CSI: CONTEXTUAL SEMANTIC INVESTIGATION FOR WORD MEANING

Michael W. Kibby
University at Buffalo
Department of Learning and Instruction
The Center for Literacy and Reading Instruction
William J. Rapaport
University at Buffalo
Department of Computer Science & Engineering
Department of Philosophy
Center for Cognitive Science
Karen M. Wieland
University at Buffalo
Department of Learning & Instruction
The Center for Literacy and Reading Instruction
Debra A. Dechert
University at Buffalo
Department of Learning & Instruction
The Center for Literacy and Reading Instruction

Supporting Theory, Research, and Rationale

What do you do when you are reading and you come across a word whose meaning you don't know, yet you decide that you need to know the word in order to understand what you are reading? You have three choices: (1) you look the unfamiliar word up in a dictionary; (2) you ask someone else what the word means; or (3) you try to figure out the sense of the word on your own.

The first solution is not always viable, for a number of reasons. You may not have a dictionary with you while you are reading. Even if you do, the word you seek to define might not be in the dictionary. The dictionary entry may offer multiple meanings, or the sense you are looking for may be new or obscure. Alternatively, the definition of your target word may be so complex that it creates another context, which requires you to look up or figure out the meanings of still more unknown words. For example, a fourth-grader in our center recently used the Mirriam-Webster Online Dictionary to find the meaning of "infract." The meaning she found was "to infringe"; not knowing this word, she looked it up, finding the word "encroach"; again, not knowing this word and becoming perplexed, she looked this word up, finding its definition to be "to enter by stealth"—her teacher then told her the meaning of the word infract.

The second solution, asking someone who knows the word's meaning, is easier—provided there is someone nearby to ask—which is not always the case. The knowledgeable person would most likely require contextual information and

probably will say, "Read me the whole sentence." Using the *textual constraints* of this text segment in conjunction with background knowledge, your consultant will retrieve the correct sense of the word from his or her mental lexicon.

Your third solution to encountering an unknown word is to hypothesize possible and logical senses of the word from its **textual constraints**. We use the term "using the textual constraints" in lieu of the more commonly used term "context clue" to make it clear that it is the information across the text that is used in CVA, not just a cue in a singular portion of the text or specific cues such as appositives or parenthetic statements.

Expert readers enjoy the challenge of figuring out new word meanings from their comprehension of the text their reading, their prior knowledge, and their thinking or reasoning abilities. In fact, one of the characteristics that may distinguish highly successful readers from less adept peers is an interest in learning new words while reading. So rather than consulting a dictionary or another person to learn about a new word, readers can be taught to think as expert word learners think, and make hypotheses based on passage comprehension, textual constraints, prior knowledge, and reasoning. Inferring a word's meaning from text is part skill, part strategy, and part practice; and the more practice a reader has with the technique, the more productive the technique becomes.

Several researchers have investigated context in relation to vocabulary acquisition and proposed types of context clues that readers should look for in a text (Ames, 1966; Artley, 1943; Deighton, 1959; Dulin, 1970; McCullough, 1952; Sternberg, 1987; Sternberg & Powell, 1983), and a handful of studies have attempted to determine how readers use context (Ames, 1966; Carnine *et al.*, 1984; Harmon, 1998, 1999, 2000; Kibby, Rapaport, & Wieland, 2004; McKeown, 1985; Sternberg & Powell, 1983; van Daalen-Kapteijns & Elshout-Mohr, 1981; van Daalen-Kapteijns *et al.*, 2001; Werner & Kaplan, 1950; Wieland, 2005). Many of the suggestions for using context clues are vague (e.g., Blachowicz & Zabroske, 1990; Clarke & Nation, 1980). Determining what types of clues to look for in a text is only one part of the process, but most of the research on this topic focuses on clue types, perhaps because these are easier to teach and to test than are expert reading and reasoning strategies.

What we are going to do in this lesson is show you and your students how to be "contextual semantic investigators" or CSIs. Finding out the meaning or sense of an unknown word from the meaning comprehended from the passage, the passage textual constraints, background knowledge, and reasoning ability is like a crime scene investigator—a CSI—finding out who committed a crime from the clues at the scene—only rather than dusting for finger prints, looking at tire tracks, analyzing polygraph results, or testing saliva samples for DNA, vocabulary CSIs utilize global comprehension strategies, look inward at their own background knowledge about the text's topic, rearrange words syntactically, and apply their reasoning abilities to all this information together to try to gain a sense

of the meaning of the word. Both crime scene and vocabulary CSIs require comprehending and remembering information from the text, reasoning about or making connections between this information and background knowledge, making hypotheses, weighing the evidence, and eventually drawing conclusions.

