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Northwestern Consortium T/TAC
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Designed by Jeff Richards

Supporting the Literacy Development of Students with Autism

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Adapted from: P. Kluth (2003). *"You're going to love this kid": Teaching students with autism in the inclusive classroom*. Baltimore: Brookes Publishing

While students with autism are increasingly being educated in general education classrooms, they are often excluded from rich and meaningful literacy experiences like reading and writing stories, book clubs, acting and performing, journaling, and whole-class and small-group discussions. It is not unusual for students with autism in these classrooms to follow a different curriculum than the one offered to their classmates (Kluth, 1998). Students with autism might, for instance, be asked to practice memorizing "sight words" while classmates are writing poetry or reading popular fiction.

Kliewer (1998) suggests that in order to provide literacy opportunities for all students, teachers may need to "reconceptualize the literate community"; they may need to reject assumptions about disability and adopt an orientation of viewing all students as learners. In classrooms where all students are accepted in the literate community: "all children are considered active participants in the construction of literate meanings within specific contexts. This assumption of literate value then serves as the core from which literate capacities are realized" (p. 100). In such classrooms, teachers challenge and question school practices that marginalize learners (e.g., exclusion, tracking) and create communities that encourage all students to teach each other, to showcase talents, take risks, to create, to collaborate and to see themselves as readers, writers, and thinkers.

Expanding the Invitation to Include All Learners: Ideas for Inclusive Classrooms

I have found success using the following strategies with *some* students with the label of autism. These ideas can be a take-off point for designing lessons that are appropriate, appealing, and challenging for every learner in the inclusive classroom.

Use Visuals

While students with autism may undoubtedly benefit from verbal instruction, some also require an additional avenue of input as they learn. Teachers can provide this input by using a range of visuals as they lecture, conduct discussions, and explain daily lessons. For example, when students are studying a novel, the teacher might provide the student with autism (and perhaps the entire class) with a pictorial timeline of the events in the story. During a social studies lesson, a teacher could illustrate two different groups or periods in time using a Venn diagram.

As Donna Williams (1992), a woman with autism, relates, "I could read a story without difficulty, it was always the pictures from which I understood the content" (p. 25). Williams also

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shares that she "took to" the study of psychology in part because it interested her and was connected to personal experiences (she had been evaluated by a lot of psychologists and psychiatrists), but also because her course materials were filled with visuals.

Write It Down

Graphics are not the only way to clarify speech and communicate more effectively with students with autism; the written word can also be used as a visual support. For example, if a teacher is giving verbal directions, she might also provide the same directions on the chalkboard.

Many students with autism seem to comprehend written text better than speech. Wendy Lawson (1998), a woman with autism, provides insight on why one is easier than the other:

I find the written word much easier to comprehend than the spoken word. It takes me a lot longer to process conversation and work out the meaning behind the words than it does to scan the words on a written page. I think this is because I must also read the expressions on a person's face and study their body language. (p. 9-10)

One student I know found the written word so important to his success that he often asked me to converse with him on paper whenever possible. During even the shortest exchanges, he preferred to talk on paper. He would type short answers and I would write to him in longhand. While we could not engage in conversations in this way every time he requested it, I tried to dialogue this way with him when time allowed. He found these exchanges on paper to be more calming and comforting than those he participated in verbally.

His middle-school teachers found that the written conversations were perfect opportunities to engage him in lessons related to literacy. We would add new vocabulary to our written messages every week. We would also take advantage of these natural opportunities to teach him about written expression. Since typed and written words do not always reflect tone, inflection, and emotion, we needed to teach this young man about how to send those messages to his communication partners. We were able to use this absence of verbal communication to naturally teach the student the use of ending and quotation marks and the importance of descriptive language. This student was then able to teach his classmates about communicating clearly using written language, which helped all students improve the e-mail messages they sent weekly to their cyber pen-pals.

Integrate Instruction Across the Day

When Bob, one of my former students, came to school on the first day of September his classroom teacher, Ms. Shey, was stunned to learn that her twelve-year-old student could not read or write more than a few words. Bob's teacher, Ms. Shey, immediately began designing curriculum and instruction that would help Bob gain literacy skills across environments and academic subjects. She also began seeking natural opportunities to boost her student's literacy abilities throughout the day. For instance, Ms. Shey began asking Bob to find a joke or poem-of-the-day to write on the chalkboard each morning. Bob came into the classroom a few minutes early each day to perform this task, giving his teacher time to provide a five-minute mini-lesson on topics ranging from punctuation to pronunciation to use of literary devices.

Another colleague, a biology teacher, supported the literacy development of her student, Shu-li, by asking the young woman to announce the "vocabulary word of the day" to all students in the class. While Shu-li read the word and definition, different students took turns trying to illustrate the word on chart paper. This artistic and collaborative exercise often drew laughter from the class as students attempted to draw terms such as "photosynthesis" and "meiosis". This exercise, while designed primarily to support Shu-li, enhanced the vocabulary of all learners and was, therefore, eventually used in all of the teacher's science classes.

Read Aloud

Almost every teacher, elementary or secondary, shares a book or some passage from a text with students during the school week. Including students with autism in this simple activity is one of the easiest ways to promote language learning as the development of literacy skills in individuals with disabilities is associated with being exposed to models of individuals using printed materials (Koppenhaver, Coleman, Kalman, & Yoder, 1991) and having opportunities to interact with others around written materials (Koppenhaver, Evans, & Yoder, 1991). Reading to students can improve their fluency (Blau, 2001), help them access content they could not access on their own (Blackman, 2000; Mukhopadhyay, 2001), and expose them to a range of genres, especially those they would not choose on their own.

In addition to enhancing literacy development, reading aloud can also help students with autism learn more about language and human interaction. Since many learners with autism struggle to read bodies and emotions (Blackman, 2000; Lawson, 1998; Shore, 2001), listening to the teacher read with expression may help students not only better understand the text being shared, but may further help them in understanding postures, facial expressions, and uses of volume, tone, and inflections in speech. For example, when the teacher reads about a child fighting with his brother, the student has an opportunity to review the language that is associated with anger and, if the teacher reads with feeling, the facial expressions and body language that an angry person might use.

Offer Multiple Texts

A common myth related to teaching students with autism is that these learners lack imagination and, therefore, do not appreciate works of fiction. Kenneth Hall (2001), a young man with Asperger's syndrome, who is a huge Harry Potter fan, resists this idea and insists that he and many others with Asperger's love their fiction:

Some people say AS [Asperger syndrome] kids prefer to read factual books. This is definitely untrue…I like adventure stories best. I would love to be a character out of an adventure in one of my books. Sometimes I like to read the same book over and over many times. (p. 35-36)

Others with autism and Asperger's, however, do report that non-fiction reading materials are somehow more comforting and easier to negotiate than stories or other works of fiction. Consider the words of Liane Holliday Willey (1999), a woman with Asperger's syndrome:

By around eight years old, I had become a very proficient comprehender as well as word caller. So long as the material was of a factual nature. Fiction was more difficult for me for it forced my thoughts to go beyond the literal. I preferred biographies and eventually made my way through every biography we had in our library, despite the librarian's repeated request that I check out something new and different. (p. 24)

Having a range of texts available and investigating what types of materials students prefer increases the likelihood that every student will engage with text during the school day. Texts of different genres, reading levels, and even formats (e.g., newspapers, pamphlets) should be made available at all times. While this recommendation may seem common-sense to some, one of my former colleagues did not appreciate how vast a range of materials she needed until she encountered a student who loved to read cereal boxes more than any other "text" she offered him during the year. She, therefore, found ways to add course content to the side panels of the student's favorite cereals.

Conclusion

Too often students who do not follow a typical developmental sequence of literacy are seen as being unable to profit from academic instruction related to reading, writing, speaking, and listening. When teachers expand their understanding of literacy, however, they can facilitate the development of a range of abilities, build on the skills that students *do* have, and craft learning experiences that meet students' unique needs and capitalize on their strengths.

References:

Blau, L. (2001). 5 surefire strategies for developing reading fluency. Instructor, 110, 28-30.

Grandin, T. & Scariano, M. (1986). Emergence: Labeled autistic. Navato, CA: Arena Press.

Hall, K. (2001). Asperger syndrome, the universe and everything. Philadelphia: Jessica Kingsley.

Koppenhaver, D., Coleman, P., Kalman, S., & Yoder, D. (1991). The implications of emergent literacy research for children with developmental disabilities. American Journal of Speech and Language Pathology, 1, 38-44.

Koppenhaver, D., Evans, D., & Yoder, D. (1991). Childhood reading and writing experiences of literate adults with severe speech and physical impairments. Augmentative and Alternative Communication, 7, 20-33.

Lawson, W. (1998). Life behind glass: A personal account of autism spectrum disorder. Philadelphia, PA: Jessica Kingsley.

Mukhopadhyay, T. (2000). Beyond the silence. London: The National Autistic Society.

Shore, S. (2001). Behind the wall. Shawnee Mission, Kansas: Autism Asperger Publishing Company.

Willey, L.H. (1999). Pretending to be normal: Living with Asperger's syndrome: Philadelphia, PA: Jessica Kingsley.

Williams, D. (1992). Nobody nowhere. New York: Avon.

