THOUGHTFUL CLASSROOM PORTFOLIO SERIES

Word Works™
Cracking Vocabulary's CODE

RESOURCE GUIDE

2nd Edition

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The Thoughtful Classroom™

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The Hidden Skills of Academic Literacy
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Diversity That Works
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Thoughtful Classroom Portfolio Series™
Word Works
Cracking Vocabulary's CODE

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Welcome to the Thoughtful Classroom Portfolio Series

The Thoughtful Classroom Portfolio Series

Sometimes the simplest innovations produce the greatest results. Designed by a collaborative of teachers, administrators, and trainers, *Thoughtful Classroom Portfolios* make the important work of bringing high-impact, research-based instructional practices into your classroom or school easier than ever before.

Each *Thoughtful Classroom Portfolio* serves as a complete professional development training resource for teachers to learn, plan, and implement a specific research-based instructional practice in their classrooms.

Each *Thoughtful Classroom Portfolio* consists of three parts:

1. The six-sided portfolio, in file-folder format, provided as a handy tool for quick reference during lesson planning, as well as a convenient location to store student work samples for later evaluation.
2. The comprehensive *Resource Guide*, which contains worksheets, templates, examples, and activities to be used during teacher training sessions.
3. A matching poster for presenting the strategy or technique to students in the classroom.

How to use this *Thoughtful Classroom Portfolio*

Truly understanding, mastering, and using a new practice in your classroom takes time and commitment. You should expect to spend at least 20 hours (including meeting time and practice) mastering a new strategy. Although our suggestion is to break the material and training into four parts (or sessions) as shown below, you may choose to break up the work differently to suit your own schedule and needs.

Part 1: Introducing Vocabulary's CODE (3 hours)

Part 2: Designing a Thoughtful Vocabulary Unit (2 to 3 hours)

Part 3: Evaluating the Unit (2 to 3 hours)

Part 4: Learning from Student Work (2 to 3 hours)

We recommend that you spread your training sessions out over two months (two meetings per month) to allow ample time for completing the ThoughtWork practice assignments provided for use between sessions.

The Thoughtful Classroom Portfolio Series and Learning Clubs—perfect together!

One of the best ways to get the most out of using *Thoughtful Classroom Portfolios* is to use them with teacher teams as part of a Thoughtful Classroom Learning Club. A Learning Club is a collaborative support structure developed by Silver Strong & Associates to encourage educators to work together to plan, implement, and evaluate lessons and units that make a difference in student learning. Our research has consistently shown the value of Learning Clubs in helping teachers not only learn, but also apply what they learn in the classroom. For tips on how to start your own Thoughtful Classroom Learning Club in your school, visit www.ThoughtfulClassroom.com/learningclubs.

We believe that successful schools are built on a culture of support that encourages teachers to apply new ideas and practices in their classrooms. We are confident that creative tools such as *Thoughtful Classroom Portfolios* can play a significant role in fostering such a culture, and we are proud you have chosen one of our products to help you as you work to improve the quality of teaching and learning in your classroom and throughout your school.

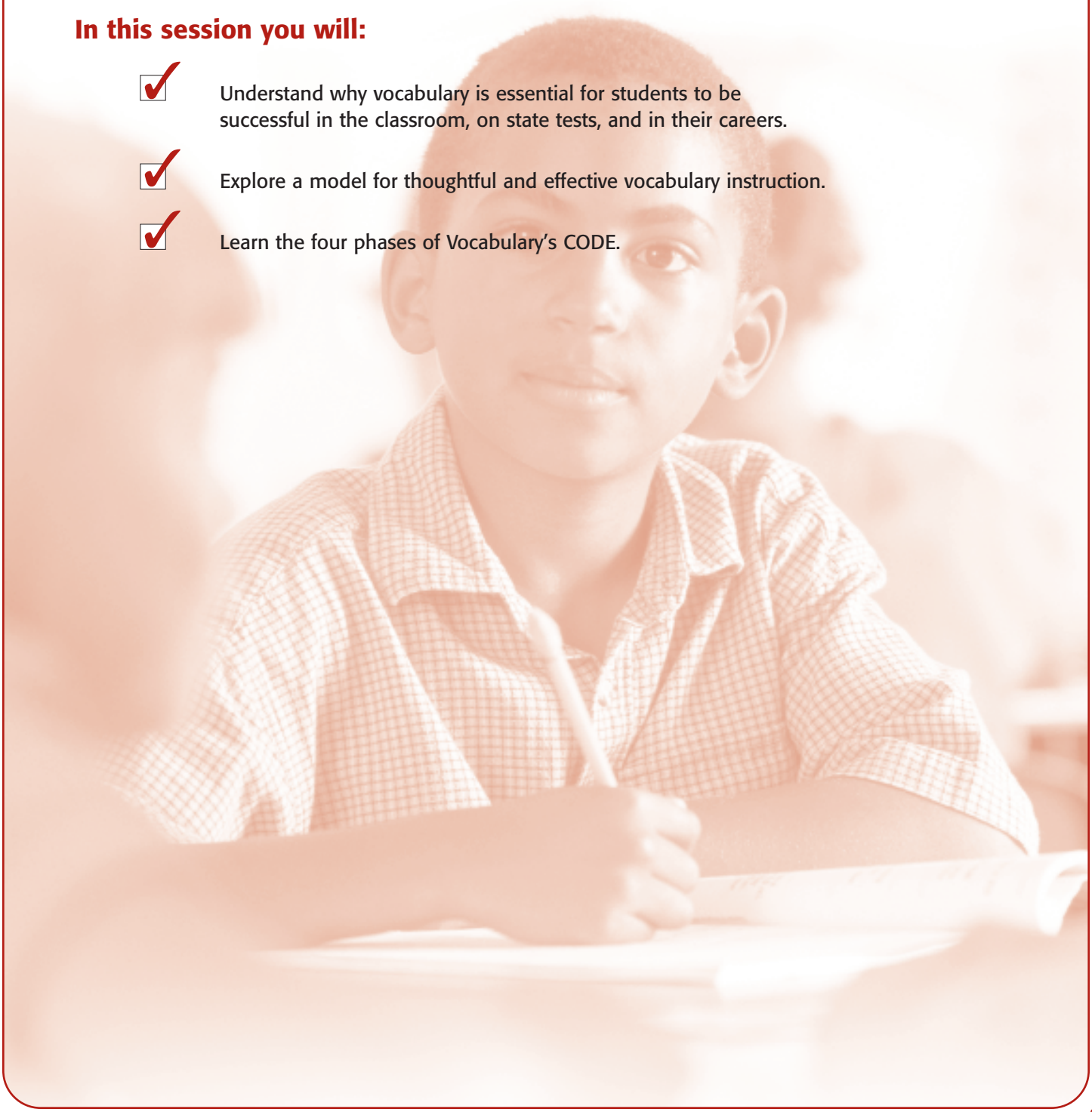
Please write us at questions@thoughtfuled.com for any assistance or to share your ideas and suggestions. Your feedback is greatly appreciated as we continue to revise and develop new portfolios.

Part 1: Introducing Vocabulary's CODE

The goal for this session is to examine current vocabulary instruction and learn the four phases of Vocabulary's CODE.

In this session you will:

- ☑ Understand why vocabulary is essential for students to be successful in the classroom, on state tests, and in their careers.
- ☑ Explore a model for thoughtful and effective vocabulary instruction.
- ☑ Learn the four phases of Vocabulary's CODE.



Let's Get Started

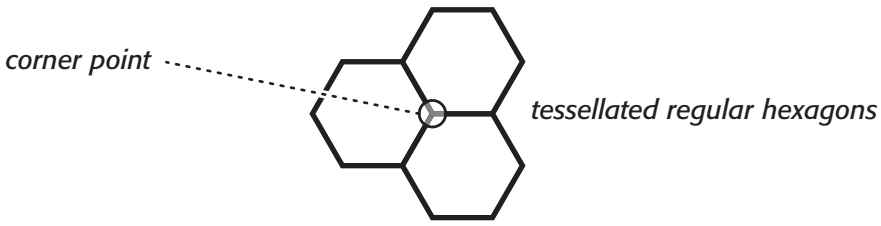
Peanut butter and jelly. Romeo and Juliet. Yin and yang. Some things just go together naturally. Here's another natural pair: successful students and content knowledge. The reason the two go together is simple. Successful students are adept at mastering and using the content knowledge they learn while reading, in the classroom, and beyond the school walls.

But have you ever stopped to think about what content knowledge is? Knowledge of a content area comes in the form of critical concepts, ideas, and terms. In other words, content knowledge is made up of vocabulary. This means that students' academic success rests heavily on their ability to remember, understand, and communicate using new and critical vocabulary.

But our vocabulary represents more than what we know—it's also how we learn more. As Robert Marzano (2004) explains, vocabulary words are the building blocks for future learning. New learning is built on top of previous learning, and previous learning is made up of—you guessed it—vocabulary. So, the more concepts and terms students know, the more they'll understand and can learn. For example, take a look at this problem on honeycombs.

> Many people know that bees store their honey in structures known as honeycombs. Many people also know that **honeycombs** are made of wax. But when mathematicians and scientists look closely at honeycombs, they see what most people overlook; they see thousands of **tessellated**, **regular hexagons** joined together.
>
> Why tessellated regular hexagons? Is it possible that another shape such as a **pentagon**, an **equilateral triangle**, or a **square** might make for a more **efficient** honeycomb? Or is there something about the natural design that offers **maximum** honey storage using a **minimum** amount of wax?

Students' ability to understand this problem will depend almost completely on their understanding of the underlined terms. They'll need to know that regular shapes have equal sides and angles. They'll need to know the critical attributes of *hexagons*, *pentagons*, *equilateral triangles*, and *squares*. And they'll need to know that regular hexagons are *tessellated* when there are no gaps, no overlap, and when each corner point is surrounded by exactly three hexagons.



So, if "knowing the vocabulary" is a prerequisite for deep understanding, what happens to those students who have not mastered the critical terms and concepts that make up the content? More often than not, they become sealed off from the learning opportunities and demands of the classroom, and they lose their grip on what they're learning. To put it succinctly, "If students hold limited meanings for the words, they also will hold limited understandings of the concepts, hence limited understandings of the subject" (Herber, 1978, p. 130). Clearly, if we expect to close the achievement gap, we will need to address vocabulary instruction head on. That's why we say: *teaching vocabulary is one of the most important instructional decisions we can make*.

There are three distinct ways to grow a vocabulary. One way is through wide reading. A second way a vocabulary grows is through experience, as we talk and listen and interact and take the many paths that our lives present to us. A third way to expand vocabulary is through direct vocabulary instruction, in which the teacher focuses students' attention on the critical academic words and terms they'll need to succeed in school and beyond.

In this *Resource Guide*, we'll be concentrating on direct vocabulary instruction. By applying the *Word Works* approach to vocabulary instruction, we show our students how to:

- develop a preliminary understanding of new words and academic terms.
- revise that understanding as they read and learn.
- practice using new terms so that students understand what they mean and how they are used.

Take a few minutes to think about your own experiences with teaching and learning vocabulary. Then, collect your thoughts in Figure 1.1. When you're done, share your thoughts with your Learning Club.

Figure 1.1: **Activity – Reflecting on Vocabulary**

What do you remember about your own experiences as a student learning new vocabulary terms?

How do you learn new words now, as an adult?

What do you do in your classroom to help students learn new words?

Why Vocabulary Matters

Now that you know that vocabulary instruction is a "best bet" for raising student achievement, let's look into some of the reasons. On the following pages are twelve reasons for teaching vocabulary. Read them through, then give each reason a number ranking from 1-3.

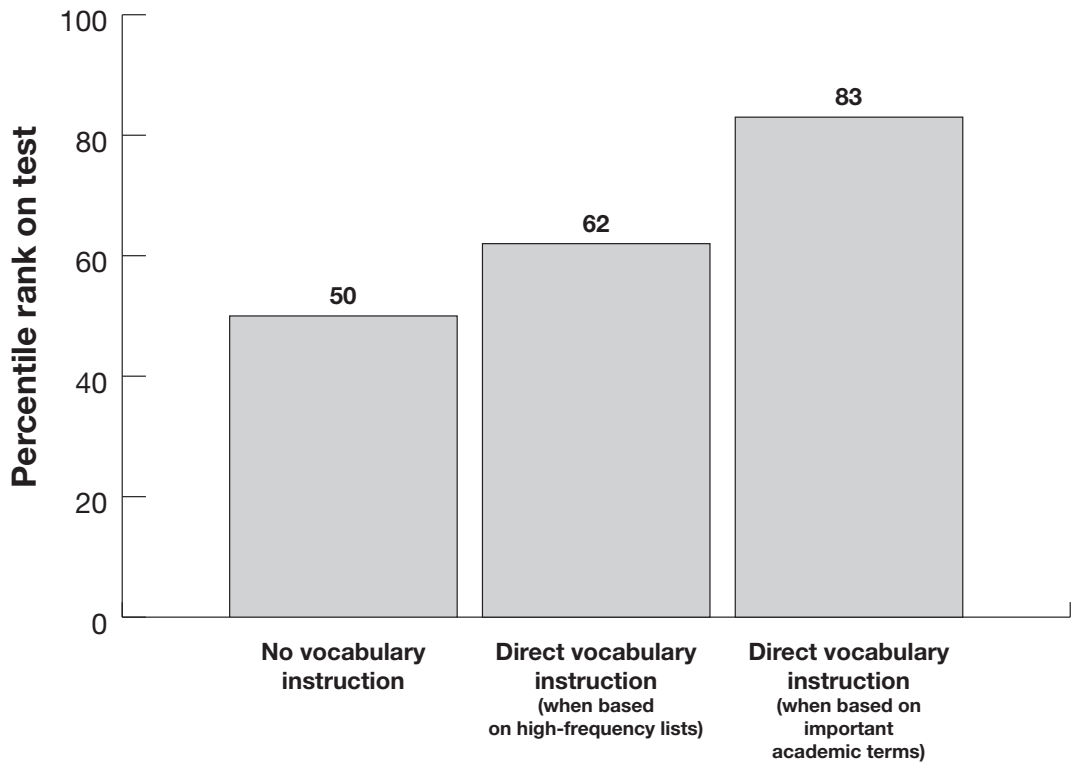
- A 3 means "essential to me."
- A 2 means "important to me."
- A 1 means "not as important as the others."

Try to divide the reasons up evenly: four 3's, four 2's, four 1's.

☐ **1. Vocabulary touches the lives and work of all teachers.** Science may have labs and English dramatic readings; kindergartners may work with clay blocks, while high school math students make use of graphing calculators; but every teacher, no matter the grade level or content area, has a vocabulary to teach and learn. Because vocabulary learning is a common concern of all teachers, it facilitates teachers' abilities to share and learn from each other.

☐ **2. Increasing students' vocabulary directly affects their achievement.** Consider Figure 1.2 below:

Figure 1.2: **Vocabulary Instruction and Student Achievement on Subject-Area Tests**



Adapted from Marzano (2004) *Building Background Knowledge fro Academic Achievement*, p. 69.
(Original data from Stahl & Fairbanks, 1986)

☐ **3. We can have a significant effect on students' vocabulary knowledge by using the right strategies.** Students who were taught vocabulary using both linguistic and nonlinguistic strategies performed on average:

- 37 percentile points higher than students who were asked to remember definitions, and
- 21 percentile points higher than students who created sentences using the words in context.

