and the fourth person will ask someone in the group to summarize what was read so far. Use the chart on p. 168 and assign each student in a group of four a role from that chart. After reading each section, the assigned person must ask a few questions based on their role using some of the prompts from that chart. This allows students a structure to follow in their conversation.

## **After Reading**

- **Jigsaw**

 *Thinking Strategies p. 95*

Divide longer reading assignments into equal segments. Divide your class into groups of 4-5. Assign each member of the group a different part of the article. Students read the article and then discuss it with other people who read the same section – their expert group. Next

they return to their original group of 4-5 and each person shares what they learned. Encourage everyone to read the whole article.

- **Journal or Learning Log**

 *Thinking Strategies* p.105

Journals and Learning Logs can be used in a variety of ways and one way is for students to keep an ongoing response to the material they are reading. When responding to reading – it works best for students to divide the paper in two columns and on the left side record facts and details from the text and on the right side ask them to write their personal responses to what they are reading – what reactions, questions, or interpretations of the text can they offer.

- **Note-taking**

 *Thinking Strategies* p.135

This strategy becomes an after reading strategy when you begin to use the notes you recorded while reading to help you recall and remember the main idea and key concepts of what you have read. See 'During Reading' for more detail on this strategy or refer to the *Thinking Strategy* book on p. 135.

- **Paraphrasing**

 *Thinking Strategies* p.135

This strategy becomes an after reading strategy when you use the notes/ paraphrased you have recorded to study and retain the information. It provides students practice restating content in their own words without opinion. To teach paraphrasing, read a text aloud and after reading each sentence – paraphrase it in your own words and write it down (model). Repeat the procedure with a new paragraph or text and ask students to help you paraphrase each sentence. Finally, before having students paraphrase independently ask them to practice this strategy with a partner using a new paragraph or text. Ask students to read aloud what they produced to the class.

When reading expository text aloud – continuously ask students – What does that actually mean? Say it in your own words.

SQ3R is a paraphrasing activity – survey, question, read, recite, review.

Read Talk Write is a paraphrasing activity.

PQRST is a paraphrasing activity – preview, question, read, summarize, test.

- **Think-Pair-Share**

 Thinking Strategies p.183

After a learning event students sit with a partner and respond to questions. A question is asked and both partners are asked to 'think' about the answer. Next the partners will 'share' their answers with their partners. Finally, the answer is shared with the whole class. This can also be used as a 'during' reading activity also.


- **Readers' Theater**

 Thinking Strategies p.159

RT involves students performing a play that they have created themselves from a non-dramatic text. It is a form of genre switching. You may need to model this several times, before asking students to do it independently.


Choose a text that is familiar to eth students and that lends itself to dramatization. Reread the text with students and think aloud about where to break it into sections (break at places that have natural turning points). Explain that the sections will become different acts in the play. Reread each section and note which characters are involved and what the action is. Decide if the text needs a narrator. Use a Flow Map or a Comic Strip Model to sketch out the events in each section. Use the flow map as a guide to write the dialogue (and narration) for each section. Create a draft of the play and practice. After reading it aloud – revise it. Prepare a final version and act out the play. If the text is long, use the jigsaw method to assign different groups to different parts of the text.

- **Quotable Quotes**

 Writing As Learning p.183

This strategy takes quotes from the text students have just read and allows them to respond to the quote based on their beliefs, perspectives and opinions and/or allows them to interact with a character from the story. In Rothstein's description of the strategy, she has the students read the quote and then respond to a question regarding the quote. Once they have responded to the question- they apply their thoughts to a writing assignment – like: write a persuasive letter, write an explanation to, write a letter to advise, write a letter to \_\_\_\_\_ to describe \_\_\_\_\_, etc.

- **WWWWH—Who, What, When, Where and How**

 *The Rhythm of Cognition*, p. 27

- This specialized frame allows students to define or summarize what they know about a person or concept. There are 4 beats to each line - including the first word:

Who \_\_\_\_\_                      When \_\_\_\_\_                      How \_\_\_\_\_  
What \_\_\_\_\_                      Where \_\_\_\_\_

## Fluency

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- **Flash Cards for Mastery**

 *Phonics and Vocabulary Building* p.57

This strategy helps students build fluency of key vocabulary for a text or passage. This strategy is used to master the words – not to introduce the words. The words used for this activity/ strategy should have first been introduced using a companion strategy such as Highly Recurring Phonic Elements and Phonic Pattern Hopscotch (see pages 57-62 in Mann’s Intensified Accelerated Reading System: Phonics and Vocabulary Building Guidebook). Make three flashcards for each word. One card has just the word. The other two cards have the word plus one or more of the phonic clues (written in small print at the top) or phonograms. A pack of flash cards generally has 65-85 cards (about 20-30 words). Flash the cards to the students at a very quick pace. The ones that are not instantly recognized need to be re-taught and the ones that are recognized are considered mastered. After the students have mastered all of the words, then begin to read the words in phrases and sentences and practice the first page of the story/ text that will be introduced. Once this has been completed – the students are ready to read the text and they will dramatically improved their chance of being able to read the text independently and comprehend what has been read.

# Writing Strategies

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## Skills Practice

- **Imitation Writing**

 *Thinking Strategies* p. 87

This strategy helps students develop grammar skills (grammar, usage, and mechanics) as well as developing their vocabulary. It can be used as a warm up or mini-lesson in writer's workshop or as a lesson on grammar.

Select one or more model sentences. Students read the model and copy it on their paper. Next students replace key words with synonyms. Finally they write original sentences, on different topics using the same sentence structure/format. With younger students, the imitation sentences can be compiled in a book.

- **Taxonomies – ABCs of Word Power**


 *Writing as Learning* p. 23

This priming activity in the writing class can be used to generate vocabulary for topical writing.

Each student lists A-Z on their paper and then tries to generate as many words as they can about the assigned topic using the A-Z list as the first letters of the words they are brainstorming. After working 3-4 minutes independently students join a small group and share words. Next students walk around and look at others list to 'cross-pollinate' ideas. Students can use their taxonomies to support their writing with precise vocabulary.

Roster of Names Taxonomy for Kindergarten and First Grade p. 30.  
Personal Identity Taxonomy for personal-get to know you information p. 31.