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Embedding Emergent Literacy and Communication Instruction Across All Content Areas for Students with Atypical Communication Systems

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Literacy has been defined as ". . .a social, psychological, linguistic, and interactive process in which written and oral **language** are best learned from birth, in purposeful and interactive contexts, **with many opportunities to observe and interact with others who read and write.**" (Koppenhaver, 1991). For students with rudimentary or atypical communication systems, emphasis on literacy instruction across all content areas is of critical importance, as it serves as a primary catalyst in developing and expanding communication. Communication requires shared experiences and someone to talk to. For many students with significant communication challenges, it is not always their skills that are in short supply, but partners and novel and engaging topics around which to communicate. Embedding literacy instruction across the curriculum provides the forum for students to share experiences and knowledge and grow in their communication skills.

CONCEPT OF PRINT

- Knows that a book is for reading
- Identifies front, back, bottom, top of book
- Turns pages properly
- Knows that pictures and words are related
- Recognizes the difference between words and pictures
- Knows where to begin reading a page
- Knows what a title is
- Identifies page numbers
- Knows print is read from left to right
- Knows that print is oral language written down
- Reads environmental print and logos

EMERGENT LITERACY CONCEPTS

- Concepts of letters
- Concepts of Words
- Can point to words on a page
- Finger points reading of memorized texts
- Demonstrates one-to-one correspondence
- Reads own name
- Recognizes names in various formats
- Discriminates letters from symbols and from each other
- Writes letter-like and letter forms
- Begins to name letters
- Signs and/or says alphabet

Unfortunately, literacy development, for a long time, was viewed as a developmental sequence in which a child first learned to listen, speak, read, and then write (Downing, 2002). This resulted in many students with communication challenges never accessing or benefiting from literacy instruction. With the advent of No Child Left Behind (2001) and the Individuals with Disabilities Education Improvement Act (IDEA, 2004), which seek to ensure that all Americans become literate, that all learners access the general education curriculum, and that all students, including those with significant communication and cognitive challenges receive literacy instruction. Many students, such as those participating in the *Virginia Aligned Standards of Learning (ASOLs)* benefit from emergent literacy instruction. Emergent literacy instruction promotes experiences with books and print and allows students to use functional reading skills within daily routines and across the curriculum. Embedding emergent literacy instruction across the curriculum creates opportunities for shared learning experiences and provides necessary context and relevance to make learning meaningful for students. Within any curriculum domain, emergent literacy skills such as these can be taught (Browder, 2005):

Attending to the five core components of reading instruction across all curriculum areas will enhance student performance and increase positive learner outcomes (National Reading Panel, 2000). All content areas can provide print rich environments that surround students with models of literacy that are interesting, meaningful, and varied by subject area. Simply labeling objects and areas within each instructional setting can increase students' **phonemic awareness** and **phonology skills**. **Vocabulary development,** the means by which students associate new words and their meanings to develop understanding, will expand both literacy and communication skills. Within each learner's vocabulary are subsets of listening, speaking, reading and writing, with listening vocabulary typically being the largest and writing vocabulary being the smallest. Simply setting the purpose for reading within a content area can enhance both **comprehension** and communication. Stating, "We are going to read this, and then I'm going to ask you some questions" establishes a need for communication to occur. Similarly, including prediction activities in any content area provides context for understanding for students, as does the inclusion of pictures, graphic organizers, and other visual supports displaying the meaning of a text. Regardless of cognitive ability, literacy or communication development, the brain of every learner is seeking meaningful patterns. Chunking information, providing scaffolds, and using images and graphics increases comprehension. Similarly, retelling content using visual displays, completing a story map or answering comprehension questions are effective means for students to demonstrate their understanding. Finally, exposure and interaction with a wide variety of books within each content area, such as high interest/ low vocabulary books, environmental print books and/ or various forms of adapted books enable students to increase **fluency** and a myriad of literacy and communication skills.

References and Resources:

A comprehensive list of suggestions for teachers to embed emergent literacy instruction across the day can be found at T/TAC Online under "Literacy Across the Day" at *http://www.ttaconline.org/staff/assessment/vaap_res_teach.asp*.

A variety of online reading instruction webshops and workshops are available under *Online Training* at: *www.ttaconline.org*.

Browder, D.. & Spooner, F. (2005). Teaching language arts, math and science to students with significant cognitive disabilities. Baltimore: Brookes Publishing.

Downing, J. (2002). Including students with severe and multiple disabilites in typical classrooms: Practical strategies for teachers. Baltimore: Brookes Publishing.

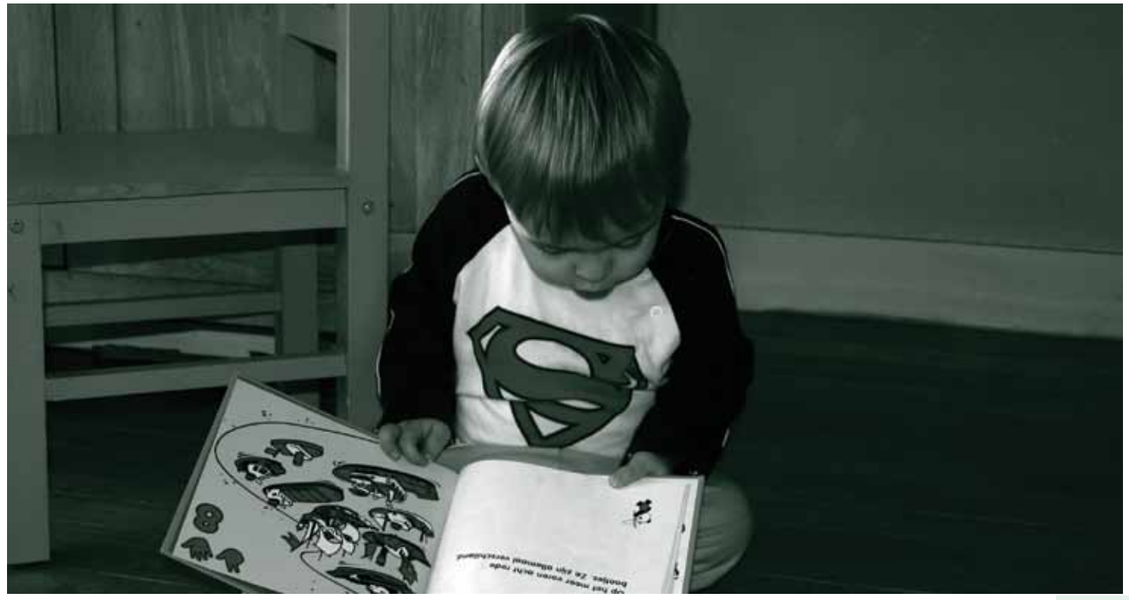
Individuals with Disabilities Education Improvement Act (IDEA, 2004) *http://www.ed.gov/legislation/FedRegister/finrule/2006-3/081406a.pdf*

Koppenhaver, D., Coleman, P., Kalman, S., & Yoder, D. (1991). The implications of emergent literacy research for children with developmental disabilities. *American Journal of Speech and Language Pathology, 1*, 38-44.

National Institute of Child Health and Human Development (2000). Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction. (NIH Publication No. 00-4754). Washington, DC: U.S. Government Printing Office.

No Child Left Behind. (2001) Public Law 107-11 *http://www.ed.gov/policy/elsec/leg/esea02/107110.pdf*

Virginia Aligned Standards of Learning *http://www.doe.virginia.gov/VDOE/Assessment/VAAP/VAAPManual2008_09.pdf*



"Reading Between the Lines:" Supporting Content Literacy With Inferences

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As students strive to meet the increasing educational standards across content area subjects, they also face increasing literacy challenges. Critical literacy is "the ability to read, write, and learn with a "critical eye" in order to acquire new content in a given subject area (Fehring & Green, 2001). Critical literacy at the secondary level requires the student to use a range of strategies for building new vocabulary, locating important information, interpreting, evaluating, and communicating information. Often educators attempt to differentiate instruction for struggling adolescent learners and students with disabilities by watering down the curriculum or narrowly focusing on literal questions about curriculum concepts embedded in large amounts of text. When this happens, students have few opportunities to practice the cognitive processing and sophisticated language skills they need to acquire at the secondary level (Ellis, 1997). If teachers provide students with activities and discussions that focus on constructing their own understandings, students can move beyond literal copying and restating of facts to critical reading. Critical reading involves interpreting, analyzing, and synthesizing information. It examines how the text describes or presents the information and from what perspective. When teachers focus on big ideas in carefully selected small sections of text, readers can learn to make inferences about the meaning or interpret the intent of the passage (Conley, 2008).

Inferences are not random guesses. They are evidence-based evaluations of text content, the conclusions the reader makes based on the information presented. In this approach, **readers read for ideas, not facts, and infer meaning.** Struggling students need opportunities to discuss and explain in their own words and in writing the inferences and ideas and relationships they are formulating (Mann, 1991; Sawyer & Butler, 1991). Making inferences requires the students to use the text or discussion information and their own world knowledge to fill in information not explicitly stated in the text or conversation. Sometimes the clues to meaning are not obvious to the students, so they may rely too heavily on their own prior knowledge to determine what is important to attend to or write in response to the particular section or discussion.

Students need to be taught that making inferences is "to read between the lines" by gathering clues and reaching conclusions based on evidence and reasoning. They may need to:

- Understand the context of the topic
- Delete or ignore trivial, irrelevant, or redundant information
- Determine what information is missing and interfering with inference making
- Identify important words or hidden ideas that give clues
- Think of an alternate term, synonym, metaphor, or vocabulary word that makes sense to explain the idea
- Identify the generalization being made by the text or author
- Be able to create their own generalization based on the clues *(Graves, Juel, & Graves 2004)*

One very engaging way to introduce inferences and practice "reading between the lines" with secondary students is to deconstruct comic strips and cartoons. For example:

- What topic or subject area is represented here?
- Which piece of information or part of the comic is most useful to understand what's funny?
- Can you describe the action taking place in the cartoon? Is it important?
- What information is not explicitly stated that you need to know from your own background knowledge to understand this comic?
- Are there key words or picture clues you need to understand to get the joke?
- Does the cartoon represent a point of view or have a message?
- What are your opinions about the message?