☐ **4. The more vocabulary students know, the better learners they become.** What's the reason for this? The logic is pretty simple. The richer students' vocabulary becomes, the more background knowledge they acquire. The more background knowledge they acquire, the more they bring to each new learning experience. And the better prepared and more informed they are at the beginning of the learning experience, the more they can learn. So, by expanding students' vocabulary, you're also expanding their ability to comprehend new information and helping them on their way to becoming powerful lifelong learners.

☐ **5. Increasing vocabulary produces a significant increase in students' comprehension of content area material.** For example, as Marzano (2004) explains:

> "The effect size of .97 for direct vocabulary instruction that targets academic terms that students will encounter in their reading material… is even more impressive. Specifically, it indicates that students' comprehension will increase by 33 percentile points when vocabulary instruction focuses on specific words important to the content they are reading as opposed to words from high-frequency lists." (p. 68-69)

☐ **6. Words are the tools of thought.** The truth is, "knowing the vocabulary" is essential if you expect to do any kind of deep thinking on just about any topic. To help explain why, we offer two brief scenarios:

> **Scenario 1:** You've been asked by your school to help decide what computer systems to buy for your building. In your brain's bank of "computer words" are terms such as *processor*, *hard drive*, *operating system*, *gigabytes*, and *RAM*. Now, take those words away. Erase them and their meanings from your vocabulary. How insightful will your advice be? Would you trust a recommendation for a purchase of thousands of dollars in hardware from someone who doesn't know what a processor is or why it's important to know how many gigabytes of information a hard drive can hold?
>
> **Scenario 2:** Now imagine two high school students in an economics class who are about to write an essay on the development of the New Your Stock Exchange. One student has mastered the 20 critical terms from the unit; the other has not. Whose work will show greater depth of thought?

☐ **7. The number of vocabulary words students know correlates with their performance on standardized tests.** Consider:

> High-performing students know, on average, between 4,500 and 5,400 more words than students with low standardized test scores. (Nagy & Herman, 1984)

☐ **8. Differences in vocabulary account for some of the most troubling differences between students.** Consider:

- Students from high socioeconomic families possess roughly 4,700 more words than students from low socioeconomic families. (Nagy & Herman, 1984)
- On average, mid-range socioeconomic first graders learn 50% more words than their low socioeconomic peers. (Nagy & Herman, 1984)

☐ **9. Good oral and written communication depends on a robust vocabulary.** This statement is so self-evident that it needs no further explanation. However, we all like a good story, so here's a true story that Heidi Hayes Jacobs (2006a) tells about Mr. Davidson. Mr. Davidson taught high school science for more than 30 years when he decided to make a change. After consulting with his fellow teachers about the poor quality of many students' writing, he posted in his classrooms a word bank for each new unit of study. The word bank was a collection of "vivid, precise, and engaging words that embellish and give power to thinking in print and in speech... In short, Mr. Davidson stepped up his role as a science teacher to that of a science teacher who gives his students a critical tool for better science: better words" (p. 33).

And the results? As Jacobs explained in her recent workshop on literacy (2006b):

> By asking students to use at least five words from the word bank in their lab reports and allowing students to revise their reports to make them more engaging, Mr. Davidson saw students who began the year writing "It went down the test tube" end the year with sentences that sounded like this: "The viscous blue fluid oozed down the side of the test tube."

☐ **10. Students with strong vocabularies do better in college, in their careers, and in life than students with inadequate vocabularies.** Although this statement may not be fair, it is certainly true. Study after study shows that a rich vocabulary opens all kinds of doors that remain closed to students with average and below-average vocabularies. Thus, the students with the most powerful vocabularies are most likely to become successful college students who get the most academic opportunities and adults who land the best jobs with the highest salaries.

☐ **11. Improving students' content-area vocabulary is a manageable and meaningful district-wide task.** As Marzano's research (see Figure 1.2 on page 6) shows, teachers make the greatest impact on student achievement by focusing vocabulary instruction on critical academic terms rather than high-frequency lists. This means that fewer—but more important—words are the name of the game. With this idea in mind, Beck, McKeown, and Kucan (2002) suggest focusing instruction on roughly 400 words each year, or 10-12 words per week.

☐ **12. A good vocabulary builds confidence and self-esteem.** As Hart and Risley (1995) show, access to rich language experiences correlates strongly not only with poverty but also with self-concept. Students with limited language experiences and limited vocabularies often struggle with their confidence and tend to have lower self-esteem than their peers.

Review your rankings with the members of your Learning Club. Then, take a few minutes to summarize the reasons for making vocabulary instruction central in your classroom and your school. Don't just re-list the reasons. Try to condense and distill the list into a concise summary. Record your summary in Figure 1.3 below.

Figure 1.3: **Activity – Summarizing the Reasons for Vocabulary Instruction**

We might summarize the reasons for teaching vocabulary as follows. Teaching vocabulary:

- is a concern of every teacher, regardless of grade level or content area.
- leads to significant increases in student achievement.
- improves student comprehension and their ability to learn.
- fuels deeper thinking and more powerful communication.
- can help students build self-esteem and improve their access to academic and career opportunities.
- is a manageable task for schools and districts.
- can level the playing field for disadvantaged students and, in the process, help us close the achievement gap.

How does our summary compare with yours?

Pause for a moment to look at the six-sided outside folder of this Word Works portfolio. The folder will serve as a quick reference for some of the topics covered in greater depth in this *Resource Guide*. You may also want to keep student work and assessments in this folder to monitor student progress. Open the folder and read the first inside panel, entitled "What is Word Works?"

The Word Works approach to vocabulary instruction is powerful because it helps students achieve multiple learning goals. In this *Resource Guide*, we will focus on four of the most common goals associated with vocabulary instruction (Figure 1.4).

Figure 1.4: **The Four Goals of Word Works**

What can Word Works do for you and your students?

Goal #1 **Build Students' Background Knowledge**
Vocabulary instruction is one of the best ways to build students' background knowledge—and grow their capacity for future learning. Why? Because the more background knowledge students acquire, the more they bring to each new learning experience. And the better prepared and more informed they are at the beginning of the learning experience, the more they can learn.

Goal #2 **Deepen Students' Comprehension**
Word Works focuses students' attention on the most important concepts and terms, which enhances their ability to understand and identify the main ideas and key details in what they read and study.

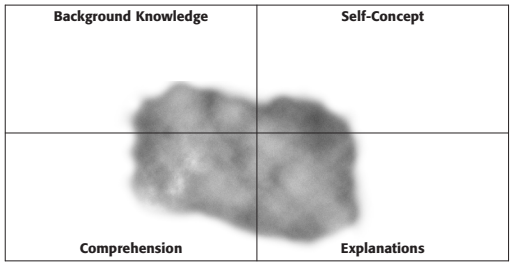
Goal #3 **Help Students Develop More Powerful Explanations**
To write powerful explanations, students need to be able to communicate clearly and precisely, while also demonstrating mastery over critical concepts. Few things develop these abilities as well as vocabulary instruction.

Goal #4 **Improve Students' Self-Concept/Confidence**
Students with limited language experiences and limited vocabularies often struggle with their confidence and tend to have lower self-esteem than their peers. Vocabulary instruction helps level the playing field for these students. As their ability to learn academic vocabulary grows, so will their confidence in themselves as learners and contributors in the classroom.

Now, take a few minutes to compare your own goals associated with vocabulary instruction with these goals. Use the activities in Figure 1.5 to shape your thoughts. Then, discuss your responses with your Learning Club.

Figure 1.5: **Activity – Processing the Four Goals**

Create an "amoeba" in the quadrant below that shows how much attention your current approach to vocabulary instruction gives to each of the four goals. For example, if you give most of your attention to deepening comprehension and developing powerful explanations, your amoeba might look like this:



Background Knowledge	Self-Concept
Comprehension	Explanations

What are some different ways you are currently using vocabulary instruction to help your students meet these goals?

What Is a Word? Or, the Difference Between a Vocabulary and Dictionary

What is a word? It's a more provocative question than it seems to be at first glance. Think about it. Then, record your ideas in Figure 1.6.

Figure 1.6: **Activity – Thinking About Words**

What is a word?

What does it mean to know a word?

Now, what is the difference between a dictionary and a vocabulary?

Clearly, both a dictionary and a vocabulary are made up of words. So what's the difference? Well for one, a dictionary is a reference. It provides you with just about every single word you can use. A vocabulary is different. A vocabulary is your own personal dictionary. It represents the words you know—the words you *do* use rather than all the words you *can* use.

Are there other differences? Yes. But to get to them, we need to focus some attention on the first two questions: What is a word? and What does it mean to know a word?

Suppose you were reading a book and right in the middle of the page you found the word "cat." You would know that word stood for a small furry animal with a tendency to purr and kick balls of yarn around. Now, suppose you drove into a rest stop on the highway and saw the image:

You would know that stood for information.

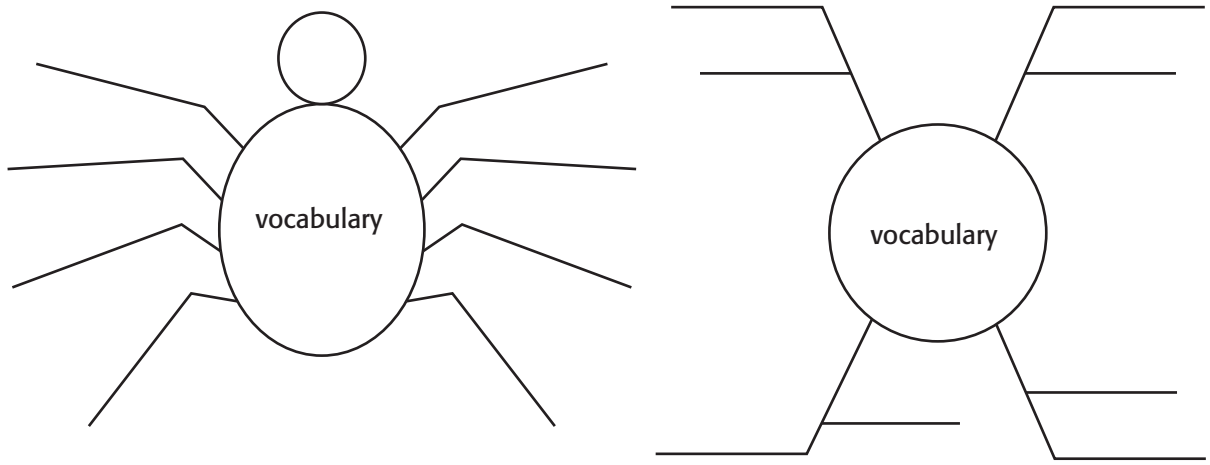
Teaching a class, you hear a "bzzzz" or a "brrrinngg," and you know a period has just ended or one is about to begin.

Now, what do all these situations have in common?

Linguists would say these are all examples of signs. A sign is a mark, picture, or sound that stands for something else. Every word is a sign.

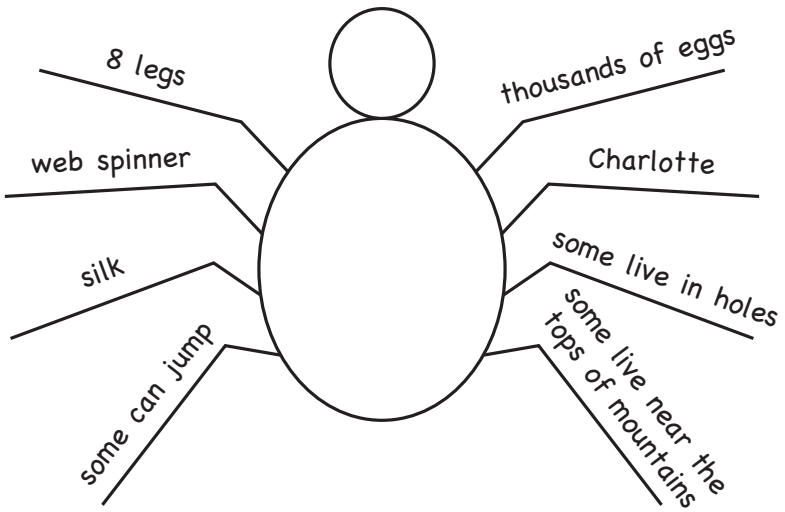
One way to get to know a word is to think about it as a sign, to pay attention to what it signifies. For example, when you hear the word "vocabulary" what other words come to mind? We've written the word "vocabulary" on two different organizers in Figure 1.7—on the back of a Spider Organizer and at the center of a web to help you collect your associations. Choose your organizer and complete it by collecting your associations with the word "vocabulary." By the way, using Spider Organizers or webs at the beginning of a unit is one way to provoke thinking about a critical concept word.

Figure 1.7: **Activity – Two Incomplete Organizers**



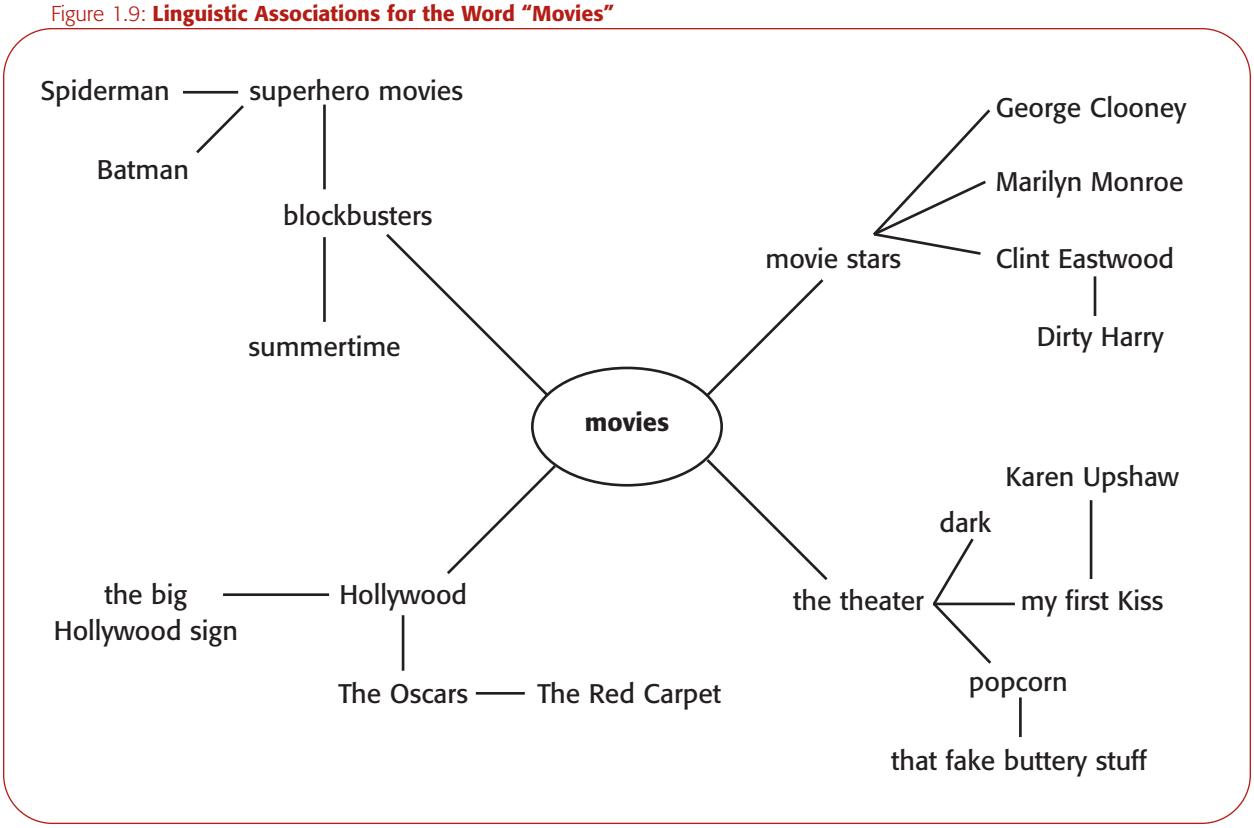
Another way to use a Spider Organizer is to list the associations as clues and have the students figure out what the word or concept is. Figure 1.8 below shows how a first grade teacher used a Spider Organizer to introduce her students to their unit on (of all things!) spiders.