- **Composing with Keywords**

 *Writing As Learning* p. 35

This strategy helps students compose sentences using key words from a text or related to a concept.

Students choose three words from a Taxonomy or Text. They compose one sentence using all three words. The words can be changed (suffixes/ prefixes) as needed. When you have completed your sentence you read it to your group. It is read in this way:

“Here are my words: \_\_, \_\_, \_\_ This is my sentence \_\_\_\_\_.”

Rothstein suggests a powerful use of Composing with Keywords is to pair it with Taxonomies.

- **Freewriting**

 Thinking Strategies p. 67


The purpose of freewriting is to build writing fluency and to generate ideas and a rough draft about a certain topic. It is a pre-writing activity. Ask students to choose a topic or give them a topic and ask them to write about that topic for 3-5 minutes without stopping for any reason. Don't worry about spelling, grammar, punctuation, etc – the idea is to keep writing and don't stop until the time is over. Students can then use the parts of their pre-writing to organize their next piece of writing and teachers can use pre-writing to help them determine how much a student knows about a topic that may have been written about.

- **Imitation Writing**

 Thinking Strategies p. 87

Students imitate the structure or pattern of a written model. First students read the model. Then copy the model word for word. Next using synonyms, change as many words in the sentence as possible and finally write your own sentence using the same syntactical structure as the original model. This is an excellent strategy to teach Word Choice (6 Traits of Writing).

- **Good and Better**

 Augusta Mann

This strategy allows students to see how authors write using precise/ descriptive words for accurate description and sentence fluency.

Choose sentences from texts that are excellent models of word choice and sentence fluency. Re-write these sentences using general and plain language. Record the plain language sentence under the heading “Good” and the author’s text under the heading “Better.” For three days, recite the Good and Better sentences with no explanation. Be dramatic. After the third day – discuss the author’s craft of word choice and sentence fluency and how the sentence improved through precise descriptive words. Ask the students to choose sentences from their own writing and try to write “better” sentences.



- **Saturation Reporting**

 *Thinking Strategies* p. 171

This writing strategy helps students develop observation and reporting skills and provides background knowledge and experiences to stimulate more interesting writing.

Students choose a place to write about. They go to their chosen or assigned location and observe that location and what is happening there. Take as many notes as possible about what you see, hear, smell and any action that takes place. After observing for a pre-determined length of time think of a general impression you have of the place and jot that down – the general impression becomes the main idea of your report. Have students share their observations and impression of the place with another student before writing about it. Ask the students to use their notes to write an article about what they observed using their general impression as the main idea. Share the article with a group for editing feedback. Make changes to the article and then publish the final draft.

- **Writing Frames**

 *Thinking Strategies* p. 187

Frames of writing have only structural elements that serve as a guide for students' own writing. Such frames provide students with templates that allow them to organize their thoughts in logical, written form. See pages 188–191 in the *Thinking Strategies* book for specific examples.


To learn more about Frames go to p. 100 in *Writing as Learning* by Rothstein.

- **Profiles**

 *Writing as Learning* p. 93

A Profile is a visual outline that helps the writer organize information about a topic. They guide students in selecting specific info from written text, enabling them to re-state or write the info in their own words. See p. 95 for an example.

- **ABC Stories**

 Writing as Learning p.107

Students tell a story starting each new sentence with the next letter in the alphabet.

- A long time ago....
- Build your houses.....
- Carl, the youngest pig.....

- **Editing**

 Writing as Learning p. 209

Rothstein introduces practical strategies to teach students to edit as well as using previous taught strategies to support editing such as Taxonomies. She has 4 *Improvers of Writing* that are important aspects to review during the editing process. They are: adding significant info or ideas; deleting redundant or insignificant information; substituting better words for weak or repetitive words (6 Traits) and moving or rearranging misplaced or poorly sequenced phrases or sentences (6 Traits). She has a 'poster of this in student language on p. 211.

## Organization Formats for Genres of Writing

- **Reasons, Causes, Results**

 Writing as Learning p.129

Students will learn and compare the basic organization formats for personal, persuasive and explanatory **essays**.

One at a time, students will complete each of the starters and then compare the distinctions between the written essays.

- There are three reasons why I...(personal essay)
- There are three reasons why we should....(persuasive)
- There are three reasons why *topic*...(explanatory)

Next students will write outlines (5) for each essay type. Students will then practice writing three or four support sentences for each reason in each of the forms.

Best used with grades 4 and higher and can be used to develop thesis statements. The teacher should help students recognize the value in having a tool for organizing ideas, thoughts and research as well as using clear language, smooth transitions and supporting facts/ details.

- **Premises, Premises**

 *Writing as Learning* p.163

This strategy provides a format for writing literary summaries or premises that serve as the basis for further writing related to making a **movie** (treatment, dialogue, reviews).

- Students read a story and imagine it as a film.
- Assign roles to each student: developer, producer, etc.
- Write the Premise Statement.
- Write the Character Profiles.
- Write the treatment.
- Prepare the storyboard.
- Write the dialogue. Create the costumes.
- Begin rehearsals.
- Write the credits.
- Film the movie.
- Edit the movie.
- View the movie.

See *Writing as Learning* for details.

This strategy is best used in grades 4 and higher but can be developed starting in Kindergarten with simple dramatic play based on nursery rhymes, fairy tales and other genres of text. Add a new aspect to it at each grade until the students are ready to create a movie in grade 4.


- **Personifications and Interactions**

 *Writing as Learning* p.195

This strategy helps students learn how to write from an other person's point of view. It can be used to write a letter or soliloquy. This strategy can also be used to write a job application. Literature is ripe with animals behaving as people and one way for students to practice writing a job application is to imagine what animals would be good for different types of works and then ask them to fill out a job application or write a letter of recommendation.

Select a literary or historic person, animal, topic, word, or idea. Read research about one of the above. Learn the format of a letter or a soliloquy (see *Writing as Learning* by Rothstein). Write a letter or soliloquy telling about 'yourself' in detail. Respond to the return letter or audience reactions. This can be used to define vocabulary at any grade level – in any subject.