Students quickly learn that every time you read comics you are making inferences. Having students look for their own cartoons and comics and identify inferences is a good class-wide activity, and it's fun. If you do a web search for cartoons, you will find many sites with more sophisticated cartoons from many subject areas appropriate for science, history, politics, government, health, environment, literature, and math. There are even political cartoons from various periods of history that appeared in newspapers of the time: for example depicting racism during civil war. These older cartoons often include symbols or icons representing political ideas useful for class discussions. Several sites include lesson plans for using the cartoons. *Editorial Cartoon Collection (Lesson Plans): On Changing One's Mind*, is a site that uses editorial cartoons about congress during earlier periods of US history, *http://www.congresslink.org/cartoons/lessons/Changing_Ones_Mind.htm*.

Also, the following website has a brief power point presentation to introduce inferences to middle school students by using comic strips: Making Inferences *(starring Garfield, Calvin, and Snoopy), http://www.garfield.com/fungames/comiccreator.html.*

Once you have established the basic idea of inferences with your students through the cartoons, it is easier for them to begin to use these same strategies in content area subjects by using charts or simple organizers for note-taking. This can be a particularly helpful tool for struggling students during discussions and small group work or while reading short sections of text, newspaper articles, or magazines. Extending the use of graphic organizers to listening activities and discussions also assists struggling learners, by providing them a written record to focus their thinking and writing. The following organizer might be used during a discussion in English, history, social studies or science. Students could use the organizer to write from, restating or summarizing key ideas in their own words and making their own interpretations.

Facts (Theories)	Inferences (Beliefs or personal predictions)	Uncertain or needs clarification but may be important

Using a variety of two column note-taking worksheets with selected text passages either individually or with partners is effective also (adapted from Harvey & Goudvis, 2007).

Evidence from the text	Inferences

Some examples:
- Facts and inferences
- Text evidence and themes
- Predictions (inferences) and facts
- Facts and text generalizations
- Text generalizations and your inferences
- Author's assumptions and your inferences

Kylene Beers (2003) suggests that students know how to make inferences in their daily life but do not know how to connect these skills to reading text. She lists many types of inferences commonly used and suggests some "teacher language" for grades 6-12 to use in the classroom. The complete list is available in Reading Strategies, Inferential Reading at the following website: *http://www.greece.k12.ny.us/instruction/ela/612/Reading/Reading%20Strategies/inferenialreading.htm*.

For other classroom exercises and activities for teaching about inferences, check out this website: *http://www.criticalreading.com/inference_reading.htm*.

References:

Beers, K. (2003). *When kids can't read; What can teachers do: A guide for teachers 6-12.* Portsmouth, NH: Heinemann.

Conley, M.W. (2008). *Content area literacy: Learners in context.* Boston: Pearson.

Ellis, E.S. (1997). Watering up the curriculum for adolescents with learning disabilities: Part 1. Goals of the knowledge dimension. *Remedial and Special Education* 18, 326-347.

Fehring , H., & Green, P. (2001). *Critical Literacy: A collection of articles from the Australian Literacy Educators' Association.* Newark, DE: International Reading Association.

Graves, M. F., Juel, C. & Graves, B.B., (2004). *Teaching reading in the 21st century* (3rd ed). Boston: Pearson.

Harvey, S. & Goudvis, A. (2007). *Strategies that work: Teaching comprehension for understanding and engagement* . Portland, Maine: Stenhouse.

Mann, V. (1991). Language problems: A key to early reading problems. In B.Wong (ED.), *Learning about learning disabilities* (pp 130-163). San Diego, CA: Academic Press.

Sawyer, F. & Butler,K. (1991). Early language intervention: A deterrent to reading disability. *Annals of Dyslexia,* 41, 55-79.

Content Literacy and Adolescents

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The status of adolescent literacy was, and continues to be, defined by *Reading Next* (Biancarosa & Snow, 2006). The report describes a literacy crisis that faces teachers in middle and high schools. In this article, the literacy needs of adolescents are reviewed. Also, in the light of recommendations in *Reading Next* (2006), several literacy strategies within a Before, During, and After (BDA) routine for instruction are discussed.

Literacy is language-based and the ultimate goal is to perceive, process, comprehend and respond to all forms of communication (Fontana, 2003). Literacy skills can be receptive or expressive. They are applied when we view, listen, speak, read, write, gesture or sign, smile or grimace.

Nine areas for instructional improvements were identified by Biancarosa & Snow (2006). The consensus was that direct explicit instruction in comprehension strategies was critical and should be embedded into content instruction. Text-based collaborative learning using a variety of resources representing several levels of difficulty and sophistication should be implemented, along with attention to student specific needs via strategic tutoring. Opportunities to write, as well as, writing instruction were deemed important. It was recognized that students needed to be motivated with opportunities for self-directed learning. Finally, the role and importance of ongoing assessment was addressed. (Biancarosa & Snow, 2006).

Before-During-After (BDA) cues us to support student learning by preparing them for the content, providing a vehicle for reflection or comprehension checks while they engage with the content, and finally, measuring student understanding.

Before a task or reading assignment, prepare students to access the instructional materials. Teach students to recognize and use text features such as headings, subheadings, font style and size, illustrations, graphs, maps, charts and tables and demonstrate how they are used to emphasize facts or procedures. Ensure that students understand how to interpret graphs and tables.

Next, teach students to analyze and respond to text structure in informational textbooks by noting signal or transition words that reveal the author's format for explanation (Irvin, 2007). For example, *because* signals cause and effect, *for instance* implies example. Compare and contrast may be signaled by *as opposed to* or *in contrast to*. Similarly, math and science textbooks have their own symbols and notations that serve as signals. It is critical to understand these various symbols in order to complete the operations or to perform the functions. Lastly, make a connection by encouraging students to use signals in their own writing. In *Reading Next* (Biancarosa & Snow, 2006) comprehension rather than decoding was identified as problematic for many adolescents. Thus, pre-teaching critical vocabulary is important. A complementary approach is to teach word analysis strategies which address both understanding and decoding for middle and high school students. Janet Allen (1999, 2008) has two compilations of vocabulary strategies which provide directions, examples, and templates that support many activities that guide students to a deeper understanding of critical vocabulary via word analysis.

During an assignment, many students will benefit from assistance**.** One way to provide assistance is via notetaking, one of the nine effective instructional strategies identified by Marzano, Pickering, and Pollock (2001). Through explicit instruction, notetaking encourages student engagement, and the products become accurate study guides.

The use of graphic organizers (GOs) as note-taking templates has been researched and found effective for adolescents with and without disabilities (Fontana, 2004). More or fewer cues can be used to differentiate instruction. Outlines provide the same structure in a linear format. GOs and/or outlines may be used while a student reads or listens to someone else read aloud. Take time to teach notetaking. For example:

Outlines or Graphic Organizers

A. Show the format

B. Model the use of the format with content text using pages and topics the students have covered.
   1. Teacher selects a portion from the text and thinks aloud to take notes in outline format.
   2. Students read portions of the text and respond orally while teacher completes a template.

C. Provide cued templates for one or two portions/ sections of text
   1. Students may work in pairs or individually
   2. Share results & create a composite from student input

Begin with the end in mind. Consider what you will use after the task, class, lesson, or unit is completed. *Reading Next* (2006) notes the importance of ongoing assessments. Assessments need not be complicated. Will it be a quiz, worksheet, or a "ticket out" that summarizes major concepts? Will you require completion of a notetaking template? Also, think about the value of collaborative summaries. Cooperative groups could respond to a prompt, first verbally via discussion and then, in writing.

With the literacy crisis facing both teachers and students today, the stakes are high. Therefore, it is critical to ensure ongoing literacy development for adolescents (Biancarosa & Snow, 2006). Conscientious inclusion of literacy strategies into content instruction helps students to access, organize, understand, and recall essential information.

References and Resources:

Allen, J. (1999). *Words, words, words: Teaching vocabulary in grades 4-12*. York, ME: Stenhouse.

Allen, J. (2008) *Inside words: Tools for Teaching academic vocabulary, grades 4-12*. York, ME: Stenhouse.

Biancarosa, C. and Snow, C.E. (2006) *Reading Next: A vision for action and research in middle and high school literacy: A report to the Carnegie Corporation of NY (2nd. Ed)*. Washington DC: Alliance for Excellent Education. *www.all4ed.org/files/ReadingNext.pdf.*

Educational Leadership: Literacy 2.0. (March 2009). Volume 66, Number 6. Alexandria, VA: Association for Supervision and Curriculum Development.

Fisher, D., Brozo, W.G., Frey, N., and Ivey, G. (2007). *50 content area strategies for adolescent literacy.* Upper Saddle River, NJ: Pearson/Merrill Prentice Hall.

Fontana, J. (2004). Social studies and students with disabilities: Current status of instruction and a review of intervention research with middle and high school students. In Scruggs, T. E. & Mastropieri, M.A. (Eds.) *Advances in learning and behavioral disabilities (vol. 17): Research in secondary schools* (pp.175-205).

Fontana, J. (2003). Lecture: *Literacy: the big picture*. EDRD 619, George Mason University, Fairfax, VA.

Inspiration Software, Inc. (8th Ed.). *www.inspiration.com*.