Figure 1.8: **Spider Organizer**



Research into how humans remember information (Anderson, 1995) and build their background knowledge (Marzano, 2004) demonstrates that a word has two parts, a label (the word itself) and a packet of knowledge associated with the label that is stored in our permanent memory. These packets of knowledge are built out of our direct and indirect experiences with the word and include both a set of linguistic associations and a set of nonlinguistic associations, which can include stored images, sounds, feelings, and physical sensations. For example, say the word "movies" and many people might call up a packet, or network, of linguistic associations like Figure 1.9.

Figure 1.9: **Linguistic Associations for the Word "Movies"**



On top of these linguistic associations, most people will also call up things like the smell of popcorn, the shock of the cold air in the theater, the swelling music of a soundtrack, the images and lines of dialogue that have stayed with them through the years. Compare the depth and richness of this packet of words, images, sensations, and feelings with a dictionary definition of the word "movies."

> **movies:** *n*. the exhibition of a motion picture, or the motion picture industry in general (usually preceded by *the*).

So, one way in which a vocabulary is different from dictionary definitions is that our vocabulary words have meanings that are filled with images, sounds, and sensations. It should come as no surprise then, that research shows that asking students to memorize definitions from a dictionary or glossary is one of the least effective ways to build students' vocabularies and background knowledge.

A simple and effective way to begin the process of building students' memories and deepening their understanding of new words is to use a method called "dual-coding" (Paivio, 1990). Paivio discovered that when teachers dual-code learning by asking students to process information using both words and nonlinguistic forms of representation, students' recall of the new information increases significantly.

Let's try a little dual-coding right now. Using Figure 1.10 below, create a visual icon that represents your understanding of "vocabulary." Then briefly explain why your icon is a good representation of the word "vocabulary."

Figure 1.10: **Activity – Visualizing Vocabulary**

Term: vocabulary

Icon:

Explanation:

Another difference between a dictionary and a robust vocabulary is that our vocabulary includes us—our experiences with the words we know. Again, let's look at the word "vocabulary." This time, we will use a teaching tool called "Think of a Time" (Figure 1.11) to help you reflect on your experiences with vocabulary.

Figure 1.11: **Activity – Think of a Time**

Think of a time when your vocabulary either helped you succeed or got in your way. Describe the situation and how you used your vocabulary. How did you feel in the situation?

Think of a time when you observed someone who used words powerfully. What was the effect of this person's vocabulary on you?

Think of a time you helped someone master new words or concepts. What did you do to help build this person's vocabulary?

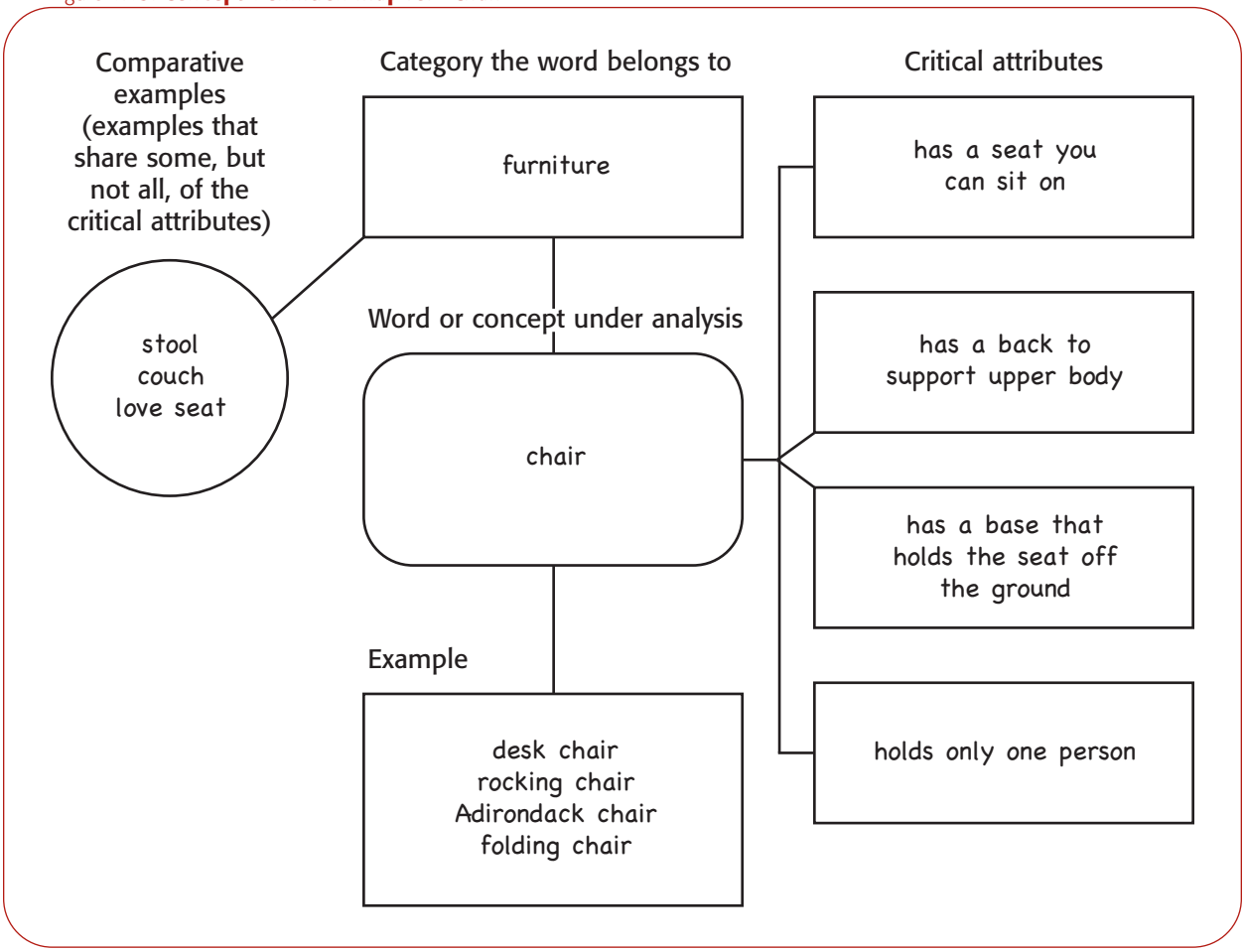
Let's look at another way to know a word in greater depth than a dictionary definition. Figure 1.12 shows three examples of a concept known as "chair." Even though they differ, what do all three chairs have in common that make them chairs?

Figure 1.12: **Three Chairs**

Chairs have a seat, a back, and a base. Only one person can sit on any of them. There are other things we sit on, but they are not called chairs because they lack one or more of these attributes. A stool is not a chair because it does not have a back. A couch is not a chair because it sits more than one, and a table is not a chair because your mother wouldn't let you sit on it.

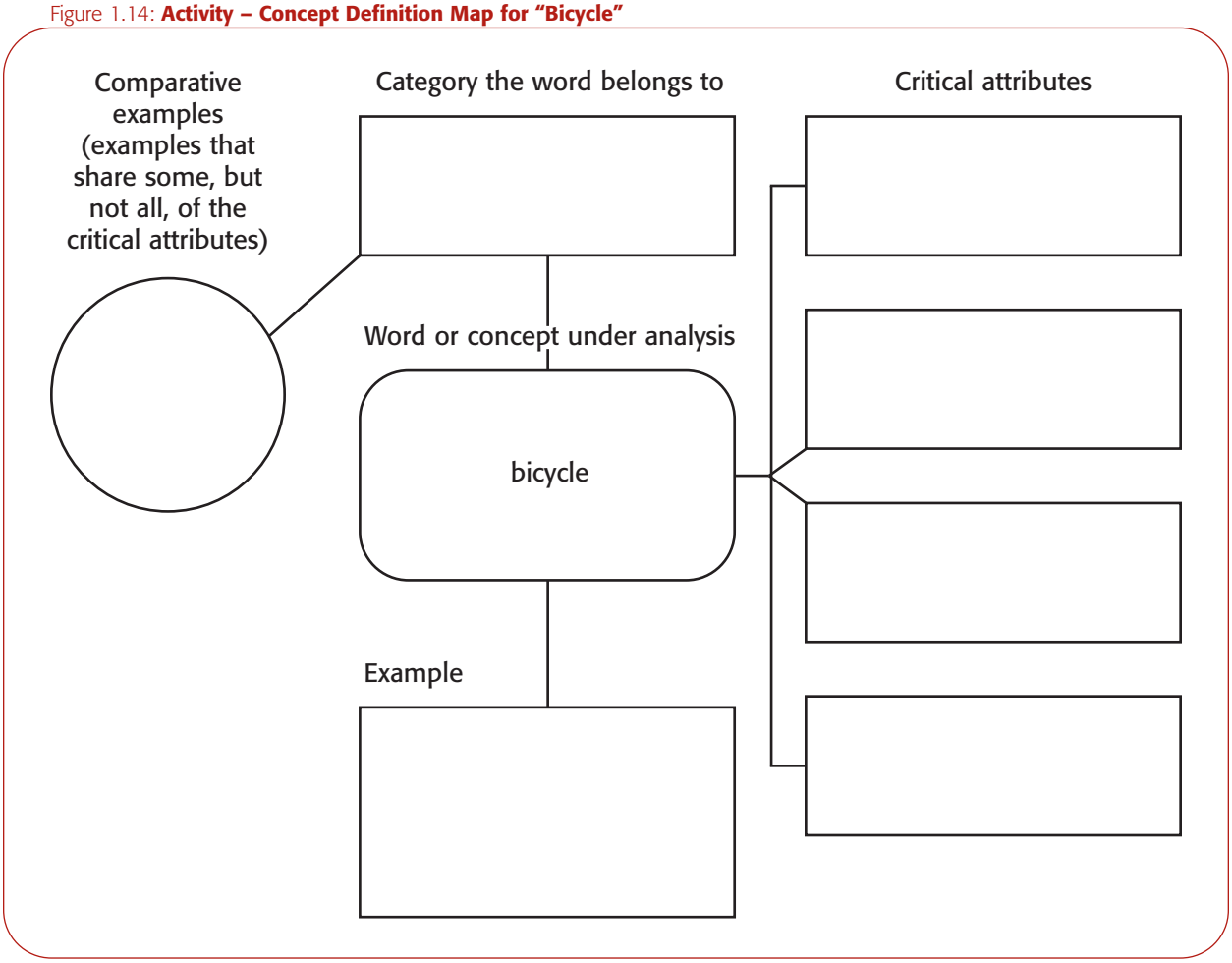
The following organizer is called a Concept Definition Map. It is used to help students analyze concepts and determine their critical attributes. Figure 1.13 shows a Concept Definition Map for the term "chair."

Figure 1.13: **Concept Definition Map for "Chair"**



Now it's your turn. See if you can create a Concept Definition Map for the term "bicycle" in Figure 1.14. Compare your map with the maps created by the other members of your Learning Club.

Figure 1.14: **Activity – Concept Definition Map for "Bicycle"**



How would you go about creating a Concept Definition Map for a more abstract term like "vocabulary?"

Let's look at one more difference between a vocabulary and a dictionary. We might call this difference *playfulness*. One way we get greater control over our vocabulary words is by playing with them, by experimenting with and refining their meanings so that they take on a life of their own in our minds in a way that no dictionary definition can match. One way we do this is through metaphors and similes. Our minds are designed to compare things, even if those things have no obvious similarities. This quest for connections and relationships allows us to see words and their meanings in new and surprising ways.

Let's try a simile now. Think about the question that opened this section: What is a word? See if you can create a simile for "word" by comparing it to something that has no obvious relationship to it. Is a word more like a:

- suitcase?
- spider's web?
- tree?
- picture in a frame?

Pick one item from the list. Then use Figure 1.15 below to explain your simile. Try to give at least three reasons for your choice.

Figure 1.15: **Activity – Creating a Simile**

A word is like a _____ because...

Of course, there are many other ways to help students build their comprehension of important words and concepts that go beyond the superficial and easily forgotten definitions found in dictionaries. In Part Two of this *Resource Guide*, we'll examine a set of specific tools and techniques that help students become vocabulary masters.

Now, let's take a moment to see what we've learned so far about words and vocabulary.

Figure 1.16: **Activity – Revisiting Our Understanding**

What new understanding do you have of the word "word?"

What new understanding do you have of the word "vocabulary?"

What does it mean to know a word?

Cracking Vocabulary's CODE, or How the Mind Learns New Words

If we want our students to master critical concepts and build a solid base of knowledge so they can succeed in school and in life, then we need to know Vocabulary's CODE. What is Vocabulary's CODE? We're glad you asked.

CODE is a simple way of applying what current brain research tells us about how to master new information. (If you're familiar with our strategy called New American Lecture, then you already know about the power of CODE.) Its name stands for the four essential interactions that must happen between our brains and new words if we expect to remember their meanings and apply them to our learning: CONNECT, ORGANIZE, DEEP PROCESS, and EXERCISE.

In this section, you'll get an overview of CODE and how it works. As you learn the phases of CODE, you'll develop a simple and personally meaningful glossary, with entries for each phase of CODE. Using Figure 1.17, you will:

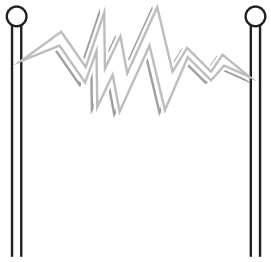
- write the name of the phase.
- develop your own definition of the term, or phase.
- create a simple icon that will help you remember what the term means.

The reading describing CODE appears directly after Figure 1.17.

You'll notice that Figure 1.17 has a fourth column labeled "Examples from the Lesson." You'll be asked to complete this column later, but don't worry about it for now.

The first phase in CODE is to connect with new words. As a model, we have completed the entry for CONNECT. For each of the remaining phases, you will create your own entry. When you've completed your glossary, compare your definitions and icons with the members of your Learning Club.

