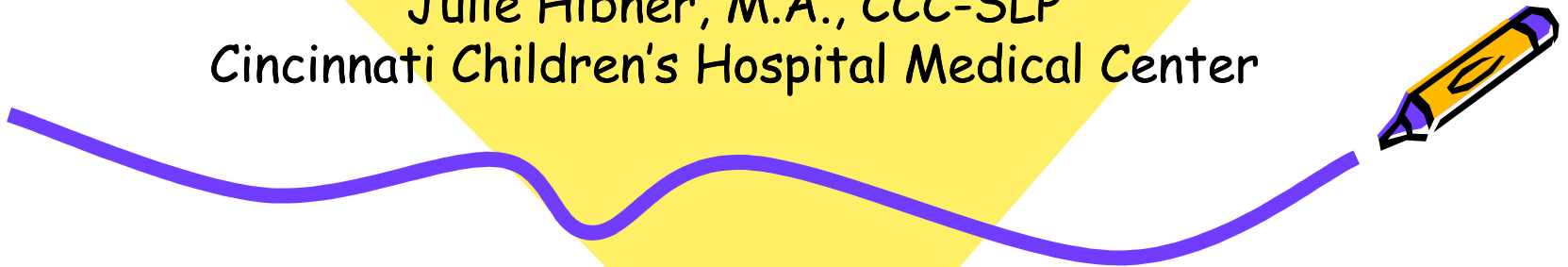




# AAC and the Role of Literacy

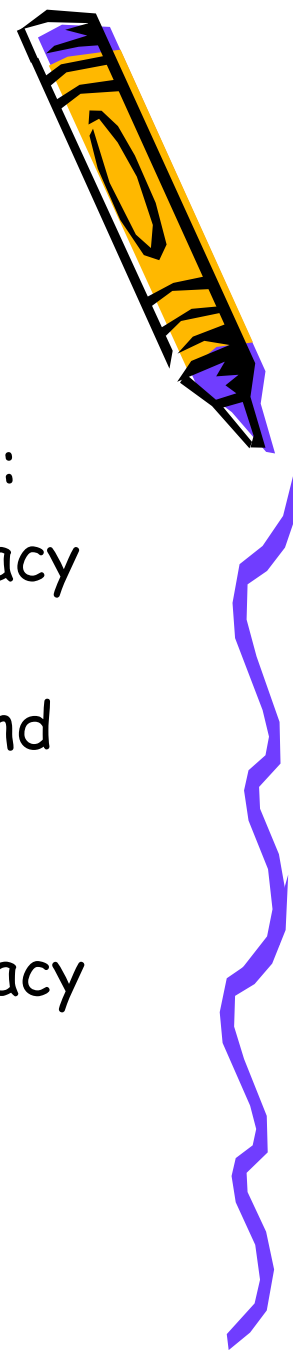
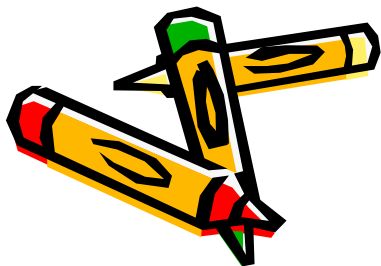
Christina Yeager, M.A., CCC-SLP  
Julie Hibner, M.A., CCC-SLP  
Cincinnati Children's Hospital Medical Center



# Learner Outcomes

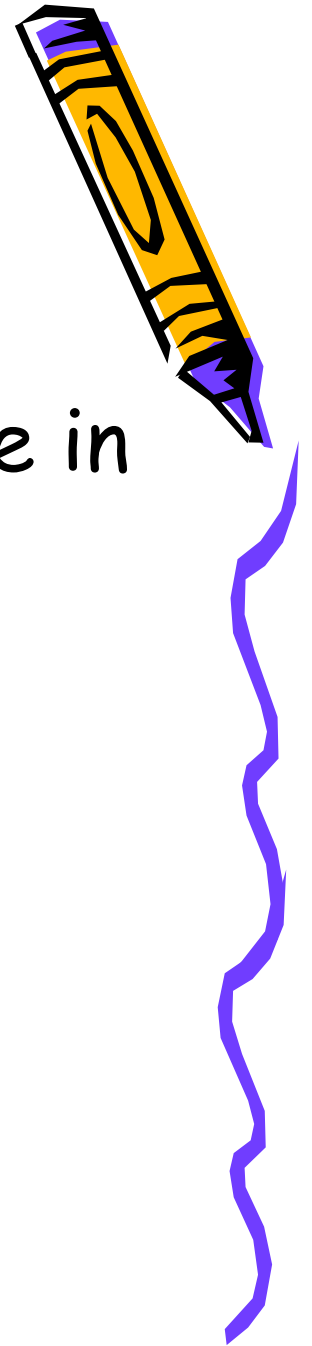
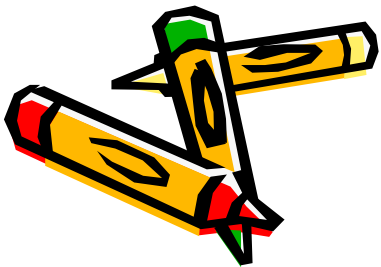
At the end of today's session, you will be able to:

- Discuss literacy principles that impact literacy acquisition in AAC users;
- Describe the main components of literacy and implications for AAC users; and
- Explain three evidence-based therapeutic interventions that target language and literacy development for AAC users.



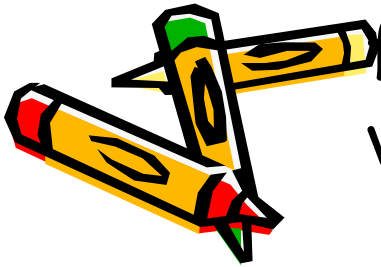
## ASHA says...

- "SLPs play a critical and direct role in the development of literacy for children and adolescents with communication disorders" (ASHA, 2001, p. 1)



# Connections between spoken and written language

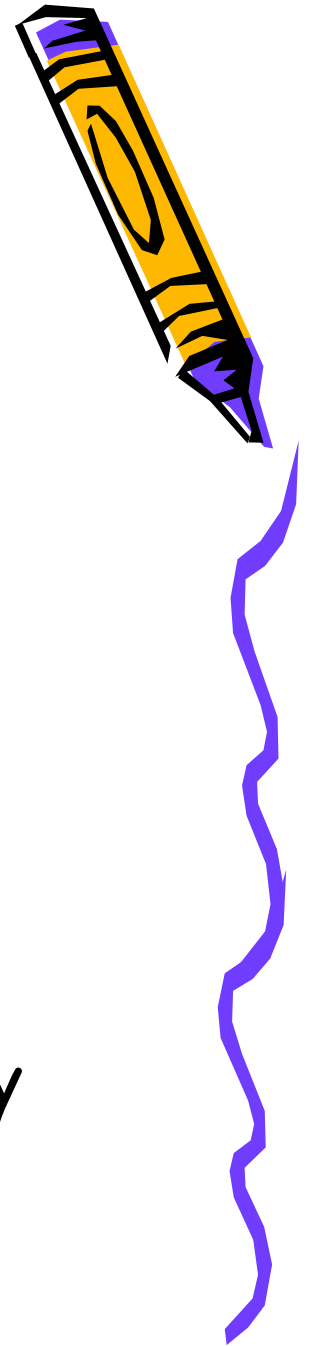
- Spoken language is the foundation of reading and writing
- Spoken and written language are reciprocal, and each builds on the other
- Children with spoken language problems have difficulty learning how to read and write; and vice versa
- Instruction in spoken language can facilitate growth in written language; and vice versa



# Important components of language

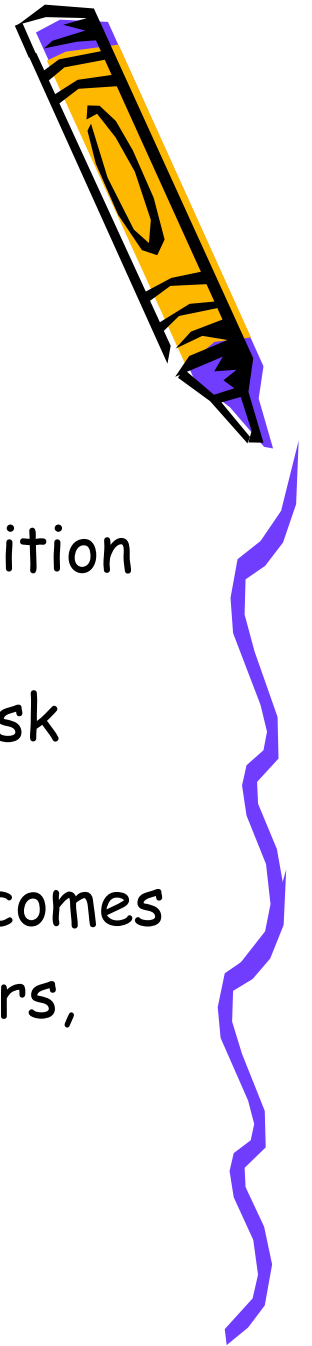
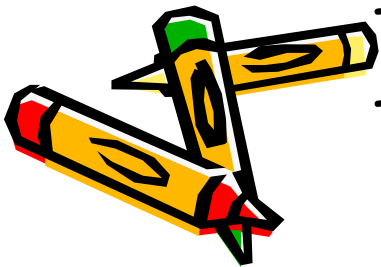
- Morphology
- Phonology
- Syntax
- Semantics
- Pragmatics

\*\*Deficits in any of these areas may affect children's ability to communicate, think, and learn



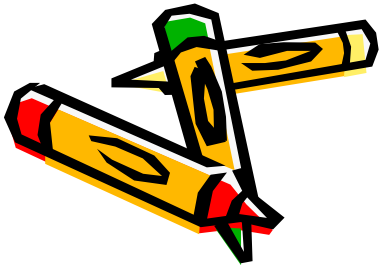
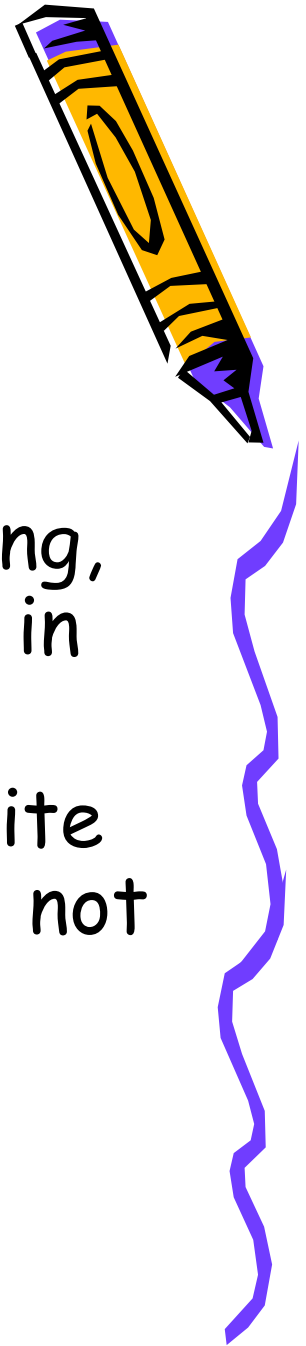
# SLPs roles and responsibilities

- May include:
  - Prevention by fostering language acquisition and emergent literacy
  - Identification of children who are at risk
  - Assessment
  - Intervention and documentation of outcomes
  - Assistance to general education teachers, parents, students
  - Advocacy
  - Expansion of the knowledge base



# What is Literacy?

- Integral part of the development of language.
- Requires an ability to integrate listening, reading, speaking, writing, and viewing in meaningful contexts.
- Ability to articulate is not a prerequisite for reading and ability to hold a pencil not a prerequisite for writing



# What does the research say?

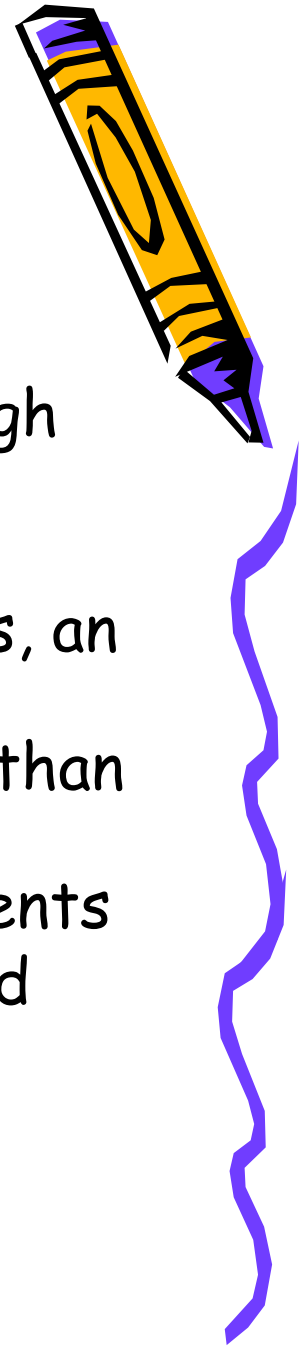


- Children with reading difficulties also tend to have oral language deficits (Catts et al., 2001) and vice versa (Justice et al., 2003)
- Children with difficulties in kindergarten tended to have academic difficulties in high school (Flax et al., 2003)
- Children who struggle in high school are less likely to pursue higher education (Roseberry-McKibbin, 2000)
- They may have difficulties establishing and maintaining social relationships, participating in community, and living independently



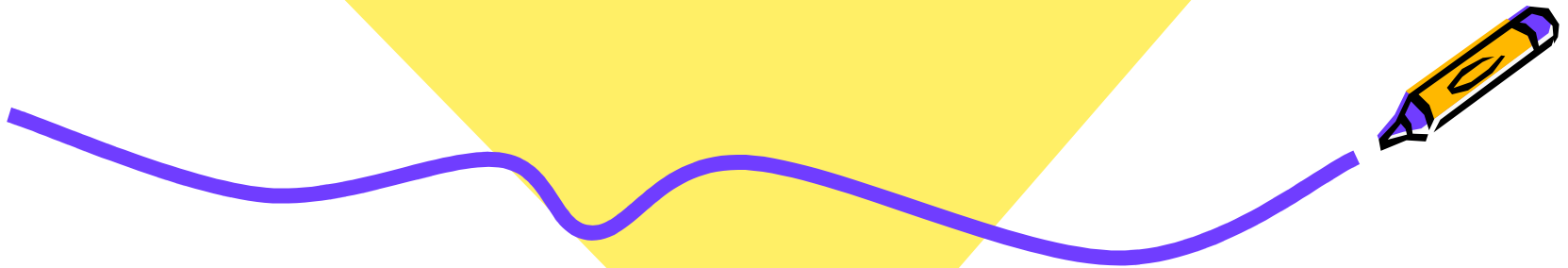
# Risk factors for language and literacy difficulties

- A mother whose education was less than high school
- Living in a single-parent household
- Living in a family receiving welfare benefits, an index of family poverty
- Parents whose primary language was other than English
- Children with speech and language impairments
- Children with a family history of speech and language difficulties





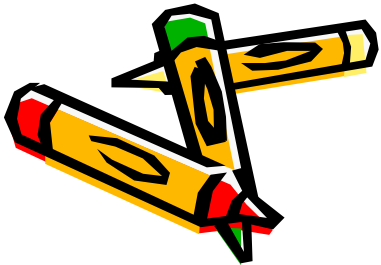
# Important Literacy Components



# Transaction

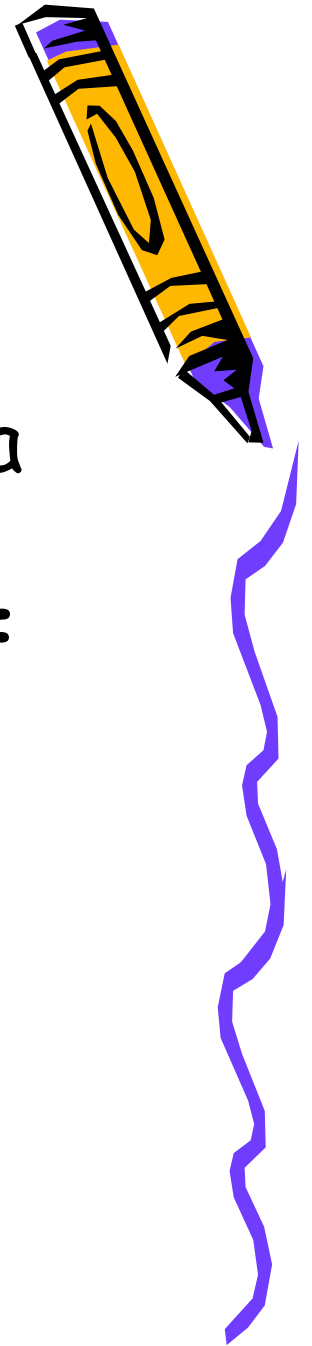


- What is your definition of "transaction"?
- Merriam Webster:
  - An exchange or transfer of goods, services, or funds
  - A communicative action or activity involving two parties or things that reciprocally affect or influence each other
- Describe a real-life example



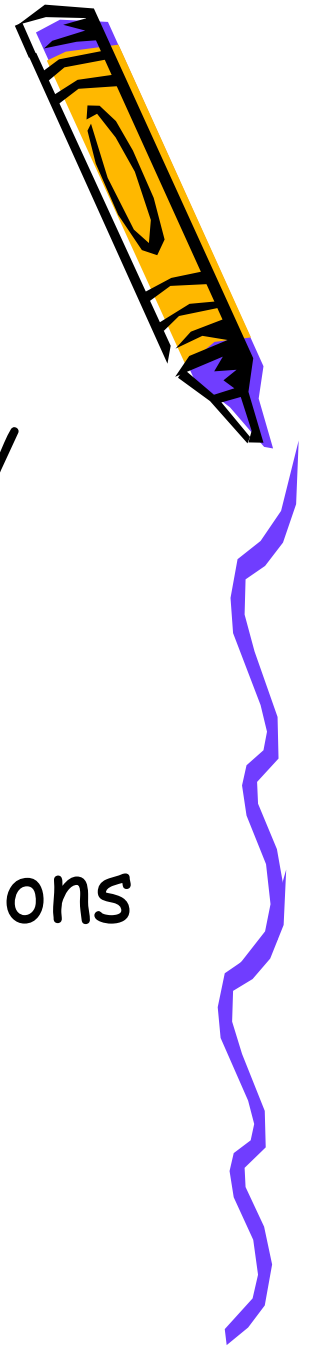
# How does transaction apply to literacy?