This method for teaching CSI word detective skills to readers of all levels was derived from our own research with expert high school readers and our computational model of expert reading behavior (Ehrlich, 1995; Kibby et al., 2004; Rapaport, 2003, 2004; Rapaport & Ehrlich, 2000; Rapaport & Kibby, 2002; Wieland, 2005). We developed this CSI method by asking extremely adept high school readers to *think aloud* when they encountered unknown words while reading, and we validated our theories in an artificial intelligence environment. There is considerable validity for the think aloud or verbal report process (Ericsson & Simon, 1993; Pressley & Afflerbach; 1995). Our research gained verbal protocol from excellent readers in order for us to find the strategies that the best readers use, thus providing us insight into the strategies and skills that perhaps less than excellent readers should be taught. A brief summary of one component of our research follows. For more information on our full project, see our website on Contextual Vocabulary Acquisition (http://www.cse.buffalo.edu/~rapaport/CVA/).

In a nutshell, what we found is that our readers rarely reported reinspecting the surrounding text looking for a specific **printed context clue** such as those we have been teaching kids for decades: e.g., appositives (e.g., "Abraham Lincoln, the 16th president, was a . . . ."), parenthetic definitions (e.g., "A sign of autism is *perseveration* [perseveration means to repeat an action or phrase over and over again]), connecting text (e.g., "such as," "an example of this is," "in contrast to"). To be sure, such textual clues are useful and our excellent readers surely did use them when they were present—but they are rarely present; writers do not write texts to teach new words, they write texts to convey meaning using words they think their reader already knows!

Instead of re-inspecting surrounding text (some computational linguists call this the co-text), the processes reported by our excellent readers were much more conceptual or **global**: i.e., (a) summarizing their *comprehension* of the text segment, (b) making connections between that comprehension and their *prior knowledge*, (c) using their *reasoning* abilities (d) to derive a *hypothesis* of the sense of the word's meaning. Sometimes readers reread the sentence with the hard word to determine its part of speech or to reinforce comprehension—but they rarely looked for specific, printed clues by reinspecting other portions of the paragraph in which the hard word occurred.

There was in our research, one exception to this last point. After—and generally only after—our readers had encountered the word in several texts and were confident they had figured out a sense of the meaning of the word, they (e) did reinspect the surrounding text—but this was done only as a way of proving to the

researcher interviewing them (Karen) that the proffered meaning was actually congruent with the "clues" in the text. Indeed, the fact that our excellent-reading high school seniors did not report reinspecting texts for specific clues until they had already derived and iterated a sense of the word's meaning provides further evidence that links between printed context clues and a word are obvious only when the reader already knows the word. This point needs elaboration.

What we observed in working with our superior-reading high school participants as well as our own research groups' attempts to use CVA on texts containing hard words was that even the most intelligent and capable reader cannot readily identify those portions in a passage that link to the meaning of the word. This is because one has to have at least some sense of the word's meaning to make an association or link between a specific clue in the text and the hard word. When teachers teach contextual vocabulary acquisition skills, they usually use a text with a word they know, but their students do not. In this situation, the teacher is readily able to see the link between the hard word and specific clues in the text— but the students in the class do not see how the teacher saw or made those links, because they do not have the meaning of the hard word to begin with. Therefore, to teach students to become CSIs, teachers need to model the CVA skills and strategies using words whose meanings they do not know—otherwise students do not understand how it is that the teacher so immediately linked the context clue to the meaning of the hard word.

Teachers and students should know that texts vary considerably in how much they help a reader hypothesize an unknown word's meaning. Five sentences follow, each successive sentence provides more information to help the reader create a hypothesis about the meaning of the word *aglet*. Cover up sentences 2-5 and progress from 1-5 one sentence at a time, each time trying to predict the meaning of the word *aglet*.