Irvin, J. (2007). Demands of Text in *Strategies to enhance literacy and learning in middle school content area classroom* (pp. 74-96.) Boston, MA: Pearson/Allen Bacon.

Marzano, R. J., Pickering, D.J. and Pollock, J.E. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement.* Alexandria, VA: Association for Curriculum Supervision and Development.

Wood, K. and Taylor, D.B. (2006). *Literacy strategies across the subject areas: Process oriented blackline masters for the K-12 classroom* (2nd Ed.). NY: Pearson.

Vacca, R. and Vacca, J. (2008). Bringing students and texts together in *Content area reading: Literacy and learning across the curriculum* (pp 336-375). Boston, MA: Pearson/Allyn Bacon.

Promoting Literacy at Home

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For decades, parents have been encouraged to engage in shared reading with their children at home as a means to promote literacy development at school (Hood, Conlon, & Andrews, 2008). In fact, it has been assumed to be a panacea not only for promoting literacy acquisition but for solving learning problems, as well (Hoffman, Roser, & Battle, 1991). Certainly, the foundation of literacy is established in the home, and parents give support by reading and talking to their children (Elish-Piper, Montero, Anderson, Speck & Bauer, 2008); however, "being read to is simply not enough" (Meyer et al., 1992, p. 27).

Research has focused on the essential elements of the interaction between parents and children during shared reading that seem to be effective. It is more intricate and involved than reading a book aloud to a child. Some important studies have revealed that children do not learn print concepts by having an adult read to them; however, there are some practices that can enhance a child's literacy development (Phillips, Norris, & Anderson, 2008).

What transpires during shared reading to make it beneficial? Research by Lancy and Bergin (1992) suggests

that there is a positive correlation between children's fluency and favorable attitudes about reading and parents who viewed reading as fun, encouraged questions, and used humor while reading. Also, Tracey (1995) found that accelerated readers received physical and verbal attention, support, and extended oral feedback during shared reading experiences. More specifically, explanatory talk (Beals & De temple, 1992) seems to play a significant role in literacy development. Such interactions as making predictions, elaborations, and connecting new ideas in books to previous experiences are the types of explanatory talk that can deepen a shared reading time (Mikulechy, 1996). Parents of good readers are described by Lancy, Draper and Boyce (1989) as offering graduated support or scaffolding. Initially, a parent will read and talk more and model making predictions. Gradually, the parent will encourage the child to do more of the reading and help him/her to make his/her own predictions. In addition, parental perceptions of education and literacy seem to make a difference. Parents who view shared reading as entertainment, play, and extended conversation starters seem to play a role in their children's view of literacy. Parents who presented and modeled literacy as an enjoyable way to understand the world and to entertain one's self seem to positively influence their children's perceptions of literacy (Lancy & colleagues, 1989). Additional practices that enrich the shared reading experience include reading slow enough for a child to have time to process what s/he hears. Also, reading with expression and experimenting with voices and accents, as well as, using sounds and props can capture children's attention. Following up with an experience related to what was read such as an art or craft project, going somewhere connected to what was read, and writing his/her own story about a similar topic can all promote further learning.

Interestingly, children do not learn print concepts solely by being read to during shared reading. Studies reveal that parents pay very little attention to print or print concepts while reading to their children. Therefore, it is not surprising that children do not look at print when involved in shared reading (Phillips, Norris, & Anderson, 2008). As a result, shared reading can enrich children's receptive language, but not their knowledge of print (Senechal & LeFevre, 2002). Shared reading can be enhanced by parents actively naming letters, making letter sounds, spelling the child's name, naming shapes and numerals, and teaching children nursery rhymes and songs (Levy, Gong, Hessels, Evans, & Jared, 2006). It is important for parents to use the shared reading times to help their children understand the relationship between print and language, i.e., print is a representation of the spoken word, words are composed of a sequence of sounds which are represented by letters, you can get meaning from the printed word, comparing similar words assists word recognition and vocabulary development, etc. Also, parents can help children learn the varied purposes of print, e.g., grocery list, television guide, a recipe, newspaper, magazine, novel, etc.

Although educators and parents understand that the relationship between children's literacy development and children's literacy interactions with their parents at home is significant, many parents have expressed frustration about what their role in shared reading involves (Mikulecky, 1996). Recent research has expanded to reveal what are some important elements within shared reading. Understanding these specific components will help parents expand this experience and promote their children's literacy development.

References:

Beals, D.E. & De Temple, J. F. (1992) Home contributions to early language and literacy development. Paper presented at the 42nd annual meeting of the National Reading Conference (San Antonio, Texas, December 2-5, 1992).

Elish-Piper, L., Montero, M.K., Anderson, R. S., Speck, B.W., & Bauer, J. F. (2008). Emergent literacy. Retrieved on March 19, 2009 from *https://wps.prenhall.com/chet_literacy_cluster_1/17/4549/1164735.cw/index.html*

Hoffman, J. V., Roser, N.L., & Battle, J. (1991, December). *Storytime in classrooms: What is, what could be, what should be.* Paper presented at the 41st annual meeting of the National Reading Conference, Palm Springs, California.

Hood, M., Conlon, E., & Andrews, G., (2008). Preschool home literacy practices and children's literacy development: A longitudinal analysis *Journal of Educational Psychology,100*(2), 252-271.

Lancy, D. F., & Bergin, C. (1992). The role of parents in supporting beginning reading. Paper presented at the annual meeting of the American Education Research Association, San Francisco, California, April 20,1992.

Lancy, D. F., Draper, K.D., & Boyce, G. (1989). Parental influence on children's acquisition of reading. *Contemporary Issues in Reading, 4*(1), 83-93.

Levy, B.A., Gong, Z., Hessels, S., Evans, M. A., & Jared, D. (2006). Understanding print: Early reading development and the contributions of how literacy experiences. *Journal of Experimental Child Psychology, 93,* 63-93.

Meyer, L.A., Stahl, S., Wardromp, J.L., & Linn, R.L, et al (1992, December). *The effects of reading storybooks aloud to children.* Paper presented at the 41st annual meeting of the National Reading Conference, Palm Springs, California.

Mikulecky, L. (1996). Archived commissioned papers. Family literacy: Directions in research and implications for practice. Family literacy: Parent and child interactions. Retrieved March 19, 2009 from *http://www.ed.gov/pubs/FamLit/parent.html*.

Philips, L. M., Norris, S.P., & Anderson, J. (2008). Unlocking the door: Is parents' reading to children the key to learly literacy development? *Canadian Psychology, 49* (2), 82-88.

Senechal, M., & LeFevre, J. (2002). Parent involvement in the development of children's reading skills. *Child Development, 73,* 445-460.

Tracey, D. H. (1995). Children practicing reading at home: What we know about how parents help. In L. Morrow (Ed.), *Family literacy: Connection in schools and communities,* 253-268. Newark, DE: International Reading Association

Practical Perspectives

The following article is by two special educators with rich classroom experience. Throughout this newsletter, there will be short articles by them on a variety of subjects that will help promote academic success.

Time Management

Carrie Martell, M.Ed, Harrisonburg City Public Schools
Ashley Reyher, M.Ed, Henrico County Public Schools

At the heart of all academic success is time management, especially for students in high school. If students can learn how to manage their time between different subjects in school and extracurricular activities, they will be better prepared to use their time productively when they enter the workforce. Time management is the backbone of academic success because if students manage time effectively, they are more likely to be successful in all of their commitments.

Most schools provide planners to students. Teachers should spend time explicitly teaching the students how to use these effectively. Teaching them when and what to write in their planners is essential. Also, highlighting can help students identify their tasks quickly. For some students, highlighting homework in one color and studying for tests in another allows students to recognize different types of tasks and to prioritize them. Other students find highlighting homework for subjects in different colors to be effective.

For some students, electronic calendars are the only way to go. High school students who have access to computers and enjoy using technology might like Outlook calendars and reminders to help them. Often, students prefer for a computer to prompt them rather than a teacher or parent. Another idea for high school students who enjoy technology is cell phone alarms. Alarms not only can be used for reminders, but as a strategy for monitoring time as well. For example, teachers can teach the students to set the alarm to go off at set intervals. The alarm can be used to cue students to switch studying for different subjects, turn off the TV, or whatever else needs to happen at that time to stay on track. Similar to the cell phone alarm, iPods offer add-on programs with alarm clocks and calendars. From this website below, there are directions to adjust iPod settings to use the alarm clocks and calendars.
http://coe.jmu.edu/TimeManagement/IPOD.htm
Another online resource is the **Time Management Online Workshop** which can be found at
http://www.ulc.arizona.edu/online_workshops/timemanagement/index.html
Using some interactive tools and calendars, this workshop is designed to help students use their time effectively and to ultimately build a schedule that works for them.

Another website, **Study Guides and Strategies**, at *http://www.studygs.net/schedule/*, helps students review how they spend their time. The site has interactive calendars to assist students in planning effectively. One tool results in a pie chart as a visual representation of what they are doing. It helps them appreciate how much time they are devoting to different activities and how they may be wasting time. This individualized pie chart can aid students in deciding how they could use their time more wisely.

Never Too Early for Literacy

Kris Ganley, M.Ed., VDOE T/TAC at GMU

"Conventional reading and writing skills that are developed in the years from birth to age 5 have a clear and consistently strong relationship with later conventional literacy skills." (National Early Literacy Panel, Executive Summary, 2008), yet a great deal of the research has been on the importance of teaching school-age children to read. In 1997, the National Reading Panel (NRP) was appointed to review research on reading instruction for the purpose of what could be done to improve reading achievement. The resulting report became the basis of new federal education laws to encourage improved reading from kindergarten to third grade (Developing Early Literacy: Report of the National Early Literacy Panel, 2008). However, it is important to prepare children to be successful in learning to read and write before they reach the school age programs. Studies have shown that children entering kindergarten and first grade vary in skills that provide the foundation for later literacy achievement (West, Denton, & Germino-Hauskin, 2000; West, Denton, & Reaney, 2000).