- "Every reading act is an **event**, or a transaction involving a particular **reader** and a particular **pattern of signs**, a **text**, and occurring at a particular **time** in a particular **context**" (Rosenblatt, p. 1063)



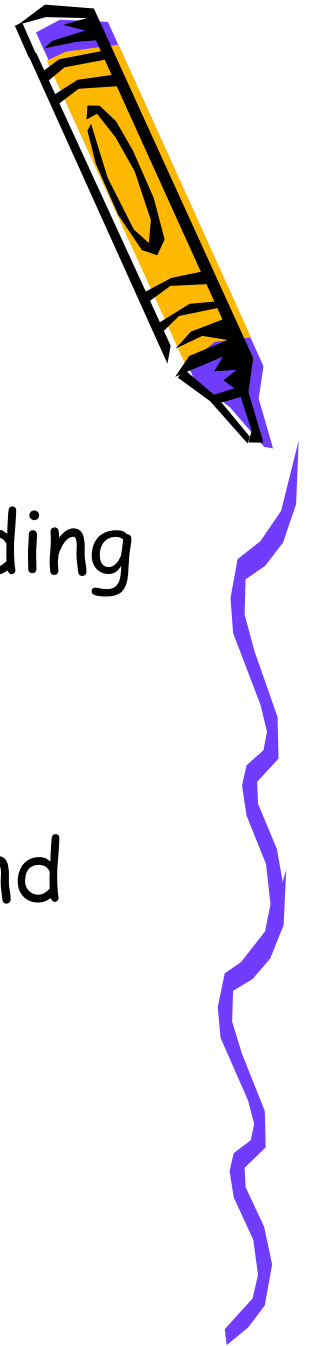
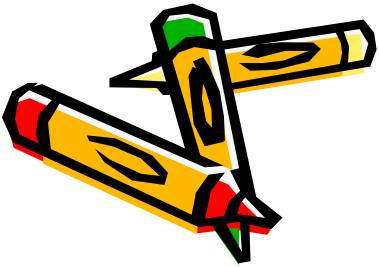
# The Basics of Transaction

- Text is shaped (i.e. transaction) by the speaker and the listener
- Utterances may take on different meanings
- Attitudes, state of mind, and opinions may have changed through the process



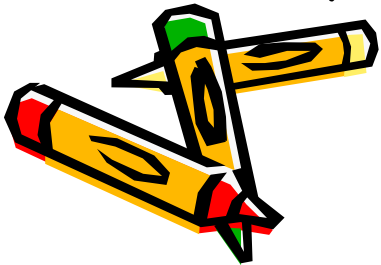
# Rosenblatt says...

- Both the text and the reader are changed through the process; reading is dynamic
- Meaning occurs through the transaction between the reader and text; meaning does not reside "in" the text or "in" the reader



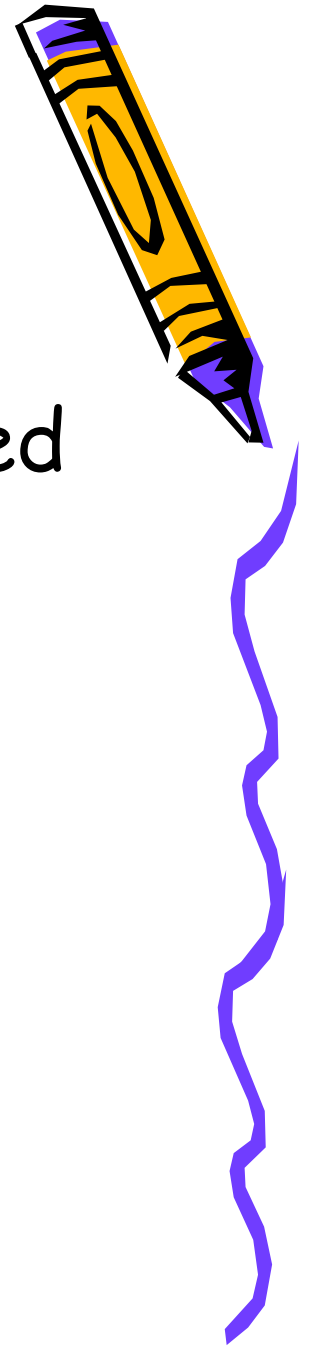
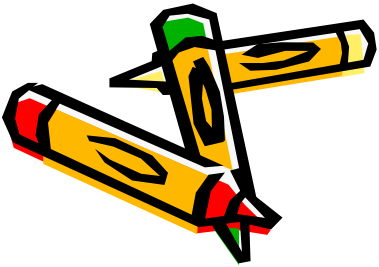
# Linguistic Transaction

- Example: face-to-face communication
- Involves a back and forth process
- Verbal signs: vibrations in the air produced by the speaker
- Both contribute, even if one person is silent
- Assess the situation to gain a sense of the other person
- Use clues from setting and occasion; also nonverbal cues
- Listener may ask questions or make comments to help the speaker gauge information
- Spoken text may be interpreted differently by each of the conversationalists



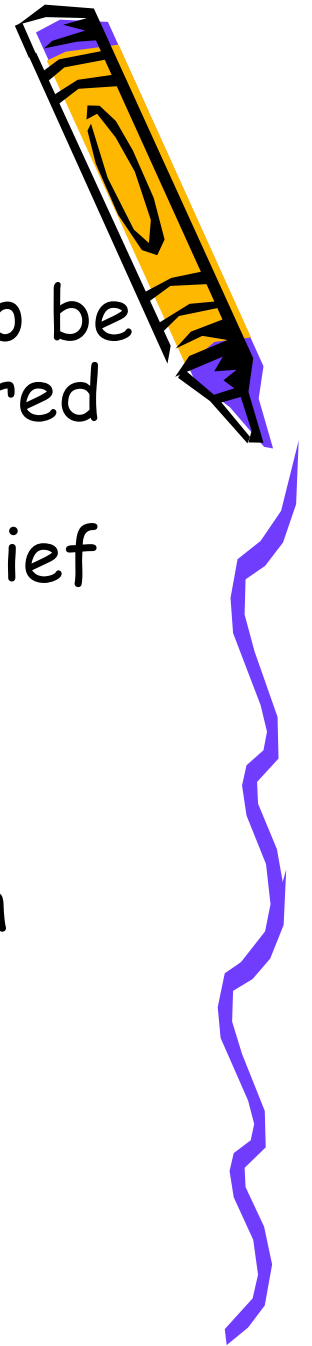
# The Reader's Stance

- The reader's selection of a selected attitude, "bringing certain aspects into the center of attention and pushing others into the fringes of consciousness" (p. 1066).
- Purpose

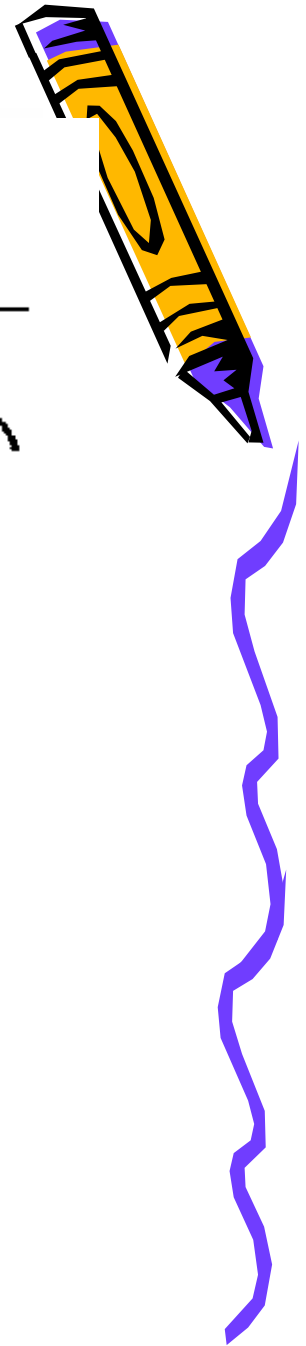
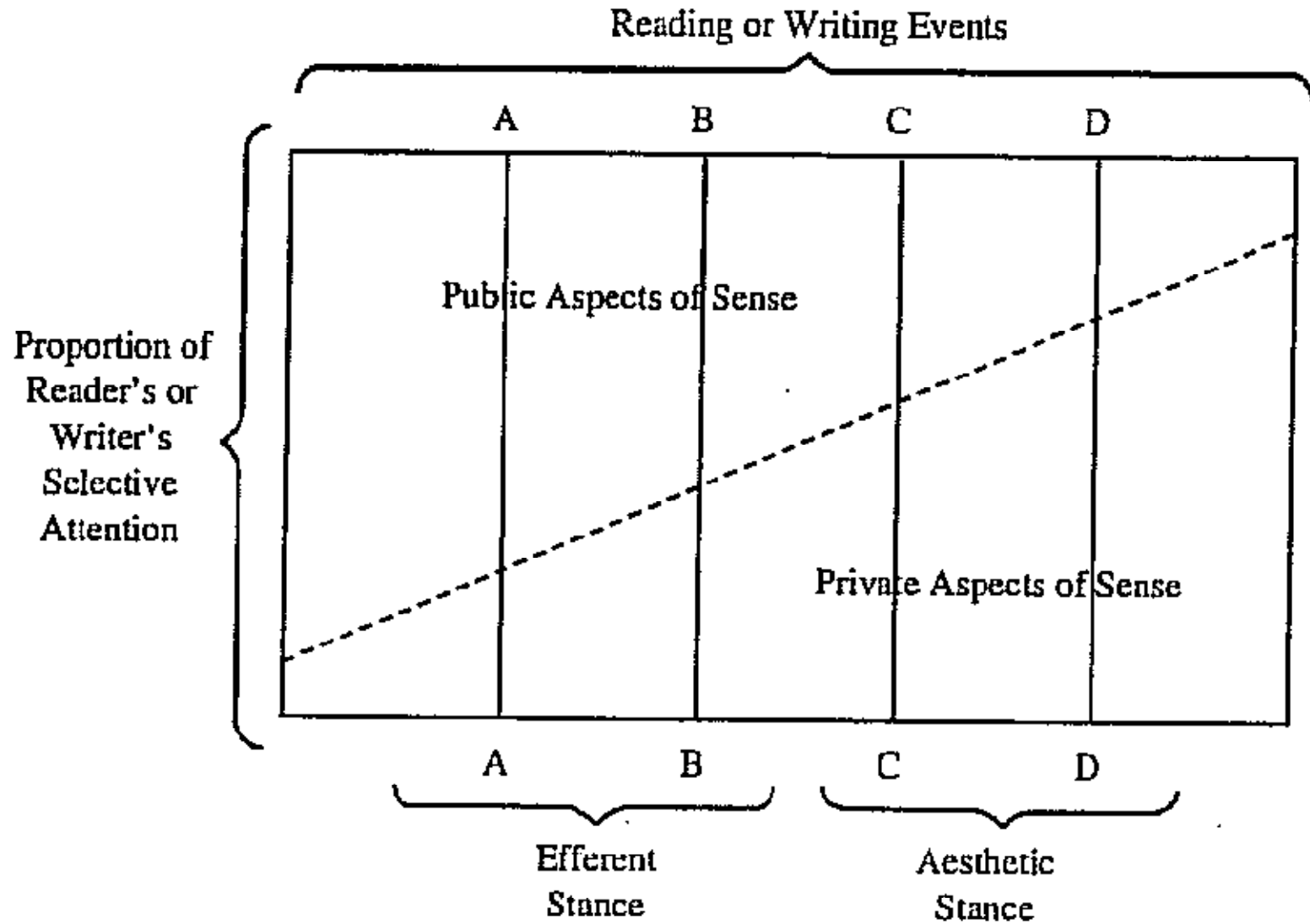


# Stance

- **Efferent Stance:** information that is to be extracted from the text and remembered after the reading event; may include reading a newspaper, textbook, legal brief
  - Ex: Directions for putting together a desk
  - Ex: Man who swallowed a poisonous liquid
- **Aesthetic Stance:** attitude of giving attention to what is being lived through the event; may include senses, feelings, intuitions
  - Ex: Book club book
  - Ex: Love story

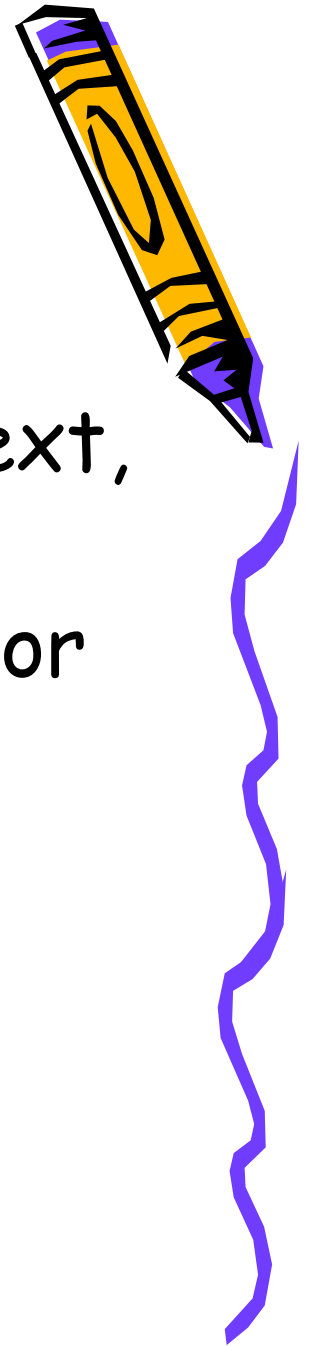


**Figure 1**  
**The Efferent-Aesthetic Continuum**



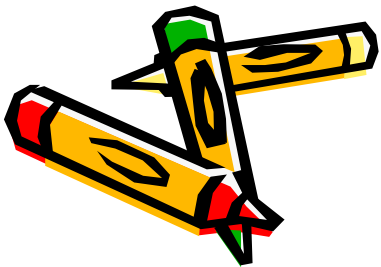
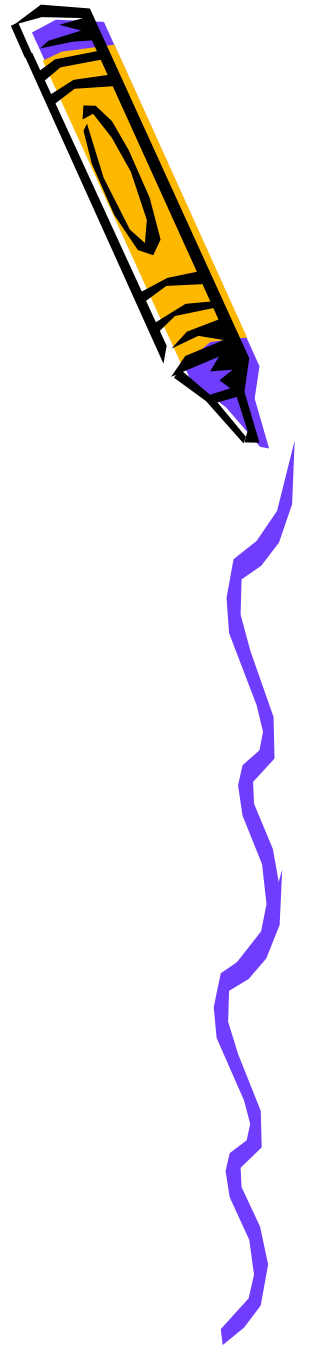
# Final Thought about Transaction

- Because of the transaction with text, we cannot isolate specific skills or over-emphasize either the author or the reader



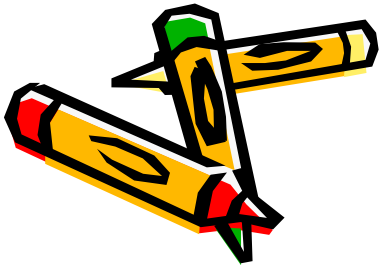
# What is schema?

- Take 2 minutes to write down your definition of "schema" and discuss briefly with your neighbors



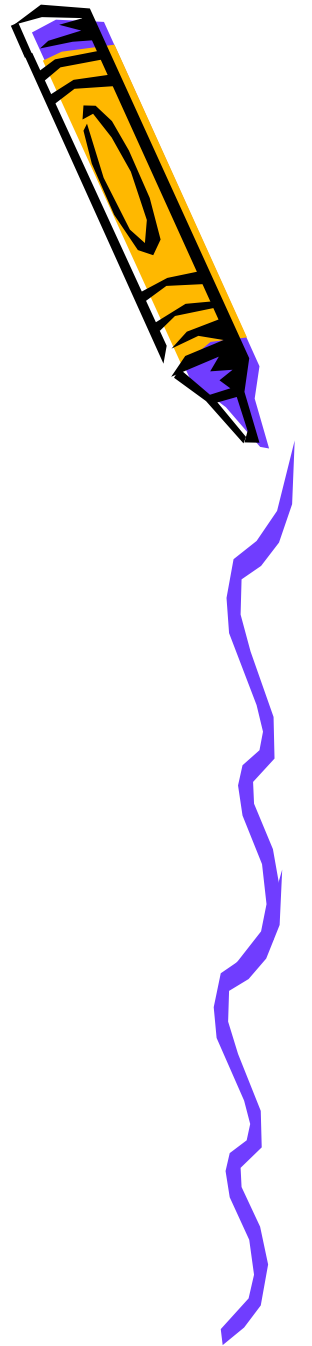
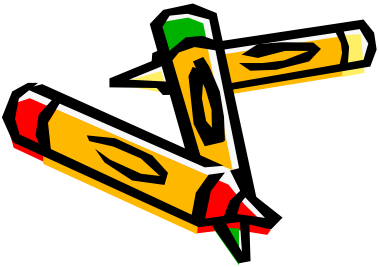
# Weaver's definition

- "Schema is...an organized chunk of knowledge or experience, often accompanied by feelings" (Weaver, 2001, p. 17).



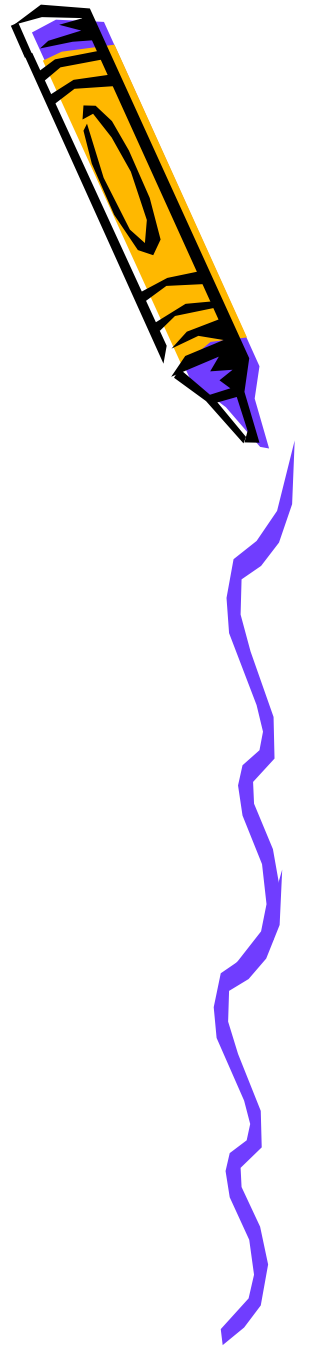
# Pear/pair

- Pear: a fruit
- Pair: two similar objects together



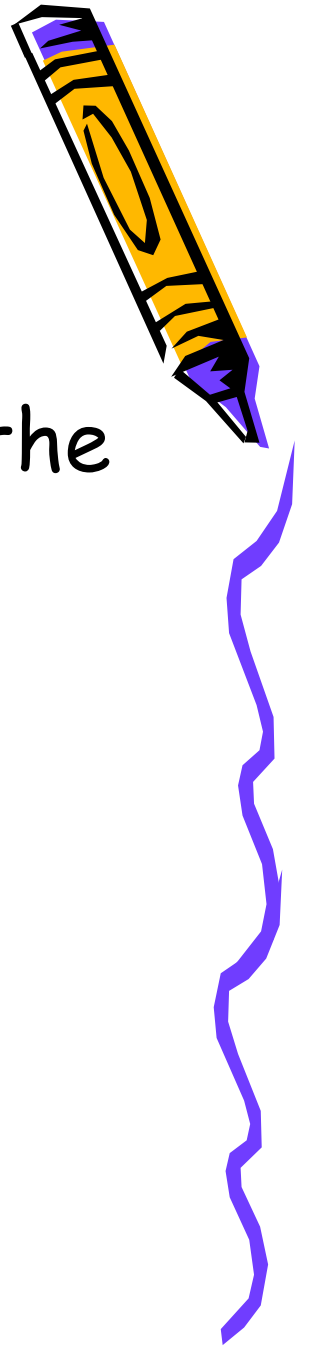
# List

- Present
- Wound
- Produce
- Sewer

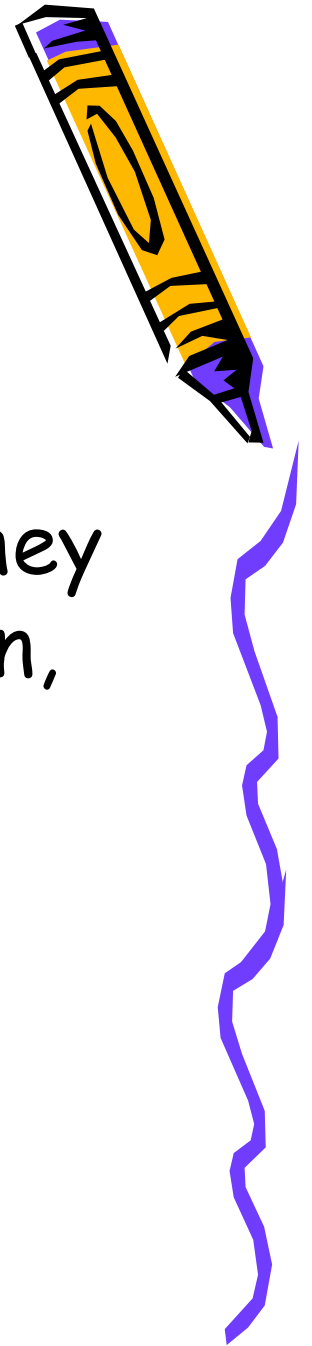


# Sentences

- I have to present my research at the conference.
- The clock was tightly wound.
- I bought lots of produce at the grocery store last night.
- She is a sewer.