1. The missing *aglet* made it difficult to insert.
2. Because the *aglet* was missing, it was difficult to insert the shoe lace.
3. Because the *aglet* was missing, it was difficult to thread the shoelace through the shoe's eyelets.
4. The aglet had come off the end of the shoelace, thus the shoelace was frayed, making it difficult to insert the end of the shoelace through the shoe's eyelets.
5. The aglet (the metal or plastic band that encircles the tip of a shoelace) was missing, thus allowing the shoelace to become frayed and making it difficult to insert the end of the shoelace through the shoe's eyelets.

One other important point in teaching CVA. Many philosophers, linguists, and psychologists differentiate knowledge of a concept—or *thing*—and knowledge of a word. Concepts refer to all the *things* in our universe: i.e., objects, actions, ideas and feelings. Everything that anyone can conceive is a thing, ergo, all objects, actions, ideas and feelings are things. Words, on the other hand, are just

written or spoken units used to signify *things* in our universe—and the association between a word and the thing it signifies is arbitrary and must be learned. Sometimes we know a thing, but not the word for it. The thing "aglet" is a good example. Most readers here know that many shoelaces have a plastic or metal tip around its end to keep it from fraying, but few probably knew that that thing was called an "aglet." It is because you had in your background knowledge this information about "a tip around the end of a shoelace" that you were able to associate this knowledge (known thing) with the unknown word "aglet." But sometimes both the word and the thing are unknown, in which case the context will not be much help in learning what the unknown word might mean, unless that context is instructional: i.e., written for the purpose of teaching the reader what this new concept or thing is, as well as the word used to signify it.

We make four general conclusions from our research.

1. Reinspecting printed text for specific clues linked to the hard word usually fails, because making such a link requires some knowledge of the hard word's meaning.
2. Readers do not usually reinspect a text looking for specific clues that they think link to the unknown word and give them insight to the word's meaning. Instead, they use more global strategies: (a) summarize comprehension of the text, (b) connect text meaning to prior knowledge; (c) apply reasoning to the meaning and prior knowledge, and (d) hypothesize a sense of the word's meaning.
3. Not every context provides enough textual information to help a reader form a hypothesis about a hard word's meaning.
4. Context may be useful for new words that signify things (i.e., objects, actions, ideas, feelings) we do know (e.g., "aglet); but context will generally be far less useful in helping us learn new words for things we do not know.

On the basis of our research and literature reviews, the CSI teaching method we developed and present here includes several important components: (a) teacher modeling of CSI techniques (teacher does/students watch) (b) guided practice during which the teacher provides opportunities for students to try the techniques with varying levels of assistance (teacher does/students help); (c) peer group collaboration with teacher guidance (students do/teacher helps); (d) independent application of strategies while the teacher assesses and plans future instruction (students do/teacher watches); and finally (e) application or usage of newly learned vocabulary in speaking or writing, while teacher evaluates (students do/teacher watches). This method is congruent with socioconstructivist theories about teaching and learning (Graves, 2000; Wilhelm, 2001; Wilhelm et al., 2001). Our CSI think-aloud procedures ("I do, you watch"; "I do, you help"; "you do, I help"; "you do, I watch") are modeled on those recommended by Wilhelm (Wilhelm, 2001; Wilhelm et al., 2001). Our Instructions for CSI Investigators

(Sidebar A) are derived from our verbal protocol from exert readers and our computational model of expert reading behavior.

Helpful Hints for Teachers

✓ Students will have varying degrees of "word consciousness," or awareness of and interest in unknown words (Kibby, 1995). Our method asks students to select unknown words from their texts while reading, but this does not mean that all students will identify all unknown words. By discussing the text in a global way, you can gain awareness of which important words students are ignoring or misinterpreting.

✓ Not every hard word needs to be known! If the student is comprehending satisfactorily and lack of knowledge of a specific word(s) in the passage is not interfering with comprehension, perhaps the student should move on.

✓ Some students may require guidance in the construction of a meaning of new words. Word maps can be used to teach students about the types of information—category, properties, and illustrations—that contribute to word meanings (Schwartz, 1988; Schwartz & Raphael, 1985) or concept development (Peters, 1974-75). The software package *Inspiration* is an excellent tool for demonstrating the building of the sense of a word's meaning and for a student to use independently.

✓ If too many words in a text are unfamiliar, attempts to infer word meanings from context will not be very productive. So you may need to limit the number of target words for CSI instruction. Tell students the meanings of the other unfamiliar words in the text in order for them to infer successfully the meaning of the target word. The best texts for this type of lesson are those that contain only a handful of unfamiliar words.

