



# Foundational Theory and Methods

While some students learn to use language easily, a significant number do not. Despite teachers' best efforts to expose students to rich language experiences, authentic literature, and free writing assignments in the early grades, fifteen to twenty percent of students have extraordinary difficulty with oral or written language (Lyon 1997). These students experience frustration, lowered self-esteem, and reduced productivity. Their difficulties affect them, their teachers, and their parents (Paul 2000).

This book offers concrete strategies for teaching language that can help break the pattern of failure. It enables teachers to help students learn oral and written expressive language skills. It provides teachers with techniques and strategies for developing the expository language skills that students need to succeed. The book's systematic, explicit methods support students with language impairments while strengthening the language skills of every student in the classroom.

Our methodology emphasizes frameworks and scripts. *Frameworks* are linguistic templates with supports. Teachers find them helpful because they are based on *micro-uniting*, or small-step instruction. For example, frameworks for paragraph structures have embedded guides that help students form introductory and concluding sentences. Similarly, inset boxes that list transitional words help students combine sentences to make comparison-contrast statements. *Scripts* are samples of guided classroom discussion. They are embedded throughout the text to model the use of frameworks with expressive language techniques. Whenever possible, linguistic exercises are theme-centered and incorporate real-world vocabulary and concepts.

The strategies outlined in this book may indirectly enhance decoding and spelling; however, they are primarily geared toward developing language storage, retrieval, and formulation. Students who are in the earlier stages of learning to read and spell still need systematic training in speech-sound awareness and phonics (Adams 1990). Below-average readers additionally require multisensory instruction that is direct, intensive, systematic, and individualized.

At the time of this writing, there is a movement across the United States to hold schools accountable for students' development of language skills. As part of this commitment to raising standards, state school systems have adopted, or are in the process of adopting, criteria for measuring language skills. In states as geographically disparate as Texas, California, and Massa-



chusetts, comprehensive assessments require students to express their ideas in writing before they can progress to higher grades and graduate. These standards place greater pressure on teachers to ensure that all students perform at a proficient level. The strategies and techniques in this book are timely, then, as they will help teachers meet the new standards.

This book is intended as a resource for teachers with a range of background knowledge and teaching experience. Teachers with extensive knowledge of multisensory language instruction and expressive language methods can turn to the appendices, where we provide frameworks for scaffolding sentences, paragraphs, and essays. Teachers with less experience are advised to read the material below on basic expressive language techniques and related theory, then examine the scripts to see how they can use the frameworks in the classroom. The key is to pick and choose what best meets students' needs.

## **Cognitive Abilities That Support Language Expression**

Verbal working memory, attention, and executive functions are important cognitive abilities that serve language expression. Understanding them enables teachers to evaluate their classroom methods more effectively. The paragraphs below define each function, outline the interrelationships, and link the functions to the instructional methods that follow.

### *Verbal Working Memory*

Memory is the mind's system for taking in, modifying, storing, and retrieving information. When we temporarily hold information in consciousness and modify that information, we are using working memory. If the information is in the form of speech, then we are using *verbal working memory*. For example, when someone tells us a telephone number to write down, we use verbal working memory. We verbally rehearse the numbers to hold them in mind so we can get them down on paper. Also, when we read syntactically complicated sentences, we often convert them to internal speech. We hold chunks of those sentences in working memory and try to understand the meaning.

We also employ verbal working memory when we assemble phrases, clauses, sentences, and multisentence texts while speaking or writing. A student who is asked to formulate an if sentence about Lewis and Clark, for example, relies heavily on verbal working memory. The student formulates a string of words—a clause—and keeps the string of words in mind while formulating the rest of the sentence. If the student is successful, a mean-



ingful sentence results: “If Lewis and Clark received support from the president, they would explore the Oregon Trail.”

In general, students with a strong ability to hold and modify verbal material in memory are better able to formulate sentences and paragraphs. Students with weak verbal working memory often have trouble formulating spoken and written language. When teachers’ writing instruction provides explicit support for verbal working memory, students with working memory difficulties are more likely to succeed.