- **Who's Who**

 Writing as Learning p.11

This strategy helps students learn how to write memoirs, biographies and autobiographies. It combines Taxonomies, Profiles, Frames and a variation of Defining Format to guide students in their writing of these genres.

First, review Taxonomy, Meta-cognition and introduce Dual Taxonomy from Writing as Learning on p. 93. Introduce Biographic Format and Biographic Profiles from Writing as Learning – Chapter 6. Use personal Profile to start autobiographies and use Frames for autobiographic sketches.

- **I-Search Reporting**

 Thinking Strategies p. 87

This strategy allows students to compose an original piece of expository writing that's based on a question the writer poses and then answers by researching information. Typically it is written in the first person and is conversational in tone. It encourages students to write in their own style and use their own words. Students choose a topic and investigate it. The investigate answers to questions they pose themselves, they select and use a variety of sources of information, and they write in their own way to describe the search they undertook and convey what they learned about something of genuine interest to them. When students have gathered enough information ask them to tell everyone what they know about the topic in writing. Write in the first person as if they are simply talking to someone about the questions they had, whom they consulted, what they did to find the answers and what they discovered or learned.


## **Grammar and Sentence Structure**

- **Scrambled Word**

 Thinking Strategies p.178

Print the individual words from a simple sentence on small cards. Put the scrambled words in an envelope. Give each group a scrambled sentence and ask them to put the sentence together in a sentence that makes sense. Ask students to read their sentence to the whole class to double check.

- **Sentence Stretchers**

 Writing as Learning p. 81

Teaching students how to write expanded sentences using major parts of speech.

- Divide paper into eight columns.
- Go to slot 4 and label it “*Animals*.” Choose an animal and write in column 4 in its plural form.
- Slot 5 is labeled “*Verb*.” Enter a verb of locomotion – keep verb in base form.
- Go to slot 3 and label it “*Adjective*.” Enter an adjective – think of a powerful adjective.
- Go to slot 2 and label it “*Determiner*” – need a word that determines an amount or number – it can be exact like three or inexact like some, may or several.
- Go to slot 6 and label it “*Adverb*” - Enter an –ly verb like “angrily.”
- Go to slot 1 and label it “*When*.” Write when this event occurred and be sure to begin with a capital letter.
- Go to slot 7 - label it ‘*Where*’ and write where this event is taking place.
- Go to slot 8 and label it “*Punctuation*” and put in the appropriate punctuation.

## Vocabulary Development

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- **Defining Format**


 Writing as Learning p. 57

This is a template to articulate and define the meaning of a word/term by asking a question, stating a category, and providing defining characteristics.

Set up a double page spread – divide the left hand page in half (columns). You now have three columns. Label the columns QUESTION, CATEGORY, CHARACTERISTICS. Write the Question (e.g. What is a lion?). Under the questions, begin the answer: (A lion is a.....). Move to CATEGORY and write the category (animal, mammal, feline, etc.). Move to CHARACTERISTICS. List the characteristics numerically. Compose a paragraph using the information from the Defining Format template.

This is considered a writing strategy as well as a comprehension strategy. It also can be used as a priming strategy for a unit or lesson as well as an assessment tool. It can be used with a Double Bubble Map when making comparisons between categories.

- **Morphology and Etymology**


 Writing as Learning p. 69

Every word has a story and this strategy helps students know and understand the formation and history of words related to a subject or topic that focuses on word patterns, spelling, grammar, and language history.

Teacher and students take the noun pretest on p.174 of Writing as Learning by Rothstein. Build categories of nouns. Build categories of verbs. Introduce Sentence Stretchers. Define parts of speech. Introduce morphology charts. Practice different levels of morphology (see p.189 Writing as Learning by Rothstein). Introduce the “be” verb. Begin etymology study. Build Taxonomies of words from different languages and ethnic groups that are used in English. Compose stories with words from different languages used in English. Write ABC and acrostic stories.

The study of words is the study of language. The study of language is the study of history. The study of history invites all different cultures and ideas in the classroom and makes learning engaging and interesting for students.

- **Act Out Adjectives and Adverbs**


 *Augusta Mann*

This strategy helps students memorize descriptive words and their definitions through rhythmic call and response and repetition.

Make a list of adjectives and adverbs you want the students to master throughout the year. You will be teaching 5-6 at a time until mastered. When ready to teach – choose a word and say it – students will say it back in rhythm. Using one action – pantomime the word and students will pantomime it back. Repeat procedure. Do this for @ 5-6 words. After the pantomime students will write the word – draw a picture (of the pantomime) and write a definition and a sentence for each word. When these 5-6 words are mastered, introduce 6 more while continually reviewing the words introduced before.

The Descriptive Word Lists in The Reading Teacher’s Book of Lists is an excellent resource for this activity.


- **Dancing Definitions**

 *Phonics and Vocabulary Building p. 20*

This strategy is used to memorize important vocabulary related to a unit of study or prior to reading a text using rhythm and repetition.

Choose words that are unfamiliar and/or familiar but difficult for the students to articulate their meanings accurately. Introduce (not more than 8-10 at a time) the words and discuss. Teacher and students discuss their own definitions and experiences related to each word. After students have a general understanding of the words create a 'dancing definition' for each word. A dancing definition is a phrase that defines the word in a rhythmic way. The most important words are often repeated. A "tag" sentence is developed so the students have an example of how the word is used in context. Record the word, definition and sentence on chart paper and recite the words together. Student can learn 8-10 words every 2-3 days. As the students get used to the process and become proficient in the process, they can begin to develop the definitions and tag sentences in small groups and present their words to the class.