Figure 1.17: **Activity – A Glossary for CODE**

Phase	My Definition	How I'll Remember It (Icon)	Examples from the Lesson
Connect	Using context and our own memories to get a handle on new words. In the classroom, it means teaching students how to attack words and providing lots of exposure to new words.		

To learn new words and their meanings deeply, we need to:

CONNECT with the new word by searching our memories and examining the context in which the word appears. The essential idea here is that the brain wants to establish a connection—either based on what it already knows or what it observes—to the new word in order to get a handle on it. Helping students connect with new words takes more than one form. For example, one way to help students connect with new words is to teach them how to attack words by breaking them down into parts, using context clues, drawing on associations, etc. Another way is to maximize their exposure to new words. For example, strategies like Word Walls immerse students in current vocabulary, thereby building their connection to new words every day. In this guide, we will explore both types of connection techniques.

ORGANIZE new words into meaningful categories and frameworks. As the number of new words we encounter grows, the brain creates an organizational system into which these new words can be slotted. Stop and think for a minute about all the categories our brains create, and all the words and ideas that fit into these categories: classes you teach, types of trees, cars you've owned, students in your first-period class, ice cream flavors, the list goes on and on. The principle is the same when it comes to vocabulary instruction, except that as students are learning increasingly complex content, the categories into which new terms fit aren't always so clear. So (we bet you know this), students will need help.

Complete the second row of your glossary (Figure 1.17).

DEEP PROCESS new words. Deep processing means interacting with a new word in more than a superficial, fill-in-the-blank kind of way. Deep processing a word can mean visualizing it, restating its definition in our own words, creating a metaphor for it, even acting it out or explaining our emotional response to it. It is important to note that deep processing is where true understanding happens. This is because connecting and organizing help us to get a handle on new words and categorize them, but neither promotes the kind of rich, multilayered interaction of deep processing. It is also important to note that deep processing greatly increases retention and recall: by allowing our brains to make deep and meaningful connections with new words, we have an easier time remembering and using them.

Complete the third row of your glossary.

EXERCISE our brains by revisiting and practicing what we have learned over time. When it comes to learning new words, the brain is like a muscle: skip the exercise and you'll lose the definition (pun intended). To hold onto the words we learn and what these words mean, we need to review our learning in a way that promotes high levels of retention.

Complete the fourth row of your glossary.

Experiencing Vocabulary's CODE

We're coming to the end of Part One of this *Resource Guide*. But before we wrap things up, we'd like you to experience the four phases of CODE.

Below you will find a short reading called "The Most Bizarre Meeting Ever." In it are a number of unfamiliar words, which have been underlined. In the set of activities that follow, you will become "intimate" with these words by moving through the four phases of CODE. When you're done, go back to your glossary (Figure 1.17) and list the specific techniques that were used in this lesson for each phase of CODE. Begin by reading the passage below and seeing if you can figure out what each underlined word means.

The Most Bizarre Meeting Ever

Raul: That had to be the most bizarre meeting ever.

Jahnelle: I don't know whether to laugh or cry. I guess that's what happens when your boss is suffering from the world's worst case of torschlusspanik.

Raul: Tell me about it! He peenged on and on about how he used to be a world class swimmer—how he used to "cut through the water like a torpedo" and how he used to look like "a million bucks in a Speedo."

Jahnelle: Did you see when he held up the picture of himself from his Speedo days and said, "Once upon a time I was a Speedo-sporting, back-stroke god. I was admired by women on four separate continents. Now I'm a **Nobodaddy**."

Raul: No. How could I have missed that? It must have happened right when Jake started to flaffer around the room in his overly-starched suit showing everyone his collection of breath mint wrappers from restaurants around Houston.

Jahnelle: What a nihilarian!

Raul: I do remember when Wendy got up and told the boss that she thought he looked more godlike than ever, and that she was sure he could beat his old swimming times. I mean, she's got to be trying to make the boss look like a complete fool for some devious purpose. I think she's trying to ruin us.

Jahnelle: Whether Wendy's a lordswike or not, I just wish the boss hadn't taken her so seriously. I did not need to see him strip down and conduct the rest of the meeting in his Speedo to prove that he still had it. By the way, is that when you fainted?

Raul: Yes, but it wasn't because of that. Did you see the consultants the boss called in to bring fresh new ideas into the company?

Jahnelle: Do you mean the guy with the eye patch and the parrot who handed out "free" copies of his book, *Managing Like a Kye: How to Save Money the Pirate's Way* and then wanted to charge us $20 per book at the end of the meeting?

Raul: No, not that one. The one that was into myomancy and claimed he could forecast the success of the company over the next five years. I tell you, the minute he pulled out those rodents everything went black for me. I have an unnatural fear of those little critters.

Jahnelle: Did you know that guy makes over $500 an hour?

Raul: Wow. If only I could keep from passing out, I'd change careers.

Jahnelle: So you were out for the end of the meeting?

Raul: Yep. I just came to ten minutes ago.

Jahnelle: Then you missed the announcement about the company softball outing this weekend?

Raul: It's not cancelled is it? I just bought a new mitt and catcher's mask.

Jahnelle: Well, it's not a softball outing anymore. We're having a hastilude instead.

Raul: What?! Where on Earth are we going to buy spears? Wait a minute. Is that even safe? Or legal?

Jahnelle: I don't know. Maybe we should seriously consider going back to our old jobs.

Raul: Nah, despite all its quirks, I think this company has a bright future. I'm sticking with sushi-by-mail.com and my stock options. Now, can you buy spears in the mall?

Phase 1: Connecting to New Words

The reading above contains a number of what Erin McKean (2002, 2003) refers to as "Weird and Wonderful Words."

For each of the nine words from the passage, generate a preliminary definition in the column titled "My Educated Definition" in Figure 1.19 on the next page.

How did you generate your definitions? What techniques did you use to "educate" your definitions? Record your ideas in Figure 1.18 below.

Figure 1.18: **Activity – How I Educated My Definitions**

Figure 1.19: **Activity – Comparing Definitions**

Word	My Educated Definition	Actual Definition	Differences
torschlusspanik			
peenged			
Nobodaddy			
flaffer			
nihilarian			
lordswike			
kye			
myomancy			
hastilude			

How Close Were You?

Here are the nine words defined. How close were your educated definitions? What subtleties, or shades, of meaning did you miss? Note the differences between your educated definition and the actual definition in the "Differences" column in Figure 1.19.

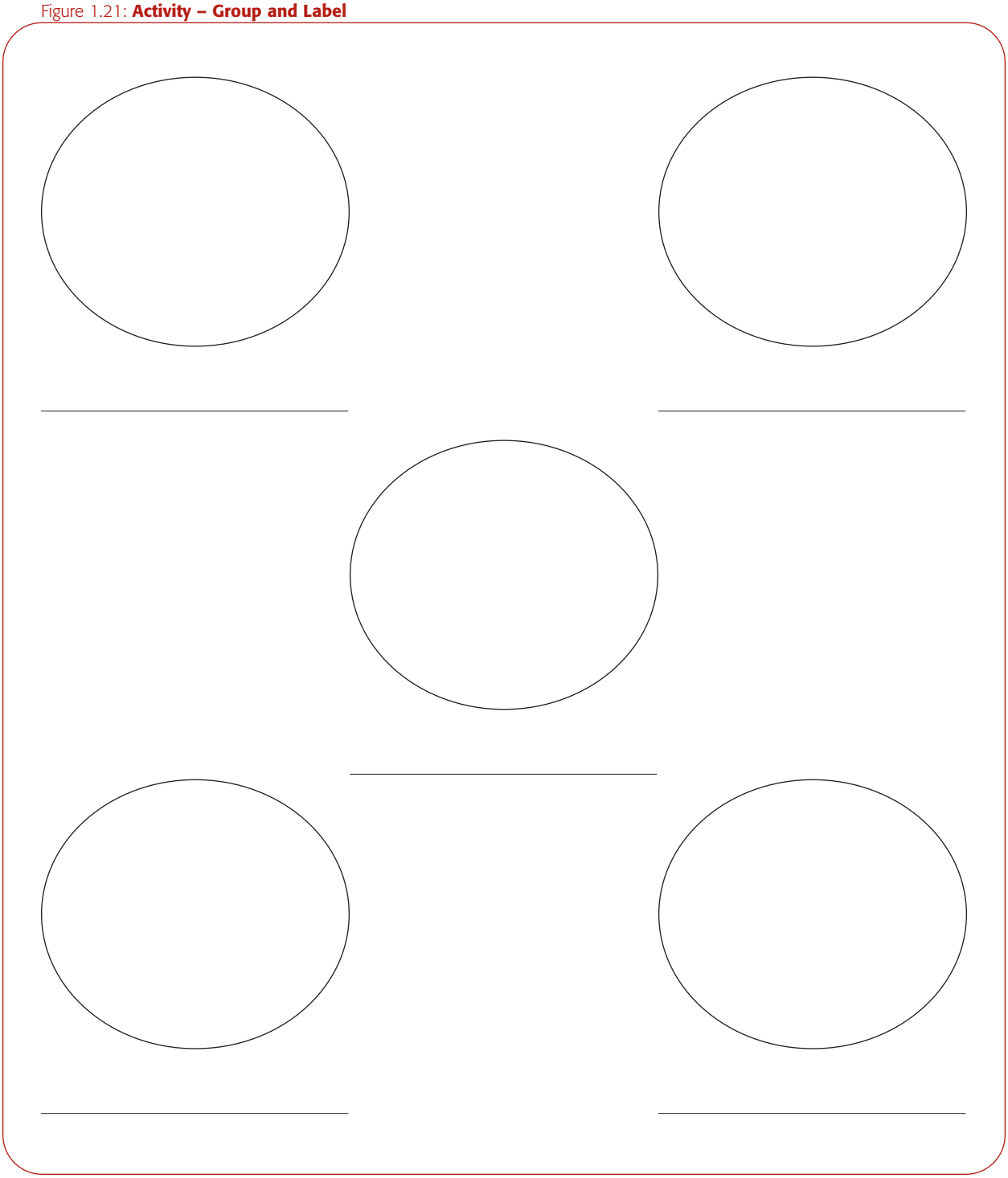
Figure 1.20: **Activity – Comparing Definitions**

Word	Definition
torschlusspanik	A German word that literally means "shut door panic." It is similar to a mid-life crisis or the fear that life is passing by too quickly.
peenged	To whine while complaining.
Nobodaddy	A term coined by English poet William Blake. The word is a combination of *nobody* and *daddy* and means someone who is no longer worthy of admiration.
flaffer	Tol make noise while moving.
nihilarian	Someone who is concerned with things that are of no interest to others.
lordswike	Traitor, from Old English roots that literally mean 'lord deceiver.'
kye	A cheap and greedy sailor.
myomancy	Archaic practice of using the movements of mice to predict the future.
hastilude	Latin for "spear play." It refers to Medieval competitions involving spears.

Phase 2: Organizing the Words

In working with these words, you may have noticed some patterns or natural groups that some of the words might fit into. Put the nine words into at least three different groups. (You can use the same word multiple times.) Then, give each group a label that describes how the words go together. In creating your groups, don't be afraid to look beyond the obvious. See if you can create a group that no one else in your Learning Club creates, but that has compelling logic behind it.

Figure 1.21: **Activity – Group and Label**



Phase 3: Deep Processing New Words

It's Kinda Like...

From the nine words, pick one—any one, your favorite one. Use it to create a simile in Figure 1.22. How is your word like something else? Below your simile, explain the relationship between the two items.

Figure 1.22: **Activity – Simile**

_____ **is like** _____...

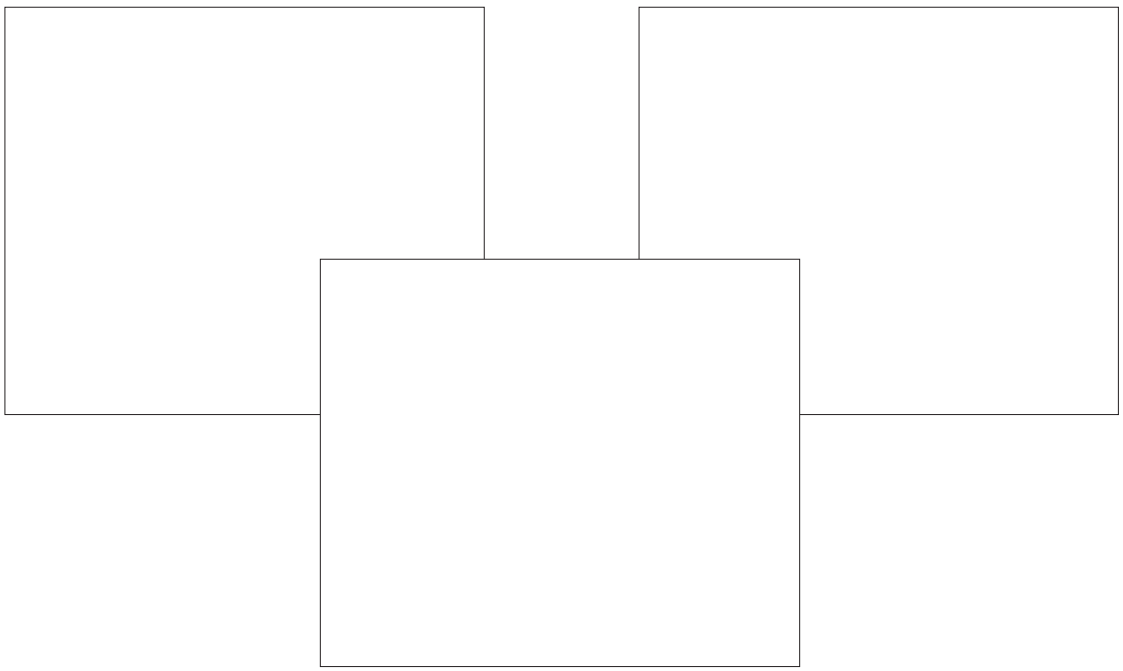
(your favorite word)

Here's how:

Picture This...

Now use Figure 1.23 to create a visual icon for three different words:

Figure 1.23: **Activity – Visualizing Vocabulary**



Phase 4: Exercising Your Words

The Proof Is in the ~~Pudding~~ Writing

Now that you've gotten intimate with a number of weird and wonderful words, it's time to put those words to use. Use Figure 1.24 below to write a short, creative piece that uses at least five of the nine words.

Figure 1.24: **Activity – Parawriting**

Don't forget to go back to the fourth column of your glossary (Figure 1.17) and list the techniques used during this lesson.

ThoughtWork: Before the Next Session

Take a moment to reflect on what you have learned so far about vocabulary instruction and its secret CODE. Answer the questions below.