The National Early Literacy Panel (NELP) was convened to help parents and teachers better support emerging literacy skills in children birth through age 5. (Executive Summary of Report of the National Early Literacy Panel, 2008). The report identifies six variables important for later literacy outcomes as well as interventions and programs that are most helpful for children to build these skills. The six variables include:

- Alphabetic knowledge (AK): knowledge of names and sounds associated with printed letters
- Phonological awareness (PA): the ability to detect, manipulate, or analyze the sounds within a word
- Rapid automatic naming (RAN) of letters or digits: the ability to quickly name a sequence of letters or digits
- RAN of objects or colors: the ability to quickly name a sequence of repeating random sets of pictures of objects (e.g., "car," "tree," "house," "man") or colors
- Writing or writing name: the ability to write letters in isolation on request or to write one's own name
- Phonological memory: the ability to remember spoken information for a short period of time

Another set of five early literacy skills were moderately correlated to at least one measure of later literacy achievement. These additional potentially important variables include:

- Concepts about print: knowledge of print conventions and concepts
- Print knowledge: a combination of elements of alphabetic knowledge, concepts about print, and early decoding
- Reading readiness: usually a combination of alphabetic knowledge, concepts of print, vocabulary, memory, and phonological awareness
- Oral language: the ability to produce or comprehend spoken language, including vocabulary and grammar
- Visual processing: the ability to match to discriminate visually presented symbols

In addition to the 11 variables for predicting later literacy development, the panel also identified five categories of intervention: code-focused interventions, shared reading, parent and home programs, preschool and kindergarten programs, and language-enhancement interventions. Of the five interventions studied by the panel, "code-focused interventions," which are designed to teach children skills related to cracking the alphabetic code, reported statistically significant effects on early literacy outcomes and demonstrated positive effects on children's conventional literacy skills.

For the complete report including the impact of specific interventions, go to:
http://www.nifl.gov/nifl/NELP/NELPreport.html .

References:

Catlett, C. (March 4, 2009). Natural Resources. Report on early literacy identifies key skills and approaches. Message posted to electronic mailing list, archived at:
natural_resources2@listserv.unc.edu.

National Institute for Literacy. (2008). Developing early literacy: Report of the National Early Literacy Panel. A Scientific synthesis of early literacy development and implications for intervention. Retrieved on 3/18/09 from:
http://www.nifl.gov/nifl/publications/pdf/NELPReport09.pdf

Armbruster, B., Lehr, F., & Osborn, J. (2008). *Put reading first, kindergarten through grade 3: The research building blocks for teaching children to read* (3rd ed.). Washington, DC: National Institute for Literacy.

West, J., Denton, K., & Germino-Hauskin, E. (2000). America's kindergartners: Findings from the early childhood longitudinal study, kindergarten class of 1998-1999, fall 1998. National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement.

West, J., Denton, K., & Reaney, L.M. (2000). The kindergarten year: Findings from the early childhood longitudinal study, kindergarten class of 1998-1999. National Center for Education Statistics, U.S. Department of Education, Office of Educational Research and Improvement.

Study and Test Taking Strategies

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Depending on their strengths and learning preferences, there are various options that students can use to study. Many students with disabilities or with organizational difficulties do not inherently know how to study. They need to be given specific strategies to use. Therefore, teachers need to teach students directly how to study.

Begin by familiarizing students with the textbook. Have students use what is already there by looking for headings that are bolded, key terms highlighted, or chapter summaries given at the end of a chapter. These sections and formats help students know what information is important. Show students how the text is organized, and how to use it. For example, lead a group practice in using the index, the glossary, and the table of contents.

When trying to remember definitions or lists of details, memory devices are very effective. For vocabulary, students can use reminding words or pictures to help remember definitions. These cues can be anything that serves as a reference for the student. Encourage students to create their own images or words that have meaning for them. When trying to remember lists, a sequence, steps, or procedures, mnemonic devices have proven to be particularly helpful. They can be used for remembering content, as well. For example, to remember the names and historical sequences of the three famous Greek philosophers, students use SPA (Socrates, Plato, Aristotle). FOIL (first, outer, inner, last) is an acronym to remember the steps for multiplying binomials in Algebra. Teachers can teach mnemonics that they have created or have students create their own.

Another studying method is to teach students how to create outlines specific to their learning style and the format of the test they will be taking. Outlines can mean traditional outlines that use letters, numbers and bullets, but also include webs, Venn Diagrams, "free-writes" or mock essays. Students can choose a type based on their learning style (i.e., webs for students who need help understanding relationships among concepts, free-writes for students who have strong expressive language skills). These outlines should be based on the format of the test as well. Students often forget to take into account what they will be asked to demonstrate on the test. Studying for a multiple choice test is much different from studying for a short answer test.
Many students enjoy having a study buddy. Also, students understand and remember information better when they are able to explain it to another person. Teachers can introduce the concept of studying with a partner by establishing guided or directed study pairs or groups. Initially, the teacher can model a question-answer session and encourage academic conversations among students. When teaching self-directed study skills, it is good to remind the students to "Think like a teacher."

Success on tests is the ultimate goal for many high school students - whether it be to succeed in a course, meet graduation requirements, or enhance a college application with good SAT/ACT scores. Dr. Esther Minskoff's Learning Toolbox for test-taking strategies, *http://coe.jmu.edu/Learningtoolbox/studentDirections.html* is easy to remember and straightforward. The website allows students to pick the best strategy for different kinds of tests. When showing this website to students, emphasize the importance of knowing the test. For example, the RAINS strategy is used for multiple-choice tests in which more than one answer may be right, but the student needs to find the *best* answer. The details about this strategy are located at *http://coe.jmu.edu/Learningtoolbox/rains.html* . Another strategy that helps students with test taking is CRAM. It is an effective test-taking strategy for math, science, or very specific courses. Also, it is a better strategy when students know the information, but get confused by choices when anxious in a testing situation. Read more about this strategy at *http://coe.jmu.edu/learningtoolbox/cram.html*. The final test taking strategy is called SQUID. It helps with True/False questions that often perplex students because the questions have confusing language. SQUID helps the students slow down, and look for cue words and patterns in statements to determine whether or not they are true or false. More information about SQUID can be found at *http://coe.jmu.edu/Learningtoolbox/squid.html*.

Strategies for managing time, taking notes, studying for and taking tests can all help students with disabilities develop self-reliance and build self-confidence. Learning and using strategies eases anxiety as students transition into settings that are more demanding academically and require greater independence.

Write this Way – Welcome to Math Class

Judy Stockton, M.A., VDOE T/TAC at GMU

"Writing helps students make sense of mathematics. Mathematics helps students make sense of the world."

-Joan Countryman

Mathematics is an active, dynamic process and writing mathematics is one way to "free students of the assumption that math is just a collection of right answers to questions posed by someone else" (Countryman, 1992, p.11). Therefore, writing can be a powerful tool in a mathematics classroom. It can be used to assess "attitudes and beliefs, mathematics ability, and the ability to express ideas clearly," as well as a way to "open doors of communication with students" including those "who may have math anxiety or who have 'I hate math!' feelings (Russek, 1998, p. 36)."

There are many forms of, and purposes for, writing. Graves, Juel & Graves (2004) organize writing into four broad categories: 1) Informal – including notes, lists, journals, diagrams, summaries; 2) Writing to learn and understand – including note taking, brainstorming & quickwriting, semantic mapping, Venn diagrams, K-W-L, journals; 3) Writing to communicate – including letters, biographies, reports and 4) Imaginative writing – including stories and poetry. Students' competence is increased and boredom is avoided when opportunities for different formats are provided (Alverman, Phelps & Ridgeway, 2007).

A wide variety of writing strategies and techniques can be utilized in math class. One option is the quickwrite (Conley, 2008; Elbow, 1998; Graves et al, 2004; Tompkins, 2008). Like brainstorming, quickwriting is a great strategy for generating ideas, but it differs in that it is a way of having students quickly jot down connected sentences or phrases, rather than single words or lists, without stopping to correct or analyze what they've written (Graves et al, 2004). Students let their thoughts flow, writing informally, generating ideas, and making connections among the ideas (Tompkins, 2008). This technique can be used to start a lesson ("Let's quickly write down everything we know about fractions.") or to end a lesson ("Now let's use a quickwrite to summarize everything we know about mathematical patterns.") (Graves et al, 2004; Conley, 2008).

Math autobiographies are an excellent way to give students the opportunity to communicate about themselves and about math to their teachers. Best used at the beginning of the school year, they allow students to describe their feelings about math and their past experiences as math learners (Countryman, 1992; Vacca & Vacca, 2008). These autobiographies can be structured in a variety of ways. Countryman (1992) asked students to tell her about their "triumphs and disasters", urging them to go back as far as they could remember to share what they liked and disliked about learning math. Vacca & Vacca (2008) suggest using a prompt developed by Rose (1989):

> "Write about any mathematical experiences you have had. The narratives should be told as stories, with as much detail and description as possible. Include your thoughts, reactions, and feelings about the entire experience (p. 24)."

If more support is needed, the prompt can be scaffolded by using sentence starters.