- **Waterfall**

 *The Rhythm of Cognition, p. 6*

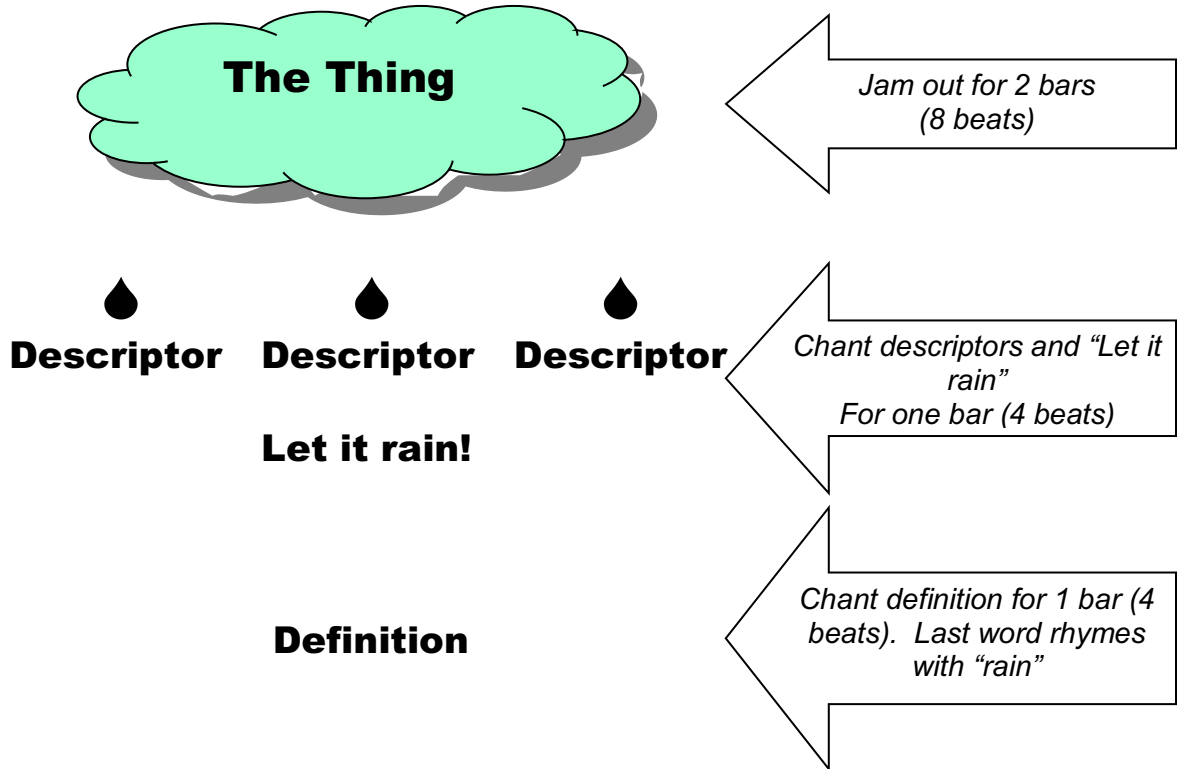
The Waterfall is a priming strategy that is used to help develop concepts and vocabulary. In this strategy the students develop a chant that describes or defines a concept. The waterfall has 8 beats (seven steps and ends with "A"). Here is an example describing "Life":

- Life
  - Love
    - Family
      - Children
        - Work
          - Together
            - Joy
              - A!

- **Rain Cloud**

 *The Rhythm of Cognition*, p. 19

The Rain Cloud is a priming strategy that is used to help develop concepts and vocabulary. In this strategy the students develop a chant that defines a concept. The rain cloud is a four bar exercise, with each bar consisting of four beats. The first section of the Rain Cloud is held for two bars (8 beats). The next section for one bar and the last section for one bar.



## Phonics

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- **Highly Recurring Phonic Elements and Phonic Pattern Hopscotch with Phonic Pattern Word Lists**

 *Phonics and Vocabulary Building* p. 42, p. 51, p. 69

These strategies help learn how to decode words using patterns.

Prior to teaching the strategies students need to have mastered the sound symbol relationships for letters and highly occurring phonics patterns. They should also be familiar with the words you are decoding.

Over a period of a week the Highly Recurring Phonic Elements



Chart is introduced to students. Explain all the chart's letter patterns and their corresponding sounds and key pictures. As each pattern is introduced several examples are given of words that have the same pattern in the initial, median or final positions. After the overview of the chart is completed, lead the students in a recitation of the names of the reference pictures and the sounds for each of the phonic elements. Start with /er/, /ir/, /ur/, and /st/ and add 2 to 5 sounds a day. Continue to review the sounds already introduced as you lead students through the recitation of the entire chart. Refer to chart whenever a new word is introduced using Phonic Pattern Hopscotch.

Phonic Pattern Hopscotch is a process for decoding words starting with patterns that students know from the Highly Recurring Phonic Element chart. The patterns that are familiar are present first and then the remaining consonants and vowels are added in either direction, to front and back to complete the word.

## Thinking Maps

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- **The Frame**



*Thinking Maps Tools for Learning p. 1-20*

This strategy is used to help students explore multiple perspectives, evaluate and question sources of information and provide information about their own prior knowledge and acknowledge the source(s) of that information.




Draw a frame around any map.

Students should examine the information that already exists on the map and ask themselves. "Why do I think about it in that way? What is influencing or shaping my understanding? What prior knowledge, experiences, emotions, customs, beliefs, values and cultural influences are shaping my understand of this thing, idea, topic or concept? From what perspective am I viewing and understanding this thing? How do I know what I know? Where did I get my ideas? What other perspectives exist?"

Students record their ideas in the Frame of Reference around the outside of the map. Students could: prioritize, assess, question or categorize the influences – try to identify which perspective or

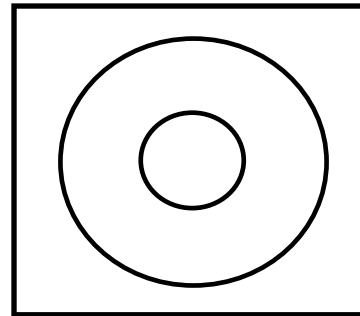
points of view are missing – identify which filters seem to dominate: emotional, spiritual, familial, political. Students should think how someone else might perceive the same topic – think about other/ different perspectives.

- **Circle Map**

 *Thinking Maps Tools for Learning p. 1-20 – 1-23*

This map is used to Define in Context. It answers the questions: What do you know or what would you like to a topic? How would you define this thing or idea?

Choose a word or concept to define – put the word in the center circle. Generate what everyone knows about the idea or concept and write it around the circle and inside the greater circle.