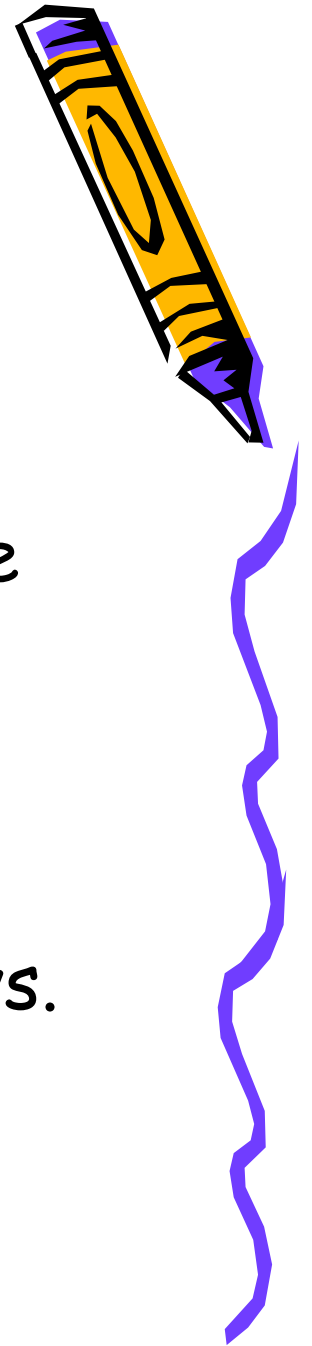


- "I found...that readers could read words in the story context that they couldn't identify on lists" (Goodman, 1994).



# Context

- Social
  - Ex: Roadville/Trackton (Shirley Brice Heath)
  - Ex: Hart and Risley
- Situational
  - Ex: school versus home; assignment vs. "fun"



# Context continued

- Authors make assumptions about the future readers of their text (i.e. education, social, cultural, discourse, background knowledge)
- Reading is individualized; tied to transaction; includes prior knowledge, and life experiences



# Examples

It is one of the easiest hobbies to learn. With just a little practice and a slight breeze, anyone can launch it with ease. Larger ones require a little more knowledge and understanding.

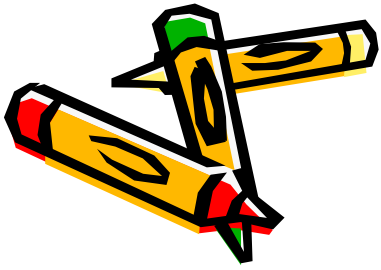




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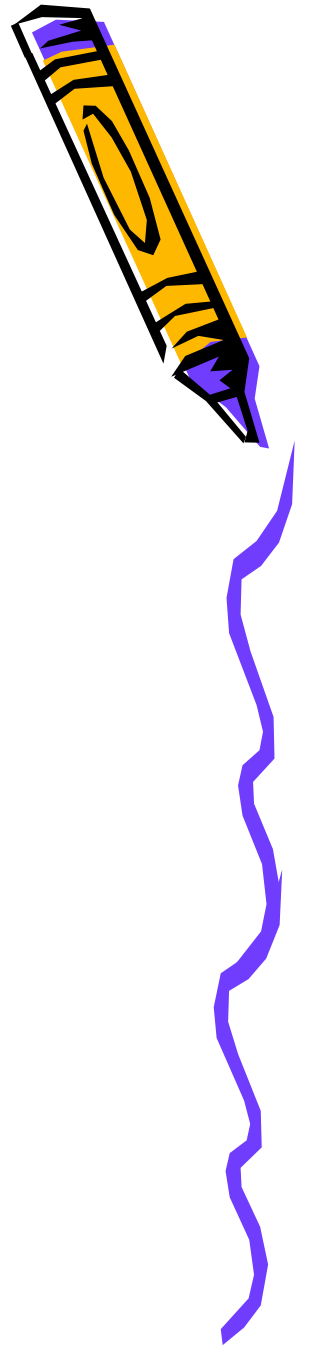
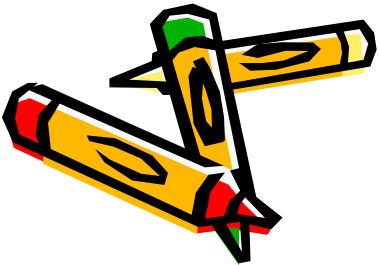
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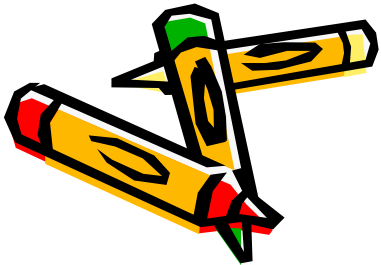
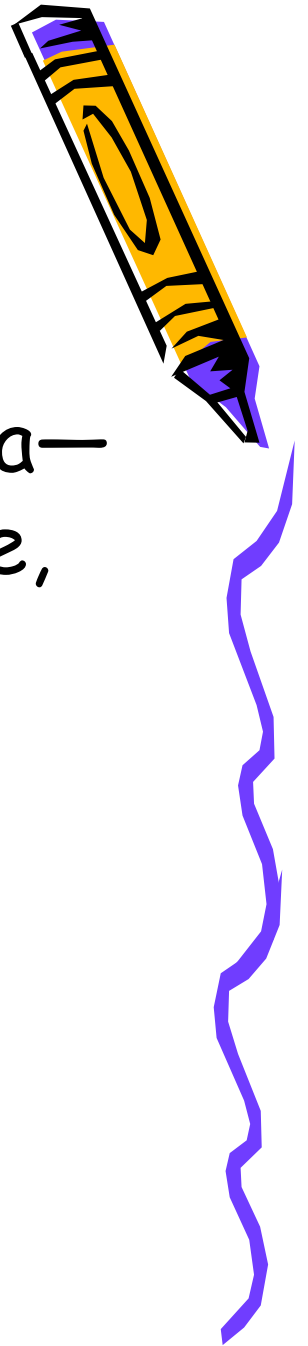
# Zoo animals

1. GIRAFFE
2. ELEPHANT
3. ZEBRA
4. HIPPO
5. L10N



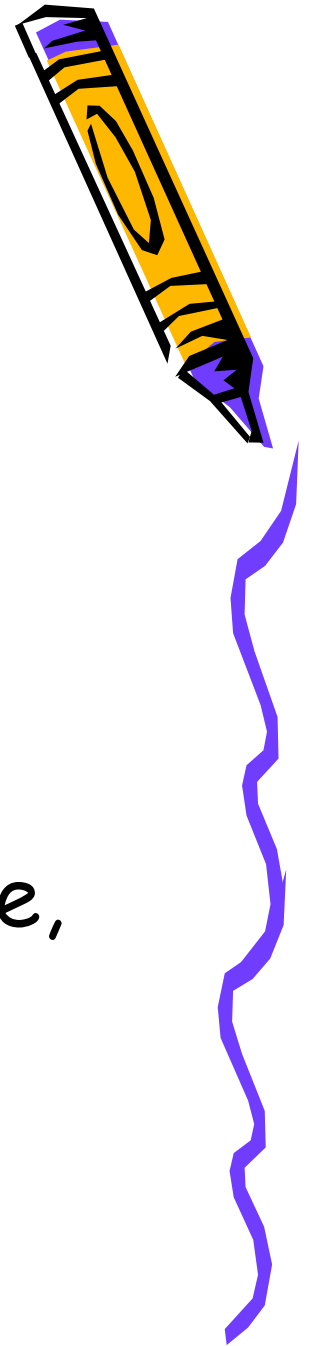
# Fun game

- Experience is influenced by schema—the person's knowledge, experience, and feelings



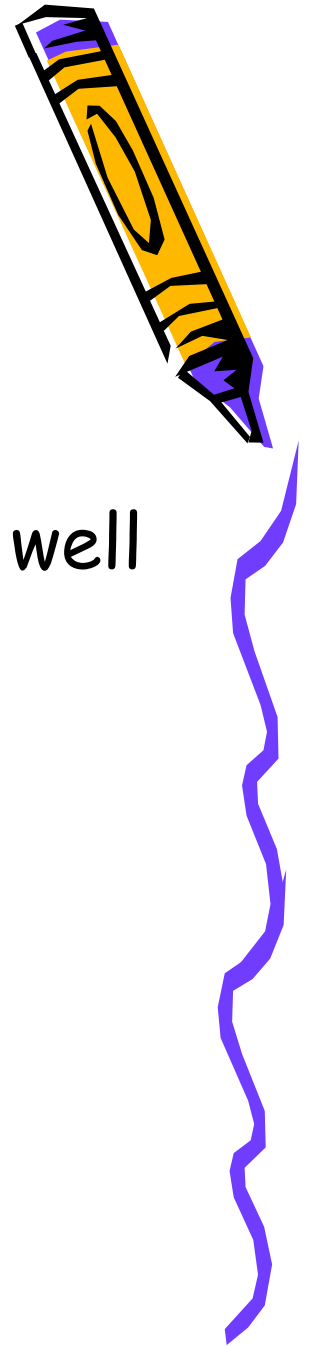
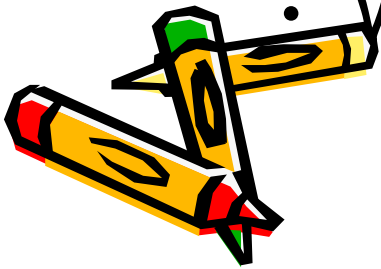
# Four cueing systems

1. **Syntactic**—structure
2. **Semantic**—meaning
3. **Graphophonemic**—orthography, phonology, phonics
4. **Pragmatics**—facial expression, tone, gesture, eye contact



# Examples

- The plants ate the ripe grapes.
- He took the basket and went to the well for some water.
- Was/saw
- No/on
- House/home
- Feels/feeds
- Well/we'll



# Grammatical Signals

- Function words—provide cohesion in the texts
  - Pronouns, copulas
- Content words—tend to not be common in language, as a whole, but are more common in a specific text because of the subject matter
  - Nouns
- Prefixes
- Suffixes



# Exercise: Gloopy and Blit

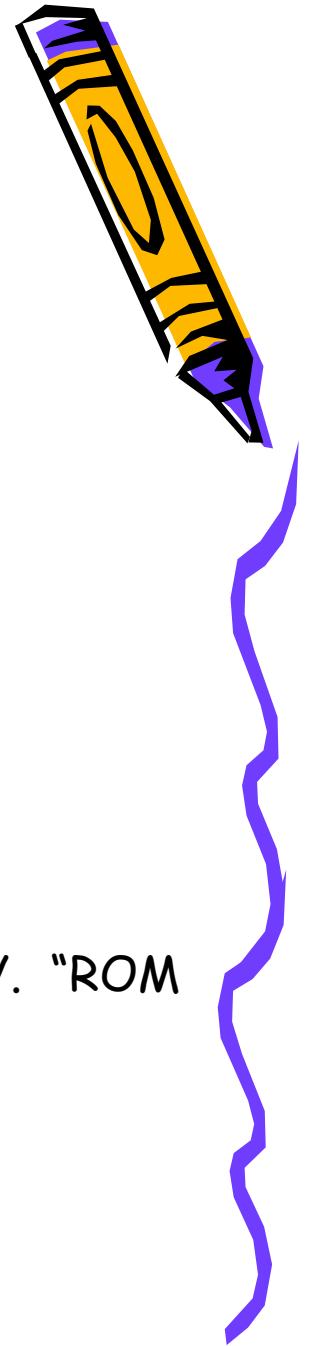
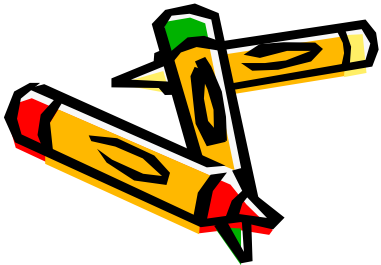
GLOOPY IS A BORP.  
BLIT IS A LOF.

GLOOPY KLUMS LIKE BLIT.  
GLOOPY AND BLIT ARE FLOMS.

RIL HAD PAVED BLIT TO A JONFY.  
BUT LO HAD NOT PAVED GLOOPY.

"THE JONFY IS FOR LOFS," BLIT BOFD TO GLOOPY. "ROM  
ARE A BORP."

GLOOPY WAS NOT KLORPY.  
THEN BLIP WAS NOT KLORPY.



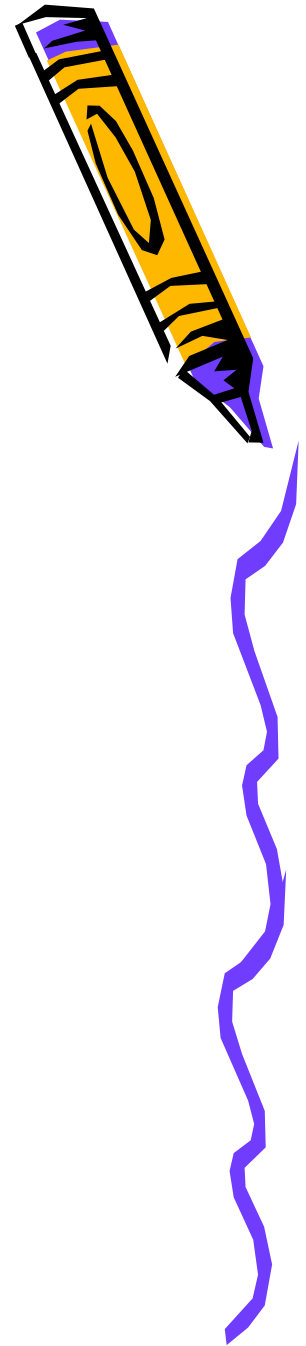


# Topics related to Language and Literacy

- Print referencing
- Phonological awareness
- Syntax/Grammar
- Morphology
- Vocabulary
- Comprehension

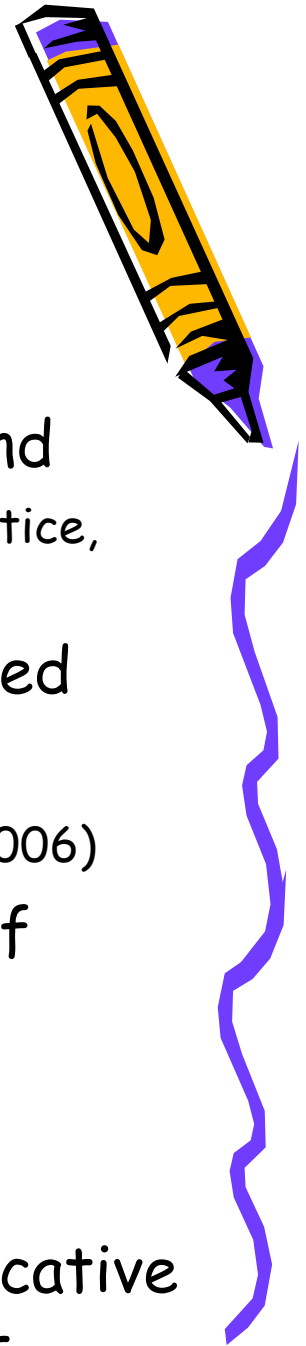
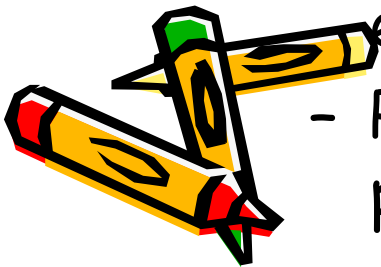


# PRINT REFERENCING



# Print Referencing

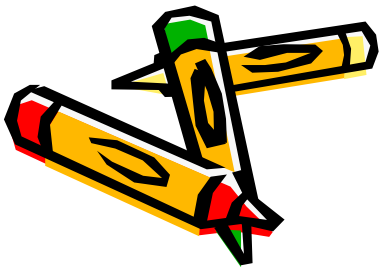
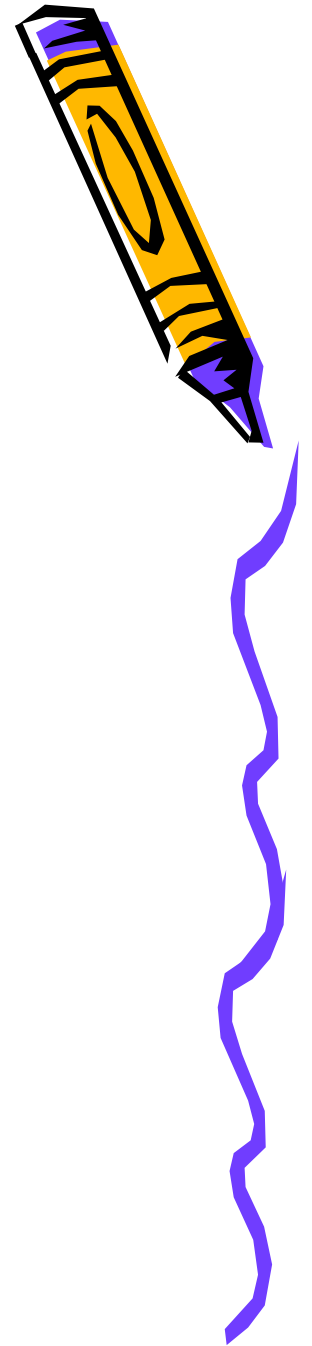
- Definition: Child's recognition of the form and function of print (van Kleeck, 1990, 1998; Ezell & Justice, 2000)
- Acquire through exposure to books and shared book reading (van Kleeck, 1990)
- Print Functions (McGinty, Sofka, Sutton, & Justice, 2006)
  - Print Function: Meaning related aspects of print
  - Environmental Print: Print embedded in everyday environments
  - Process of Reading: Reading as a communicative process between the reader and the print



# Print Referencing

McGinty, Sofka, Sutton, & Justice, 2006

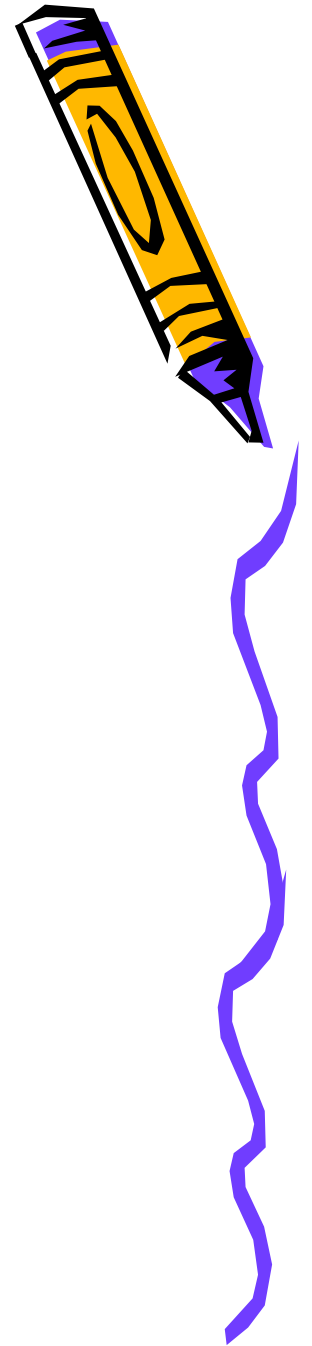
- Print Conventions
  - Page order
  - Title and author
  - Top and bottom of page
  - Print direction



# Print Referencing

McGinty, Sofka, Sutton, & Justice, 2006

- Print Forms
  - Upper and lower case letters
  - Names of letters
  - Concept of letter
  - Concept of word
  - Letters vs. words



# Print Referencing Cues

Justice & Ezell, 2004; Stewart & Lovelace, 2006

- Verbal Cues
  - Comments:
    - Explanations, remarks, & observations to recruit attention to print concepts ("This is an *A*."; "This says *get out*.")
  - Questions about print:
    - Recruits attention; requires children to interact with reader and print; requires a response ("Do you know this letter?"; "Who is the author?"; "What do you think this says?")
  - Requests:
    - Asking children to do something related to print; requires that the child takes a turn. (Show me where the *O* is.; Help me read these words.; Show me where I begin reading.)