Journal writing can have a range of uses in math class. Content may include summaries, letters, student-constructed word problems, solutions to problems, descriptions of mathematical processes, connections between their own experience and the math class/course, or dialogue between the teacher and student (Vacca & Vacca, 2008; Countryman, 1992). Definitions, instructions, lists, and arguments/justifications are also options (Ontario Ministry of Education, 2004 & 2005). Teachers can provide specific prompts for student freewriting response, such as "What goes through your mind when you do a proof?" or "Explain to someone how to bisect an angle." (Vacca & Vacca, 2008, pp. 261 & 262). In addition, lists may be used as a prompts, for example, "Make a list of all the things that can be changed after you press the MATH key on the graphing calculator." or "List different forms of a linear function." (Ontario Ministry of Education, 2004, p.93 & 2005, p. 37). The two-column format of a double-entry journal is another means of integrating journal writing in math (Vacca & Vacca, 2008; Graves et al, 2004; Alverman et al, 2007). One way this can be used is for solving word problems. Students can write or paste a copy of a math problem on the left side and explain their solutions in words, calculations, and/or drawings on the right side. By incorporating writing for a purpose in math, journal use offers the opportunity for wider participation, encourages independence, and can replace quizzes and tests as a means of assessment (Countryman, 1992). "Journal writing in mathematics is a tool that can positively affect attitudes toward the subject, skill development, and concept mastery (Ontario Ministry of Education, 2004, p.90)."

A useful informal writing activity is an entrance visa (Alverman et al, 2007) or admit slip (Vacca & Vacca, 2008). These are brief anonymous comments written by students at the beginning of class with their reactions to what they are studying. Also, they can be written (again anonymously) as part of homework and later collected and shared aloud by the teacher as a way to review and start discussion in class. Vacca & Vacca (2008) suggest that students respond to questions such as: "What problems did you have with your assignment?" or "What did you like (dislike) about _____?" (p. 283).

Exit visas (Alverman et al, 20007) or exit slips (Vacca & Vacca, 2008) are a variation on the entrance or admit visa or slip. The exit slip is used at the end of class as a way to bring closure to a lesson (Vacca & Vacca, 2008). Likewise, it can be used as a quick assessment of a lesson or an introduction or pre-assessment for the upcoming unit of study (Vacca & Vacca, 2008). Examples of exit slips in math include: "Today you began to learn about decimal fractions. List three things you learned. Write at least one question about this topic." or "How is a decimal like a fraction? How are they different? What's a light bulb moment for you as vou've thought about fractions and decimals?" or "1. Do the best you can to answer these problems. This is your ticket out the door. '4x + 1 = 9' and '3 – x = 6'. 2. Thinking about today's lesson, what would you like more help to understand?"

Writing changes and enhances the classroom climate and learning habits of students by encouraging and allowing active participation by all (Countryman, 1989). By incorporating writing in math class, teachers help students reflect on their learning and deepen their understanding of important concepts (Kawas, 2006-2008). It is critical for students to be active participants in the acquisition of their own knowledge and learning of mathematics. Writing in math is an essential component of that process.

References:

Alverman, D.E., Phelps, S.F., & Ridgeway, V.G. (2007). *Content area reading and literacy: Succeeding in today's diverse classrooms* (5th ed.). Boston: Pearson Education, Inc.

Conley, M.W. (2008). *Content area literacy: Learners in context.* Boston: Pearson Education, Inc.

Countryman, J. (1992). *Writing to learn mathematics: Strategies that work*. Portsmouth, NH: Heinemann.

Elbow, P. (1998). *Writing without teachers* (2nd ed.). New York: Oxford University Press.

Graves, M.F., Juel, C. & Graves, B.B. (2004). *Teaching reading in the 21st century* (3rd ed.). Boston: Pearson Education, Inc.

Kawas, T. (2006-2008). Writing in Mathematics. Accessed 1/23/2009 from: *http://www.mathwire.com*

Ontario, Canada Ministry of Education. (2004). *Think literacy: Cross-curricular approaches, mathematics, grades 7 – 9.* Accessed 12/29/2007 from: *http://www.edu.gov.on.ca/eng/studentsuccess/thinkliteracy/files/ThinkLitMath.pdf.*

Ontario, Canada Ministry of Education. (2005). *Think literacy: Cross-curricular approaches, mathematics, grades 10 -12.* Accessed 12/29/2007 from: *http://www.edu.gov.on.ca/eng/studentsuccess/thinkliteracy/files/ThinkLitMath10_12.pdf.*

Rose, B. (1989). Writing and mathematics: Theory and practice. In P. Connelly & T. Vilardi (Eds.), *Writing to learn mathematics and science* (pp. 19-30). New York: Teachers College Press.

Russek, B. (1998). *Writing to learn mathematics.* Accessed 1/23/2009 from: *http://wac.colostate.edu/journal/vol9/russek.pdf.*

Tompkins, G.E. (2008). *Teaching writing: Balancing process and product* (5th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Vacca, R.T. & Vacca, J.L. (2008). *Content area reading: Literacy and learning across the curriculum* (9th ed.). Boston: Pearson Education, Inc.

Voices from the Field

This article is a compilation of perspectives on literacy skills, and/or prerequisites that would assist students in accessing and understanding specific content. The following are excerpts from essays by graduate students pursuing masters degrees in secondary content areas. Each author is credited individually, and the content reflects the opinions of the author. Headings indicate the academic content area specialization of the authors.

- J. L. Fontana, Editor

Why is It Important for All Teachers to Teach Literacy Skills?

John Schelble, M.P.A.

Many of us have had the following experience in a restaurant: you want some more butter for your roll, but don't see your waiter. So you ask a waiter passing your table for some extra butter. He responds, "This isn't *my* table; I'll get *your* waiter for you." Some teachers of math, science, art, health, physical education, social studies and even English have the same approach to teaching literacy. They view it as someone else's job; *their* job is to teach *their* subject.

They miss the point because, if teaching their subject is their goal, they will not be able to achieve it unless students have the necessary literacy skills. The statistics reported in *Reading Next* (Biancarosa & Snow, 2006) show that many students are leaving elementary school without the skills they need.

At the same time, success in middle school, high school, and beyond depends heavily on literacy skills—skills that are "…more complex, more imbedded in subject matters" (Biancarosa & Snow 2006, p. 1). The kind of literacy skills needed by older students and adults requires different and more complicated skills than the basics learned in elementary school (Irvin, Buehl, & Radcliff, 2007). With this in mind, it could be argued that, even if students arrive in high school with well-developed literacy skills, they will still require additional instruction and practice to adapt to the new academic challenges they face.

Finally, the job market is changing, and more sophisticated literacy skills are needed by employers, for an employee's ability to "…comprehend[ing] and learn[ing] from complex, content-rich materials… [is needed to] achieve a reasonably comfortable and successful lifestyle." (Biancarosa & Snow, 2006, p. 1).

English/Language Arts

Elizabeth Koby, B.A.

When asked why it is important to teach literacy skills in English, I thought it might be a trick question. On one level, it's obvious that teaching literacy in all its forms is important in English Language Arts. English teachers hold the clear responsibility for this. On another level, however, literacy is such an important skill that its value should never be underestimated. As an English teacher, my job is to take the students deeper into a text, to go beyond a simple comprehension, to a more profound understanding. I can give students many strategies for improving their reading and writing skills. Also, I can offer the teachers of other subjects a wealth of resources to improve student literacy in their content areas. Moreover, the importance of teacher collaboration should not be undervalued.

The following is a brief list of my goals for Language Arts instruction all of which will be supported via literacy strategies embedded into my instruction:

- Students should develop strategies to comprehend more challenging texts across genres.
- Students should develop the ability to *produce* more sophisticated texts in numerous genres.
- Students should develop their thinking, moving squarely into the formal operational realm, and moving continuously higher up Bloom's taxonomy.
- They should become reflective readers. "Reflection is what enables us, according to many theorists, to generalize, as we create mental models from our experience. It is, in many ways, the process of learning from experience" (Prensky, 2001).
- They should be pushed to question the paradigms/schemas that they have inherited from our culture.
- They should engage in authentic inquiries and conversations about topics that interest them.

Social Studies

Jessi Copeland, M.A.

According to the National Institute for Literacy (NIFL, 2007) roadblocks to student literacy in the social sciences might be attributed to a lack of foundational knowledge or interest in subject matter, problems with decoding, morphology, vocabulary, fluency, and text comprehension (NIFL, 2007). For those students fluent in basic skills, the attainment of more advanced levels of literacy brings additional problems including schools' methods of assessment, learning and practicing writing skills, student motivation, and differentiating instruction for diverse learners (NIFL, 2007). Students will need guidance on translating comprehension skills from narrative texts to expository texts (NIFL, 2007), and teachers in the social sciences should recognize this need at all levels.

For some students, progress might be hardest in reading for comprehension and in writing, and writing well. "Because writing style and purpose vary across different academic disciplines, content-area teachers must be able to teach students how to write using the text structures and stylistic conventions that are prevalent in their disciplines" (NIFL, 2007, p.2). As Irvin, et al (2007) indicate, teaching students how to navigate your subject matter's discourse is essential. "For students to learn within a discipline, they…must gain membership in [the] discourse community. They need to develop confidence in reading and expressing themselves in the language of that discipline; they need to become comfortable using the vocabulary of social studies…. Novice learners within a discipline – our students – require multiple opportunities to explore hearing, reading, and communicating an academic discourse" (Irvin, et al, 2007, p.89).

Sara Barton, B.S.