### *Attention*

Verbal working memory relies heavily on *attention*. To formulate a sentence, students must be able to focus selectively on words and switch their focus to different parts of the sentence in the presence of various auditory and visual distractions. For this reason, students who struggle with attention to verbal information usually have difficulty understanding or producing sentences and paragraphs. Teaching methods that focus and direct attention enable students to succeed with language.

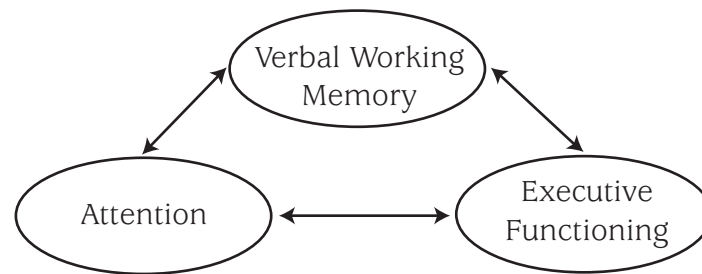
### *Executive Functioning*

To complete a procedure successfully—whether making a peanut butter sandwich, leaving a telephone message, or producing a sentence or paragraph—we need a plan. We also need to be able to check or monitor our actions to make sure we fulfill our plan. Planning and self-monitoring are *executive functions* that help us every day.

To produce the *if* sentence discussed above, the student needs a generic plan for how to order words in an *if* clause. In addition, the student needs to self-monitor to make sure that the sentence is accurate according to plan. Students with robust executive functioning skills tend to be better at making sentences and paragraphs. Students with poor language planning and self-monitoring are usually weaker at language formulation. For these reasons, the most effective teaching methods for sentence- and paragraph-level language production are those that aid key elements of executive functioning.

### *Interrelationships*

Verbal working memory, attention, and executive functioning work in close relationship to each other, as Diagram 1: Functional Interrelationships shows. Each ability enhances the other, and a deficit in one ability often impairs the others.



**Diagram 1**  
**Functional Interrelationships**

In addition, these abilities overlap. For example, attention is critically involved in executive functions, particularly self-monitoring. Attention is also intimately involved in verbal working memory. Similarly, a student's knowledge of procedural strategies, which is an aspect of executive functioning, may influence his or her ability to handle information in working memory.

These interrelationships help explain why bright students diagnosed with attention deficit disorder (ADD) or attention deficit hyperactivity disorder (ADHD) often have difficulty checking their writing or holding verbal instructions in memory.

### **A Practical Analogy**

The concepts of verbal working memory, attention, and executive functioning may seem abstract and not particularly applicable to teachers' daily work with students. A helpful analogy is to equate language formulation with a manual task, like assembling a grandfather clock. New parts for the clock come by mail (incoming stimuli). We retrieve others from shelves in our storage room (long-term memory). We assemble the parts on a workbench—our temporary workspace—using attention and working memory. At the same time, we use plans and monitor our accuracy (executive functioning). If we assemble the parts as planned, we produce a grandfather clock.

However, breakdowns can occur. If we do not selectively attend to clock parts at the right time, we may complete the clock case yet fail to insert the clock dial. If our storage room is disorganized, we may have trouble locating and retrieving the parts we need. If the workbench is too small, parts may fall on the floor while we work and become lost. If the surface of the bench is uneven, parts of the clock may slip and become glued in the



wrong places. If our plan for building the clock is missing a page or we lack mastery of basic skills like gluing, drilling, and nailing, our result is imperfect. If we do not systematically check our plans, our clock might be incomplete or shoddily built. It follows, then, that strategies that strengthen our workbench, plans, storage, and attention to procedures give us a better chance to build our clock correctly.