Figure 1.25: **Activity – Reflecting on Part One**

1. How did the phases of CODE help you deepen your understanding of the new terms in the reading?

2. How did the specific techniques used in the lesson support the phases of CODE?

3. How is CODE similar to what you already do with your students? How is it different?

In the next session, you will be learning a set of vocabulary tools and using them to design a vocabulary-centered learning unit. In order to prepare for the next session you'll need to:

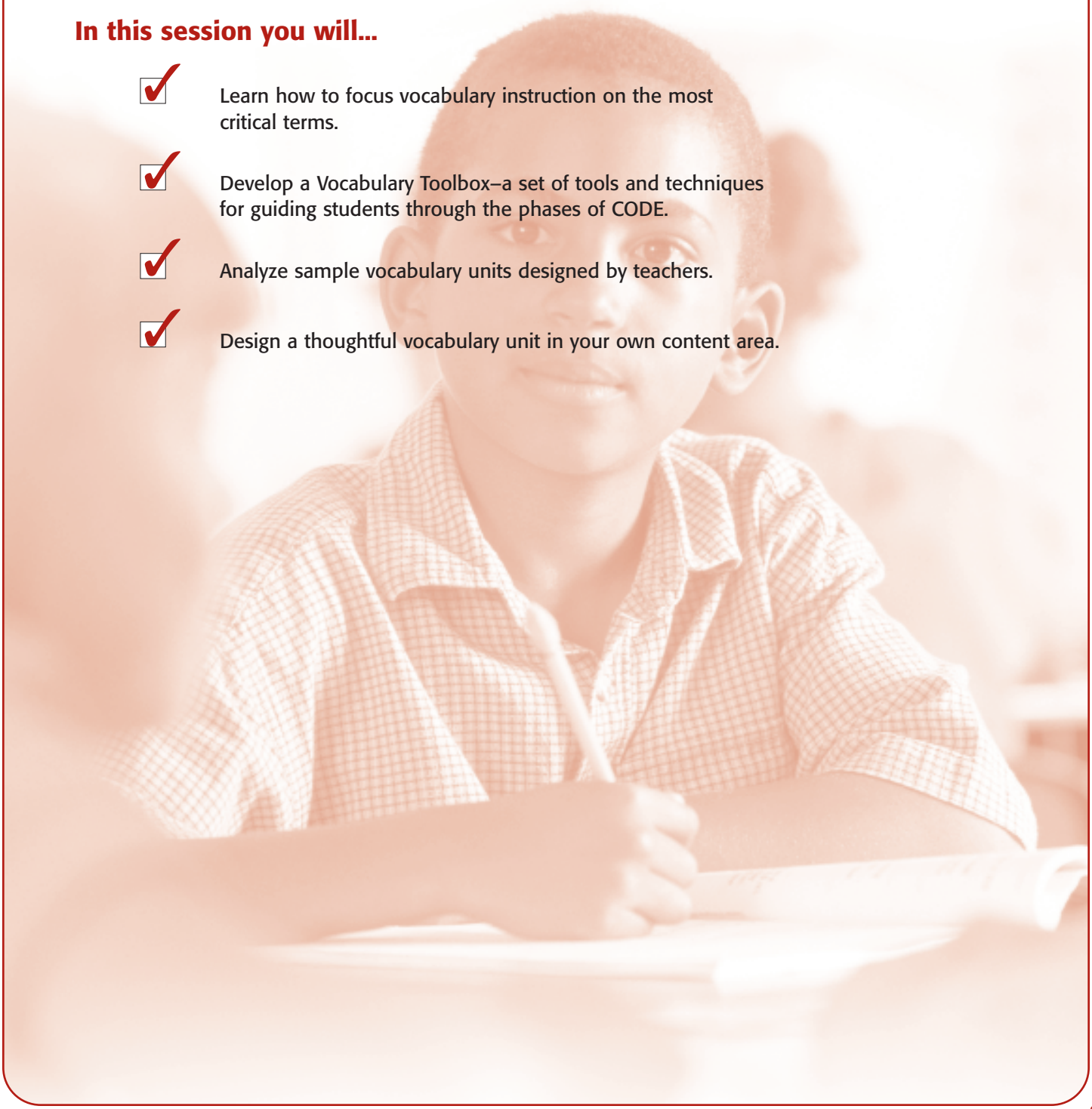
- **Keep track of any instances in your teaching when you think you could have used CODE to enhance student learning.**
- **Bring to the next session all of the material you'll need to plan a vocabulary-centered unit (content, standards to cover, etc.).**

Part 2: Designing a Thoughtful Vocabulary Unit

The goal for this session is to work with a partner to develop a vocabulary-centered unit for your students

In this session you will...

- ☑ Learn how to focus vocabulary instruction on the most critical terms.
- ☑ Develop a Vocabulary Toolbox–a set of tools and techniques for guiding students through the phases of CODE.
- ☑ Analyze sample vocabulary units designed by teachers.
- ☑ Design a thoughtful vocabulary unit in your own content area.



Prioritizing Vocabulary Words

A common frustration with vocabulary instruction resides in this simple fact: it is impossible to teach every word a student needs to know. That's why vocabulary prioritization is so crucial to vocabulary instruction. By conducting a brief content analysis during unit planning and then organizing key vocabulary into three categories—essential or central, important, nice to know—teachers can tackle the manageability issue with relative ease. Each category serves as a guideline for how much emphasis and time should be spent on different words. For example, this is how a middle school teacher prioritized her words for a unit on green plants and their role in the world's ecosystems.

Figure 2.1: **Prioritized Words for a Unit on Plants**

Nice to know

simple leaf
compound leaf
annuals
biennials

Important

carbon dioxide
pollination
roots
stem
leaves
seeds
flowers
fruit
chlorophyll
chloroplast
stomata
cellulose

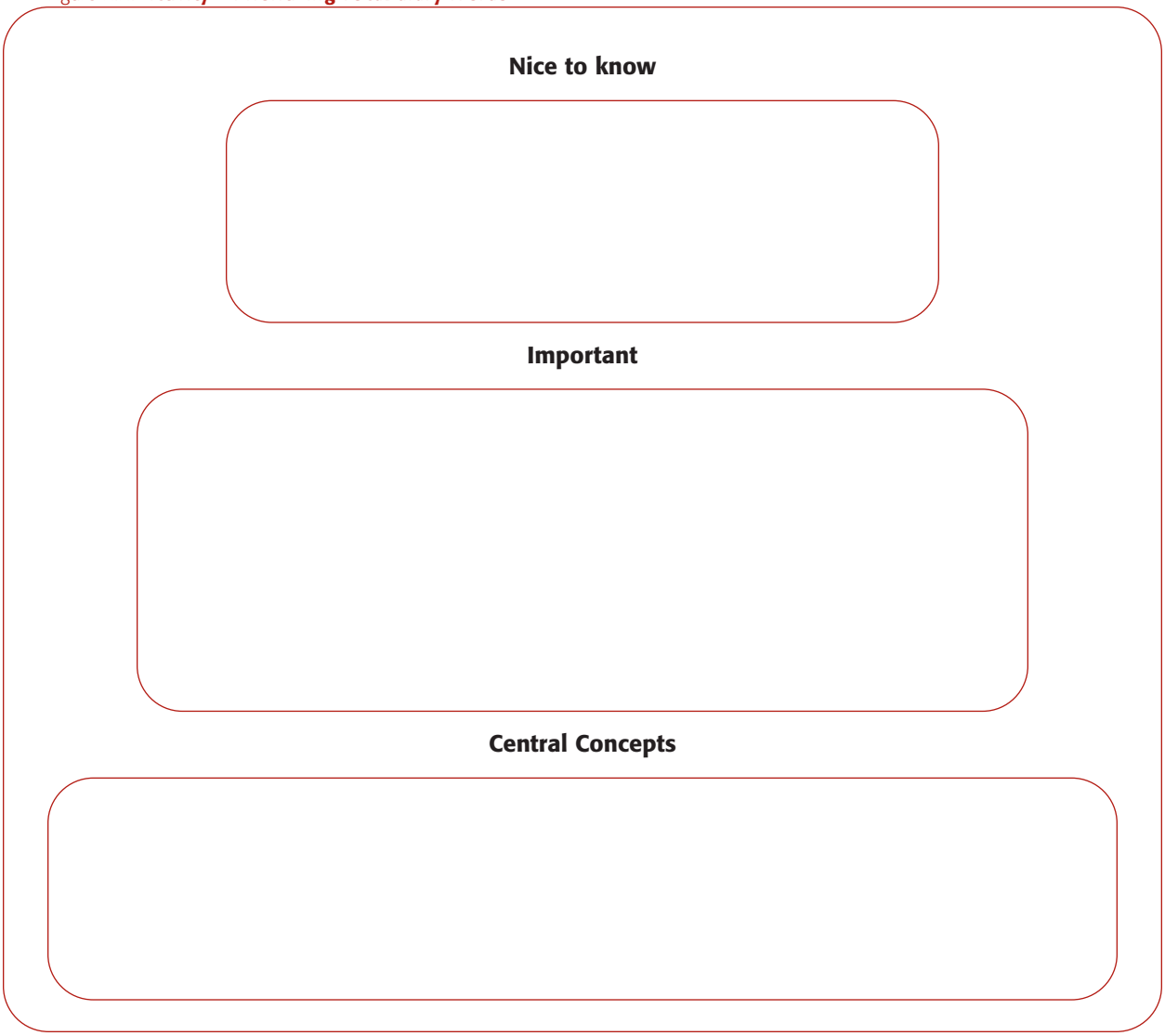
Central Concepts

photosynthesis
carbon-oxygen cycle
food chain
deforestation

Let's try a little vocabulary prioritization right now. Below are twenty vocabulary terms from Part One of this *Resource Guide*. How would you prioritize these terms? Use Figure 2.2 to decide which terms are nice to know, which are important, and which rise to the level of central concepts. When you are done, discuss your selections with your Learning Club. What similarities and differences can you find among your lists?

background knowledge
permanent memory
direct vocabulary instruction
academic vocabulary
high-frequency word lists
dual-coding
nonlinguistic associations
signs
Spider Organizer
Think of a Time
Concept Definition Map
critical attributes
simile
Word Walls
connect
organize
deep process
exercise
comprehension
definition

Figure 2.2: **Activity – Prioritizing Vocabulary Words**



A Vocabulary Toolbox

Teachers need a repertoire of instructional techniques to teach vocabulary. There are three reasons why this is true. First, there's the research, which tells us that vocabulary learning improves dramatically when students are exposed to words multiple times and are given the opportunity to work and play with those words in a variety of ways (Marzano, 2004). Second, different kinds of words call for different kinds of instructional techniques. Sometimes we want students to identify with terms (think *endangered species*); some words scream for classification (think of the instruments in the orchestra); some words (say *reptiles vs. amphibians*) are best understood when set against each other for comparison. Other words lose their abstraction once students make a visual connection (for example, cube). Because different kinds of words call for different kinds of instruction, only a repertoire of techniques will allow you to find the ideal fit between the words you teach and the many ways you can teach them. Finally, there's the issue of implementation, of what to do in the actual classroom to make all of this stuff work. Although the four phases of CODE provide a basic framework for vocabulary instruction, the question of what specific tools and techniques teachers can use to help students CONNECT, ORGANIZE, DEEP PROCESS, and EXERCISE their words remains. For these reasons we have developed the Vocabulary Toolbox (Figures 2.3-2.6). The Vocabulary toolbox presents a variety of vocabulary tools and strategies organized according to the four phases of CODE. As you design vocabulary lessons or units, refer to this toolbox to help you select appropriate techniques for each phase and to ensure deep learning for all students through multiple and diverse exposures to new words.

Figure 2.3: **Tools for Helping Students CONNECT With New Words**

Word Walls

An ideal tool for creating a classroom culture that breeds that all important familiarity between students and the words they encounter in their courses. Creating a Word Wall involves five steps:

1. Over the course of a unit, ask students to list words that are new or unfamiliar to them.
2. During class, ask students to share the words on their list. Record these words on a sectioned-off part of the chalkboard or on poster paper.
3. Ask students to define each recorded word and to generate one to three synonyms for each word. (If a synonym is not possible [e.g., for a proper noun], then a very brief definition will do.)
4. Create the Word Wall by recording these synonyms below each original word.
5. Have each student write a summary of, response to, or thesis essay about the reading or unit, using words from the Word Wall. Students must use five to ten words correctly in their writing.

Glossaries

A good glossary contains more than rewritten textbook definitions. Student glossaries have four columns:

Word:	Textbook Definition:	My Definition:	How I Will Remember the Word:
Neuron	Nerve; includes the cell and the long fiber coming from the cell.	Nerve cell	

First, students write the word.

Second, they record the textbook definition.

Third, they write their own definition.

In the fourth and final column, students, do whatever helps them remember the word's meaning. Students can:

- draw pictures;
- list examples;
- connect the word to their own experiences;
- provide a real-world application.

See It, Say It, Spell It, Show It

Teach students how to use the Four S's to connect deeply with new words:

1. **See the word.** Note its spelling and the way it looks when written.
2. **Say the word.** Saying the word out loud a few times forges a connection between your mouth and your brain.
3. **Spell the word.** Write the word out in your glossary, paying close attention to how it is spelled.
4. **Show the word.** Show your understanding with sketches and sentences you create for these words in a glossary or Vocabulary Journal.

   This tool is especially useful when the context doesn't provide any substantial information about a word's meaning.

Vocabulary Notebook

A tool for helping students use context clues to develop their own perspective on the meaning of difficult words. To develop a Vocabulary Notebook, students move through five steps:

1. Students read the text, focusing on difficult words. (Often these words are highlighted by the teacher.)
2. Students assess their understanding of each word using symbols:
   - ✓ = I know this word
   - ___ = I think I know this word (underline)
   - ◯ = I don't know this word (circle)
3. Using semantic clues (prefixes, suffixes, root words) and context clues, students generate a preliminary definition for each word.
4. Students find and record the dictionary/glossary definition that best fits the way the word is used.
5. Students compare their definitions to the actual definitions, noting similarities and differences.

Vocabulary Knowledge Rating (VKR)

Students write the terms from the chapter or unit on their VKR organizer. They then use a simple 1-4 rating system to determine their current level of understanding. Near the end of the unit, students revisit their VKR ratings to see how their understanding has evolved and where they need to focus their study efforts.

Topic: The Human Nervous System

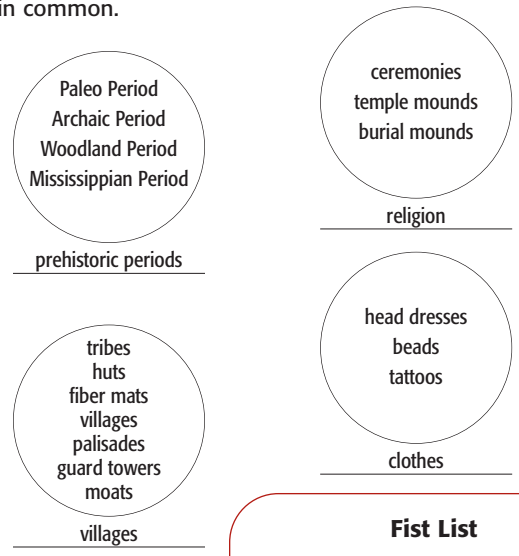
Terms for this section	Never heard of the term	I've seen or heard of the term	I think I know the term	I know and can explain the term
stimuli	1	2	(3)	4
response	1	2	3	(4)
central nervous system	1	2	(3)	4
peripheral nervous system	1	(2)	3	4
cerebrum	(1)	2	3	4

Figure 2.4: **Tools for Helping Students ORGANIZE New Words**

Group and Label

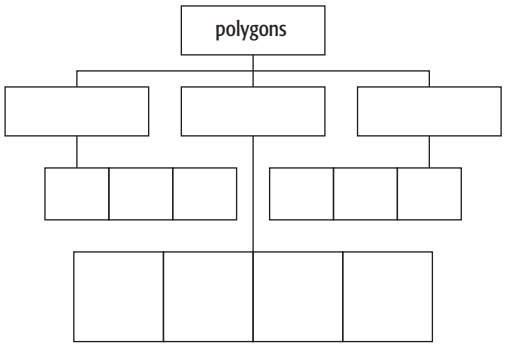
Students examine the unit vocabulary and place words into groups based on common characteristics.