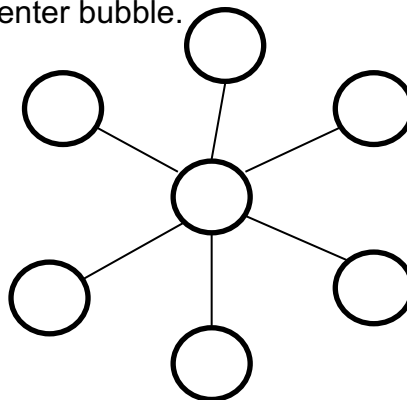


- **Bubble Map**


 *Thinking Maps Tools for Learning p. 1-24 – 1-27*

This map is used to DESCRIBE. It answers: What are the attributes, qualities, traits, characteristics and properties of the person/object/idea I am trying to describe.

Place a word in the center bubble that will be described. What does it look like/ feel like/ etc.? Students generate words to describe the thing by using adjectives. Each word is a new bubble added around the center bubble.



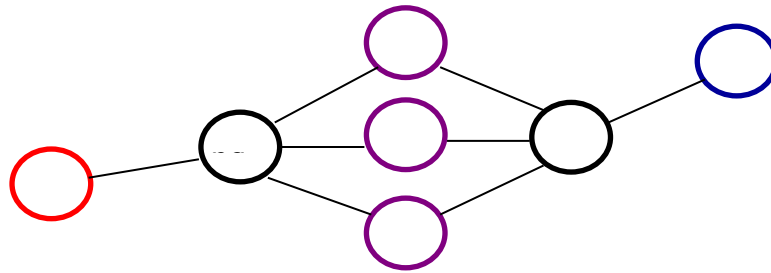
- **Double Bubble Map**

 Thinking Maps Tools for Learning p. 1-28 – 1-31


This map is used to COMPARE and CONTRAST.

It answers: How are these things, ideas, etc. similar and different? How are they alike? What are the corresponding qualities to compare and contrast? Are they more alike or different? What are the most important qualities that are similar and different?

Put two things in circles that will be compared/contrasted. Record similarities in bubbles between the two circles. Record differences in bubbles on the opposite sides of the circles (not between them).

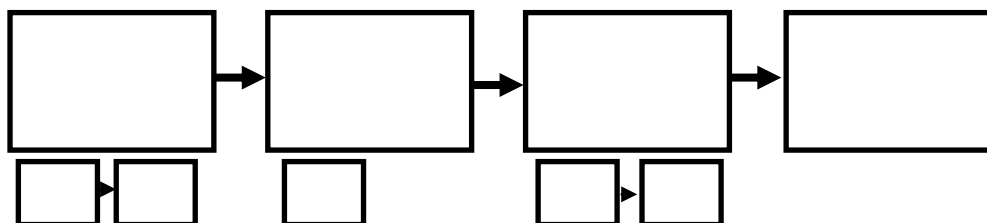


- **Flow Map**


 Thinking Maps Tools for Learning p. 1-40 – 1-43

This map is used to SEQUENCE. It answers the questions: What is the sequence, order or process of this thing or event? How can I sequence this information or these ideas? What happened first, next, last?

Choose a topic or concept that lends itself to sequencing. Put one item in each box in the correct sequence – for example – the events of a story.

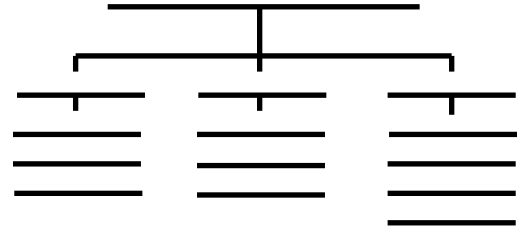


- **Tree Map**


 Thinking Maps Tools for Learning p. 1-32 – 1-35

This map is used to CLASSIFY. It answers the questions: How can I group or categorize these things? What other things belong in this category? Does a thing or idea fit into more than one category? What are the ways to classify these things? What are the types of things?

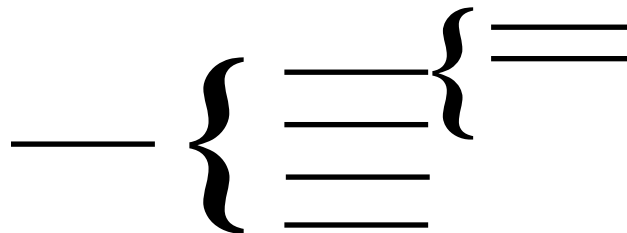
Choose a concept that can be broken down into different groups. The concept goes in the first box, the next set of sub-groups go in the next set of boxes and if the sub-groups can be broken down into smaller sub-groups – those ideas would go in the next set of boxes.




- **Brace Map**

 Thinking Maps Tools for Learning p. 1-36 – 1-39

This map is used to ANALYZE WHOLE TO PART RELATIONSHIPS OF PHYSICAL OBJECTS. It answers the questions: What are the parts of this whole object or concrete thing? What are the major, minor and subparts that make the whole? The name of object goes in the first box. The subparts go in the next set of boxes. If those subparts can be broken down into smaller parts – a new set of sub-groups are created.



- **Bridge Map**

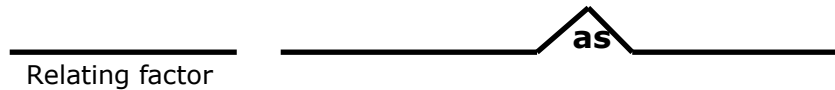
 Thinking Maps Tools for Learning p. 1-48 – 1-51

This map is used for ANALOGIES. It answers the questions: What is the similar relationship between these two relationships? How does this system or relationship remind me of another relationship? How are these words related?


Students choose a particular concept and look for relationships within that concept.

Students identify the relating factors that links the relationship and write that word that bridges the connection to the line to the left. Students should write the next pair of words that relate to each other in the same way that the first pair relates. Read the bridge map from top to bottom with the relating factor in the middle. Keep the map up and keep extending it if possible.

Analogies are presented in the Thinking Strategies book on p. 13. “Studying and creating analogies helps students develop comprehension of vocabulary and concepts as they improve their reasoning ability and their critical thinking skills.