# Print Referencing Cues

Justice & Ezell, 2004; Stewart & Lovelace, 2006

- Nonverbal Cues

- Pointing to print:

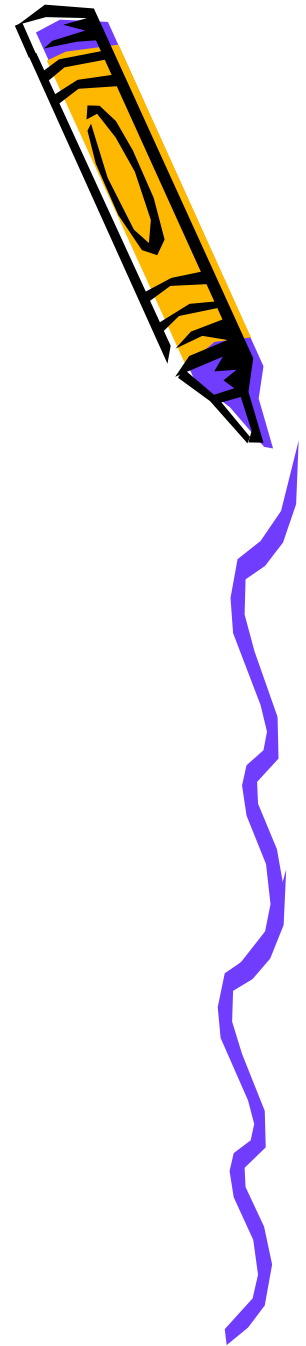
- Pointing to aspects of print during shared book reading (pointing to individual words; pointing to individual letters)
    - Pointing can be combined with verbal cues

- Tracking Print:

- Moving finger beneath letters or words when reading. (Move from left to right; move from bottom of page to top of next page, etc.)

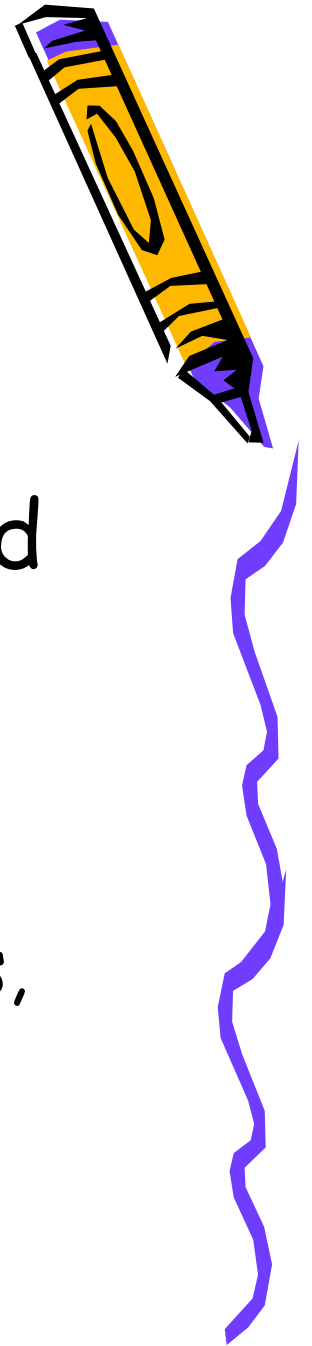
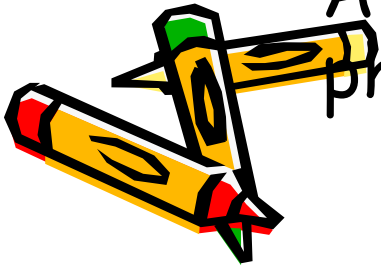


# PHONOLOGICAL AWARENESS



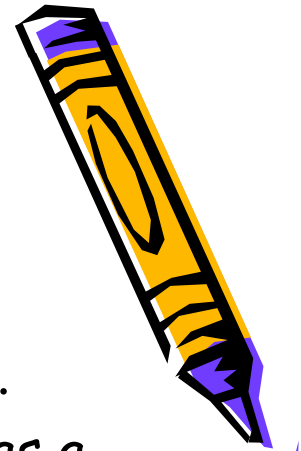
# Phonological Awareness

- Phonological awareness is the conscious attention to the sound structure of language
- It is a broad skill that includes:
  - Ability to detect and produce rhyme
  - Ability to segment speech into words, syllables, and phoneme
  - Ability to detect and manipulate phonemes (Gillon, 2004)



# Levels of Phonological Awareness

Adams, 1990

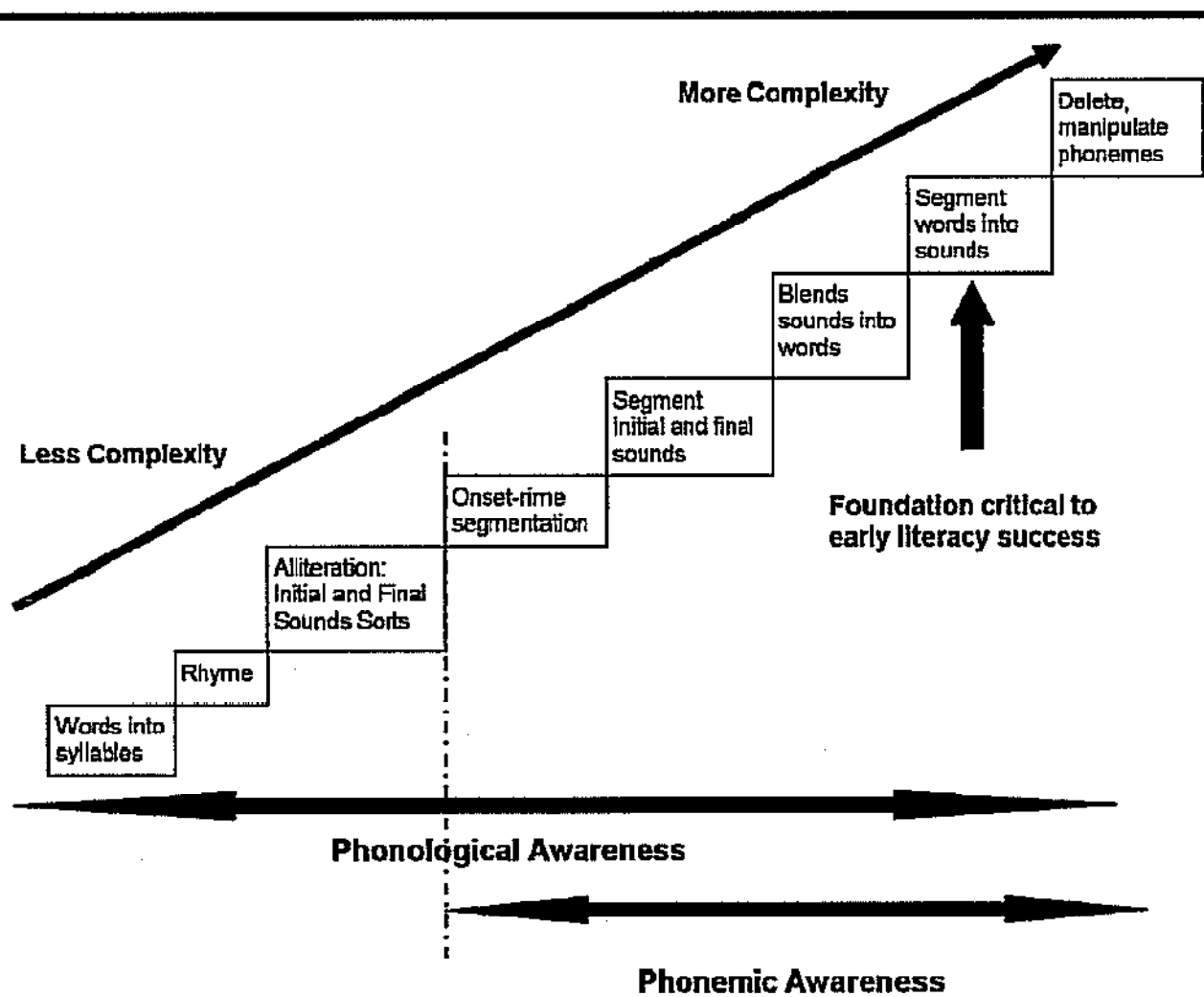


- Detection of rhyme and alliteration—most primitive level.
- Oddity tasks—require a child to determine which word has a different sound (initial, middle, or final) than the others in a group of words usually develop next.
- Third, splitting syllables and blending words orally develop.
- Fourth, ability to perform phonemic segmentation (tapping the phonemes in words).
- Finally, the ability to carry out phonemic manipulation tasks develops.
- Adams argues that the first four skills usually appear before a child starts kindergarten, while the last skill usually does not emerge until first grade.





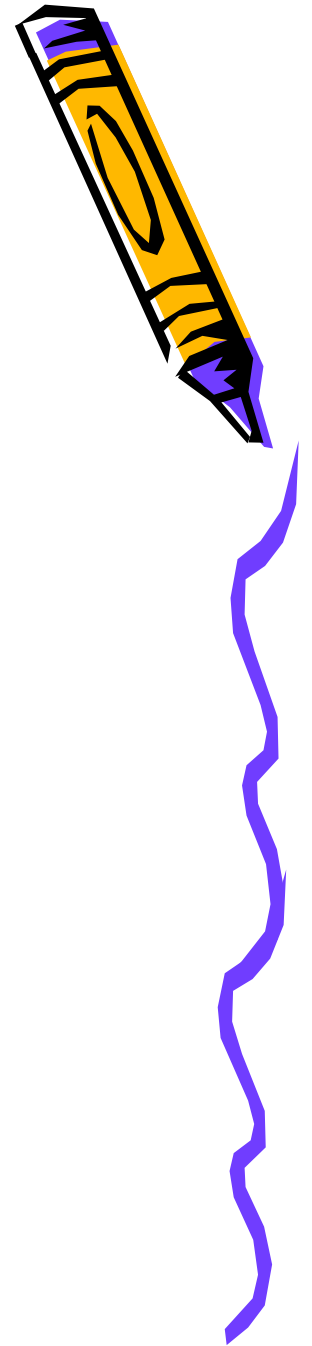
Figure 1. Sequence of phonological awareness instruction and intervention.



# Intervention

Schuele & Boudreau, 2008

- Timing
- Order
- Duration and Intensity





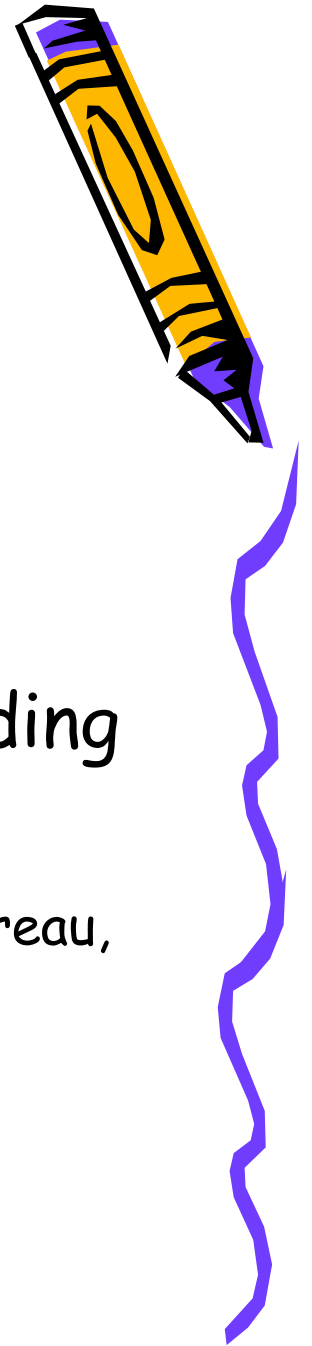
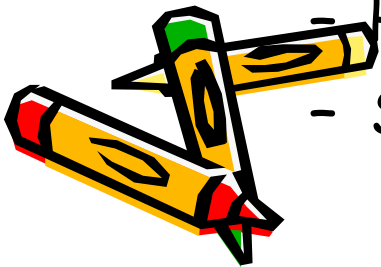
**Table 5. Instructional sequence for phonological awareness intervention (Schuele & Dayton, 2000).**

<i>Step in sequence</i>	<i>Instructional sequence within each step</i>
Segment words into syllables	<ul style="list-style-type: none"> <li>■ Segment sentences of monosyllabic words (e.g., <i>Bob likes his bike</i>)</li> <li>■ Segment two-syllable compound words (e.g., <i>cupcake, hotdog</i>)</li> <li>■ Segment two-syllable words (e.g., <i>pillow, carpet</i>)</li> <li>■ Segment multisyllabic words (e.g., <i>basketball, tomato</i>)</li> </ul>
Rhyme	<ul style="list-style-type: none"> <li>■ Judge rhymes (e.g., <i>Do cat and bat rhyme? Do cat and show rhyme?</i>)</li> <li>■ Odd-one-out rhymes (e.g., <i>Which does not rhyme? cat, ball, hat?</i>)</li> <li>■ Match rhymes (e.g., <i>Find the one that rhymes with hat, bell, cat, top</i>)</li> <li>■ Generate rhymes (e.g., <i>Tell me a word that rhymes with cat.</i>)</li> </ul>
Initial and final sounds (monosyllabic words)	<p>Target initial continuing sounds before stop sounds, and likewise for final sounds</p> <ul style="list-style-type: none"> <li>■ Judge initial sounds (e.g., <i>Do cat and ball start with the same sound?</i>)</li> <li>■ Odd-one-out initial sounds (e.g., <i>Which one does not have the same sound at the beginning? cat, ball, cup, king</i>)</li> <li>■ Match initial sounds (e.g., <i>Which one begins with the same sound as fan?</i>)</li> <li>■ Initial sound sorts (e.g., <i>Which ones start like fish and which ones start like sun?</i>)</li> <li>■ Judge final sounds</li> <li>■ Odd-one-out final sounds</li> <li>■ Match final sounds</li> <li>■ Final sounds sorts</li> </ul>
Onset-rime segmentation; Segment initial and final sounds	<ul style="list-style-type: none"> <li>■ Segment initial continuing sounds (e.g., <i>What's the first sound in fish?</i>)</li> <li>■ Segment initial stop sounds (e.g., <i>What's the first sound in bat?</i>)</li> <li>■ Segment final continuing sounds (e.g., <i>What's the last sound in bus?</i>)</li> <li>■ Segment final stop sounds (e.g., <i>What's the last sound in cat?</i>)</li> </ul>
Blend sounds into words and segment words into sounds	<p>Target blending and segmenting as reciprocal tasks, in this sequence:</p> <ul style="list-style-type: none"> <li>■ CV and VC words with continuants (e.g., <i>no, us</i>)</li> <li>■ CV and VC words with stops (e.g., <i>two, up</i>)</li> <li>■ CVC words with continuants (e.g., <i>moon, fish</i>)</li> <li>■ CVC words with stops (and continuants) (e.g., <i>cat, dish</i>)</li> <li>■ CCVC words, begin with blends with dissimilar articulatory placement (e.g., <i>small, flip</i>)</li> <li>■ CVCC words, targeting nasal blends last (e.g., <i>fast, jump</i>)</li> <li>■ Words with continuants and stops in varying word shapes</li> </ul>



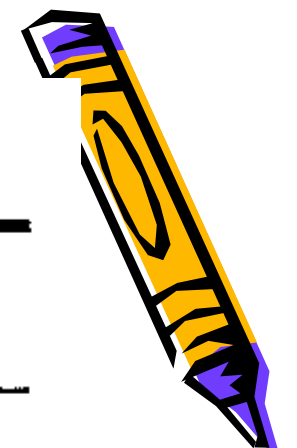
# Application to SLPs

- Use of print referencing (verbal and nonverbal) while reading books
- Target phonological awareness in contextualized environment while reading books
- Phonological Intervention (Schuele & Boudreau, 2008)
  - Teach, don't test
  - Plan intervention
  - Scaffold



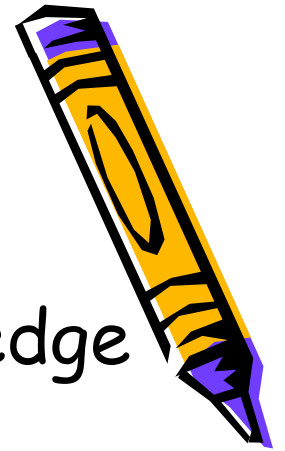
**Table 2.** Benchmarks for phonological awareness achievement.