### *Strengthening Techniques*

As in the clock analogy, students' retrieval and formulation of language improves when teachers use aids to strengthen verbal working memory, attention, and executive functioning. Methods that enhance vocabulary development and retrieval include brainstorming, teaching the sound structure of words, aiding in the organization of background knowledge, cueing for word retrieval, and using thematic materials. These methods strengthen students' knowledge of word meanings and facilitate easy, accurate word retrieval and production. All are discussed in this book. Also discussed are sentence-, paragraph-, and essay-level techniques and strategies. These include:

- mnemonic strategies for recalling place concepts for where phrases and temporal concepts for when phrases
- systematic, hierarchical sequences for patterning sentences and paragraphs
- scripts for classroom language management procedures that ensure verbal rehearsal
- visual frameworks with category labels to cue production and self-monitoring of sentence and paragraph forms
- formulae for structuring production of topic and concluding sentences, as well as elaborating paragraphs
- inset boxes with words that cue formulation of sentences in a contrast paragraph, such as “but,” “however,” and “while”
- signal words for ordering a procedure, such as “first,” “then,” “next,” “after that,” and “finally”

In summary, most of the strategies and techniques we present are designed to improve students' development of formal expository language by aiding verbal working memory, attention, and executive functioning.



## Techniques for Helping Students “Get the Words Out”

Imagine this scenario:

A language arts teacher finishes reading aloud a story to her fifth-grade students. The teacher has illustrated a key scene in the story with a large, colored poster of a winged unicorn in flight.

**Teacher:** Now write your own story about this picture. Be sure to use specific words to talk about what you see.

**Jimmy:** Oh, what is that thing with the wings? . . . I know what it is . . . um, uh, hmmm . . . it’s the imaginary horse with one horn . . . u-, ukinor, no, uni- . . . oh, I can’t remember!

We all struggle for words at one time or another, particularly when we are fatigued or unfamiliar with the word we are trying to recall. For some people, however, difficulties with language create obstacles to expression. Difficulties can extend beyond isolated word-retrieval problems to the multisentence level, in terms of formulating sentences and discourse. Research and clinical experience suggest speech-language techniques that can aid students’ language processing and formulation skills (Cohen, Sevcik, and Wolf 1999; Berninger 1999; Singer and Bashir 1999).

In the paragraphs below, we describe methods for enhancing vocabulary knowledge and word production that teachers can easily use. These techniques and strategies are:

- brainstorming
- teacher-provided cues and self-cueing
- organizing background knowledge
- developing student awareness of the sound structure of words

### *Brainstorming*

*Brainstorming* is a classroom process for activating students’ knowledge of concepts and vocabulary relating to a theme. Brainstorming employs overlapping and sequential phases: stimulation, guidance, and recording.

- In the stimulation phase, the objective is to activate students’ prior knowledge and prime their “word pumps” for theme-related vocabulary. The teacher presents stimuli associated



with the theme, such as photographs, prints, video clips, and objects. Students are encouraged to recall theme-related words from their own experience.

- In the guidance phase, the aim is to support students' efforts to recall words and concepts. The teacher accomplishes this by asking closed- and open-ended questions and by providing cues for word retrieval.
- In the recording phase, the teacher validates and elaborates on students' responses by writing them on the blackboard.

During brainstorming, the classroom atmosphere is often animated, with all three phases occurring simultaneously (Haynes and Jennings 1992). The words and concepts that students contribute, as well as the teacher's additions and elaboration, provide linguistic material for ensuing language exercises.

### *Teacher-Provided Cues and Self-Cueing Techniques*

Some frequently employed *extrinsic (teacher-provided) cues* for word retrieval are gestural, pictorial, semantic, and phonemic or graphemic (Wiig and Semel 1984).

- Gestural cues, as the name suggests, involve use of pantomime to stimulate recall. For example, the teacher might imitate chopping movements to elicit the word "hatchet."
- Pictorial cues involve a visual representation or symbol that is usually static. For example, the teacher may use a picture of an eagle to elicit the word "eagle."
- For semantic cueing, the teacher provides meaning-related information about the target word. "Native American tribal gathering" might be a semantic cue for the word "pow-wow."
- Phonemic cues are sound structure hints, like the first sound or syllable of a word. If the student is struggling to retrieve the word "alligator," for example, the teacher might say "al-."
- The teacher might also give a graphemic cue, by saying the letter name *a* then the letter name *l*—or displaying these letters—to stimulate recall of the word "alligator."

