

ALERT



ADOLESCENT LITERACY: ENGAGING RESEARCH AND TEACHING

Make room for DEVELOPING SUBJECT-SPECIFIC VOCABULARY

DID YOU KNOW?

Choropleth map, illusory texture, and mitochondria. Desertification, coureurs de bois, pneumatic system, and syntax. Diffraction, locomotion skill, parenthetical referencing, and quaternary sector. These are a sampling of words adolescents will encounter in their learning (all words taken from Ontario curriculum documents). Add in words that have distinct meanings depending on the subject area, such as bias (in fashion, history and English/Language), chord (in music and mathematics), and value (in business, mathematics and visual arts), and it is little wonder that vocabulary is a major factor which influences comprehension (Carnegie Council on Advancing Adolescent Literacy, 2010; Allen, 2007).

Adolescent learners are expected to learn specialized vocabulary to read their textbooks and primary source documents, and use it to communicate ideas in writing and through talk. Knowing the definition of a word does not necessarily mean the students understand a concept. All teachers across content areas play a critical role in supporting students to develop their vocabulary knowledge (Allen, 2007; Ogle, Klemp and McBride, 2007).

Students benefit when teachers provide a variety of learning opportunities to learn subject-specific vocabulary. Research indicates that “[s]tudents learn more words when [they] focus on fewer words and use those words in [their] own speech” (Beers, 2003). Providing multiple interactions with new words through talking, reading and writing helps to bridge the gaps from recognizing to knowing to understanding (Ebner & Ehri, 2013; Marzano 2004).

WHY IS IT IMPORTANT FOR ADOLESCENT LEARNERS?

By the time students complete Grade 9, they will have likely encountered approximately 88,500 words (Nagy and Anderson, 1984 in Marzano, 2004). Many of the specialized words students encounter in grades 7 to 12 are highly technical, abstract words loaded with meaning, which tend to be words they have not yet seen in print or media or heard in everyday conversation. Students also likely have few contexts to relate to these words, and developing a mastery of them may involve



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“Our knowledge of words...determines how we understand texts, how we define ourselves for others, and how we define the way we see the world.”

Stahl, 1999

“Learning words is similar to developing meaningful and lasting relationships. People you’ve seen only infrequently remain acquaintances; you rarely develop insights or exchange confidences when you have just a few encounters a year. Friendships develop from frequent meetings, sharing feelings and stories, and long and short telephone chats. It’s the same with words and concepts. Read and hear a word two to three times, and your knowledge of its meaning is superficial. Read, hear, and use a word countless times before, during and after a study, and you’re on your way to developing a lifelong relationship with it.”

Robb, 2003

learning that is different from how they learned words in their early years of schooling (that is, encountering words mostly through talk before seeing them in print). At the same time “knowing words means more than recognizing them correctly, or being able to define them; knowing words includes a deep understanding of how words interrelate and can be used in multiple ways with multiple related meanings” (Beck et al., 2002; Nagy & Scott, 2000 as cited in Carnegie Council on Advancing Adolescent Literacy, 2010, 76).

In addition to improving comprehension, when students receive explicit teaching and guided vocabulary building opportunities, they will

- develop more sophisticated writing,
- use key vocabulary in classroom talk,
- choose strategies to reduce gaps in vocabulary understanding,
- become aware of and reflect on their own learning (Gibbons, 2002 in Gritter *et al.*, 2013).

IN THE CLASSROOM

GETTING STARTED

- Be purposeful in choosing words that are necessary for study. Consider the following questions: *Is the word essential for understanding the main concept (i.e., does it relate to the learning goals of the unit)? Will students be able to use the word appropriately to communicate meaning in the subject?*
- Provide explicit vocabulary instruction so that a student can access and use subject-specific vocabulary to precisely communicate ideas (*Adolescent Literacy Guide*, 2012). Effective explicit vocabulary instruction includes:
 - using descriptions as opposed to definitions,
 - using linguistic and non-linguistic representations to build conceptual understanding (e.g., visual representations, use of graphic organizers such as a Frayer Model),
 - teaching and using word parts (e.g., roots, prefixes, and suffixes).
- Use a word wall as an interactive tool; that is, where the students are contributing and actively referring to it during discussions and writing.
- Model how learners expand their vocabulary through reading, writing, and talk.
- Use metaphors and analogies to help students understand abstract terms and concepts (e.g. oxygen is to humans as carbon dioxide is to plants; the nucleus of a cell is like the main office of a school) (Marzano, 2004).
- Use online vocabulary-building tools (e.g. Word Sift, Visuwords, Quizlet).

TRY IT OUT: FRAYER MODEL

The Frayer Model is a visual organizer that helps students with language acquisition, develop understandings of key concepts and vocabulary. The purpose of the Frayer model is to build meaning through associations and connections with the word. It supports the idea that, in order to deepen their understanding, students need to work with vocabulary from a variety of perspectives as opposed to simply defining the term. Students can complete this organizer collaboratively, which opens an opportunity for them to be using the vocabulary in talk.



The Frayer model may be used in a number of ways. It can also be helpful to distinguish between words that confuse students (e.g., population density vs. population distribution in geography).