<i>Age/Grade</i>	<i>Skill or ability</i>
Preschool	Some rhyming ability (e.g., match rhymes) Some beginning sound ability (e.g., beginning sound sorts) Segment words into syllables
Early kindergarten	Judge and match rhyming words Generate rhyming words
Middle kindergarten	Match words with same beginning sounds Match words with same final sounds Segment initial sounds and final sounds
Late kindergarten	Segment and blend two and three sound words that are consonant-vowel (e.g., go), vowel-consonant (e.g., up), consonant-vowel-consonant (e.g., cat, moon)
Early first grade	Segment and blend sounds in words with consonant blends (e.g., skate, jump)

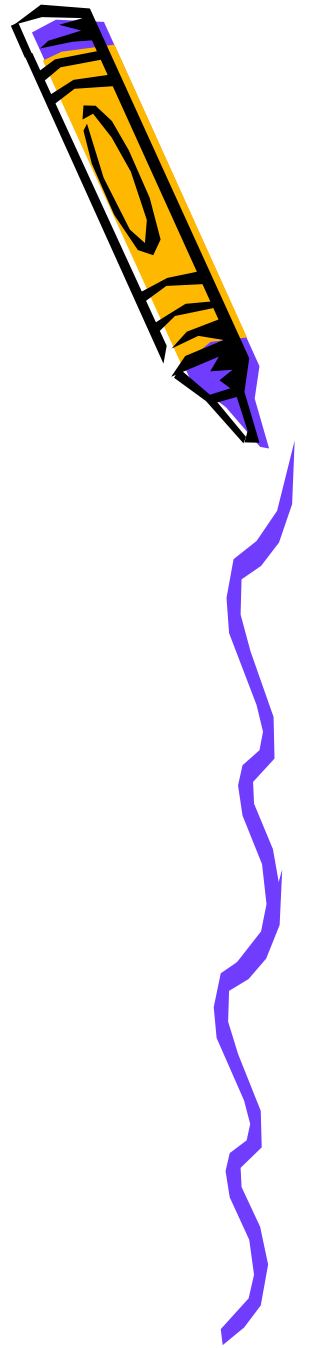
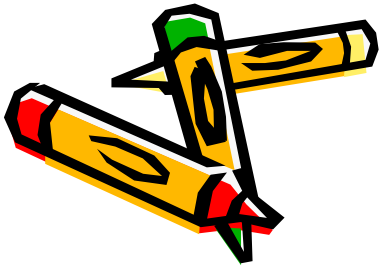


# Research

- Improvements found in child's knowledge of print concepts with explicit print referencing (Ezell & Justice, 2000; Lovelace & Stewart, 2007)
- Contextualized instruction led to gains in phonological awareness compared to a non-treatment control group (Ukrainetz, et al., 2000)
- Contextualized phonological awareness intervention led to significant gains in phonological awareness skills of children with language learning problems (Raisor, 2002, 2006)

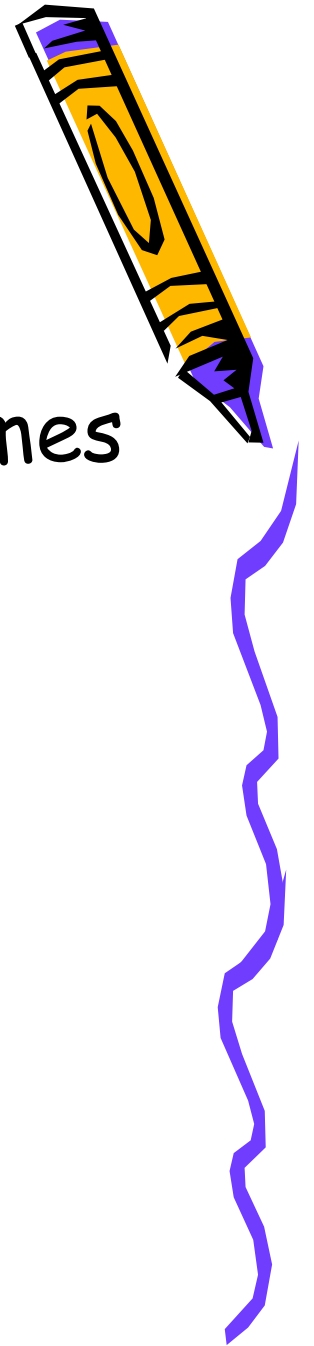
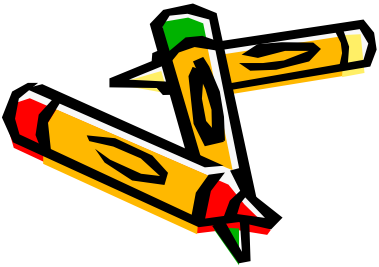


# Morphology

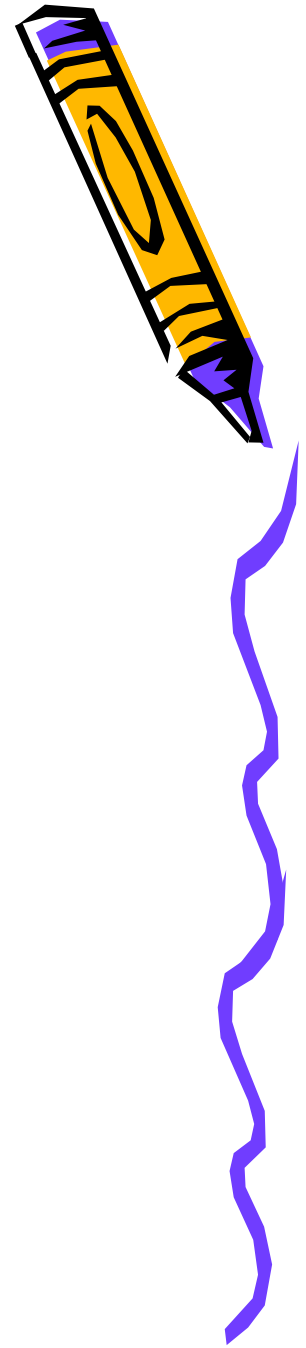


# Morphology

- Word structure; study of morphemes
- Begins in preschool and continues through late school-age years
- Derivations and inflections are important
- Integrated with other language process learning

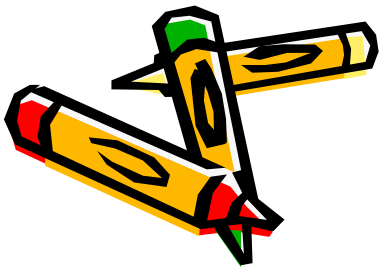


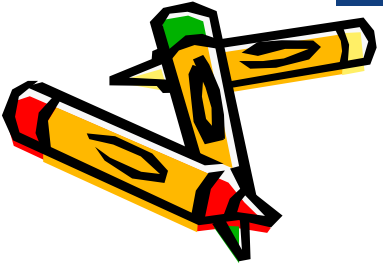
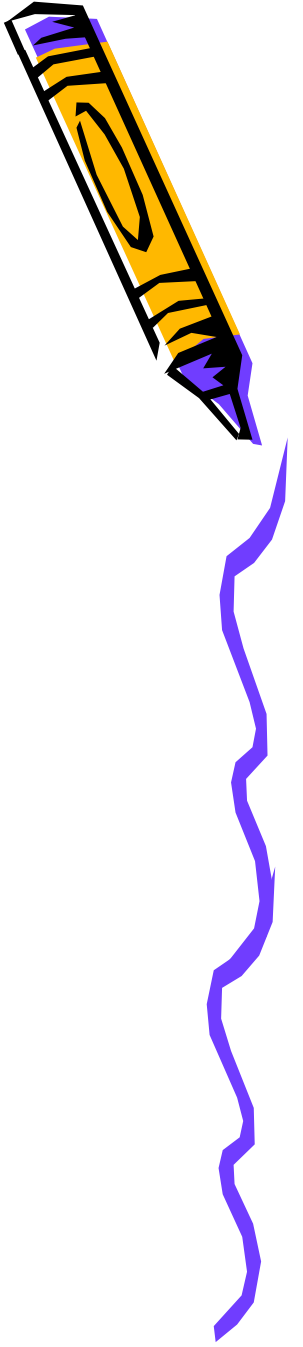
# VOCABULARY



# Enhancing vocabulary

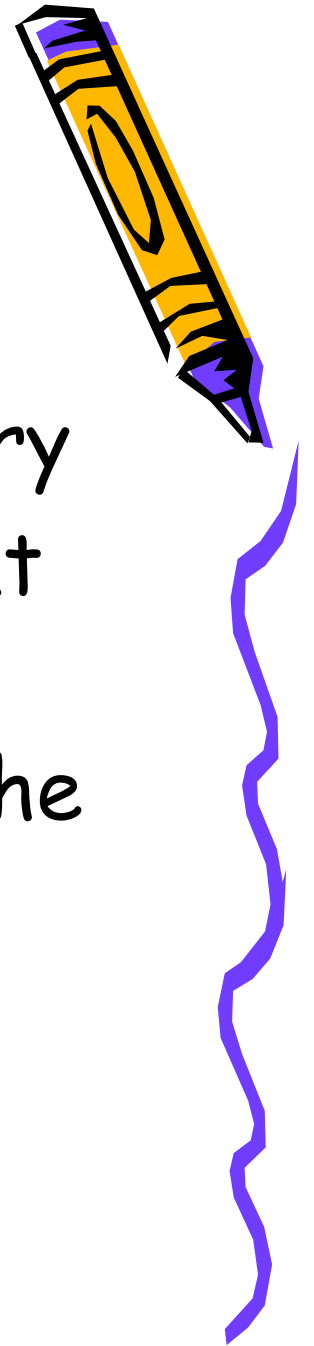
- Literacy experiences and book sharing is a perfect way for enhancing vocabulary development.



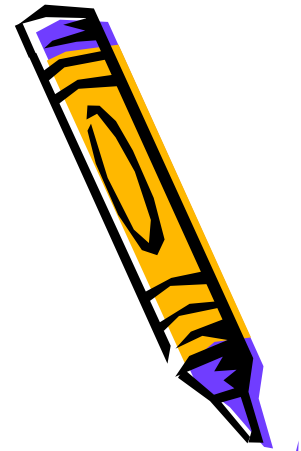


# Words are:

- In the books, referring to the story
- In the context of other words that relate to the same topic.
- May repeat several times across the story.
- Are used in sentences with other words.



# Words throughout the story



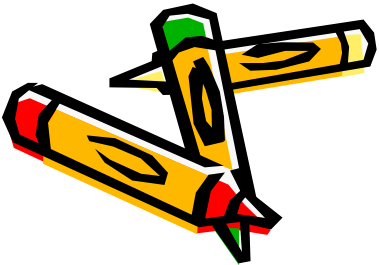
- Children use words
  - To answer adult's questions
  - To fill in phrases.
  - In sentences to retell and role play stories.
- Adults will
  - Model words.
  - Use the words as they talk about the stories.
  - Provide definitions of the words.
  - Talk about how the word relates to the story.
- Use the words as they relate to the children's lives.



# Learning new words

- There are multiple exposures to vocabulary and opportunities to see how words are used and how they relate to other words.
- Books that are read to children incorporate both words that children are familiar with and words that are unusual and unique.

*Exposure to unique words is important to language and literacy development (Hart & Risley, 1995)*



# Book characteristics and vocabulary learning

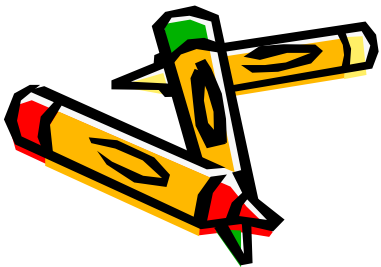
- If a word is used multiple times in a book then a child is more likely to learn that word.
- The degree to which the word is illustrated in the book has an impact on word learning and how well the child can infer the meaning of the word.
- A child is more likely to learn the word if it is an important word to the plot of the story.

Schickedanz (2001)

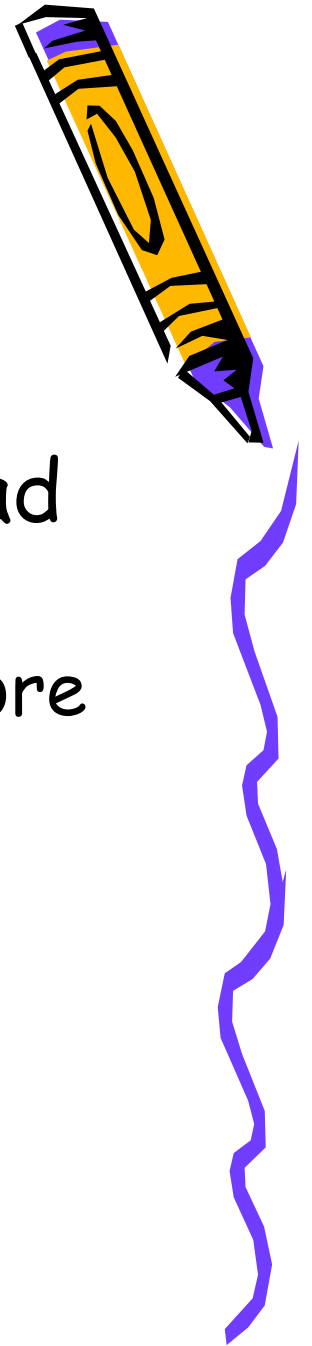


# Vocabulary Enhancement

- Select 8-10 words or phrases ahead of time.
  - Choose vocabulary words that are more critical for understanding the story.
- Identify and point to words.
  - This will highlight each word with a nonverbal cue.

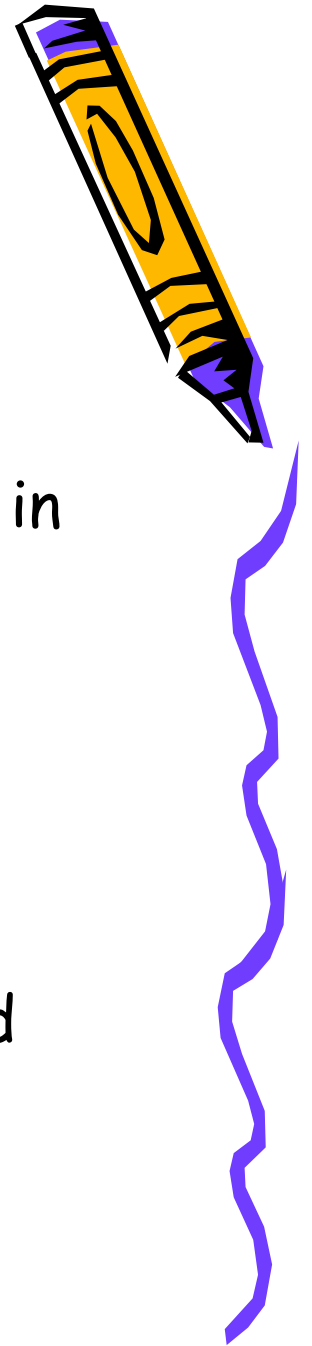


Smith, Sickman, & Prendeville, 2004  
Adapted from: McGee & Richgels (2003) and Zevenbergen  
& Whitehurst (2003)



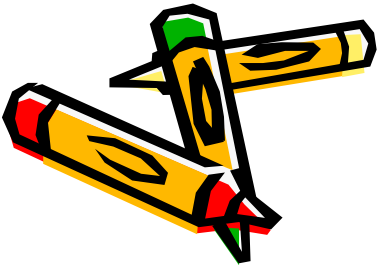
# Vocabulary Enhancement (cont.)

- Define the word
  - As you read the selected vocabulary words in the text of the book, stop and turn to the children to give just a short definition or explanation of the vocabulary word. (ex: barter)
- Provide a similar word
  - Say the word that is in the book and then provide a word that is similar that the child might know. (ex: trade)

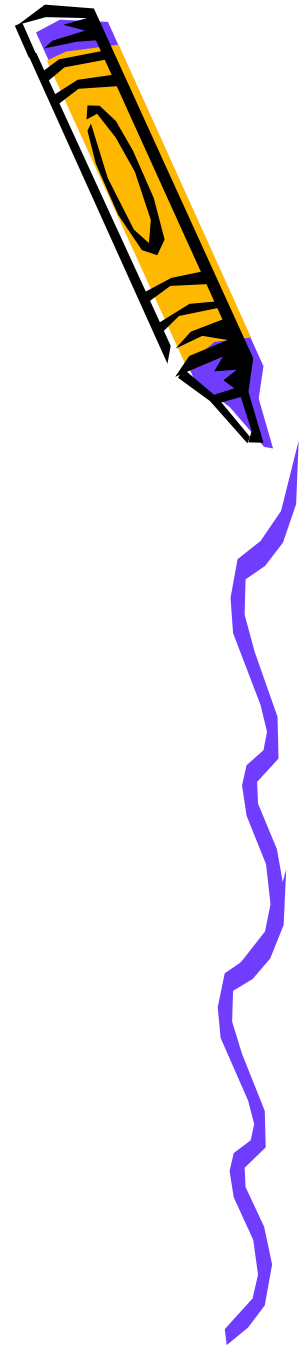


# Vocabulary Enhancement (cont.)

- Ask or make a text-to-life question or comment.
  - As you read the book, ask questions and make comments using the target vocabulary words or phrases. (ex: The Ox-Cart Man "I remember one time when I bartered and traded my brother a sucker for his new game.")



# SYNTAX/GRAMMAR



# Grammar and Syntax



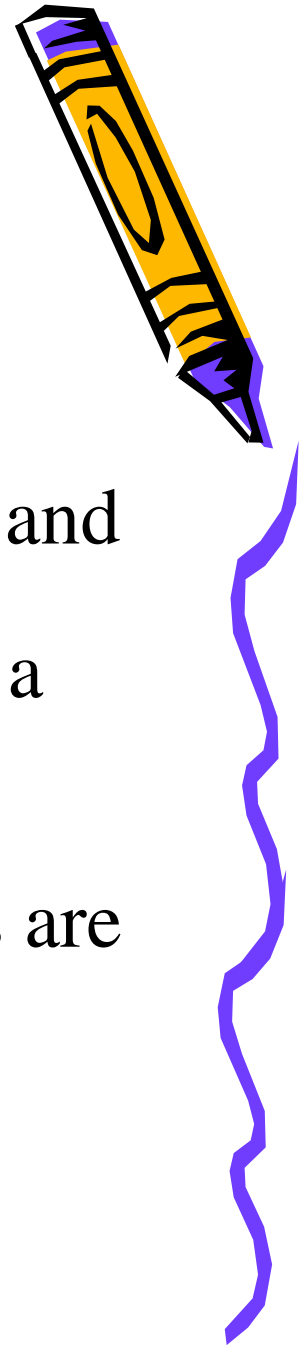
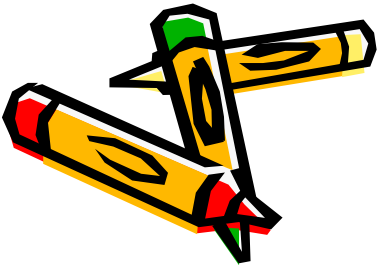
- Word level (plurals, pronouns, past tense, future tense, prepositions etc)
    - Support these structures while reading with manipulatives (i.e. blocks, pine cones, wooden sticks, stones, marbles, buttons, beads, etc).
    - Asking wh-questions while reading (i.e What is the girl holding- response: apples-plural
    - Retelling the story to support the target structures (story cloths, boardmaker printed pictures, painting, manipulatives)
    - Look at stories before hand that have the grammatical structure throughout the story (i.e. “Messy Meal”-targets prepositions)
    - Do a craft or recipe at the end of the story to target markers (i.e. get a dog craft or dog bone recipe) “Book Cooks” and Dlkids.com (great websites for these types of targets.
- Question cube- for learning how to ask and answer questions from the story.