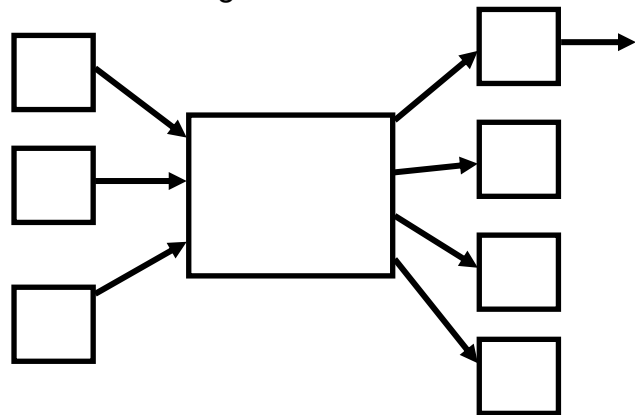


- **Multi-Flow Map**

 Thinking Maps Tools for Learning p. 1-44 – 1-47

This map is used to show CAUSE AND EFFECT. It answers the questions: What are the short term and long term effects of this event, issue or action? What were the causes?

How does this system work? Choose a topic/concept that demands a cause and effect thinking or reading. The main event/topic goes in the box in the center. Brainstorm the causes for that event and put those ideas in boxes in front or to the left of the center box. Brainstorm effects and put those ideas in the boxes after or to the right of the center box.



- **Graphic Organizers**

Graphic organizers are discussed on p. 75 of the Thinking Strategies book.

## Concept Development

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- **Cubing**

 Thinking Strategies p. 39

This strategy can be seen as a vocabulary or concept development strategy and it works best with concrete objects such as a book, rule, apple, backpack OR a phenomena or event such as a thunderstorm, lunchtime in the cafeteria, taking a test, etc. Cubing is a thinking activity that encourages students to explore meanings of a given object, concept, or phenomenon from six perspectives – describe, compare/contrast, associate, analyze, apply, and argue for or against.

Give students a concept or topic and have them write about each category in small groups and then share with the other groups.


- **Framer Model For Concept Development**

 Thinking Strategies p. 61

This process involves contrasting examples of the concept with non-examples, determining essential and non-essential characteristics, and organizing the information into a chart.

Tell the students the purpose of the strategy is to refine and deepen their understanding of a concept. Put a word in the middle of a chart that has been divided into 4 sections. Top left is labeled examples and top right is labeled non-examples. Bottom left labeled essential characteristics and the bottom right is labeled non-essential characteristics. Have students fill in the chart using the word in the center and the labels as their guide. Students could cut out or draw pictures to make this a visual representation. A variation of this is to leave the center circle blank and give the students information in the four different areas and see if they can figure out what the concept is from the info in the chart.


- **Waterfall**

 *The Rhythm of Cognition, p. 6*

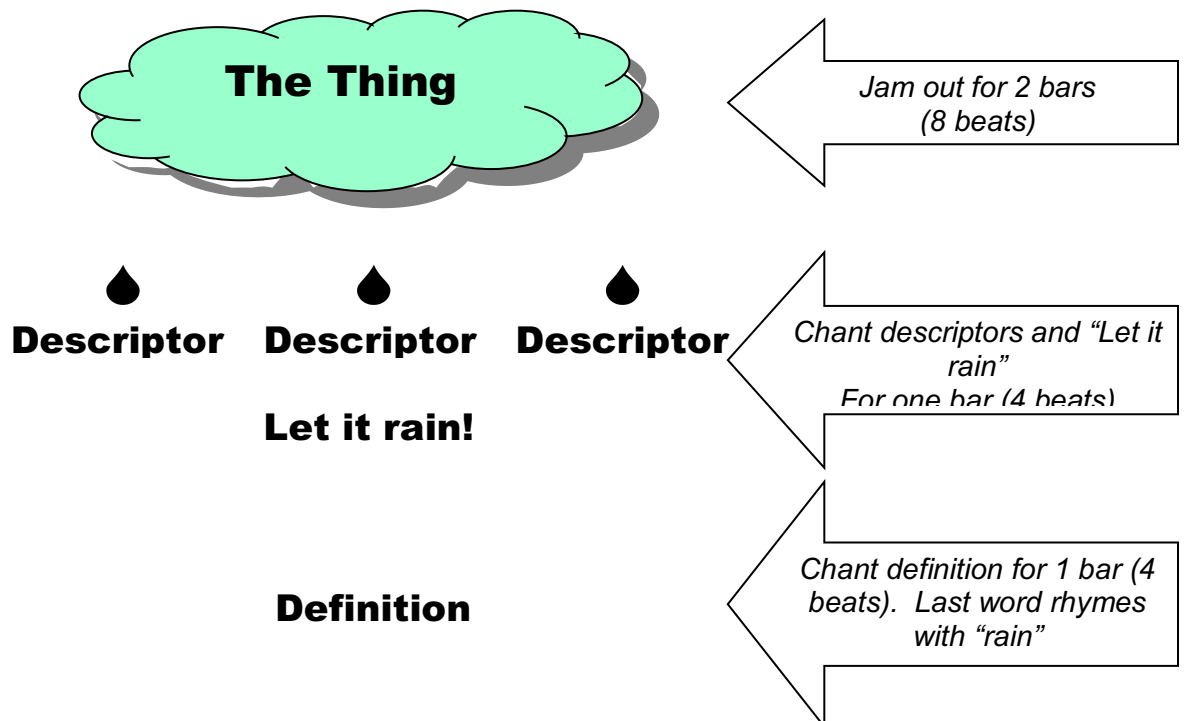
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# Priming For Units of Study

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- **Taxonomies: ABCs of Word Power**

 Writing As Learning p. 23

This priming activity allows students to share what they know about a particular topic in a unique format. It is best used when priming for a unit of study not just one passage. Each student lists A-Z on their paper and then tries to generate as many words as they can about the assigned topic using the A-Z list as the first letters of the words they are brainstorming. After working 3-4 minutes independently students join a small group and share words. Next students walk around and look at others list to 'cross-pollinate' ideas. Students read the text or begin the unit of study. After reading or at the end of the unit of study students can use this strategy to show how much they have learned or compare their progress by comparing before/ after lists.