For each group students create, they devise a label that describes what all the grouped words have in common.



Word Banks

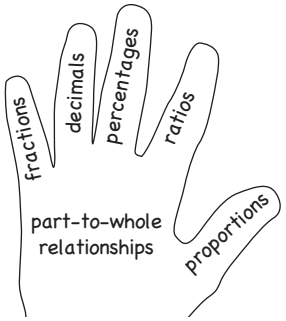
Students examine a list of words and place them into the appropriate slots in a visual organizer.



equilateral
hexagon
isosceles
n-gons (polygons with more than four sides)
octagon
parallelogram
pentagon
quadrilateral
rectangle
rhombus
scalene
trapezoid
triangle

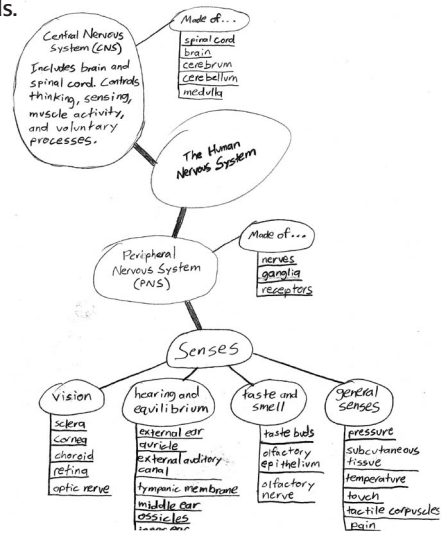
Fist List

The teacher provides a category in the palm of a hand organizer. Students generate five words that fit the category, one for each finger of the organizer. Spider Organizers work the same way, only with eight words instead of five.



Vocabulary Map

A technique used to visually organize key terms according to the hierarchical relationships between central concepts, supporting ideas, and important details.



A Diagram to Die For

Students are asked to create a diagram that shows the relationship among the critical terms.

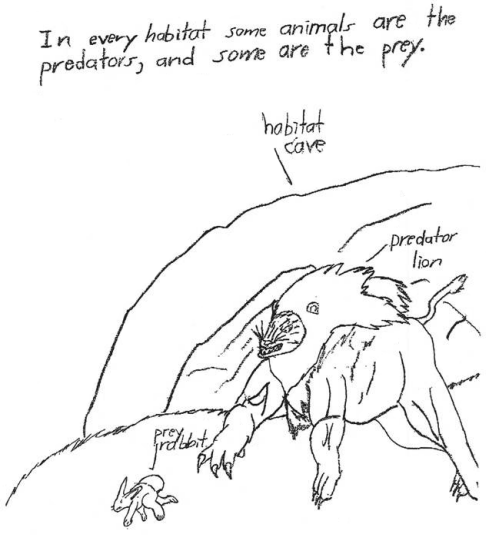
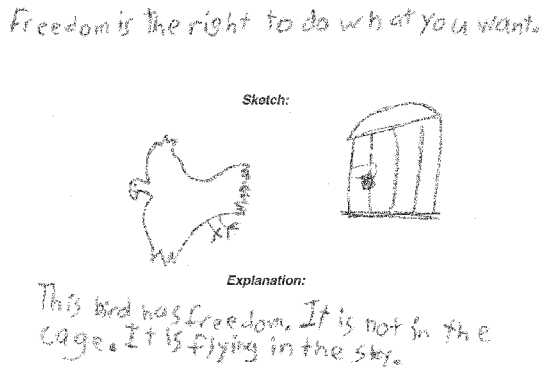


Figure 2.5: **Tools for Helping Students DEEP PROCESS New Words**

Visualizing Vocabulary

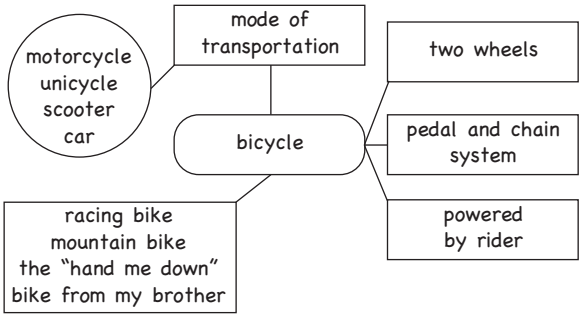
Students create visual images, sketches, or icons with brief explanations to demonstrate understanding.



Concept Definition Map

A map that defines a term by:

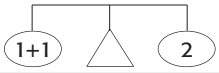
- establishing the larger category the term fits into.
- listing critical attributes of the term.
- providing examples of the term.
- comparing the term to non-examples, which share some, but not all, of the critical attributes with the term under study.



Multiple Input Processing (MIP)

Based on the fact that multiple methods of storing information improve recall, Multiple Input Processing gives students a variety of ways to process and store words and their meanings.

Spatial Understanding: What does the word look like? Create a mental picture, then sketch it below:



equation

Interpersonal Understanding: What are some feelings you have about the word?

It makes me a little nervous because solving equations seems harder than the math we did last year.

Bodily-Kinesthetic Understanding: Make a physical symbol with your body that explains what the word means to you.

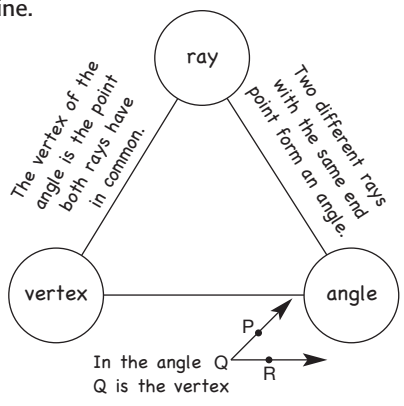
(The student held out two hands, each with two fingers up to represent the two equal sides of an equation.)

Linguistic Understanding: In your own words, write what the word means.

An equation has two equal numbers separated by an equal sign. Even if the two numbers don't seem the same, they must be, or it's not an equation.

Three-Way Tie

Students select three critical words from a unit's vocabulary and arrange them in a triangle. They then connect the words with lines and explain the relationship between each pair of words by writing along each line.



Creative Writing

By crafting short creative writing pieces, students develop imaginative and personally meaningful definitions of words. Some creative writing formats include metaphors/similes (comparing words to familiar, but unrelated concepts), cinquains (five-line poems that follow a standard structure), and storytelling.

Metaphor/Simile
A colony is like a child because a colony depends on a country, just like a child depends on a parent. Both colonies and children are younger and often rebel when they grow up.

Cinquain

term:	DNA
two adjectives:	long and spindly
three action verbs:	inheriting, determining, encoding
four-word sentence or phrase:	It carries our traits.
ending word:	genetics

Figure 2.6: **Tools for Helping Students EXERCISE Their Words**

Effective Practice

Guidelines for studying vocabulary.

1. **Review often in the beginning, but only for short periods of time.** For example, if you are reviewing ten words, then five minutes of review three separate times will be much more effective than fifteen minutes of review all at once.
2. **Over time, start to leave longer gaps of time between review sessions.** So, if you have reviewed three times for five minutes in the first three days, then you should start to review less frequently, say, again in two days, then in three days, then in five days. Review sessions should be as short as possible while still reviewing all the words.
3. **There is no substitute for use.** Nothing helps you internalize new words and their meaning better than using them. Whenever possible, slip new words into your conversations, your email and text messages, your journal.
4. **If you still find yourself having difficulty remembering words and their definitions, go back and make a deeper connection.** If you can't remember a word's meaning, odds are you didn't make a strong enough connection when you learned it. Use Deep Processing tools like Concept Definition Mapping, Visualizing Vocabulary, and Metaphors/Similes to get a stronger grip on the word.

Boggle

After independent review, students retrieve all the vocabulary they can. Students join a group of 3-5 students, compare lists and add any words or meanings they missed that their team members have on their list. Students then leave their team to "Boggle" with other students, gaining points for terms and meanings that appear on their lists, but not on their competitor's lists.

You can also use many other popular game formats to review vocabulary in a mildly competitive manner. Vocabulary Jeopardy, Word Baseball, and Teams-Games-Tournaments all make for fun and effective review games.

Vocabulary Carousel

The teacher sets up five or six stations. Students work in small groups and move to all stations. Stations include a variety of vocabulary activities, such as:

- Visualizing Vocabulary: creating and explaining sketches or icons that represent key words
- Which term doesn't belong? (And why?)
- Storytelling: writing a brief story that uses a list of included words
- Word searches and scrambles
- Comic strip: creating a three-panel comic strip demonstrating a term or concept
- MVW: selecting the "Most Valuable Word" and explaining why
- Creating cinquains, raps, and jingles
- Developing metaphors or similes for key words
- Grouping and labeling terms to create a classification system

The Four R's

Teaching students how to look back on their glossaries and deepen their understanding by:

Revisiting what they've recorded.

Reviewing the word's meaning.

Refining their definition of the word in light of new understanding.

Revising their way of remembering the word by adding their original picture, creating a metaphor or simile, adding new examples or non-examples, providing a real-world application, etc.

Parawriting

Students write a paragraph or short piece using between five and fifteen vocabulary words. Each word must be embedded meaningfully into the text or it doesn't count.

Sample Vocabulary Units

Manageability is a key factor in the case for direct vocabulary instruction. As we have already seen, there are entirely too many new words each year for direct vocabulary instruction to be applied to them all. Thus, the best time to prioritize and select essential vocabulary is during unit planning, when the teacher is naturally focused on the task of separating the essential from the non-essential content. By tapping into this natural link between content and vocabulary and then designing the lesson sequence with both in mind, the unit is made more powerful, while the teacher's work burden is reduced significantly.

In this section you'll take a look at four units that are focused on vocabulary. You may notice that the steps the teachers take in designing their units correlate closely with the phases of CODE (Steps 2-5 follow CODE, while the first step involves selecting and prioritizing the unit words). To process these four units deeply, you and your Learning Club will use the strategy known as Jigsaw.

This Jigsaw task is designed to increase each Learning Club member's sense of responsibility for learning by making each member an "expert" in one part of the content. The experts then meet to share their acquired knowledge. Each expert teaches the content in which he or she is an expert to the other team members.

On the following pages you will find a matrix organizer and four sample vocabulary units. Here's how you and your Learning Club will use these resources to complete this Jigsaw activity:

1. Form groups of three.
2. Read the sample unit on *To Kill a Mockingbird*. Review the completed column for this lesson in Figure 2.8. You and your team will be completing the remaining three columns in Figure 2.8.
3. Assign each of the remaining three units to a member of the team.
4. Read your sample unit carefully. As you read it, underline key ideas, phrases, and interesting points. Use the margins, a blank sheet of paper, or the space below (Figure 2.7) to make a set of notes that will help you to teach what you have read back to your team.
5. Rejoin your team. Each team member should teach the contents of the sample unit to the other team members. As team members explain their units, the group should work together to complete each column in Figure 2.8.

Figure 2.7: **Notes on Your Assigned Unit**

Figure 2.8: **Activity – Jigsaw Matrix**

Planning Step	**Unit 1:** *To Kill a Mockingbird*	**Unit 2:** Linear Equations	**Unit 3:** *Tops & Bottoms*	**Unit 4:** Ancient Egypt
How did the teacher identify the essential vocabulary?	Considers character names and places. Looks for expressive "writer's words." Places special emphasis on thematic words and words associated with thesis writing.			
How did the teacher help students *connect* with new words?	Makes a deep connection with word *persuade*. Students draw on their experiences and list techniques they've used. Later, they use their lists to convince a friend to read the novel.			
How did the teacher help students *organize* the words?	Teaches students how to build webs of related terms.			
How did the teacher activate *deep processing* of key terms?	Students compare symbols and signs and discuss different characters' visions of courage.			
How did the teacher help students *exercise* and\or revise their understanding?	Students collect examples of themes and use examples to revise their glossaries.			

Figure 2.9: **Sample Unit 1**

High School English

To Kill a Mockingbird

1. **Identify the essential vocabulary your students need to learn deeply.**
   Mark Veon reads ***To Kill a Mockingbird*** by Harper Lee with his ninth grade students early in the fall. Mark considers character names and place names important examples of vocabulary his students need to remember and understand. He also wants his students to acquire the new and powerful words Lee uses to make her novel vivid and precise. Mark decides to put a strong emphasis on words related to the novel's themes, as well as words related to the kind of writing students will create for a thesis essay. Here is a portion of Mark's vocabulary list:

Thematic Vocabulary	**Thesis Writing Vocabulary**
prejudice, persuasion, courage, character	theme, thesis, evidence, symbol, character, motivation

2. **Decide on a strategy to help your students arrive at a preliminary understanding of the words (CONNECT).**
   Mark wants to focus on the word *persuasion*. He introduces the word persuade and its synonym *convince*. Then he immediately asks his students if they have ever persuaded their parents to change their minds, and asks them to make a list of the techniques they used. Later, he has students read the back cover of the novel and use their persuasion techniques to try to convince others that they would enjoy reading ***To Kill a Mockingbird***.

3. **Establish a method to help your students ORGANIZE the new words.**
   Mark shows his students how to build webs of related terms. For instance, one student's web for *persuade* includes *argue*, *reason*, *influence*, and *explain*, as well as *force* and *compel*.

4. **Activate DEEP PROCESSING of the words.**
   Mark uses comparison and discussion to help students develop a richer sense of words' meanings: students compare symbols and signs and discuss the differences between Jeb's, Atticus's, and Mrs. Debose's visions of courage.

5. **Search for opportunities for students to EXERCISE, revise, and practice their understanding of the new words.**
   As students read the novel, they collect examples of the novel's themes. They use their examples to write and revise their definitions in a glossary of themes in the back of their notebooks.