✓ Teachers must model the thinking process using words unfamiliar to them and most of their students. Since teachers usually know many more words than their students, finding unfamiliar words in your teaching materials may happen only rarely. A good source for strange and unusual words is called Spizzerinctum, compiled by Kevin Johnson (2004). The website can be found at **http://www.spizzquiz.net/**. For no fee, you may sign up to receive a word-a-day E-mail, and the vast majority of those words will be unfamiliar to most teachers and students. These word-a-day E-mails provide a contextual use of the word in addition to its pronunciation and meaning.

✓ You do not have to figure out the "correct" meaning of the target word; you just need to generate a reasonable hypothesis that can be defended with textual cues and prior knowledge. Your goal should be to derive a logical sense of the word given the context.

✓ The senses of new nouns are generally much easier to figure out than the senses of new verbs or new modifiers.

✓ Seeing a new word in just one context provides some useful information, but experts agree that multiple contextual exposures are required to develop a thorough and in-depth understanding. So consider finding supplemental texts with which to confirm or revise initial hypotheses about word sense.

Instructional Guidelines

Our lesson plan is designed to be completed across several instructional days. Although we've broken it up into four segments of approximately 45-minutes each, you should feel free to modify the plan as it suits your schedule and resources.

DAY 0 (the day before the unit begins)

❑ For homework, students find a difficult word in context, print out the passage, and bring it in to "stump the teacher." A good source for strange and unusual words is called Spizzerinctum, compiled by Kevin Johnson (2004). The website can be found at http://www.spizzquiz.net/

❑ Teacher creates copies of the CSI Detective Notebook by copying the think-sheet labeled Sidebar F.

DAY 1 (first day of CSI unit)

❑ Teacher hands out CSI Detective Notebooks or copies of the think-sheet page to students.

❑ Students present their challenging words/context to the teacher. For an example of how a teacher might respond, see Sidebar A.

❑ Teacher models CSI strategies using the texts the students provide (**"I do, you watch."**).

- o Begin by rearranging the target sentence to put the unknown word in the subject position.
- o Then activate background knowledge about the topic.
- o Next, search for clues within the text that give a sense of the target word's meaning.
- o See Instructions for CSI Investigators in Sidebar B for ideas of clues to look for, depending on the part of speech of the target word.

❑ Students listen and watch.

❑ Students reconstruct the steps the teachers took onto a page in their CSI Researcher Notebook (use the reproducible page labeled Sidebar F).

❑ Teacher hands out a target text (we find short stories to be useful for this type of strategy lesson, however teachers might choose to utilize other instructional/ content-area texts). For the purposes of demonstration, we will use Anton Chekov's "The Lottery Ticket," available at http://eserver.org/fiction/the-lottery-ticket.html

❑ Teacher activates prior knowledge of the topic or theme of the story. See Sidebar C for suggestions.

❑ For homework, students are asked to read the story independently and note (underline) the hard words.

DAY 2

❑ Teacher creates list of words that students underlined. Some suggestions for creating this list include having students volunteer hard words and taking a hand count of how many others found the words difficult. Or the teacher may ask students to make a list of their hard words and hand it in. Then the teacher creates a ranked list of words to work on collaboratively. For a list of possible target words from the Chekov story, see Sidebar D.

❑ Teacher models CVA strategies again using a word from the beginning of the story that most students were stumped by (students are asked beforehand to keep quiet about meanings they know, so their classmates can figure it out themselves). This time, though, she elicits help from students. **("I do, you help.").** See Sidebar E for an example.

❑ While teacher is thinking aloud, students record the steps the teacher is taking and the reasoning strategies they used into their CSI Detective Notebooks (see example page, which is reproducible, in Sidebar F). Teachers may want to complete a model page in the notebook on an overhead projector.

❑ Then the teacher asks a student volunteer to think-aloud about the meaning of another target word. The teacher and the other students scaffold this student's thinking when necessary. Students word collaboratively and record their processes and cues and hypotheses in their CSI Detective Notebooks. **("You do, I help.")**

❑ Once the teacher believes the process has been adequately modeled, the class breaks off into small groups. The teacher assigns a target word for each group to work on. Students word collaboratively and record their processes and cues and hypotheses in their CSI Detective Notebooks. **("You do, I help.")**

❑ For homework, each student is asked to pick out another word to work on independently, including the completion of a think-sheet in the CSI Detective Notebook.