Roster of Names Taxonomy for Kindergarten and First Grade p. 30  
Personal Identity Taxonomy for personal – get to know you information p. 31

- **Metacognition**

 Writing As Learning p. 45

Similar to a KWL chart, this notebook strategy allows students to track their learning as well as activate prior knowledge.


Students need a notebook and set up two pages that they can see at the same time when the notebook is open. On the first page write Metacognition at the top. Skip a line and write, "I know that I know something about...." Skip a line and write, "First," Move to the middle of the page or go to the next page and write, "In addition," Go to the middle of the page and write, "Finally," Go to the bottom of the page and about two lines from the bottom write, "Now that I know something about...." This statement will then be followed by three supporting statements and a conclusion that is written as "Now you know something that I know about...."

This is considered a writing strategy as well as a comprehension strategy.

- I know that I know something about \_\_\_\_\_.
- First,
- In addition,
- Finally,
- Now you know something that I know about \_\_\_\_\_.



- **Essential Summaries**

 *Augusta Mann*

This strategy is a comprehension strategy meant to expose students to the major ideas in an upcoming chapter or unit of study using recitation, discussion and repetition.

First you must have a written summary of important concepts and information of a chapter, unity or section of a text to be read. The summary is edited so that it contains only essential information, and its length and rhythmic flow make it memorable when read aloud. The summary is written on a chart. Identify all vocab that students will need to know for the text selection. Prepare to introduce these words to students for study. Next introduce the topic to the students and introduce and discuss the vocab. On day 2 review the vocab and introduce the summary of the text in a rhythmic voice/style. Model the way you want the students to recite the passage with you. After they have recited the passage – put it away and go on with your day. The next day – repeat the process. On the third day, begin again in the same way but continue by discussing what the students know about the topic. Finally - read the text. Teachers can develop this introduction for each unit of study/ topic to be studied and it can be given to those students who are academically behind so that they can begin to study and learn the major concepts to be taught prior to the other students.

- **Carousel Brainstorming**

 *Thinking Strategies p. 27*

It is a cooperative group activity developed to help the entire class generate ideas about an upcoming unit of study. It can also be used at the end of a unit of study to restate information or study for a test/ assessment.

Divide the students into teams. Each team will start at one of the charts you have posted throughout the room. Each chart contains a question or a concept that the teams will write down what they know about that question/ concept or term. After a stated period of time – the teams will move clockwise to a new chart – read what has been written, add new ideas, elaborate on ideas that are there or write their same ideas in new words. Each team will go to every chart until they return to their original chart. The team should discuss what has been added to the chart and state whether they agree or question the ideas that have been added (but not to criticize those new ideas). Each team should present two or three things that were important in their conversation to the whole class.

- **KWL chart**

 *Thinking Strategies p. 121*

This strategy is for activating prior knowledge about any given topic.

- Under K on the chart – students write what they know about the topic.
- Under W on the chart – students write what they want to know about the topic.
- Under L on the chart – students write what they learned (after the unit of study or text).

- **List Group Label**

 *Thinking Strategies p. 129*

This strategy helps students familiarize themselves with the vocabulary of the text prior to reading and helps them predict what the text will be about. First, choose 20 – 25 important words from the text or the upcoming unit of study. Pass out the words to students organized in small groups – the words should be on separate cards. Students will read the cards and try to organize them in logical groups and then label each group and then predict what we will be reading or learning about in this unit of study.

- **Quotable Quotes**

 *Writing As Learning p. 183*

This strategy takes quotes from the text students have just read and allows them to respond to the quote based on their beliefs, perspectives and opinions and/or allows them to interact with a character from the story. In Rothstein's description of the strategy, she has the students read the quote and then respond to a question regarding the quote. The quote and question relate to the concept you are teaching in your upcoming unit of study and you are eliciting the thoughts, beliefs and prior knowledge of the students to reflect on that concept. If the concept you are introducing has to do with freedom you may present a quote from a former slave, Quaker or politician in regards to freedom. Ask the students a question regarding their beliefs about the statement and finally have them write their response to the question. The written response can be in the form of an essay, letter, poem, etc.

# Math Problem Solving

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- **RAT Math (Read and Think Math)**

 Thinking Strategies p. 151

Students use this strategy to read word problems by focusing on one part at a time and speculating on what the question will be and on what steps they will have to take to solve it. As a result they learn to analyze problems more effectively and solve them with greater skill and accuracy. Provide a word problem with several sentences and the question at the end. Separate the problem into three or four parts. Show each part in order, and after showing each part, ask the students to speculate what the question will be at the end and what operations will be needed to get the correct answer. Then see if they can tell you what information is missing, that they still need to check to see if their prediction is accurate or not. When you read the actual question – ask the students to solve the problem.

# Geography

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- **Where in the World**

 Writing as Learning p. 141

The strategy Where in the World combines teaching the students an organizational system of geographic locations with Taxonomies; Composing with Keywords, Metacognition; Defining Format; Morphology and Etymology; Profiles and Frames; Reasons, Causes, Results' and Who's Who. The organizational system is based on the geopolitical concept that much of the world currently consists of political divisions created by humans and natural divisions created by forces of nature.

# Concepts

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“Concepts are deep and essential understandings those understandings that drive us and govern our sense of purpose.” Caine and Caine

“Deep knowledge transfers across time and cultures and provides a conceptual structure for thinking about related and new ideas.” H. Lynn Erikson

- Higher complexity moves from facts to concepts for enduring understanding
- Higher complexity requires critical, conceptual, and creative thinking
- Topic-based/Fact-based curriculum is boring.
- In a thinking classroom, facts become tools to develop concepts and generalizations and become building blocks to support conceptual learning.
- As factual coverage increases, conceptual engagement decreases...along with motivation for learning.
- Motivation is intrinsically generated by the conceptual mind.