Figure 2.10: **Sample Unit 2**

High School Mathematics

Linear Equations

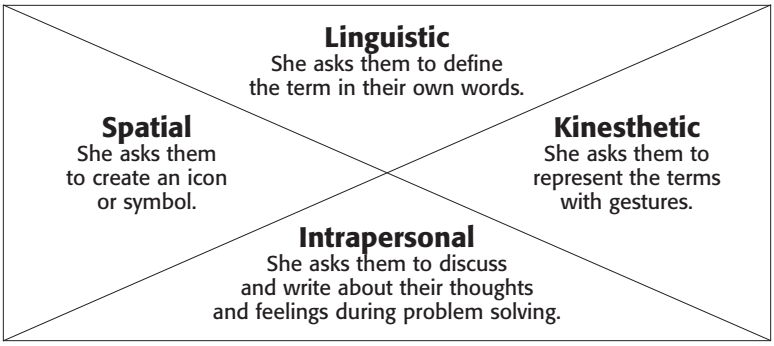
1. **Identify the essential vocabulary your students need to learn deeply.**
   Jody Hoch examines her state standards to determine the essential vocabulary for her unit on linear equations and selects the following terms:

   > axis, coordinate pair, coordinate plane, Descartes, graph, horizontal, intercept, linear, parallel, perpendicular, slope, variable, vertical

2. **Decide on a strategy to help your students arrive at a preliminary understanding of the words (CONNECT).**
   Though some of the vocabulary is familiar to Jody's students, the context in which the words appear is quite different, so she begins the unit with a New American Lecture on the role of these key terms in solving linear equations. During the lecture, Jody stops frequently—to permit students to find or create their own illustrations for each term.

3. **Establish a method to help your students ORGANIZE the new words.**
   In addition to the visual organizer she uses in her lecture, Jody also helps her students see word relationships by asking them to Group and Label different kinds of graphs and their equations.

4. **Activate DEEP PROCESSING of the words.**
   Jody chooses four of Howard Gardner's multiple intelligences to help her students process the key terms:



5. **Search for opportunities for students to EXERCISE, revise, and practice their understanding of the new words.**
   Jody uses speed quizzes and rapid-fire games such as Vocabulary Jeopardy and Word Baseball.

Figure 2.11: **Sample Unit 3**

First Grade English/Language Arts

Trade Book: *Tops & Bottoms*

1. **Identify the essential vocabulary your students need to learn deeply.**
   Christina Natoli uses trade books to teach her first graders a few well-selected "useful words" each week. Useful words go beyond basic sight words; they are thematically important, used regularly in life, and help enhance the sophistication of students' language and thinking skills. This week's story is *Tops & Bottoms* by Janet Stevens, which is about a wealthy, but lazy bear and a poor, but clever hare with a large family to feed. The hare proposes a business deal with the bear and then outwits the bear by taking advantage of the bear's laziness. So what useful words does Christina select? Only three: *lazy*, *clever*, and *deal*.

2. **Decide on a strategy to help your students arrive at a preliminary understanding of the words (CONNECT).**
   Christina reads the story aloud, stopping when she comes to one of the useful words and using the See It, Say It, Spell It, Show It method to introduce students to each word. Christina helps students get a good grip on the word's meaning by providing a student-friendly definition and concrete examples that use the word in multiple contexts: "The boy was too lazy to do his homework and just wanted to lie around on the couch. My dog is so lazy he won't play fetch when I throw the ball." Then, Christina asks her students to generate their own examples.

3. **Establish a method to help your students ORGANIZE the new words.**
   To help students place the new words into "families" of related words, Christina has her students generate a Fist List for each word.

4. **Activate DEEP PROCESSING of the words.**
   Christina presents a set of statements and asks students to put thumbs up for clever and thumbs down for lazy:

   The boy found a new way to solve the mathematics problem.
   My dog is too tired and old to chase cats.
   He was able to understand quickly what needed to be done.
   That idea is worth a million dollars.
   Don't bother me. I'm just too tired to play today.

   Later, Christina asks students questions that use the words. Each question requires students to make a choice and explain their reasoning:

   Would you rather make a deal with a lazy person or a clever person? Why?
   Who is more likely to be a good problem solver, a lazy person or a clever person? Why?
   Would you prefer to play with a lazy friend or a clever friend? Why?

5. **Search for opportunities for students to EXERCISE, revise, and practice their understanding of the new words.**
   Christina ends the lesson by having her students create pictures for each word and then write a sentence that uses the word and explains the picture. Christina does this each week with a trade book that she reads to her class. Three words a week, thirty-four weeks, over one hundred new words. Wow!

Figure 2.12: **Sample Unit 4**

Fifth Grade Social Studies

Ancient Egypt

1. **Identify the essential vocabulary your students need to learn deeply.**
   Pat Schwartz begins her fifth grade unit on Ancient Egypt with a Word Wall that is organized by the essential questions she hopes her unit will answer:

Why Is Egypt Considered the First Great Civilization?

What did Egyptians believe?
- Geb (earth god)
- Nut (sky goddess)
- Ra (sun god)
- mummification
- afterlife

How did the Nile help create Egyptian culture?
- irrigation
- desert
- delta
- fertile
- river valley

What was so great about Ancient Egypt?
- papyrus
- hieroglyphics
- scribe
- Sphinx
- pyramids
- astronomy
- surgery
- irrigation

How was Egypt governed?
- kingdom
- pharaoh
- priests
- Hatshepsut
- Akhenaten

2. **Decide on a strategy to help your students arrive at a preliminary understanding of the words (CONNECT).**
   Pat begins her unit by placing her students into cooperative groups and providing each team with a manila envelope containing 20 pictures related to Egyptian civilization. Students study the pictures, looking for patterns and generating predictions relevant to Pat's questions. Pat then helps her students create a little glossary where each of the 20 most important words in the unit is defined and connected to one of the pictures.

3. **Establish a method to help your students ORGANIZE the new words.**
   Pat's Word Wall acts as a graphic organizer to help students see the relationship among the words, but periodically she uses both Group and Label and webbing to help students find new relationships.

4. **Activate DEEP PROCESSING of the words.**
   To help her students make their understanding of important words memorable, Pat uses comparison and discussion. For instance, students compare and contrast two of Egypt's most important pharaohs, Hatshepsut and Akhenaten. Students also rank the gifts of Egyptian civilization in order of importance and then discuss.

5. **Search for opportunities for students to EXERCISE, revise, and practice their understanding of the new words.**
   Near the end of the unit, students create a hieroglyphic for the key words in the unit and then use those hieroglyphics to write meaningful sentences about the nature of Egyptian civilization.

Figure 2.13: **Completed Jigsaw Matrix**

Planning Step	**Unit 1:** *To Kill a Mockingbird*	**Unit 2:** Linear Equations	**Unit 3:** *Tops & Bottoms*	**Unit 4:** Ancient Egypt
How did the teacher identify the essential vocabulary?	Considers character names and places. Looks for expressive "writer's words." Places special emphasis on thematic words and words associated with thesis writing.	Draws on her standards to select terms.	Selects only three "useful words": words that are thematically important, used regularly, and build thinking and language skills.	Chooses words that help answer the unit's essential questions and puts them on a Word Wall.
How did the teacher help students *connect* with new words?	Makes a deep connection with word *persuade*. Students draw on their experiences and list techniques they've used. Later, they use their lists to convince a friend to read the novel.	Delivers a New American Lecture on the role of key terms in solving linear equations. Students create illustrations for terms.	Uses See It, Say It, Spell It, Show It to introduce words. Provides student-friendly definitions and examples.	Students examine pictures and use them to identify patterns. They then generate predictions. Students also create a glossary using the pictures.
How did the teacher help students *organize* the words?	Teaches students how to build webs of related terms.	Students group and label different kinds of graphs and their equations.	Students place words into families using Fist Lists.	Reinforces organization through Word Wall. Also uses Group and Label and webbing to help students find new relationships.
How did the teacher activate *deep processing* of key terms?	Students compare symbols and signs and discuss different characters' visions of courage.	Uses multiple intelligences to process key terms.	Uses statements and questions to deepen students' understanding of the three terms.	Students compare and contrast two important pharaohs. They rank the gifts of Ancient Egypt and discuss their rankings.
How did the teacher help students *exercise* and\or revise their understanding?	Students collect examples of themes and use examples to revise their glossaries.	Uses speed quizzes and games like Vocabulary Jeopardy and Word Baseball.	Students create pictures and sentences for each word.	Students create a hieroglyphic for each term and then write meaningful sentences about Egyptian civilization.

Designing a Thoughtful Vocabulary Unit

Now that you've tried your hand at prioritizing vocabulary words, reviewed a set of tools for guiding students through the four phases of CODE, and analyzed a set of sample units designed by teachers, it's time for you to design a unit of your own. You will be using the content you brought to this session to design your unit. To design a thoughtful vocabulary unit, we follow five steps:

1. Identify the essential vocabulary your students need to learn deeply.
2. Decide on a tool or strategy to help your students arrive at a preliminary understanding of the words (CONNECT).
3. Establish a method to help your students ORGANIZE the new words.
4. Activate DEEP PROCESSING of the words.
5. Search for opportunities for students to EXERCISE, revise, and practice their understanding of new words.

Remember to refer to the Vocabulary Toolbox (Figures 2.3-2.6) to help you select appropriate tools for each phase of CODE (steps 2-5) above.

Sample Planning Forms

REPRODUCIBLE
Make copies of Figures 2.14-2.18 before using them. You will need more blank forms as you plan future units.

Figure 2.14: **Activity – Planning Step 1**

Identify the Essential Vocabulary Your Students Need to Learn Deeply—What are the most important words my students need to learn?

Nice to know (Word Recognition)

Important (Word Description)

Central Concepts (Word Expertise)

REPRODUCIBLE
Make copies of Figures 2.14-2.18 before using them. You will need more blank forms as you plan future units.

Figure 2.15: **Activity – Planning Step 2**

Decide on a Strategy to Help Your Students Arrive at a Preliminary Understanding of The Words (CONNECT)—What will I do to help my students get a strong initial grip on the new words?

Figure 2.16: **Activity – Planning Step 3**

Establish a Method to Help Your Students ORGANIZE the New Words—How will my students organize the words in a way that makes sense and helps reveal the larger structure of the unit?

REPRODUCIBLE
Make copies of Figures 2.14-2.18 before using them. You will need more blank forms as you plan future units.

Figure 2.17: **Activity – Planning Step 4**

Activate DEEP PROCESSING of the Words—How do I want my students to think more deeply about the most important words?

Figure 2.18: **Activity – Planning Step 5**

Search for Opportunities for Students to EXERCISE, Revise, and Practice Their Understanding of the New Words—How can I help my students rehearse their new vocabulary words, as well as put them to use in different contexts?

ThoughtWork: Before the Next Session

Use these reflection questions (Figure 2.19) to help you identify problems you might encounter as you implement your vocabulary unit in your classroom and to develop solutions to potential problems before they actually occur.

Figure 2.19: **Activity – Reflection / Questions**

1. Take a second look at your unit design. What might go wrong?

2. What patterns do you see as you look at your potential problems?

3. Select one type of problem. What are the facts that you know about this type of problem?

4. What are some possible causes for this type of problem?

5. What is the best solution to this problem?

In between this session and the next, you will be conducting your unit in your own classroom. Before the next session, please complete the following exercises:

- **Using your notes in Figure 2.19 as a guide, take some time to review and refine your unit design.**
- **Select a teaching partner and schedule time for each of you to observe each other in the classroom. The two of you will take turns. You will present your unit to your class while your partner makes notes on the parts of the unit that he or she observes. Then you will switch roles. Use Figure 3.1 from the next section of this *Resource Guide* to structure your observation notes.**
- **Come prepared to the next session to share what you have learned by implementing and observing a thoughtful vocabulary unit.**

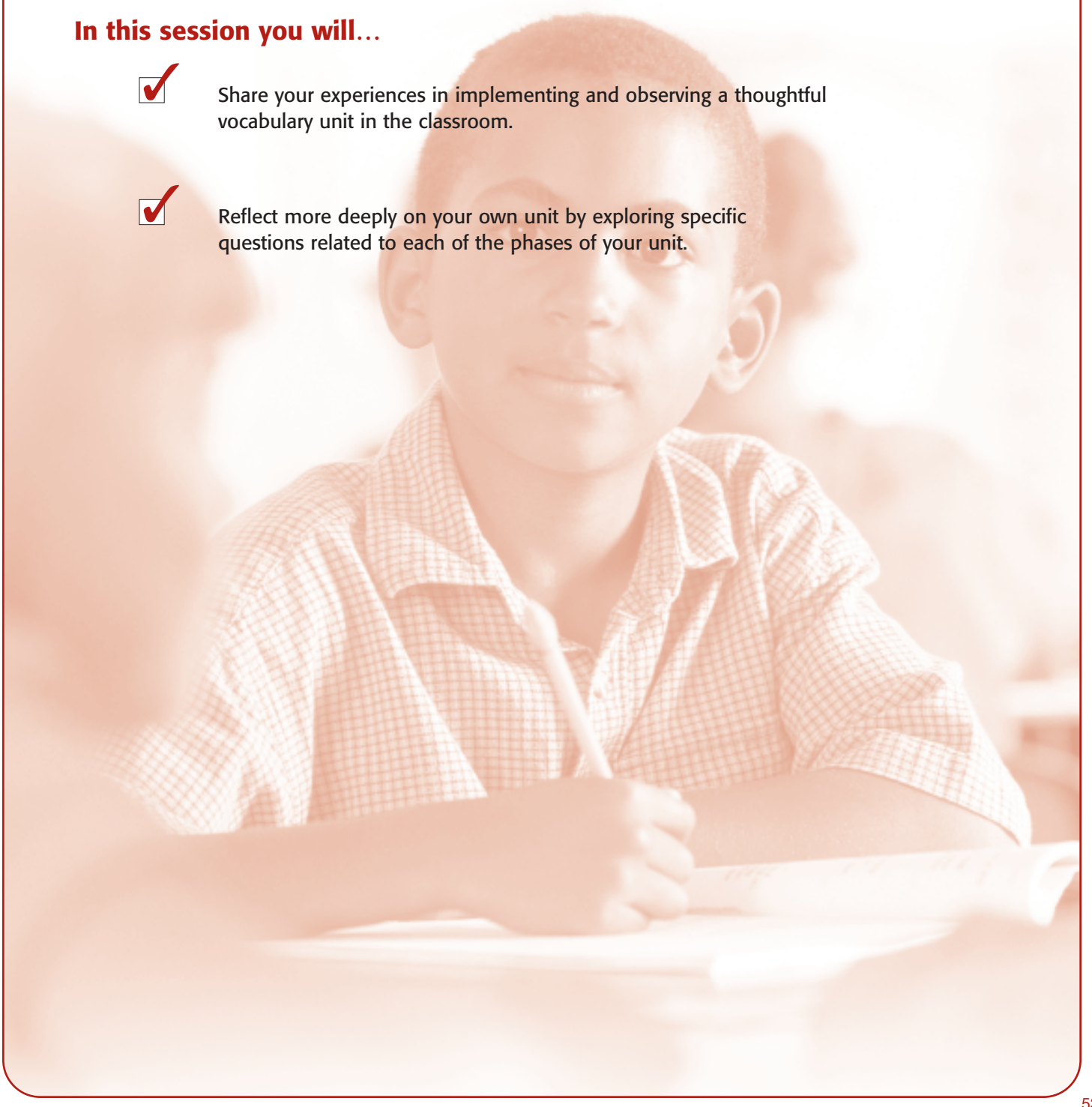
Part 3: Evaluating the Unit

Our goal in this session is to deepen our understanding of thoughtful vocabulary instruction by working in teams to reflect on and refine our work.

In this session you will…

- ☑ Share your experiences in implementing and observing a thoughtful vocabulary unit in the classroom.

- ☑ Reflect more deeply on your own unit by exploring specific questions related to each of the phases of your unit.