SAMPLE FRAYER MODELS

Definition An equation is a mathematical statement that shows that two expressions are equal.	Facts/Characteristics <ul style="list-style-type: none"> • always has exactly one equal sign • the left side is equivalent to the right side • some equations have 0, 1, 2 or more solutions • some equations just contain numbers • some equations are algebraic models for relationships and they have corresponding graphical models and numerical models (e.g., tables)
Examples 3x-2=4x=7 (linear equation) ab=ba (an identity) F=1.8C+32 (formula) 5+6+11 (a number statement) P=2l+2w (a formula) X=3 (statement of value)	Non-examples 2x+3y (expression) 3 (number) perimeter (word) x < y (inequality) =4.2 (has no left side)

Frayer model example for mathematics taken from *Think Literacy: Subject-specific Examples—Mathematics, Grades 7-9, 2004*.

Synonym diagonal	Definition in own words To cut fabric on an angle across the cloth.
Graphic/Picture 	Sentence using word A bias cut uses more fabric.

Frayer model example for fashion adapted from Fisher, D. & Frey, N., 2008.

WORD ANALYSIS

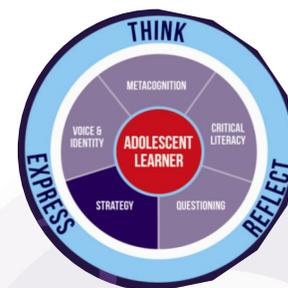
Teaching students how words work is an important consideration for learning subject-specific vocabulary for all students and critical for those who are English language learners (Beers, 2003). The purpose of using word analysis is to help students derive meaning of a word by looking at its parts. Studies by White, Sowell & Yanagihara; Dale & O'Rourke; Fry, Fontokidis & Polk (as cited in Allen, 2007) suggest that this approach improves students' understanding and recall, and it gives them a way to sort out the meaning of unknown words when they come across them in text in the moment. It provides another option, especially when the use of context clues does not help with meaning. Word analysis includes teaching students the meanings of specific roots, prefixes and suffixes.

So when students understand that the suffix '-ification' means 'the process of becoming', they have a better chance of understanding desertification. Likewise, knowing the Greek roots *choro* (area) and *pleth* (value) helps students understand that choropleth map is "a map in which graded colours are used to illustrate the average values for or quantities of something (e.g., population density, quality of life indicators, fresh water resources) in specific areas" (*The Ontario Curriculum, Grades 9 & 10: Canadian and World Studies, 2013*).

Key to teaching students the skill of word analysis is determining opportunities that are most relevant to the learning. There are a number of root word, prefix and suffix lists available. Using an Internet search for 'root word, prefix, suffix meanings' is one way to locate these lists.

SAMPLE WORD ANALYSES

Word	Prefix	Root	Suffix
aerodynamic		<i>aero</i> = air <i>dynamic</i> = powerful	
diffraction	<i>di-</i> (or <i>dis-</i>) = opposite, apart	<i>fract</i> = break	<i>-ion</i> = act, process or condition
pneumatic		<i>pneu</i> = wind	<i>-matic</i> = willing (to perform)
telegraph	<i>tele-</i> = (over a) distance	<i>graph</i> = (something) drawn or written	

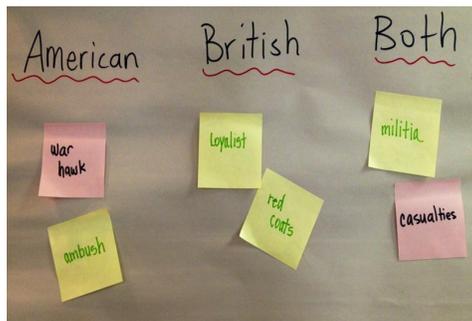


The *Adolescent Literacy Guide* outlines components which support students abilities to think, express and reflect. Strategy is one of the components to which this ALERT connects.

LIST-GROUP-LABEL

The purpose of List-Group-Label is to help students build conceptual understanding by exploring the connections among words. Working together, students generate a vocabulary list (e.g., 10-20 words) on a topic of study (e.g., compiled from skimming a chapter in a textbook). They collaborate to discuss the word meanings and categorize them into logical groupings. This activity may be used to activate prior knowledge or as a consolidation to review key terms and deepen understanding of the topic.

To use List-Group-Label, begin by introducing the topic (e.g., War of 1812), and provide a variety of texts (e.g., textbook, newspaper articles, video clips) related to the topic. Groups skim the texts, talk about the topic, and develop a list of words that they know or predict will be significant to the topic (e.g., loyalist, militia, nationalism). Students record words, for example, one per sticky note or using an app.



When students have agreed upon the word list, they categorize the words using an open sort (i.e., students determine headings) or closed sort (i.e., teacher determines headings). Once the sort has been completed, the group reports to the class explaining their reasoning for their grouping and labeling.

IN BRIEF

Explicit teaching of vocabulary is important for adolescents to move from knowing a term to understanding a concept. The goal is that students will be able to integrate subject-specific vocabulary into their speaking and writing and make connections to the real world.

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FOR MORE ON...

Adolescent Literacy

Literacy GAINS. (2012). [Adolescent Literacy Guide: A Professional Learning Resource for Literacy, Grades 7-12](#).

Building Background Knowledge

Literacy GAINS (Spring 2013) [ALERT: Make Room for Building Background Knowledge](#)

Promoting Purposeful Talk

Literacy GAINS. (Fall 2012) [ALERT: Make Room for Talking to Learn](#)