# Written Activities

## “Rainbow Sentences”

- Sentences “Rainbow Sentences”
- This is a technique used to increase length and complexity of sentences (oral/written) developed by Mary Ennis M.A. CCC-SLP a school SLP
- It uses wh-question words and is called rainbow sentences because different colors are used to teach the sentence pattern
- **Who, What, Where, When, Why**



# Written Activities

## “Rainbow Sentences” cont.

- Choose who, what, where and when words out of a story.
- Use the chart to insert words and then child needs to fill in the rest recalling details from the story or making up their own.
- Once the chart is complete, it can be re-written into a full sentence.

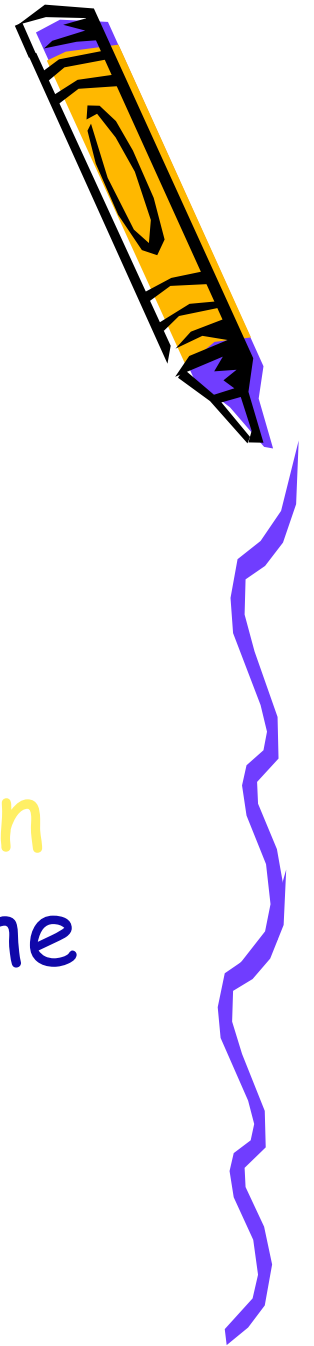
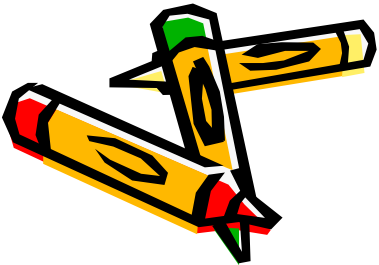
“Alexander and the Terrible, Horrible, No Good, Very Bad Day”-Judith Viorst

Who	What	Where	When	Why (because, so, to)
	Got gum in his hair		At night	
Anthony	Found a car kit		In the morning	
Alex	Yelled at Paul	at school		Because Paul did not want to be his best friend.

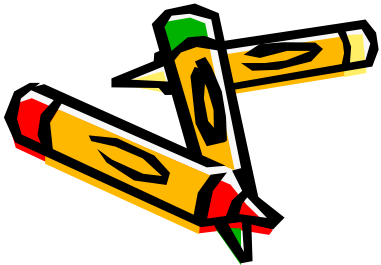


# Rainbow Sentences

- Combine the words from each row in the chart to make a complete sentence.
- Alexander got gum in his hair in his bedroom at night because he left it in his mouth.

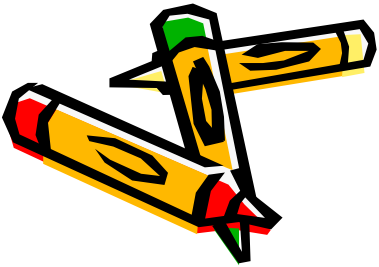


# COMPREHENSION



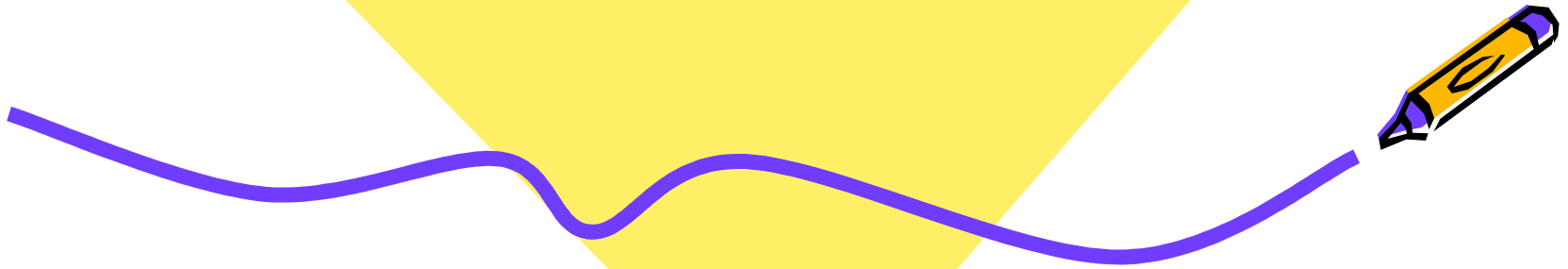
# Reading comprehension

- The ultimate goal of reading
- Collection of knowledge that may take years to master
- Complicated mental activity that we engage in daily
  - Includes reasoning, synthesizing, problem-solving, and interpretation

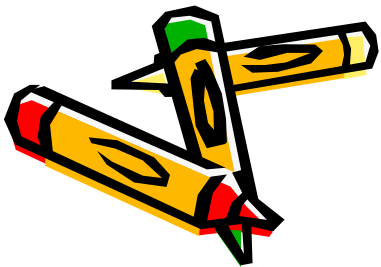




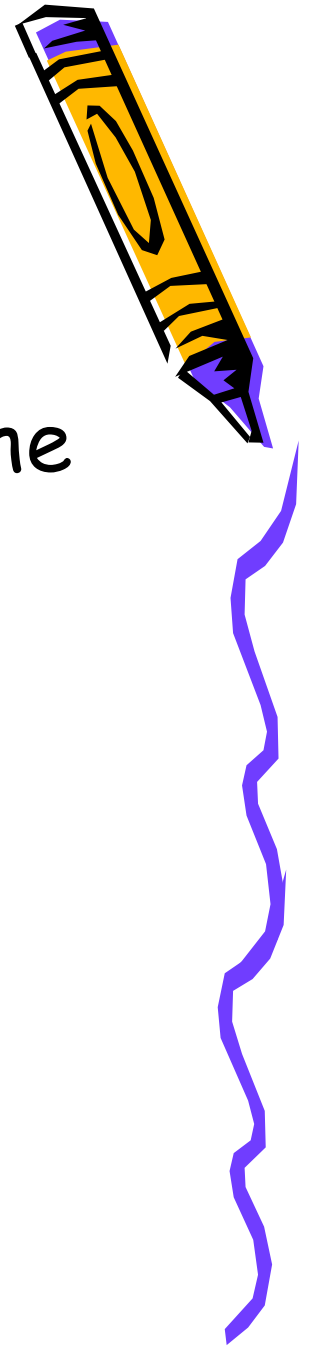
# Augmentative and Alternative Communication



"Literacy skills for AAC users with severe communication impairments allow for more than conventional reading and writing by providing access to a means of self-expression in order to communicate thoughts and opinions and to foster personal independence" (DeCoste, 1997, p. 298)

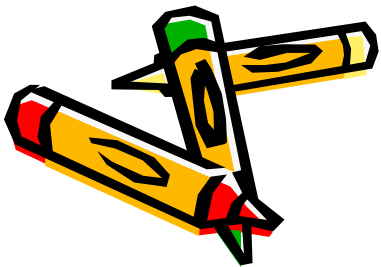
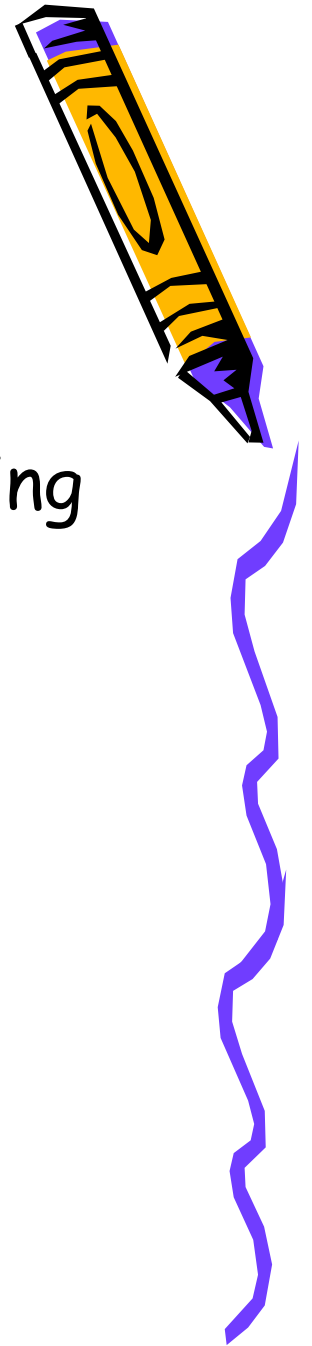


- If an individual is literate, he or she can communicate any message to anyone (Sturm & Clendon, 2004)



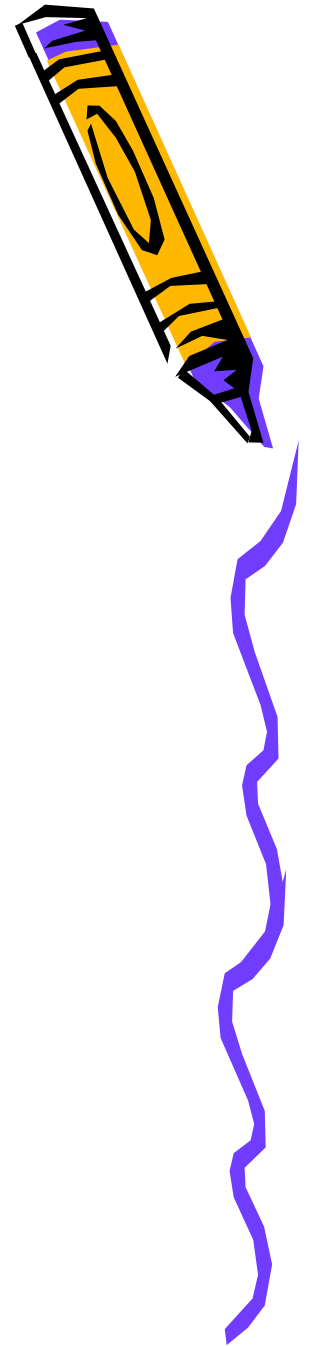
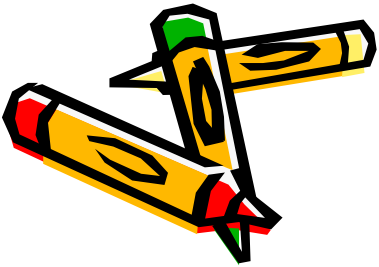
# AAC users tend to have difficulty acquiring language

- Difficulty with effectively communicating message
- Limitations with active participation in classroom and social exchanges



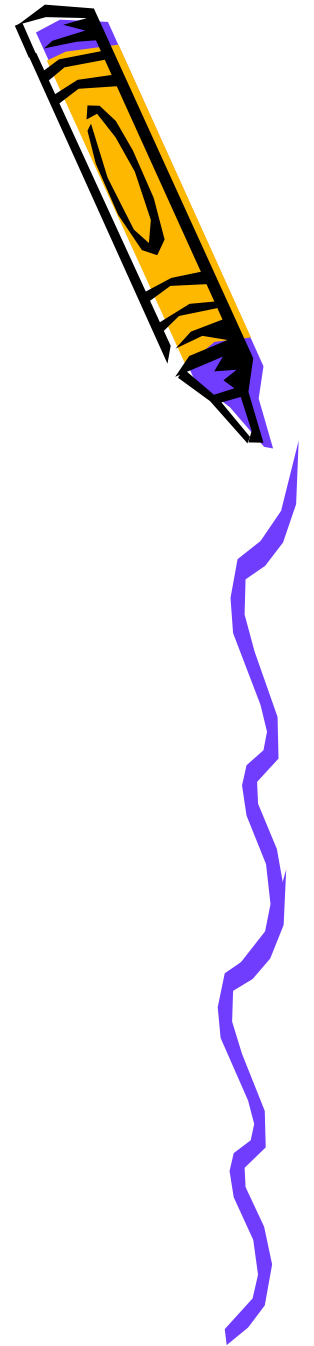
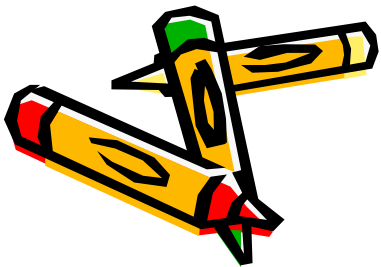
# Difficulties across language domains:

- Phonology
- Morphology
- Syntax
- Semantics
- Pragmatics
- Discourse



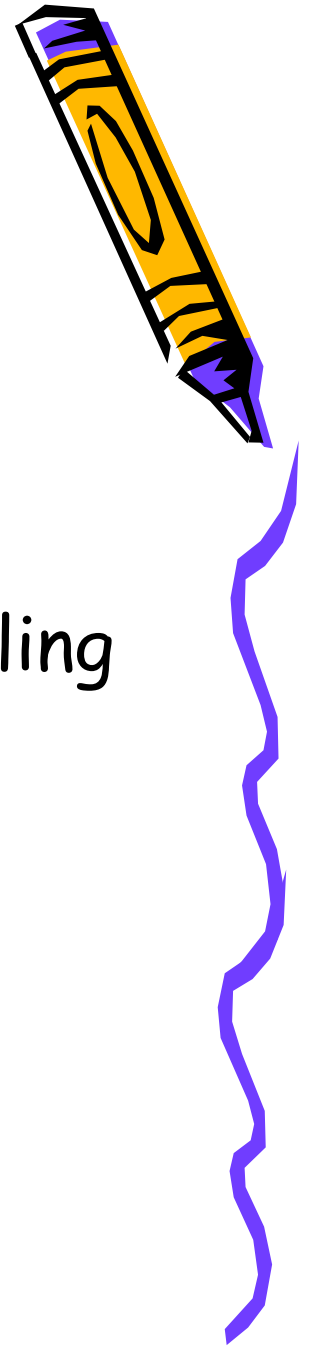
# Implications to Literacy Development

- Reading
- Writing



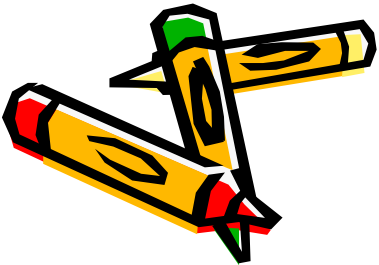
# Phonology

- Decreased articulatory codes
  - At risk for delays in phonological awareness, phonemic awareness, spelling
- Provide access to tools that facilitate learning of these skills



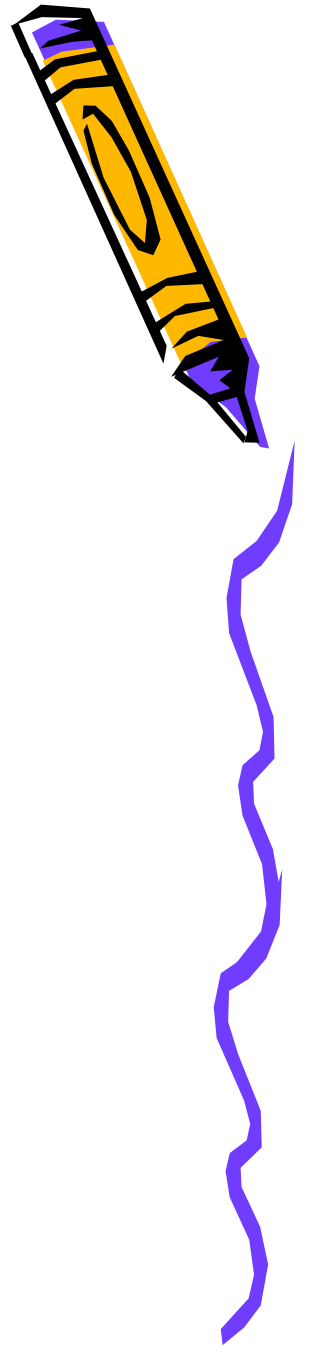
# Morphology

- Lack of morphological markers in system
- May use content word that carries most meaning
  - Omission of morpheme because of time constraints



# Syntax

- Production of simpler and shorter utterances
  - Omissions and difficulties with word order



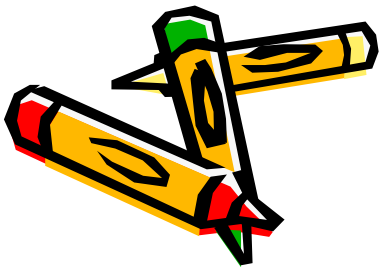
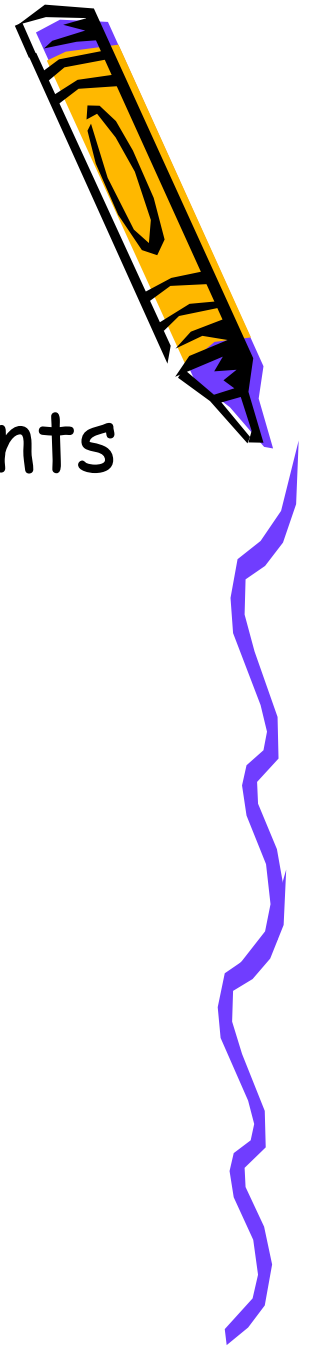
# Semantics/Vocabulary Development

- Based on experience and prior knowledge
- Learn when it is tied to experience and activates prior knowledge
- Remember about 5% of the new words that they read or hear for the first time



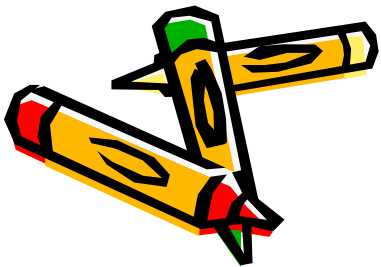
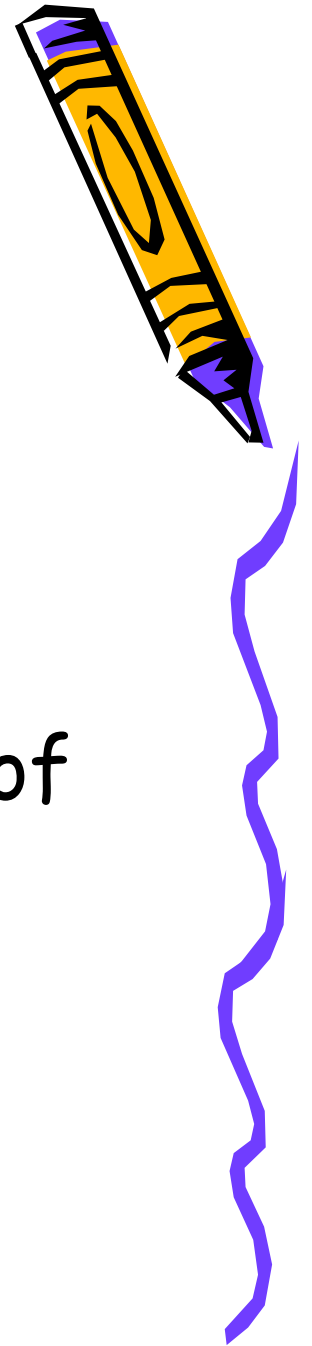
# Pragmatics