Phonemic and graphemic cues tend to be easiest, because they hint at the target word's actual sound structure.



*Self-cueing (intrinsic) strategies* for word retrieval are used by the student rather than the teacher. Classic self-cueing strategies include visualization or imaging and recollection of time, place, and function. Visualization involves creating an internal, mental picture of the item the person is trying to name. For example, a student struggling to retrieve the word “saddle” can try to summon a mental picture of a brown, pommeled leather seat with stirrups hanging on either side. This mental image in turn may activate the sound structure of the word and enhance the student’s retrieval (Bell 1991).

Another self-cueing strategy is to recall when an object is used. For example, cowhands use a saddle when they want to mount a horse. Another strategy is for the student to think about the place associated with the item. A saddle, for example, is associated with a horse or tack room. Still another method is to recall the function of the object. The function of a saddle is to provide stability and balance for a rider.

Visualization and recall of time, place, and function are useful methods for recalling objects’ names. Teachers should directly and systematically instruct students with language difficulties to use these self-cueing strategies.

### *Techniques for Organizing Background Knowledge*

Unlike Jimmy, who had difficulty retrieving the sound structure of the word “unicorn,” some students have difficulty expressing themselves because they have incomplete or confused knowledge about the subject. For example, a student looking at a picture of climbers ascending Mount Everest might respond, “I think . . . um . . . they use those pick axes to hunt for animals.” Similarly, the student might say, “The guy above . . . is, uh, using the string to pull up the ones below.” In fact, the pointed tool is an ice axe, and climbers stick its point into the ice for stability. Also, the student uses “string” for “rope” and the general term “guys” instead of the more precise word “climbers.” The student seems unaware that a rope is typically used to protect the lead climber from falling.

This student’s response displays limited vocabulary and misleading background information about the topic. These problems are evident in the student’s hesitancy, imprecise word choice, and misinformation. In such cases, teachers should focus on helping students correct, organize, and extend their vocabulary. In addition to providing direct, corrective verbal feedback, teachers can use graphic organizers as visual scaffolding for organizing and elaborating the student’s vocabulary and concept knowledge. Examples of graphic organizers at the word and concept levels in-



clude semantic maps/webs, semantic feature charts, and organizational charts (Nagy 1988).

### *Teaching Awareness of the Sound Structure of Words*

Another way that words are represented in the mind is by their *sound structure*—the melodic shape and the individual sounds and syllables that make up the words we hear and speak. Jimmy, the fifth-grader introduced at the beginning of this section, seems to understand the meaningful features associated with the picture of the unicorn. He said, “It’s the imaginary horse with one horn.” However, he struggles with retrieving the sequence of sounds in the word: “u-, ukinor, no, uni-.”

One way to aid students’ recall is to improve their awareness of the sound structure of key vocabulary words. If Jimmy’s target vocabulary word is “unicorn,” for example, the teacher can enhance his phonological awareness of that word by teaching him to recognize syllable number, stress, and order. The syllable-number technique follows:

**Teacher:** How many syllables are in the word “unicorn”?

**Jimmy:** Three.

A classic syllable stress task is modeled below.

**Teacher:** Which syllable gets the main stress in “u-ni-corn”?

**Jimmy:** The first syllable.

After Jimmy recognizes the number of syllables in the target vocabulary word, the teacher can build his awareness of the order of syllables in words by asking him to identify specified syllables. For example:

**Teacher:** What is the third syllable in the word “unicorn”?

**Jimmy:** Corn.

Simple techniques for helping students like Jimmy tune in to syllable stress include:

- engaging students in a motor response by having them tap out syllables
- increasing students’ tactile and movement awareness of syllable pulses by placing their hands on the jaw and larynx (voice box)
- aiding syllable counting and sequencing by having students keep track of syllables on their fingers



All students, particularly those who struggle with syllable awareness, benefit from direct modeling, imitation, and practice of these techniques.