DAY 3

❑ A spokesperson from each group reports back to the whole class, explaining the thinking that the group did and the hypothesis they came up with (recorded on Day 2 in students' Notebooks). The whole class discusses the target word, the cues, and the thinking process of the group.

❑ Then each group is asked to pick another hard word from the text and work on that word. The teacher circulates around the room, taking notes, but does not help. **("You do, I watch.")**

❑ For homework, students are asked to find additional contexts for the target words they have worked on so far. This will allow them to either confirm their initial hypotheses or revise them based on new evidence. It will be helpful to ask students to take notes about their new contexts and hypotheses in their CSI Detective Notebooks.

DAY 4   Extend the lesson using CSI writing activities, for example:

❑ As a variation of the think-aloud procedure, students are asked to write out their reasoning about unknown words in context (write-aloud) into their CSI Detective Notebooks.

❑ Students are asked to author a passage for one of their hard words, using sufficient cues for their fellow students to derive a sense of the word. The writer cannot provide a direct definition in the passage.

❑ Students are asked to turn their CSI Detective Notebooks into a narrative of what they did as word detectives. They could write up a report to the police chief, putting all the clues together into a story of their thinking.

References

Ames, W. S. (1966). The development of a classification scheme of contextual aids. *Reading Research Quarterly, II*(I), 57-82.

Artley, A., Sterl. (1943). Teaching word meaning through context. *Elementary English Review, 20*, 68-71.

Blachowicz, C. L. Z., & Zabroske, B. (1990). Context instruction: A metacognitive approach for at-risk readers. *Journal of Reading, 33*(7), 504-508.

Carnine, D., Kame'enui, E. J., & Coyle, G. (1984). Utilization of contextual information in determining the meaning of unfamiliar words. *Reading Research Quarterly, 19*(2), 188-204.

Clarke, D. F., & Nation, I. S. P. (1980). Guessing the meanings of words from context: Strategy and techniques. *System, 8*, 211-220.

Deighton, L. C. (1959). *Vocabulary development in the classroom*. New York: Teachers College Press.

Dulin, K. L. (1970). Using context clues in word recognition and comprehension. *The Reading Teacher, 23*(5), 440-469.

Ehrlich, Karen (1995), Automatic Vocabulary Expansion through Narrative Context. Technical Report 95-09. Buffalo: University at Buffalo Department of Computer Science.

Ericsson, K. A., & Simon, H. A. (1993). *Protocol analysis: Verbal reports as data* (Rev. ed.). Cambridge, MA: MIT Press.

Graves, M. F. (Ed.). (2000). *A vocabulary program to complement and bolster a middle-grade comprehension program*. New York: Teachers College Press.

Harmon, J. S. (1998). Constructing word meanings: Strategies and perceptions of four middle school learners. *Journal of Literacy Research, 30*(4), 561-599.

Harmon, J. S. (1999). Initial encounters with unfamiliar words in independent reading. *Research in the Teaching of English, 33*, 304-339.

Harmon, J. S. (2000). Assessing and supporting independent word learning strategies of middle school students. *Journal of Adolescent and Adult Literacy, 43*(6), 518-527.

Johnson, K. (2004). Spizzerinctum.Net. from http://www.spizzquiz.net/

Kibby, M. W. (1995). The organization and teaching of things and the words that signify them. *Journal of Adolescent & Adult Literacy, 39*(3), 208-223.

Kibby, M. W., Rapaport, W. J., & Wieland, K. M. (2004). *Contextual vocabulary acquisition: From algorithm to curriculum.* Paper presented at the International Reading Association, Reno, NV. Retrieved electronically from http://www.cse.buffalo.edu/~rapaport/CVA/cvaslides.html.

McCullough, C. M. (1952). Word analysis in the high school program. *The English Journal, 41*(1), 15-23.

McKeown, M.G. (1985). The acquisition of word meanings from context by children of high and low ability. *Reading Research Quarterly, 20*, 482-496.

Peters, C. (1974-75). A comparison between the Frayer model of concept attainment and the textbook approach to concept attainment (abstract). *Reading Research Quarterly, 10*(2), 252-254.

Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading*. Hillsdale, NJ: Erlbaum.

Rapaport, William J. (2003), "What Is the 'Context' for Contextual Vocabulary Acquisition?", in Peter P. Slezak (Ed.), *Proceedings of the 4th International Conference on Cognitive Science/7th Australasian Society for Cognitive Science Conference (ICCS/ASCS-2003)* Vol. 2, (547-552). Sydney, Australia: University of New South Wales.

Rapaport, W. J. (2005). In Defense of Contextual Vocabulary Acquisition: How to Do Things with Words in Context. In A. Dey et al. (Eds.), *Proceedings of the 5th International and Interdisciplinary Conference on Modeling and Using Context (Context-05i)* (396-409). Berlin: Springer-Verlag Lecture Notes in Artificial Intelligence 3554.

Rapaport, William J., & Ehrlich, Karen (2000). A Computational Theory of Vocabulary Acquisition. In Lucja M. Iwanska & Stuart C. Shapiro (Eds.), *Natural Language Processing and Knowledge Representation: Language for Knowledge and Knowledge for Language* (347-375). Menlo Park, CA/Cambridge, MA: AAAI Press/MIT Press.

Rapaport, William J., & Kibby, Michael W. (2002). Contextual Vocabulary Acquisition: A Computational Theory and Educational Curriculum. In Nagib Callaos, Ana Breda, and Ma. Yolanda Fernandez J. (Eds.), Proceedings of the 6th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2002; Orlando, FL). Vol. II: *Concepts and Applications of Systemics, Cybernetics, and Informatics I* (261-266). Orlando, Fl: International Institute of Informatics and Systemics.

Schwartz, R. (1988). Learning to learn vocabulary in content area textbooks. *Journal of Reading, 32*, 108-118.

Schwartz, R., & Raphael, T. E. (1985). Concept of definition: A key to improving students' vocabulary. *The Reading Teacher, 39*, 198-205.

Sternberg, R. J. (1987). Most vocabulary is learned in context. In M. G. McKeown & M. E. Curtis (Eds.), *The nature of vocabulary acquisition* (pp. 89-105). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Sternberg, R. J., & Powell, J. S. (1983). Comprehending verbal comprehension. *American Psychologist, 38*, 878-893.

van Daalen-Kapteijns, M. M., & Elshout-Mohr, M. (1981). The acquisition of word meanings as a cognitive learning process. *Journal of Verbal Learning and Verbal Behavior, 20*, 386-399.

van Daalen-Kapteijns, M. M., Elshout-Mohr, M., & de Glopper, K. (2001). Deriving the meaning of unknown words from multiple contexts. *Language Learning, 51*(1), 145-181.

Werner, H., & Kaplan, E. (1950). The acquisition of word meanings: A developmental study. *Monographs of the Society for Research in Child Development, XV*(51), i-119.

Wieland, K. M. (2005). The contextual vocabulary acquisition strategies of adolescent readers: An analysis of think-aloud protocol (pp. 128): University at Buffalo, Graduate School of Education, Department of Learning and Instruction.

Wilhelm, J. D. (2001). *Improving comprehension with think-aloud strategies: Modeling what good readers do*. New York: Scholastic Professional Books.

Wilhelm, J. D., Baker, T. N., & Dube, J. (2001). *Strategic reading: Guiding students to lifelong literacy, 6-12*. Portsmouth, NH: Heinemann.

Instructions for CSI Investigators

1. **Focus on Hard Word:** Have you seen/heard the word before? Does the word have any identifiable structural cues (e.g., prefix, affix, root)?	
2. **Reread:** Reread the sentence with the hard word (maybe the preceding sentence) to gain full meaning.	
3. **Part of Speech:** What part of speech is this word?	
4. **Summarize Meaning:** In your mind, summarize the meaning you gained from everything in the text you have read so far.	
5. **Activate Prior Knowledge**: Think about what you already know about the topic and how your prior knowledge might be linked to the hard word.	
6. **Connect:** Connect meaning gained from reading with prior knowledge so that all you know about this topic is at the forefront of your thinking.	
7. **Reword:** Reconstruct the target sentence so that the target word is in the subject position.	
8. **Thinking or Reasoning:** Use the following suggestions to guide your reasoning about what you have learned from the text about the hard word.	