- Typically, AAC users are respondents and have restricted speech acts
- May have difficulty understanding transaction, audience



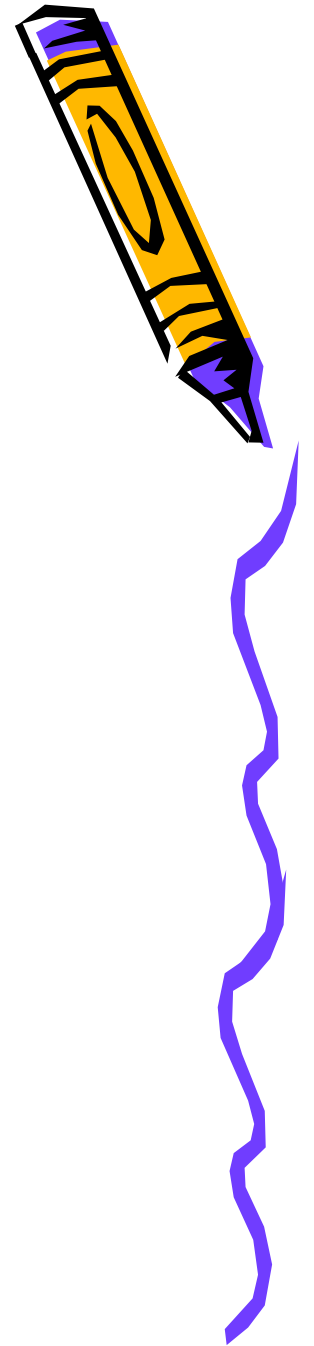
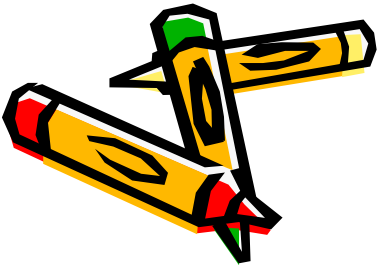
# Discourse

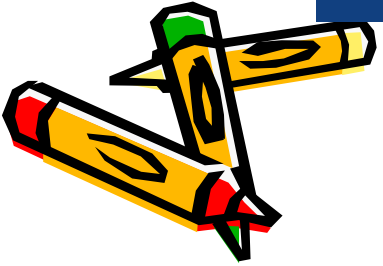
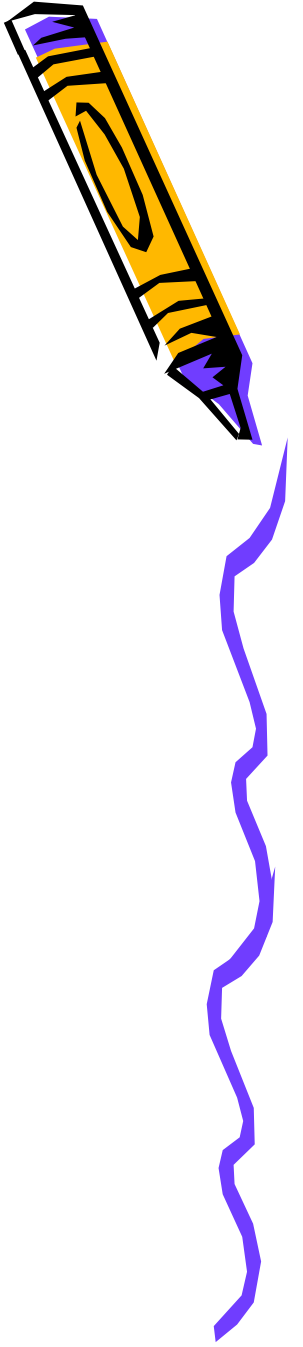
- AAC users tend to have stronger conversational skills
- Important for comprehension and production to have understanding of different text structures



# AAC users may have difficulty:

- Conveying meaning
- Composing complex sentences
- Creating continuity between sentences





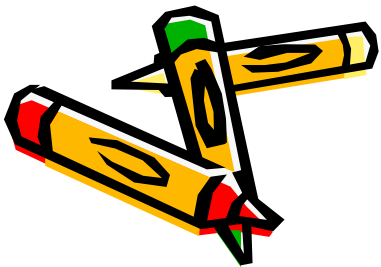
# AAC and Literacy: Statistics

- 70-90% read and write below same age peers (Koppenhaver & Pierce)
- Majority are reading below 3<sup>rd</sup> grade level (Cunningham et al.)
- Most do not acquire functional literacy skills (Light et al.)
- 50% of AAC users with CP and typical cognition demonstrated literacy deficits (DeCoste, 1997)
- Fewer communication partners overall and greater number of interactants who are family members and paid workers rather than friends or acquaintances (Blackstone, Williams & Wilkins)



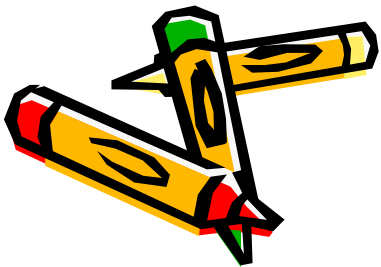
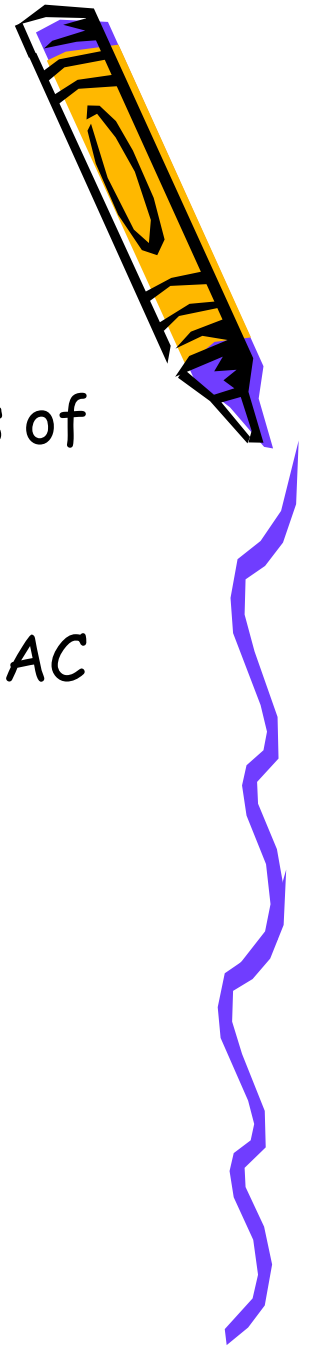
# Reasons for Literacy Difficulties

- Limited opportunities and experiences (Hetzroni, 2004)
  - Using speech, interacting during conversation, asking questions, inquiring about missing information or words, clarifying information
  - Access to print, interaction with books, guidance; world knowledge; vocabulary development
- Reduced expectations
- Limited assessment & intervention tools
- Formal instruction (Sturm & Clendon)

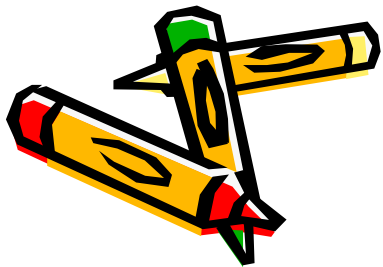
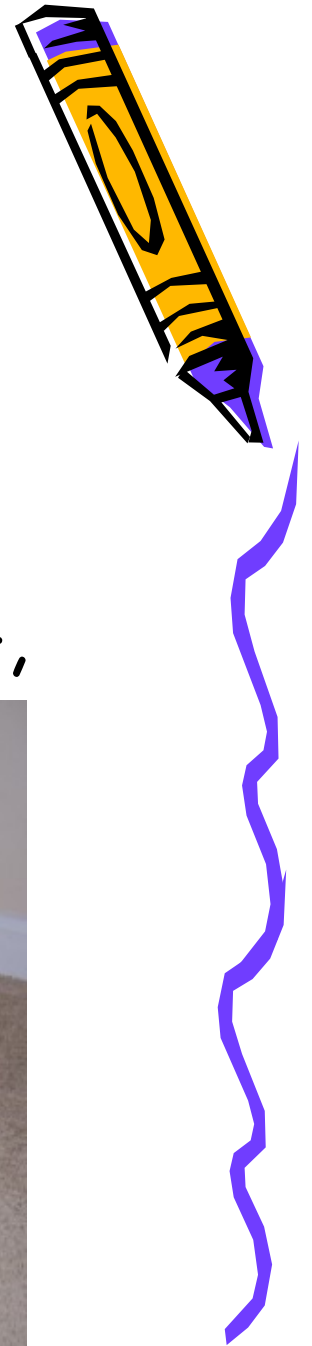


# External barriers that inhibit learning

- Distinct asymmetry between primary channels of input and output (Smith & Grove, 1986)
- Different language codes
- Limited exposure to expressive language via AAC system
- Lack of contact with competent nonspeaking communicators (Light et al., 1985)
- Differences in linguistic versus nonlinguistic modes of communication

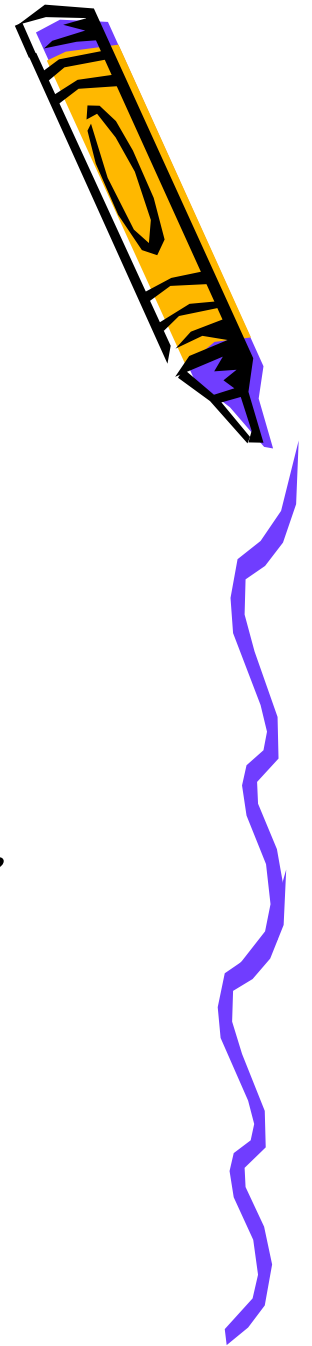


"Language and literacy development begins in infancy...and social communication competence is fostered at home and in specific contexts,...and a strong foundation is established" (Sturm & Clendon, 2004, p. 83)



# Emergent Literacy: 6 Principles

1. Learning to read and write is a developmental process
2. Reading and writing develop concurrently and interrelatedly
3. Literacy skills develop in real life settings while accomplishing real life goals.



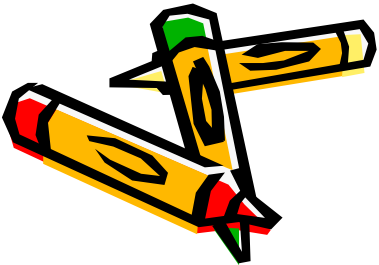
# 6 Principles: Continued

4. Active involvement in the processes of reading and writing is necessary
5. Adult interactions occurring around the process of reading and writing influence literacy learning
6. Reading and writing are skills and must be practiced



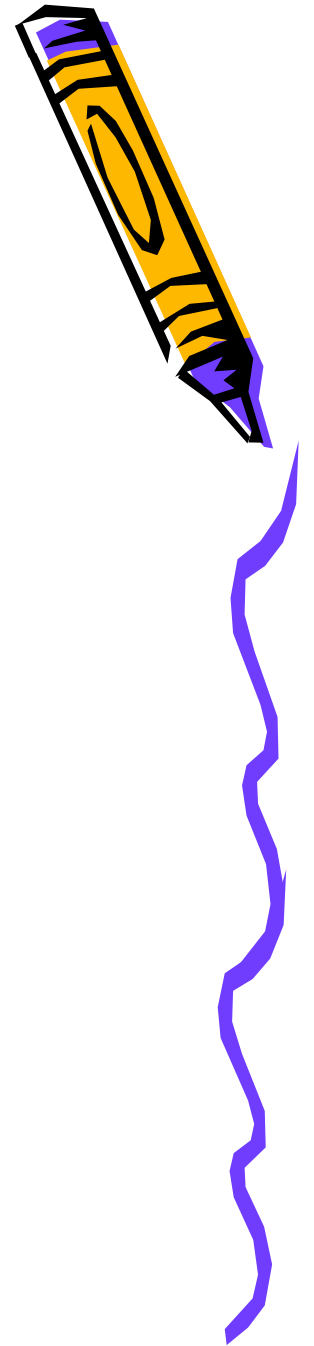
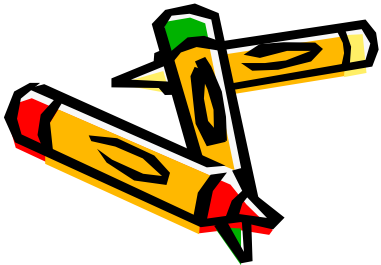
# Emergent Literacy: Statistics

- Preschoolers with SSPI had fewer opportunities to express themselves and less access to reading and writing materials
- Parents of preschoolers without disabilities read to their children daily; parents of children with SSPI reported reading only 2-3 times per week
- Two thirds of parents of preschoolers without disabilities asked their children to label pictures compared to only  $\frac{1}{2}$  of parents of children with disabilities



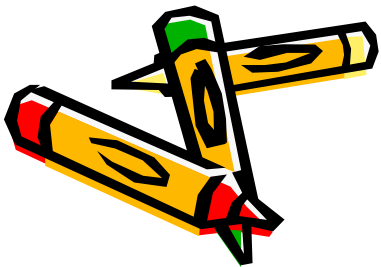
# Shared Book Reading

- Provides a context for meaningful interactions with books
- Teaches children about various aspects of language and literacy development
- Promotes active participation



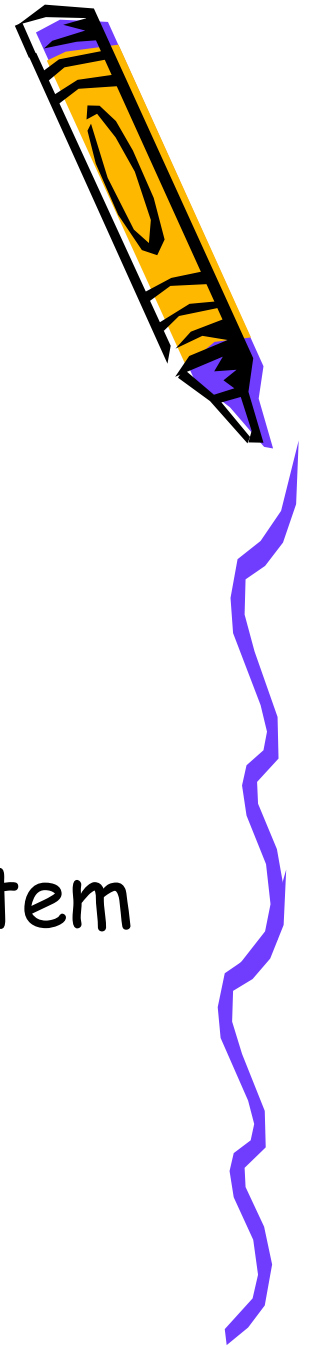
# Survey by Light & Kelford-Smith (1993)

- Parents of children with and without disabilities
- Similar reading and writing environments
- Children with disabilities:
  - Had less opportunity for participation while reading
  - Were asked fewer questions and initiated less
- Parents of children with disabilities ranked literacy lower than mobility and toileting



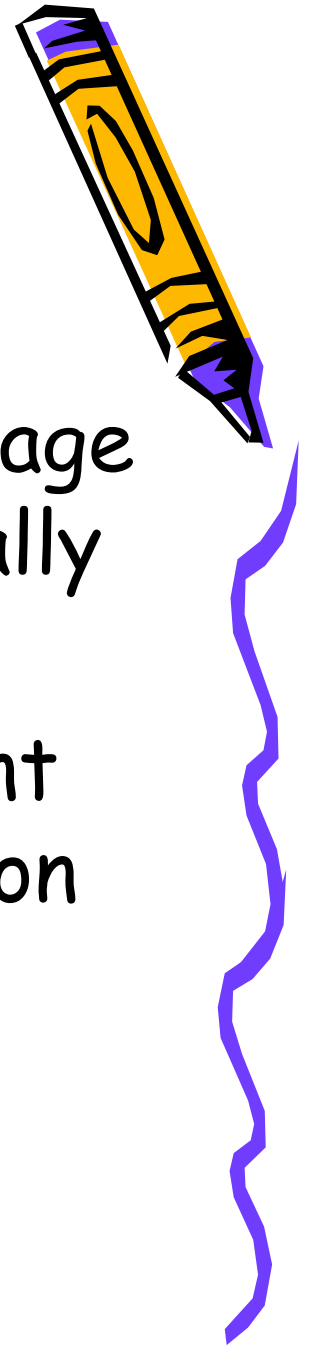
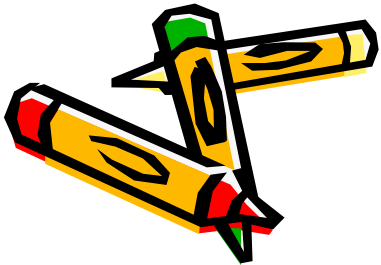
# Light, Binder, & Kelford-Smith (1994)

- Studied interactions of 5 mother-child dyads
  - All children were AAC users
- Mothers dominated interactions
- Limited, if any, access to AAC system while reading together



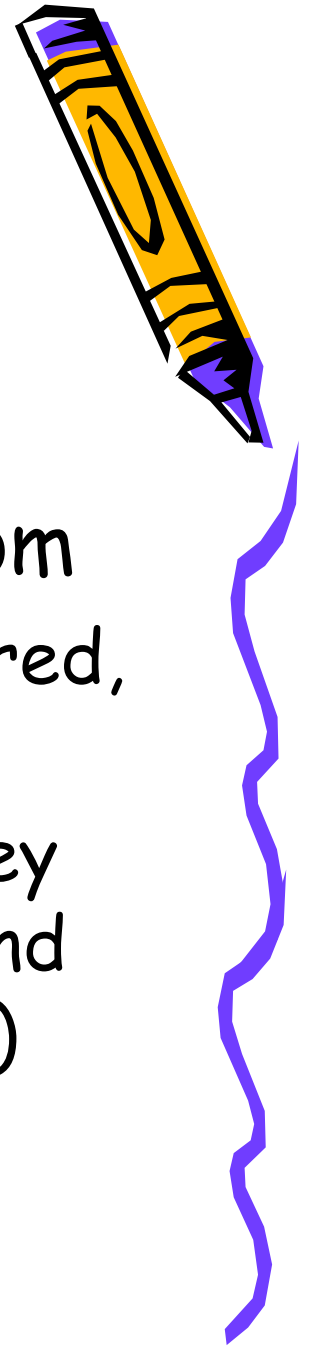
# School-aged Children who use AAC...