Production exercises, such as forward- and backward-chaining of syllables or phonemes, can also help students learn the sound structure of words. A script for forward-chaining the syllables in the word “unicorn” follows:

**Teacher:** Say “u-.”

**Student:** U-.

**Teacher:** Now say “uni-.”

**Student:** Uni-.

**Teacher:** Say “unicorn.”

**Student:** Unicorn.

Backward-chaining runs in the reverse, building off the last syllable. Forward- and backward-chaining are simple, effective techniques for building students’ familiarity and ease with articulating multisyllabic words. Again, direct modeling and imitation are often necessary for students to learn these methods. In turn, students’ awareness of the sound structure of target vocabulary words can enhance their retrieval of those words.

Syllable-level methods are geared to a language arts classroom and work well with mildly impaired students. School-age students with more serious difficulties with sound structure awareness often require in-depth, individualized multisensory training at the phoneme and syllable levels (Lindamood 1998; Robertson and Salter 1995).

In addition to helping students produce words, teachers can develop students’ spelling by implementing strategies that target sound structure. Students who are extremely weak, cryptic spellers are candidates for phonetic spelling. Phonetic spelling is an effective strategy for helping students write with spellings that, while sometimes inaccurate, are closer approximations to the target spelling. For example, a student who spells the word “rhinoceros” *r-s-r-n-a-k*, which is cryptic and indecipherable, might benefit from the four-step strategy below.

1. Identify the number of syllables in the word: Four
2. Write and number a blank for each syllable:  $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$   $\underline{\quad}$   
1      2      3      4
3. Spell the syllables phonetically and in order:  $\frac{ri}{1}$   $\frac{noss}{2}$   $\frac{er}{3}$   $\frac{us}{4}$
4. Combine the syllables into one spelling: rinossierus



While *r-i-n-o-s-s-e-r-u-s* is an inaccurate spelling, it is much closer to the target word than *r-s-r-n-a-k*. As a general rule, if students can spell the word using phonetic spelling rules or sight words they have already mastered, they should be required to apply the accurate spelling in sentence- and paragraph-level writing. If students cannot spell the word correctly using known patterns, the teacher may wish to credit them for phonetically correct spelling and then write the exact spelling directly above the phonetic version. For example:

**Teacher's correction:** rhinoceros

**Student's original sentence:** I saw a rinosserus at the zoo.

The strategies and techniques presented above effectively enhance students' word knowledge and retrieval. While the examples primarily focus on isolated words, the methods are useful for enhancing students' expression within a range of sentence- and discourse-level activities.

## Teaching Language through Themes

When teachers anchor skills exercises in interesting and meaningful topics, such as life on the Serengeti Plains or the Civil War, students benefit from extensive review and practice of meaningful vocabulary and concepts. Consistent topics also allow students to focus their mental energy on learning the language patterns (Haynes and Jennings 1992). In the paragraphs below, we outline strategies for selecting, researching, and organizing thematic information. A *thematic unit* consists of topical source materials combined with linguistic exercises that elicit or contain key thematic vocabulary and concepts.

### *Selecting and Researching a Theme*

A strong theme engages both the teacher and the students. A teacher who has a special interest in the topic is more likely to motivate students and create enthusiasm for learning. Similarly, if students are intrigued by a topic, they can better sustain their focus while learning skills. Themes are engaging when they:

- tap into students' background knowledge
- match the emotional maturity of students
- are introduced with materials that use language within students' semantic and syntactic grasp
- provide a variety of associated subtopics or strands (Haynes and Jennings 1992)



Once the teacher selects a theme, the next step is to research the topic. Research involves locating suitable materials and information as well as organizing the information by strands.