Sharing Your Experience

Now that you have designed and implemented a Word Works unit and viewed one of your peers running a Word Works unit (or at least part of one), it's time to share what you've learned with your Learning Club. Take turns presenting to the group the elements of the unit you observed. Use Figure 3.1 below to guide your presentation.

Figure 3.1: **Activity – Observation Notes**

Selecting Vocabulary
How did the teacher select the essential vocabulary?

Looking back: Did the chosen words cover the territory? Were there too many words so that students were overwhelmed? Were there too few, or were some important words left out?

Connecting
How did the teacher present the words to help students connect to them?

What role did students play in making connections?

Organizing
How did the teacher help students organize the words?

What kinds of relationships did students see?

Deep Processing
What activities did the teacher develop to help deepen students' understanding?

How did students respond to these activities?

Exercising
How often did students exercise or rehearse their knowledge of the words?

How would you describe students' progress?

What word or words caused students the most difficulty?

Once you have reported to the group on the lesson you observed, share your own thoughts on your unit. Use the questions below (Figure 3.2) to guide your discussion.

Figure 3.2: **Activity – Discussion Questions**

What goal(s) did you set out to achieve?

What steps did you take? What was hard for you?

What came naturally?

What worked about the unit, and what just wouldn't work?

Pair up with the teaching partner whose class you observed. Use your observation notes to discuss these questions: What stood out in your partner's unit? What questions did the unit raise for you? How might you improve upon your partner's unit?

Now consider the feedback your partner gave you. Use Figure 3.3 to expand on your partner's ideas for how to improve your unit. Talk about what you thought you did well, how your students responded to the unit, and what you might do differently next time.

Figure 3.3: **Activity – Notes Toward Improving My Unit**

How might you improve your unit?

ThoughtWork: Before the Next Session

Before the final session, please complete the following tasks:

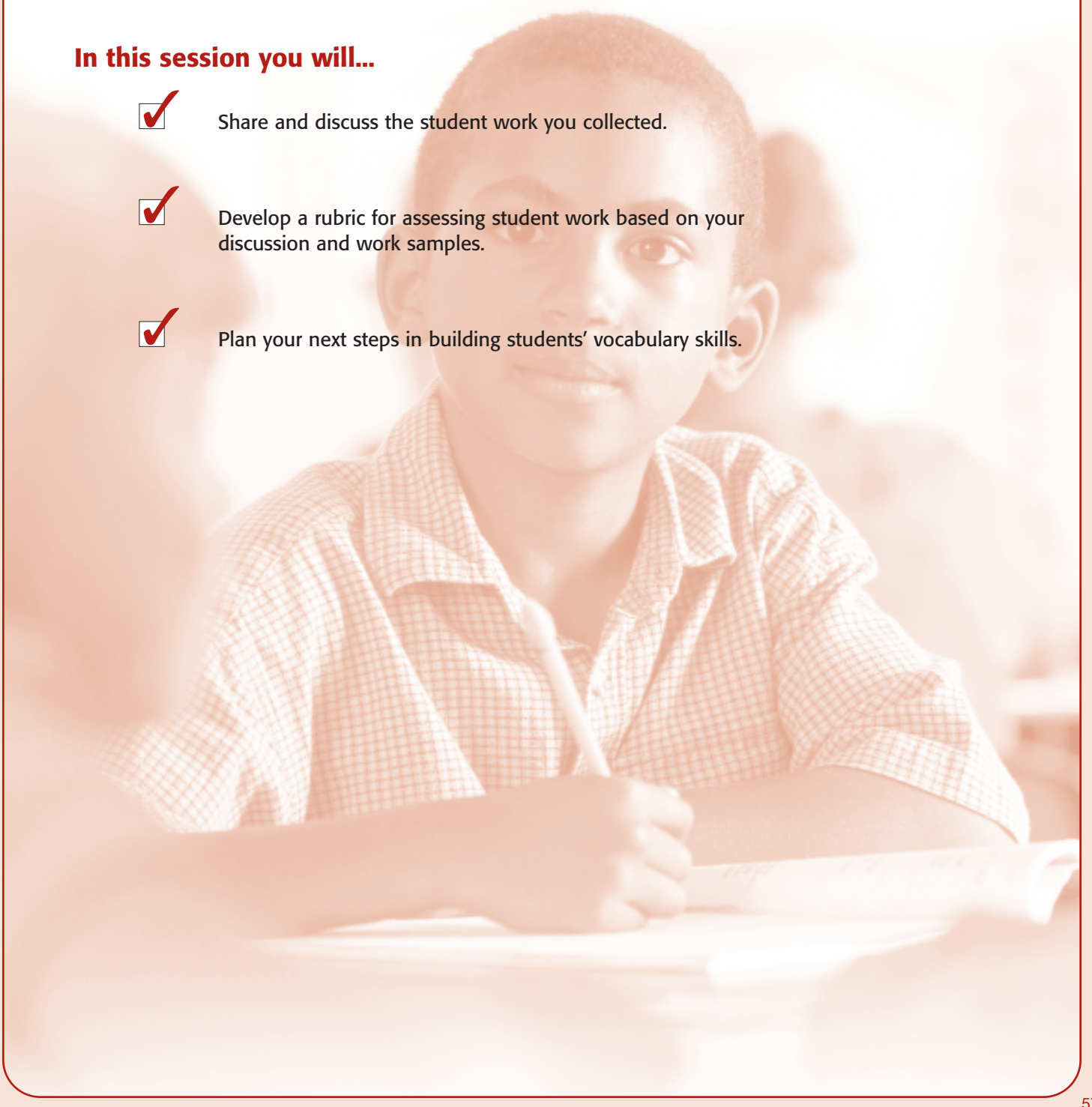
- **Plan and conduct another vocabulary unit with your students. Use the planning forms provided (Figures 2.14-2.18) to guide you. Review the sample units (Figures 2.9-2.12) for models and ideas. For a compendium of vocabulary tools that address each phase of CODE, take another look at the Vocabulary Toolbox (Figures 2.3-2.6).**
- **Conduct the unit in your classroom.**
- **Collect three samples of student work from your unit and bring them to the next meeting. The student work you collect should require students to use the vocabulary terms from your unit and should reflect what you believe to be three distinct levels of skill: a low, average, and high level of skill.**
- **Bring enough copies of student work to distribute to the members of your Learning Club.**

Part 4: Learning from Student Work

Our goal in this session is to examine student work at various levels of proficiency and to use it to help us refine our work in designing and implementing thoughtful vocabulary instruction.

In this session you will...

- ☑ Share and discuss the student work you collected.
- ☑ Develop a rubric for assessing student work based on your discussion and work samples.
- ☑ Plan your next steps in building students' vocabulary skills.



Examining Samples

In this final session we are going to use student work to assess the effectiveness of our vocabulary instruction, our students' vocabulary skills, and students' grasp of the content.

Let's begin with a model to guide our examination of the student work you collected for this session. Below is a high school writing task that requires biology students to use key academic vocabulary in their response (Figure 4.1).

Figure 4.1: **High School Biology Writing Task - Simile**

People often use metaphors and similes to help them understand complex systems. Metaphors and similes are ways to compare things that are not obviously alike. For example, you may remember from our unit on cells that we used a simile to compare the parts and functions of a cell to the parts and functions of a city. Today you will be developing a simile to show what you know about the human nervous system. How is the human nervous system like a computer? In developing your simile, you should:

1. use at least ten critical vocabulary terms from your unit.
2. provide three different ways in which a computer is similar to the human nervous system.
3. try to make your response as interesting as possible to engage your reader.

Here is the vocabulary list from our unit:

brain
central nervous system
cerebellum
cerebrum
cornea
eardrum
equilibrium
external ear
ganglia
inner ear
medulla
middle ear
nerves
neurons
olfactory nerve
optic nerve
ossicles
peripheral nervous system
responses
sensory organs
spinal cord
stimuli
retina

On the following pages you will find samples of student work from the task in Figure 4.1. The student work is divided into three separate skill levels. The first level represents the lower third of student achievement, the second level represents the middle third, and the third level represents the highest third of student achievement. Examine the samples in Figures 4.2-4.4 and complete the exercise that follows in Figure 4.5.

Figure 4.2: **Level 1 Student Work**

The human nervous system is made up of two groups. There is the central nervous system and the peripheral nervous system. The central nervous system would be the inside and the peripheral nervous system would be everything you connect to the computer.

In the central nervous system is the brain and spinal cord. They are kind of like the processor in the computer. But there are other parts like the cerebrum, cerebellum, and medulla. The peripheral nervous system has sensory organs and nerves to get information. Our eyes, ears, hands, and nerves are almost like the keyboard, mouse, monitor, and speakers. The information is what we can see, hear, and touch. What goes into the computer is stimuli and what comes out is a response.

Figure 4.3: **Level 2 Student Work**

The nervous system in our body is a lot like a computer network. Instead of cables and satellites connecting computers, there are nerves. Instead of files being passed along, there are specialized cells called neurons relaying messages. The peripheral nervous system is the outer network in which information is taken in through various sensory organs. This information then goes to the central nervous system which is made up of the brain and spinal cord. The brain is like a server that sorts out messages and information from the nervous system. There are two main types of messages passed along the nervous system, stimuli and responses. Stimuli are anything we see, touch, taste, smell, or hear that causes a reaction or response. Responses are the actions that our body takes because of the stimuli.

Think about a thunderstorm. To see a flash of lightning, your eye takes in the image and passes information about what you are seeing along the optic nerve, which connects to your brain. Your brain processes the image and lets you know that it is a bolt of lightning. Your response might be to anticipate the thunder. Then when you hear the thunder, the sound waves enter your external ear and vibrate the eardrum. The sound waves are amplified by ossicles. This information reaches your inner ear and is passed along to the brain for processing. If the thunder is loud enough, you might even respond by covering your ear, or hitting the floor!

Figure 4.4: **Level 3 Student Work**

Why do people say that the human nervous system is like a computer? Well, for one thing, both the nervous system and a computer are designed to process information quickly. A computer has a central processing unit or CPU to do its processing work. In humans, processing occurs in the central nervous system and is the main job of the mighty brain. The brain does so many things so quickly and so well that it makes the best computer processor seem like an old Atari system.

Processing all your body's thoughts, sensations, and functions is a lot of work, so the brain has different parts that help it do its job so well. The cerebrum processes memories, learning, and information gathered by the senses. The cerebellum coordinates muscles so that they can work together, and it helps you keep your equilibrium. The medulla pulls its weight by taking care of your breathing, heartbeat, circulation, and digestion. Attached to the brain is the spinal cord. The spinal cord carries messages to and from the brain.

So we know that the brain is like a CPU. But both a brain and a CPU need information to process. So where does the information come from? With a computer, information enters through peripheral devices like a mouse, a keyboard, or a modem. In the human nervous system, information enters through the sensory organs, which pick up different stimuli in the environment. The ear picks up sound. The eyes receive light. The nose and tongue pick up taste and smell, and nerve endings all around the body react to temperature, pressure, and pain. These sensory organs are all part of the peripheral nervous system.

The peripheral nervous system has another function as well. Just as a computer has to relay information from peripheral devices like the keyboard and mouse to the CPU and back to other devices like the monitor and speakers, the peripheral nervous system has to move information to the brain and then from the brain to all other parts of the body. In a computer, this is the work of circuits and wires. In the human body, neurons, or nerve cells, and ganglia, which are bundles of nerves, do this work. Neurons deliver information from the sensory organs in the body to the correct areas of the brain, just like circuits carry information to the correct area of a computer's processor. The resulting actions (and reactions) are called responses.

Even though the human nervous system has a lot in common with a computer, there is one big way that they're different. The human brain keeps every single person on the planet alive. Let's see Bill Gates or Steve Jobs invent a computer that does that.

Take a moment to examine your thinking about the student work samples you have just reviewed. What do you notice about the level-three sample that is missing from the level-one and level-two samples? What criteria might you use to compare these levels and how might you describe each sample based on those criteria? Record your thoughts in Figure 4.5 below.

Figure 4.5: **Activity – Reflecting on Sample Student Work**

Possible criteria

The teacher who designed the simile task in Figure 4.1 created this rubric (Figure 4.6) to guide his assessment of student work. You may want to use this rubric as a model when you develop your own rubric later in this session.

Figure 4.6: **Rubric for Biology Simile**

	High Performance	Average Performance	Low or Struggling Performance
Content	Shows deep understanding of human nervous system, including its components and functions Incorporates most critical vocabulary terms meaningfully throughout essay	Shows a solid understanding of the human nervous system Incorporates at least half of the words meaningfully	Shows a superficial understanding of the human nervous system Many of the words used are "dropped in" – not used in ways that are meaningful to the reader
Process	Student provides three strong connections between human nervous system and computer, and elaborates on each one	Student identifies three connections, but may fail to elaborate on one or more of them	Student's connections are difficult to find and lack elaboration
Product	Student response has a voice: writing is engaging and reflects student's personal style Writing follows conventions of written English and is nearly error-free	Student writing is clear, but may not have a well-defined voice Writing follows most conventions of written English, but may contain some errors	Student writing is often confusing Writing is marked by frequent errors

Let's now turn to your thought process in selecting the student work samples you brought in today. Take a few minutes to reexamine your samples. Keep the following questions in mind:

- How did you select work from each level?
- What criteria did you use to choose this work?

Record your thoughts in the space provided (Figure 4.7).

Figure 4.7: **Activity – How I Selected Student Work Samples**

Level 1

Level 2

Level 3

Learning From Student Work

Look at the back of your Word Works portfolio, at the panel entitled "Learning From Student Work." Read over this section and then get together with a partner to share the student work you collected with him or her. Work together to analyze the content, process, and product of the student work using Figure 4.8 below. Keep in mind that examining this student work is less about whether commas and semicolons are in the right place and more about how well your students have incorporated the academic vocabulary into their work.

Figure 4.8: **Activity – Analyzing Student Work**

Content
What does the work suggest about which words my students understand well and which ones might be more problematic?

Process
What does this work suggest about how my students think about vocabulary?

What examples of very good thinking do I see?

When students are not thinking as well as I wish, what seems to be the problem?

Product
What do I think about the overall quality of the products my students have created?

How well are they communicating their ideas?

What signs are there that show they are reaching for excellence?

Use this blank rubric (Figure 4.9) to compile what you and your partner discovered across all three levels of student work from your unit. When you are finished, continue to the next page so you and your partner can discuss the next steps in Figure 4.10.

Figure 4.9: **Activity – Creating the Rubric**

	High Performance	Average Performance	Low or Struggling Performance
Content			
Process			
Product			

Figure 4.10: **Activity – Next Steps**

Content
What have I learned about teaching and learning vocabulary that I can apply to my next unit?

Process
What have I learned about my students' thinking that I might want to consider in designing future units?

Product
What I have learned about my students' abilities to communicate and their motivation to perform at high levels?

Before completing this session, take a few minutes to think about your own grasp of the Word Works approach to vocabulary instruction. Refer to the "Academic Literacy Milestones" section at the bottom of the "Learning from Student Work" panel of your portfolio. Where do you think you are now? What do you need to do to move to the next level?

NOTES

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