a. For Nouns—these processes are not linear, and are listed in no particular order	General meaning: How does this word relate to the meaning of the passage or the meaning of the immediately surrounding text?
	Class membership: What category of person or thing is this?
	Properties: What properties does this person or thing have?
	Structural information: What is the size, shape, parts, etc. of this person or thing?
	Visualize: Can you build a picture in your mind of what this person or thing might look like?
	Acts or Functions: What kinds of things can this person or thing do? What this person or thing does is done to whom or what?
	Agents: Who does something to or with this person or thing? What do they do to or with the person or thing?
	Ownership: Can this thing be owned? If so, by whom?
	Comparison-Contrast: Is the person or thing compared or contrasted to some other person or thing?
	Synonyms: Can you think of another word or phrase that would easily replace this word and make sense within the text?
b. For Verbs—these processes are not linear, and are listed in no particular order	Transitivity (Knowing if the unknown verb is solely an action, an action done to another person or thing, or an action done to another person or thing to or with something may provide much information about the unknown verb): • Is this word the actual action (intransitive—action only: e.g., John sang). • Is the action done to another thing (transitive—verb and direct object: e.g., John sang Happy Birthday). • Is the action done to another thing to/with something (ditransitive—has direct and indirect object: John sang Happy Birthday to his sister).
	Synonyms: Can you think of another word or phrase that would easily replace this word and make sense within the text?
	Class membership: What category of action is this?
	Properties: What properties does this action have?
	Visualize: Can you build a picture in your mind of what this action might look like?
c. For Modifiers	Contrasts: Does this hard word appear to contrast the subject or action it modifies to another subject or action with which you are familiar?
	Parallelism: If the grammar of the hard word's sentence/clause (modifier-subject/action) is parallel to another, what clue does that offer?

9. **Hypothesis:** State your hypothesized or predicted meaning of the hard person, thing, or action.	
10. **Confirm:** How sure are you that the meaning you hypothesized is correct?	

CSI Researcher Notebook

Case File _____

Before reading: What do I know about this topic?
_____
_____
_____
_____
_____
_____
_____

Target word and part of speech:
_____

Check one:
- ❑ Noun
- ❑ Verb
- ❑ Modifier (Adjective or Adverb)

Copy the target sentence:
_____
_____
_____
_____
_____
_____

Reword the context to make the target word the subject of the sentence:
_____
_____
_____
_____
_____

My Hunches and Evidence

This think-sheet may be reproduced for classroom use with the permission of the authors.

Sidebar C
An Example of the "Stump the Teacher" Recommended for Day 1

> Reclining on a sea of pillows in her suburban San Antonio bedroom and picking
> leisurely at a snack, Pamela Hoy contemplates her good fortune. How
> wonderful to be able to work in the bedroom of her own home!
>
> Hoy is not just another stock-optioned **sybarite** achy with ennui; she's
> pregnant. After a trip to the emergency room two months ago, Hoy was told
> she'd gone into labor and was given medication and ordered to spend the rest of
> her gestation lying on her left side.
>
> Spencer, T. (2000). Take two naps and fax us in the morning. *Business 2.0*.
> http://www.business2.com/articles/mag/print/0,1643,7739,FF.html

D – [reads the target text, above] Okay, I am looking at the sentence and the words around it. The "sybarite" part, it's obvious that…[she reads target sentence aloud] "Hoy is not just another stock-optioned sybarite achy with en…" How do you pronounce it? [K assists, and D repeats] "Ennui. She's pregnant."

K - What is the word that stumps you?

D - Sybarite is definitely it.

K – [probing to make sure] So you know what ennui is?

D - I have a sense of ennui. If you have ennui, it's a sort of "it's about me" kind of a thing. [pauses] Well, no, I guess that wouldn't be it.

K – My understanding of life is that it is an "oh, I am so bored with life" kind of a thing. [she provides this meaning because it ennui was not the target word]

D - Oh, like an apathy type of thing [rereads target phrase]. Okay. So she is not a stock optioned sybarite achy with ennui. So sybarite has to have something to do with the ennui, obviously. So you would need to have those two pieces. Stock-optioned would mean that she is someone who has a fair amount. She may have ennui because she doesn't have to worry about money, so she isn't in a mode where she is working necessarily because she has this overwhelming need to provide for her survival [laughs and reads the rest of the paragraph again under her breath]. The rest of the paragraph tells us that she is not staying at home and working yuppie-style, but she is trying to secure her pregnancy and make sure that it goes well. [pauses] Hmm.