### *Locating Suitable Materials*

For students with language problems, it is critical that thematic information be available in multiple modes: visual, auditory, and tactile-kinesthetic. In addition to the usual texts, students need to be exposed to information through pictures, interactive audio-visual aids, and hands-on experiences. Computer technologies, particularly interactive CDs and the World Wide Web, offer a range of multisensory sources of information. Teachers adapt this variety of stimuli to the individual student's interests and needs. With respect to content, themes that expose students to other cultures, such as the Wild West, Arctic Life, and Ancient Egypt, help students reflect on how the information fits into their own culture and environment.

### *Organizing Information by Strands*

Students learn best when thematic information is pre-organized around subtopics, or *strands*. Sample schemes for organizing thematic information are illustrated in Diagram 2: Aspects of Human Culture and Diagram 3: Basic Human Activities. Both samples are based on the theme of the Wild West.

Diagram 2 shows how teachers might approach organizing Wild West thematic information about pioneers and Native Americans into strands. To implement this scheme, teachers ask students questions in each category. For example:

**People:** What did pioneers or Native Americans look like?

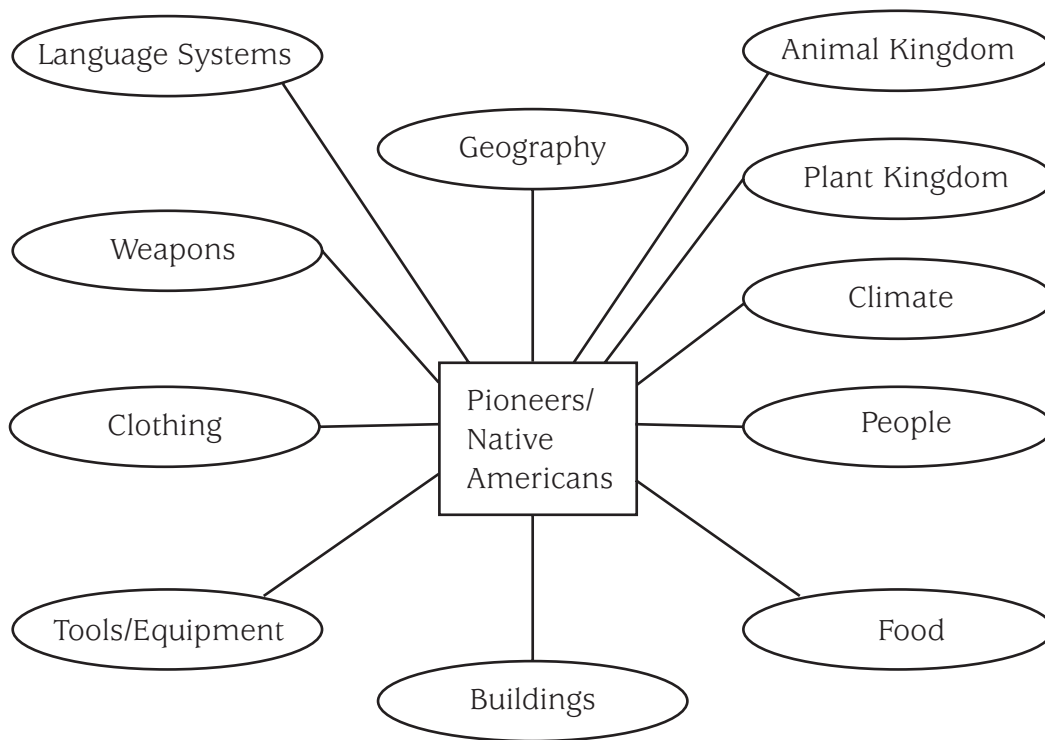
**Food:** What did people from each culture eat?