Teaching literacy skills is necessary in the social studies/history classroom because students must be able to decide what is important and relevant in content sources, to understand the meanings provided by different sources, to recognize the focus of questions or controlling themes, and to form opinions and communicate them in writing or orally. These goals are supported by literacy skills, including:

- Recognizing the organization and study aids included in texts and applying these factors to help with comprehension
- Comprehending new vocabulary while reading/listening and using it appropriately when writing/speaking
- Using graphic organizers and note-taking techniques to understand content and make connections
- Communicating understanding in writing or orally

John Schelble, M.P.A.

Just like the study of English itself, social studies requires in students the ability to use language with precision and effectiveness. The disciplines subsumed within social studies include specialized vocabulary and concepts. A few examples: elasticity of demand, industrial revolution, propaganda, bureaucracy, and revolution. These vocabulary words, and the concepts associated with them, must be mastered for the student to be conversant in the language of social studies.

Because social studies involves the interpretation of research and facts and their incorporation into schemas, explanations and theories, higher-order thinking skills such as determining cause and effect, problem solving, comparing and contrasting, and proposing and supporting propositions are basic to understanding the subject matter. "Textbooks in content areas such as social studies…demand more complex reading than story form….and require increasingly abstract thinking that can perceive relationships" (Irvin et al., 2007, p.78). Developing and understanding these relationships, and relating them to students' previous knowledge, are at the heart of learning social studies.

A social studies teacher who cares about his or her subject and students but ignores literacy skills undermines the very goals he or she professes to be trying to achieve.

Nuances of Literacy in Mathematics

Victor Lena, M. Eng.

There are, I would suggest, two vast areas where "nuance" enters the discussion of literacy in mathematics. The first, and most widely perceived, involves the communication of mathematics, that is, the language of mathematics. The second, more subtle but having possibly a more profound effect on the future of mathematics education, involves the very definition of "literacy in mathematics."

The communication of mathematics and mathematical information is, ironically, difficult to quantify. One might think of distinct rules, like grammars, when communicating either numerically, or algebraically, or logically, or geometrically. One might further think of distinct structures, like syntaxes, when communicating in words, or symbols, or diagrams. Finally, there are vocabularies associated with each structure that may or may not be unique, often leading to confusion in the mind of the math student. One of the more insidious examples of this is found in the term, "inverse": the inverse of an expression is not the same as the inverse of a function, which is not the same as the inverse of a proposition, which is not the same as the inverse of a circle.

But the true extent of nuance in mathematical literacy can only be appreciated when several grammars, syntaxes, and vocabularies are simultaneously interposed as happens in virtually every meaningful application of mathematics, in or out of the classroom. An example of this sort of nuance is revealed in the meaning of the term/symbol/number/operator '-1' in the following, fairly mundane, expression:

$$-(\sin^{-1}\theta - 1)^{-1}$$

It appears four times (one occurrence is implicit), and it means something different in each case. I don't think it's an overstatement to say that the language of mathematics is pregnant with nuance.

Be that as it may, the discussion above can be thought of as the more tractable aspect of nuance in mathematics. A more troublesome aspect is found in the debate over the very definition (and use) of the term "mathematical literacy." Some educators like Steen (2001) equate mathematical literacy with "quantitative literacy" or "numeracy." They advocate *mathematics for the masses*, which would empower every citizen to interpret the kind of comparative tables and quantitative graphs liberally sprinkled throughout most editions of *USA Today*, for example, or to be able to understand the meaning of "margin of error" affixed to those ubiquitous opinion polls taken on every topic imaginable, from presidential candidates to bottled clam juice. The expectations of functional literacy in mathematics permeates our lives as well as our math classes.

Literacy and Science

Sandra Leathart, B.S., B.A.

Scientific literacy has been defined as, "the matrix of knowledge needed to understand enough about the physical universe to deal with issues that come across our horizon, in the news or elsewhere" (Trefil, 2008, p. 28). According to the *Condition of Education* (Planty, Hussar, Provasnik, Kena, Dinkes, & KewalRamani, 2008) U.S students scored below average in scientific literacy when compared to students from most other industrialized nations. Many would argue that literacy in science is an unimportant proficiency. Many Americans are not employed in science fields or even remotely interested in science. We live in a world, however, where scientific issues increasingly enter national dialogue. Scientific issues come into public examination daily on issues that affect the environment (climate change, pollution, recycling, nuclear waste), economics (use of natural resources), morality (genetic engineering), development of new drugs, and so on. All people must be scientifically literate if they want to be informed and involved in discussion about these or other topics (Trefil, 2008).

Science education in secondary schools is typically divided into four categories, biology, chemistry, earth science, and physics with little recognition of interdisciplinary questions and interconnectedness. Textbooks may present information as isolated fragments (Koppal & Caldwell, 2004). For example, in biology, issue-linked topics such as genetics and DNA are not integrated for the students. In the process of dividing content material into manageable portions, students may memorize chunks of information, but not see the overarching concept.

As with other content areas, sciences have their specific vocabularies further challenging students with limited prior knowledge and/or struggling readers. Literacy skills that help students access and understand the various sciences is important not only for school success, but also to enable participation in public debates relative to science and finally, to make educated life decisions.

References:

Biancarosa, C. and Snow, C.E. (2006). *Reading Next: A vision for action and research in middle and high school literacy: A report to the Carnegie Corporation of NY* (2nd ed.). Washington DC: Alliance for Excellent Education. *www.all4ed.org/files/ReadingNext.pdf*

Irvin, J., Buehl, D. and Radcliffe, B. (2007). Demands of Text in *Strategies to enhance literacy and learning in middle school content area classroom* (pp. 74-96.) Boston, MA: Pearson/Allen Bacon.

Koppal, M., and Caldwell, A. (2004). Meeting the challenge of science literacy: Project 2061 Efforts to improve science education. *Cell biology,* 3.

National Institute for Child Health and Human Development. *What content- area teachers should know about adolescent literacy.* (2007). *www.nifl.gov/publications/adolescent_literacy07.pdf* retrieved March 23, 2009.

Planty, M., Hussar, W., Provasnik, S., Kena, G., Dinkes,R., KewalRamani, A. (2008). The condition of education [electronic version] National Center for Educational Statistics, publication number 2008031.

Prensky, M. (2001). *Digital natives, digital immigrants*. Parts I and Digital natives, digital immigrants, part II: Do they really *think* differently? *On the Horizon* (MCB University Press, Vol. 9 No. 5, October 2001).

Steen, L. (editor). (2001). *Mathematics and democracy: The case for quantitative literacy*. National Council on Education and the Disciplines.

Trefil, J. (2008). *Why science?* Arlington: National Science Teachers' Association. U.S. Department of Education National Center for Education Statistics (2007) The Nations' report Card. Retrieved February 16, 2009 *http://nationsreportcard.gov/reading_2007* and *http://nationsreportcard.gov/writing_2007*

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Note Taking

Carrie Martell, M.Ed, Harrisonburg City Public Schools
Ashley Reyher, M.Ed, Henrico County Public Schools

After students have a handle on their time, the second most important component of academic success is taking notes effectively. Successful studying can only happen when students have useful and complete notes. Note taking strategies need to be explicitly taught, especially for students with disabilities. Most students need to learn a system of note taking that they can use in all subjects. Many students benefit from Cornell Notes (*http://coe.jmu.edu/learningtoolbox/cornellnotes.html*). This is a systematic way to take notes that increases comprehension and daily interaction with class content by differentiating main ideas and supporting details and summarizing information.

In the Cornell system, the students write the notes as normal, but the page has been partitioned off on the left of the page and at the bottom of the page. The left hand side of the page is kept blank to be filled in after class with main ideas or major bullet points. The bottom portion is left blank to allow the student to write a short summary of the information on the page. If students interact with their notes everyday by inserting main ideas and summaries, they will increase their likelihood of remembering information over time.

In addition, Cornell Notes become instant study guides. Students can cover the details from the notes and see only the main ideas/bullet points. They can practice naming the important facts about the idea. Also, students can practice summarizing the major points aloud, and then, check the bottom of the page for the correct answers.

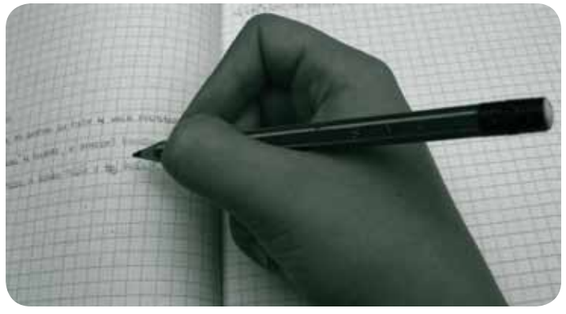
Another important component of taking notes efficiently is using abbreviations. Some students are not comfortable abbreviating because they do not know exactly where to stop writing. Teachers need to teach this skill directly. Give your students a short list of commonly abbreviated words and give them time to practice with mock lectures. Also, remind them to use abbreviations during your classes to increase their comfort.

For an auditory learner, tape recording class sessions while taking written notes can be very effective. Reviewing notes from a lecture, and listening repeatedly may increase understanding and retention. Finally, in a high school setting, encourage students whose disabilities impact processing speed or writing fluency to advocate for themselves and to ask ahead of time for outlines of notes. By taking ownership, the learner gets information in a way that works best for him or her.