K – Does it say she *isn't* a sybarite?

D – She is *no*t just *another*.

K – Oh, another. I see.

D – Another is interesting. Umm. She's pregnant. So in other words, maybe there is a sense that if she *were* a "stock-optioned sybarite achy with ennui," it would be someone

who stays at home with this" I'm bored because I don't have purpose in my life" type of a thing. But that's *not* why she's working from home. She's there because she *has* to be. So that's the "not just *another* stock optioned sybarite." So Hoy is someone who would characterized as different from what's typical of that group of individuals, but it must also mean that she is something that she *could* just be at home, working. Someone who is an –ite is a member of something. So a member of a syber- [laughs]. What's a member of a syber-? A member of some type of group…..[D and K muse about the possible meanings of that apparently Greek root, which neither of us know].

K – I wonder if it could reference some Greek mythological character.

D – Right. Or it could be . . . it's obviously somebody who has risen to a particular status. A sybarite has to be somebody who is part of a very privileged group. You make that assumption because of the other words. People with ennui obviously don't have a lot of other cares. They've sort of gotten to a point that the other things in their lives aren't as pressing. The pressing needs that most of us have for taking care of ourselves, they don't have. So "stock optioned sybarite" might mean somebody who has enough money to throw around in stocks. So she may be a member of the affluent, upper class. She doesn't necessarily have to be working. The stock options are there because she has money.

K – I am smiling and nodding because I am agreeing with everything you say. But that is not a word that I really know. So it's funny, because those are all my theories, too […].

D – So a sybarite is obviously somebody who has affluence of some sort, but we don't know what the source of their affluence is.

K – Right. I am presuming that you have determined a part of speech for sybarite.

D – It's obviously a noun.

K – Do you want to look it up in the dictionary? [they use the dictionary on K's laptop. The first entry does define Sybarite as a figure in Greek mythology]. "Somebody devoted to luxury and sensual desires."

D – We got the luxury part, but the sensual desires we didn't' pick up on.

K – Well, maybe the laying around,

D – [overlapping] the lounging, the pampering, the grapes, the oils and the massage.

K – [overlapping] Being catered to. I guess that makes sense given this second context, "utilitarian to sybarite." [looking up "ennui" to make sure they've understood it properly]. The dictionary defines ennui as "weariness and dissatisfaction with life that results from a loss of interest or sense of excitement," which is congruent with the sense we made of that word, also.

Sidebar D

Activating Background Knowledge for "The Lottery Ticket"

The title of the story we are going to read this week is "The Lottery Ticket." This story was written by Russian author Anton Chekhov in _____. What does the phrase "The Lottery Ticket" bring to mind?

Read the first paragraph of the story. Can you make predictions about this story based on the title and this first paragraph? Brainstorm in your Researcher Notebook.

Ask students to share predictions with the class.

Then ask students to complete the following focused free-write in their Researcher Notebooks.

"In what ways, if any, would winning the lottery change your life?"

Sidebar E

<u>Potential Target Words Students Might Select From "The Lottery"</u>

lot	provinces	dreary	detestable
lapsed	villa	dismay	slander
consented	saunters	farthing	impartially
mockery	leisure	parcels	repulsive
skepticism	opaque	begrudge	malignantly
douche	flit	farthing	rubles
hollow	evident	saturated	other people's expense
senseless	soused	grudge	wearisome
torment	leisurely	wretched	husks
tantalize	waistcoat	fawning	damnation
bewildered	fowls	hypocritical	
	despondently		

Sidebar F

<u>An Example of the "Teacher Think Aloud" Recommended for Day 2</u>

K – Ivan Dmitrich was very well satisfied with his lot. It says he lives with his family on an income of twelve hundred a year, and he was very well satisfied. Well, we know the expression "to have a lot" means to have a sufficient amount of something. So if he is satisfied with his amount - his amount of money, because he is middle class. Maybe he is satisfied with his family, um, satisfied with his situation. He feels "comfortable," so that means satisfied. Maybe that means happy or content. So my guess about the word "lot" is that "lot" means his situation, his allotment of worldly, spiritual, and relationship goods that he has. It's a noun,