**Buildings:** What did pioneers and different Native American tribes use for shelter?

**Tools or equipment:** What kinds of tools did people from each society use, and for what purposes?

**Clothing:** What kind(s) of clothing did pioneers or Native Americans wear?

**Weapons:** What types of weapons did people from the different cultures use for hunting or protection?



**Diagram 2**  
**Aspects of Human Culture**

**Language systems:** How did pioneers or Native Americans communicate within or between their different cultures?

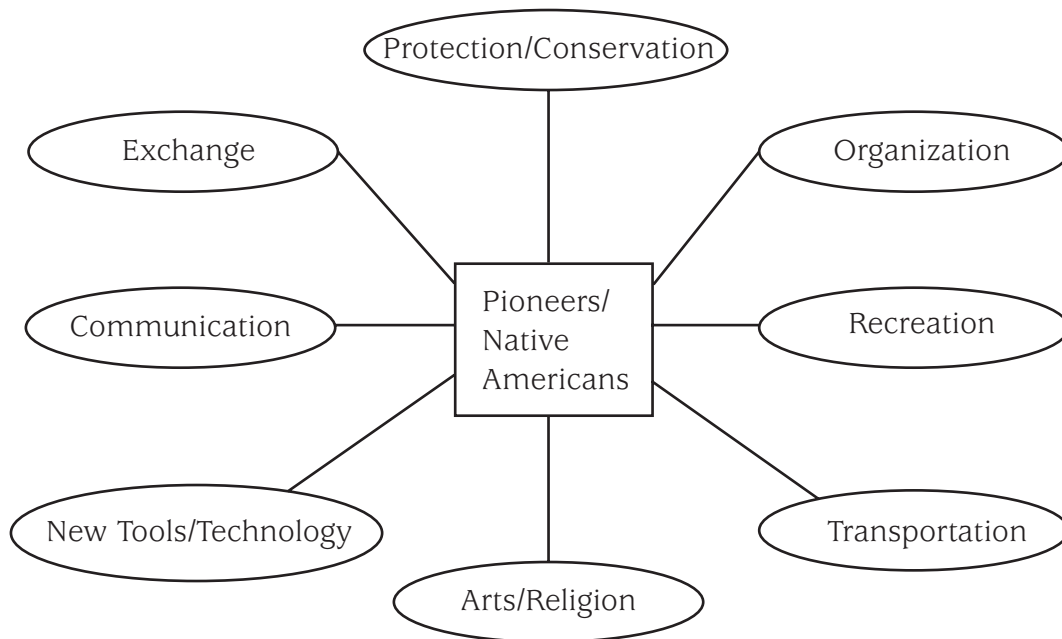
This scheme also helps teachers emphasize the natural environment in which a culture functions. Teachers can focus on basic aspects of the physical and biological environment that pioneers encountered as they ventured west or that surrounded the Native American cultures that pioneers encountered. For example:

**Geography:** What were the land and water forms surrounding the pioneers and Native Americans?

**Animal kingdom:** What animals did people from these cultures encounter?

**Plant kingdom:** What plants were particularly important to the pioneers or the Native Americans?

**Climate:** What was the weather generally like in the different places the pioneers and Native Americans lived and traveled?



**Diagram 3**  
**Basic Human Activities**

Diagram 3: Basic Human Activities depicts a more complex scheme for organizing thematic material. With this scheme, teachers can categorize information into social activities.

The broad questions below show how teachers can apply this scheme to the Wild West theme.

**Protection/conservation:** How did the pioneers or Native Americans protect themselves? How did they conserve their resources?

**Organization:** How were pioneer or Native American societies organized? What were the rule systems that governed pioneer or Native American behavior?

**Recreation:** What did pioneers or Native Americans do for recreation?

**Transportation:** What forms of transportation did the two cultures employ?

**Arts/religion:** What were the forms of pioneer or Native American art? What were their respective belief systems?

**New tools or technology:** What kinds of tools did each culture invent or employ?



**Communication:** What forms of oral or written communication did pioneers or Native Americans use?

**Exchange:** How did people in each culture purchase or exchange goods?

The two schemes described above provide teachers with systems for researching thematic material and, in turn, show students ways to categorize cultural information about the world. Teachers can integrate key vocabulary and concepts from the strands into oral and written linguistic exercises at the word, sentence, and paragraph levels. Theme-centered language teaching organizes semantic knowledge and reduces memory demands through semantic consistency. Perhaps most important, thematic materials promote students' interest by providing real-world vocabulary and concepts.