Two column notes adapted for math processes

Process steps for: Dividing mixed numbers	What the process looks like: Sample problem (s)
1. Read the problem carefully	1. $3\frac{1}{2} \div 2\frac{1}{4}$
2. Change any mixed numbers to improper fractions	2. $7/2 \div 9/4$
3. Invert the second number	3 & 4 $\frac{7}{2} \times \frac{4}{9}$
4. Change from division to multiplication	
5. Simplify on the diagonal	$\frac{7}{2} \diagup \frac{4}{9}$ (divide both 2 and 4 by common factor 2)
6. Multiply	
top X top	$\frac{7}{1} \times \frac{2}{9}$ $(7 \times 2 = 14)$
bottom X bottom	$(1 \times 9 = 9)$
7. answer has been left as an improper fraction	$\frac{14}{9}$

J.L. Fontana, Ph.D., VDOE T/TAC @ GMU



I'm Determined to Read and Succeed

Diane Loomis, Ph.D., VDOE T/TAC at GMU

We may be able to further enrich literacy through content area instruction by choice of literature. The books below are among those highlighted by the Virginia Department of Education's Self-Determination project. Chosen to raise and resolve issues of disability in a positive way, they may also accompany instruction in various content areas.

COMMUNITY HELPERS

Russ and the Firehouse by Janet Elizabeth Ricker, Pete McGahan (photographer). Bethesda, MD: Woodbine House, 2000. 24 pages. Ages 4 – 7.

Russ, who has Down Syndrome, visits his Uncle Jerry's firehouse. Russ and Uncle Jerry work on various chores around the firehouse. They spray the fire hose, wash the dog, and complete other tasks typical in the life of a firefighter.

SCIENCE AND HEALTH

Diabetes by Alvin Silverstein, et. al. Franklin Watts, 2003. 48 pages. Non-fiction. Ages 9 – 12.

This book discusses diabetes, what causes it and how it is treated. It teaches the difference between Type I and Type II diabetes, and what can be done to maintain personal health and prevent diabetes attacks. Colorful illustrations and photographs accompany the text.
Because She's My Friend by Harriet Sirof. Lincoln, NE: iUniverse.com, 2000. 184 pages. Fiction. Ages 9 – 12.

During the summer of her fifteenth birthday, Teri D'Dngelo meets Valerie Ross. Valerie is a patient at the hospital where her paralyzed leg is being treated. The meeting develops into a difficult and unusual friendship between the two girls—one quiet and well-behaved and the other outspoken . When Teri discovers Valerie's serious depression about her disability, she struggles with decisions about how she can help, and you may wonder why she should even bother.

HISTORY

The Cay by Theodore Taylor. New York: Yearling Books, 1969. 144 pages. Fiction. Ages 9 -12.

This is a story of survival, friendship, and sacrifice. Phillip is an 11 year old boy from Norfolk, Virginia. His father's company has moved them to the Caribbean during World War II to apply his father's expertise to the production of aviation gas. The Germans attack their island of Curacao, and Phillip's vessel is shipwrecked as he and his mother attempt to leave. Blinded by injuries, Phillip finds himself dependent upon an Old West Indian, someone different from him in culture and race. Phillip must cope with his loss of sight as well as learn to understand and trust the only man who can help him survive.

After the Dancing Days by Margaret Rostkowski. New York: Harper Trophy, 1988. 224 pages. Fiction. Ages 10 – 14.

Is war a thing to be forgotten? This is what Annie's mother would like to do. But Annie cannot forget the death of her favorite uncle, who was killed in France. Annie's father works in a veteran's hospital, and it is there that Annie meets Andrew, who was disfigured by the war. Can Annie find the courage to help Andrew? Will she be able to make sense of a war that took much from many?

Note: *I'm Determined*, a project developed and sponsored by the VDOE's Training and Technical Assistance Centers, focuses on providing direct instruction, models, and opportunities to practice skills associated with self-determined behavior beginning at the elementary level and continuing through the student's educational career. The empowered student knows how to set and achieve goals and has a greater understanding of personal strengths and how to get support for areas of need. For more information go to *www.imdetermined.org*.

Conferences & Trainings:

May

3rd - 5th 2nd Annual International Conference on Self-Determination

International Conference on Self-Determination will take place at the Benton Convention Center, Winston-Salem, North Carolina. Pre-conference is Sunday, May 3, 2009.

Contact Phone: 1-888-542-8555
Contact Email: ICSD2009@craconferences.com
Web: www.self-determination.com/index.php/New-Events/

29th - 30th Say Yes to College

Students with disabilities who are planning to secure a two- or four- year college degree are invited to apply. Applicants must be current high school sophomores, juniors, or seniors pursuing an Advanced Studies, Standard, or Modified Standard Diploma, or students of high school age seeking a GED. Participation is limited to 50 students. Workshop topics for students include: Selecting a two-year or four-year college Understanding academic life at college Enjoying student life at college Using assistive technology supports Surviving the transition to college. Say YES to College is a collaborative effort of the Virginia Department of Education Training and Technical Assistance Centers (T/TACs) at Old Dominion University and The College of William and Mary, Virginia Department of Rehabilitative Services (DRS), Virginia Assistive Technology System (VATS), Children's Hospital of the Kings Daughters, Endependence Center, Inc., Norfolk State University (NSU), Old Dominion University (ODU), Thomas Nelson Community College, Tidewater Community College (TCC), and school divisions throughout Superintendent's Regions 2 and 3. See link for Application.

Contact Name: Joann Ervin
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Web: www.lions.odu.edu/org/vats/sayyes.htm

June

22nd - 26th 10th Annual Content Teaching Academy

Six different academies for PreK to 12th grade teachers to earn recertification credits and/or become highly qualified. Academies in early childhood special education, elementary, and 6-12 core content areas.

Contact Name: Laurie Cavey
Contact Phone: 540.568.6783
Contact Email: caveylo@jmu.edu
Web: www.jmu.edu/contentacademy

23rd - 26th K-3 Teacher Reading Academy

Virginia Reading First professional development in Charlottesville.

Contact Name: Susan Thacker-Gwaltney
Contact Phone: 877-827-3237
Contact Email: sft2s@cms.mail.virginia.edu
Web: www.readingfirst.virginia.edu

23rd - 26th Reading Academy for Special Educators (Roanoke)

The 4 day academy will address reading comprehension, fluency, vocabulary, and phonemic awareness skills for struggling readers and students with disabilities.

Contact Name: Rebecca Perini
Contact Phone: 877-827-3237
Contact Email: rlp2k@virginia.edu
Web: www.readingfirst.virginia.edu

July

13th - 15th 2009 Shining Stars Conference

Virginia's 6th Annual Early Childhood Conference "Shining Stars: Charting the Future for Today's Children" will be held at the Wyndham Virginia Beach Oceanfront in Virginia Beach, VA, from Monday, July 13th through Wednesday, July 15th, 2009. This statewide conference will focus on instructional strategies that provide positive outcomes in quality inclusive settings for infants, toddlers, and preschoolers with and without disabilities. The conference is designed for early childhood special educators, early childhood educators, Head Start personnel, Title 1 personnel, Even Start providers, early intervention providers, administrators, paraprofessionals, and families.

Contact Name: Phyllis Mondak
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Web: www.ttaconline.org

July

29th Literacy-Based Interventions that Support Communication: Pre-K through Secondary

This workshop (presented by Joanne M. Cafiero, Ph.D.) will demonstrate the design and implementation of literacy-based language interventions with the premise of the innate potential of every student. It will be held at the Marriott Richmond West in Glen Allen, VA. The registration fee is $50. Register Early-Space is limited!

Contact Name: Commonwealth Autism Service
Contact Phone: 1-800-649-8481
Contact Email: information@autismva.org
Web: www.autismva.org/documents CafieroRegistrationFlyer.pdf

October

28th - 30th 2009 Virginia Educational Technology Conference

The 2009 Virginia Educational Technology Conference will be held October 28-30, 2009, at the Greater Richmond Convention Center. This will be the 15th year for the conference which addresses issues of concern to the K-12 technology community. The two strands for the 2009 conference will be leadership and instructional innovation. More details to follow. Check www.ttaconline.org.

Contact Name: Ken Potter
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Contact Email: kpotter@vt.edu

November

19th - 20th TechKnowledgy 2009 in Richmond, Call for Proposals

The TechKnowledgy 2009 planning committee invites all interested persons to submit proposals for one hour sessions on November 19, 2009. We seek sessions which will highlight the use of assistive technology in educational, vocational, and community settings with students of all ages and disabilities. We hope to offer a variety of sessions covering all areas of assistive technology. Each room will be set theater style for 50 people and will include a table, microphone, LCD projector, and screen. Presenters must provide their own laptop computer and handouts. Proposals for one hour sessions must be received by April 1, 2009. Presenters will be notified of their acceptance by June 10, 2009.

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VIRGINIA'S SPECIAL EDUCATION REGULATIONS UPDATE

Nancy Anderson, M.Ed., VDOE T/TAC at George Mason University

On March 19, 2009, Governor Kaine approved the Virginia Board of Education's (VDOE) draft special education regulations. The next step in the process involves the Virginia Registrar's office publishing the draft regulations with the VDOE Notice announcing a 30-day public comment period in response to a petition to VDOE for the comment period.

According to the timeline located at *http://www.doe.virginia.gov/VDOE/dueproc/RevisionTimeline.pdf*, the public comment period is expected to begin April 13, with May 13, 5:00 p.m., as the closure date and time for submission. Directions for submission of public comment will be included in the Notice. Also, information will be available at VDOE's web site: *http://www.doe.virginia.gov VDOEdueprocregulationsCWD.html*.

Questions may be directed to either: Melissa C. P. Smith, Coordinator of Administratve Services, at 804-371-0524 or *Melissa.Smith@doe.virginia.gov*; or Dr. Suzanne Creasey, Administrative Services Specialist, at 804-225-2923 or *Suzanne.Creasey@doe.virginia.gov*.

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