### Concept List

<b>Supra Concepts</b>	<b>Curricular Concepts</b>	
<ul style="list-style-type: none"> <li>• Constancy and Change</li> <li>• Unity and Diversity</li> <li>• Society</li> <li>• Relation</li> <li>• Science</li> <li>• Living Things</li> <li>• Energy</li> <li>• Matter</li> <li>• Power</li> <li>• Measurement</li> <li>• Number and Numeration</li> <li>• Geometry</li> <li>• Environment</li> <li>• Invention</li> <li>• Interdependence</li> </ul>	<ul style="list-style-type: none"> <li>• Adaptation</li> <li>• Balance</li> <li>• Boundaries</li> <li>• Bravery</li> <li>• Change</li> <li>• Community</li> <li>• Conflict</li> <li>• Courage</li> <li>• Culture</li> <li>• Cycles</li> <li>• Energy</li> <li>• Environment</li> <li>• Evolution</li> <li>• Exploration</li> <li>• Extinction</li> <li>• Family</li> </ul>	<ul style="list-style-type: none"> <li>• Freedom</li> <li>• Frontiers</li> <li>• Innovation</li> <li>• Language</li> <li>• Migration</li> <li>• Order</li> <li>• Patterns</li> <li>• Power</li> <li>• Preservation</li> <li>• Relationships</li> <li>• Revolution</li> <li>• Structures</li> <li>• Symbols</li> <li>• Systems</li> <li>• Unity</li> </ul>

## Content Concepts

Based on the work of H. Lynn Erickson

### Mathematics Concepts

Number	Slope	Unit of Measure	Sampling
Proportion	Equivalence	Line	Function
Ratio	Symmetry	Point	Variable
Probability	Shape	Correlation	Prediction
Perimeter	Congruence	Chance	Angle
Rate	Area	Volume	Percent
Domain	Fractions	Decimals	Symbols
Ordered Pairs	Range	Central	Series
Scale	Coordinates	Tendency	Distribution
Vectors	Expression	Odds	Properties
Rates of Change	Intersection	Trends	Relative Magnitude
		Risk	

### Science Concepts

Matter	Ecosystem	Development	Order
Energy	Diversity	System	Structure
Transfer	Population	Traits	Interaction
Force/Power	Equilibrium	Behaviors	Substance
Interdependence	Motion	Reproduction	Similarities
Model	Fertilization	Differences	Change
Behavior	Heredity	Mass	Conductivity
Evolution	Mutation	Distance	Volume
Organism	Cycle	Temperature	Magnetism
Cell	Scale	Heat Flow	Properties
Speed	Action/Reaction	Sound	Density
Environment	Identity	Patterns	

### **Social Studies Concepts**

Culture	Role/Status	Leadership	Rights/Responsibilities
Patterns	Government	Similarities	Influence
Perspective	Limits	Differences	Exchange
Policy	Behavior	Conflict	Freedom
Communication	Supply/Demand	Cooperation	Equality
Systems	Needs/Wants	Traditions	Citizenship
Common Good	Origin	Interdependence	Identity
Location/Place	Ethics	Groups	Laws/Rules
Space/Regions	Environment	Institutions	Incentives
Resources	Power	Change	Beliefs/Customs
Order	Justice	Continuity	Consumption
Transportation	Time	Values	Markets

### **Art Concepts**

Movement	Harmony	Tone	Aesthetic
Rhythm	Dramatization	Color/Timbre	Space
Balance	Imitation	Image	Time
Pattern	Synchronicity	Sound	Energy
Variation	Imagination	Movement	Fluency
Technique	Repertoire	Composition	Originality
Expression	Value	Craftsmanship	Structure
Color	Texture	Elaboration	Flexibility
Line	Angle	Critique	Mood
Form	Tone	Change	Character
Melody	Pitch	Function	
Style	Tempo	Action	

## Resources

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### **Foundational Texts for Teaching and Learning Strategies**

- **Thinking Strategies for Student Achievement: Improving Learning Across the Curriculum, K-12**  
Denise Nessel and Joyce Graham 2007 (Second Edition)  
Corwin Press 1-800-818-7243 ISBN 1-4129-3881-3
- **Writing As Learning: A Content Based Approach**  
Andrew and Evelyn Rothstein and Gerald Lauber 2007 (Second Edition)  
Corwin Press 1-800-818-7243 ISBN1-4129-4961-0
- **Write for Mathematics**  
Andrew and Evelyn Rothstein and Gerald Lauber 2007 (Second Edition)  
Corwin Press 1-800-818-7243 ISBN1-4129-3994-1
- **Thinking Maps: Tools For Learning**  
David Hyerle, Thinking Maps. Inc. 1-800-243-9169  
(Three Ring Binder you receive when you go through the training).  
For more info go to [www.thinkingmaps.com](http://www.thinkingmaps.com)
- **Phonics and Vocabulary Building Guidebook**  
Augusta Mann, Mann's Intensified Accelerated Reading System  
1-800-893-3073 For more information go to the website at  
[www.successfulteachers.com](http://www.successfulteachers.com)
- **The Rhythm of Cognition: Strategies for Student Engagement**  
Norman Merrifield 2008  
True Vine Publishing Company ISBN: 978-0-9822087-0-0

### **Foundation Texts to Learn and Discuss Issues of Racial Equity**

- **Other People's Children: Cultural Conflict in the Classroom**  
Lisa Delpit, New Press, New York ISBN 1-56584-180-8

- **The Dreamkeepers: Successful Teachers of African American Children**  
Gloria Ladson-Billings Jossey-Boss, San Francisco, California,  
1994 ISBN 0-7879-0338-8
- **Shooting For Excellence: African American and Youth Culture in New Century Schools**  
Jabari Mahiri  
Teachers College Press, New York, New York, 1998  
ISBN 0-8141-4463-2
- **Accommodating and Educating Somali Students in Minnesota Schools**  
Mohamed Farid and Don McMahan  
Hamline University Press, St. Paul, Minnesota, 2004  
ISBN 0-9723721-4-8

### **Foundation Texts for Learning and Brain Research**

- **Learning and Leading with Habits of Mind**  
Arthur L. Costa and Bena Kallick  
ASCD, Alexandria, Virginia, 2008  
ISBN 978-0-87120-368-7
- **Teaching with the Brain in Mind** 2<sup>nd</sup> Edition  
Eric Jensen  
ASCD, Alexandria, Virginia, 2005  
ISBN 978-1-4166-0030-5
- **How People Learn: Brain, Mind, Experience, and School**  
John D. Bransford et al.  
National Research Council  
National Academy Press, Washington, D.C. 2000  
ISBN 0-309-07036-8