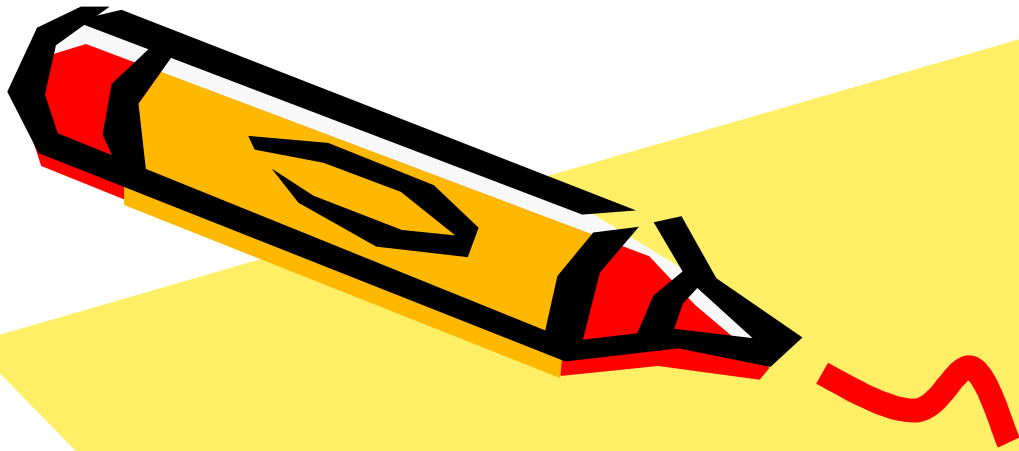
- Because of limited or uneven language skills, they enter school academically behind their peers
- At risk for not becoming competent communicators; limited participation in classroom and with peers during social situations



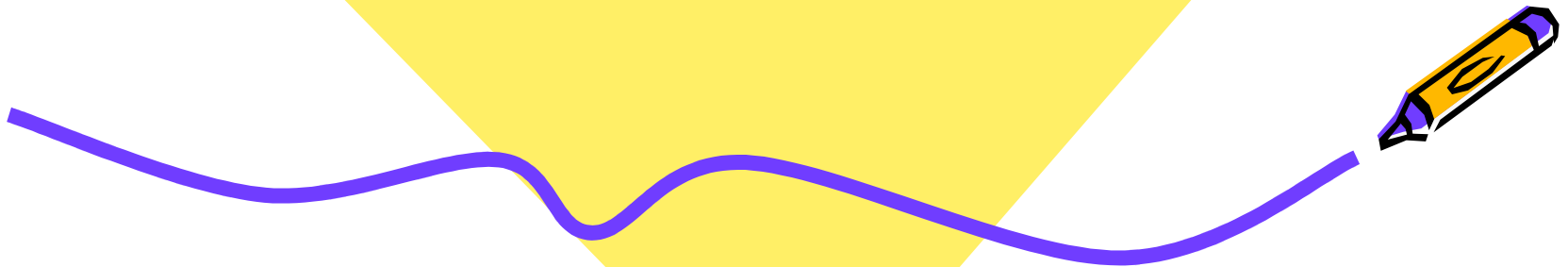
# School and the AAC user

- Literacy instruction may occur outside of the general ed. classroom
  - May be personalized, limited, splintered, and lacking in continuity
  - May be driven by perception that they are not capable of learning to read and write (Erickson & Koppenhaver, 1995)





Intervention



# Emergent Literacy

- Families can:
  - Change their expectations
  - Watch for signs of emergent literacy
  - Provide opportunities and experiences
  - Adapt materials to meet their child's level

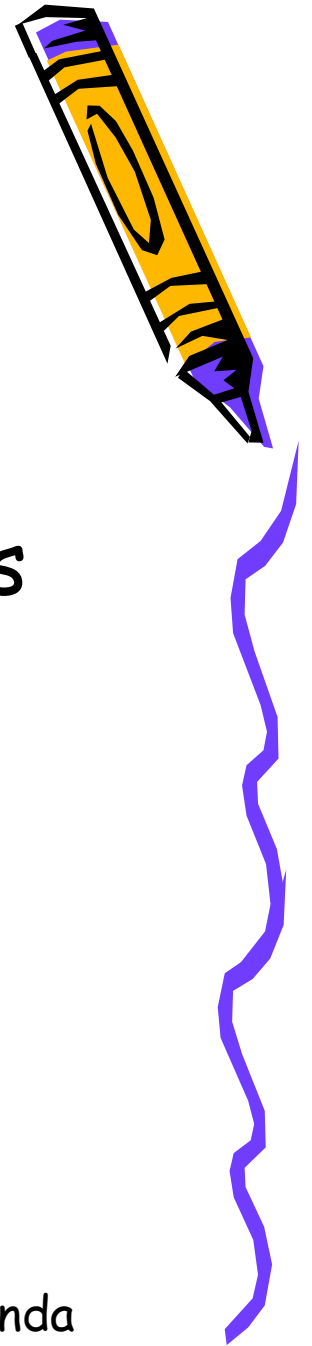


# Shared Book Reading

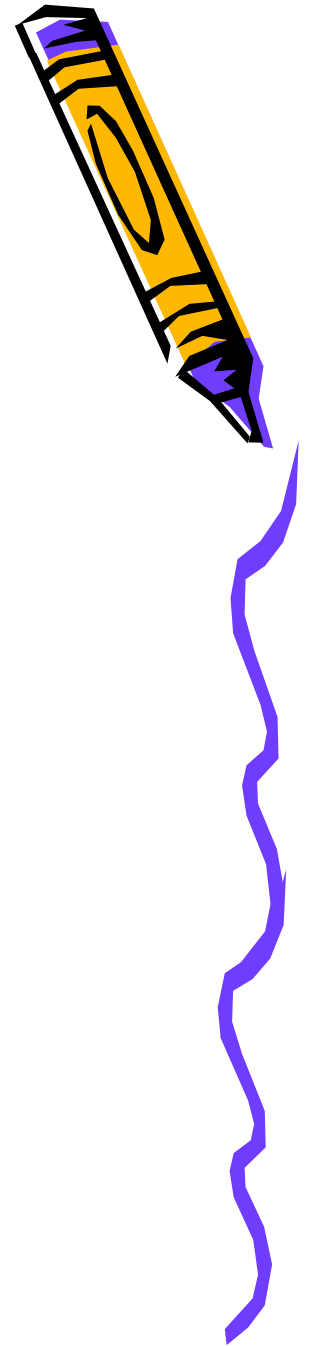
- Actively read together
- Re-read books, especially favorites
- Talk about literacy
- Connect books to experiences
- Provide literacy-rich environments



Beukelman & Mirenda  
(1998)

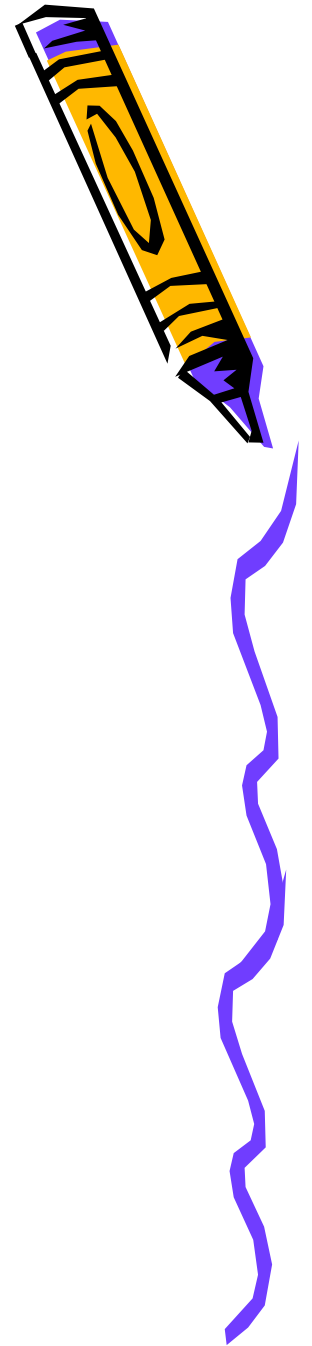
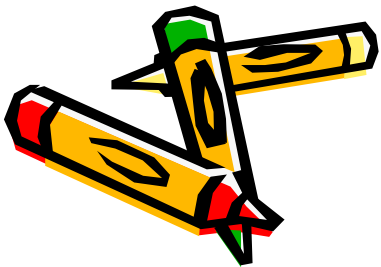


# Shared Book Reading



# Literacy Learning in the Classroom

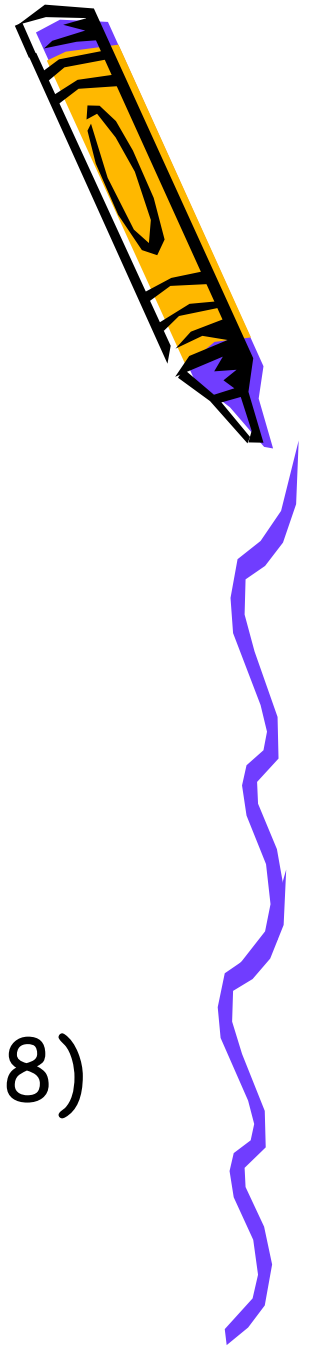
- Multifaceted
- Range of authentic tasks
- Active engagement with other students
- Balanced approach
- Repeated learning opportunities
- Facilitate independence



# Literacy Opportunities

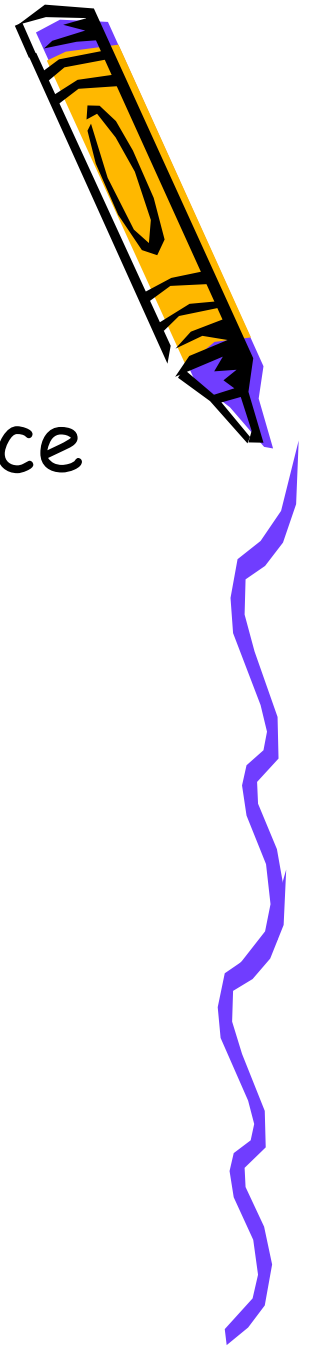
Typical children get 17 new things  
to read each day

(K. Erickson, 2008)



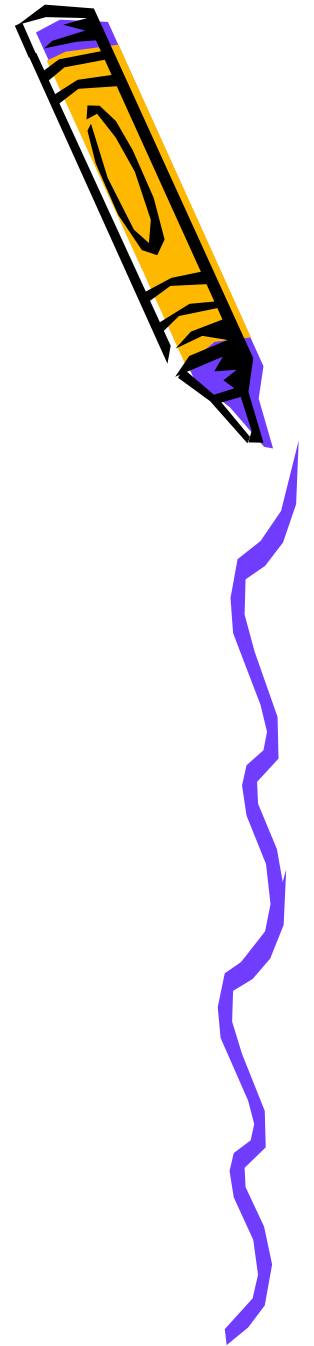
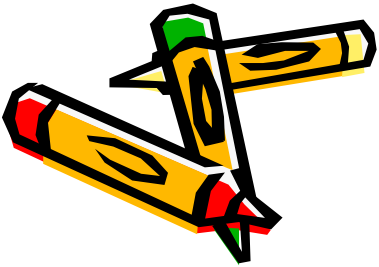
# Phonological Awareness

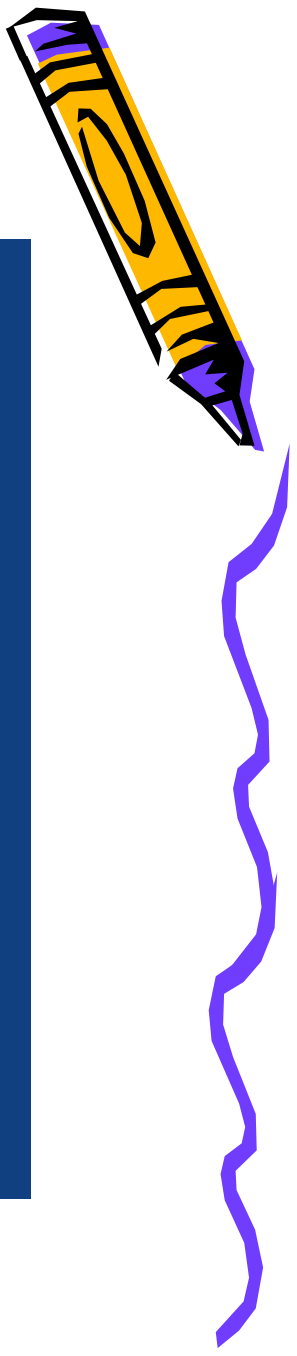
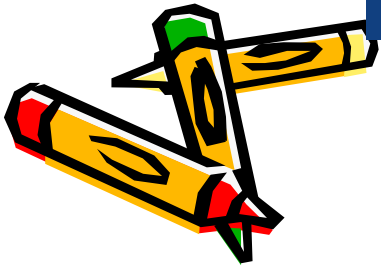
- Access to information in AAC device
- Includes:
  - Sound blending
  - Phoneme segmentation
  - Rhyming



# Morphology & Syntax

- Ensure that developmentally appropriate information is in AAC system
- Use recasts
- Expose to adult forms





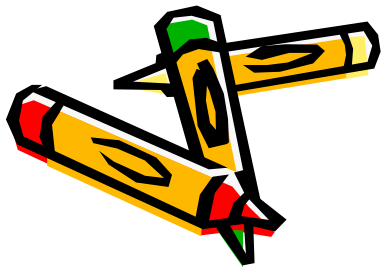
# Vantage Plus

Prentke Romich Company  
Unity 45 Full User



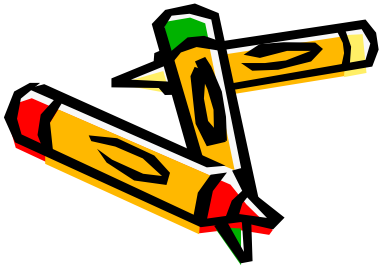
System tray area: 2/17/09 10:05AM, Caps Lock, Shift, Ctrl, Speech

Halloween	QUICK HIT	GREETING	ME	SPELL A B C	CALENDAR	SCHOOL	HAVE FUN	V TOOLS
PAGES								? word
ACTIVITY								STOP
DELETE LAST SEL.								
CLEAR								

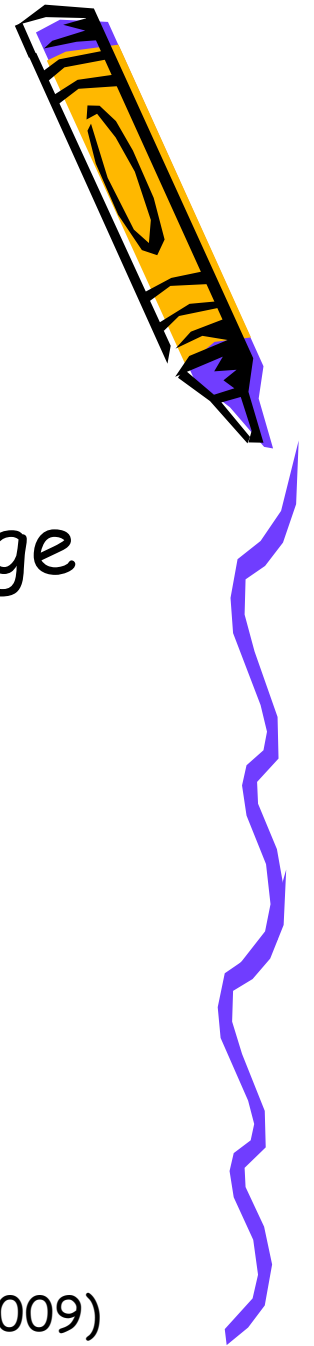


# Vocabulary

- Facilitate new word acquisition by connecting to background knowledge
- Activities should be engaging and interactive



Soto & Zangari (2009)



# Common Rimes

## DynaVox V Page

D Y N A V O X


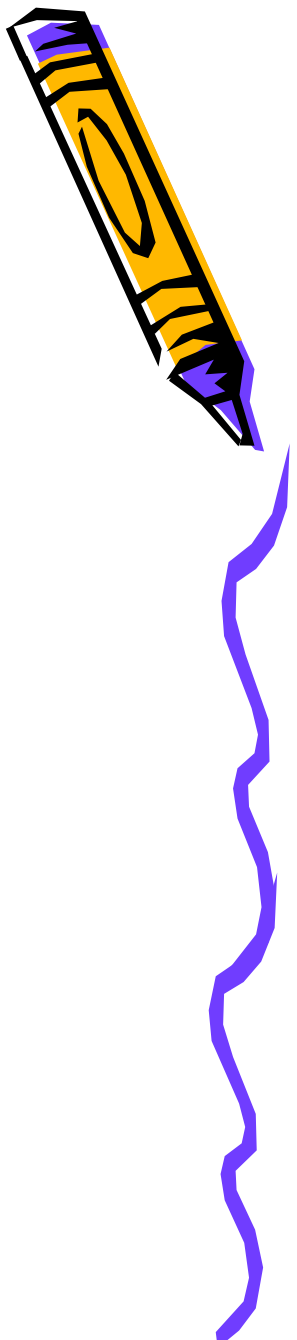
go back

talk

Close

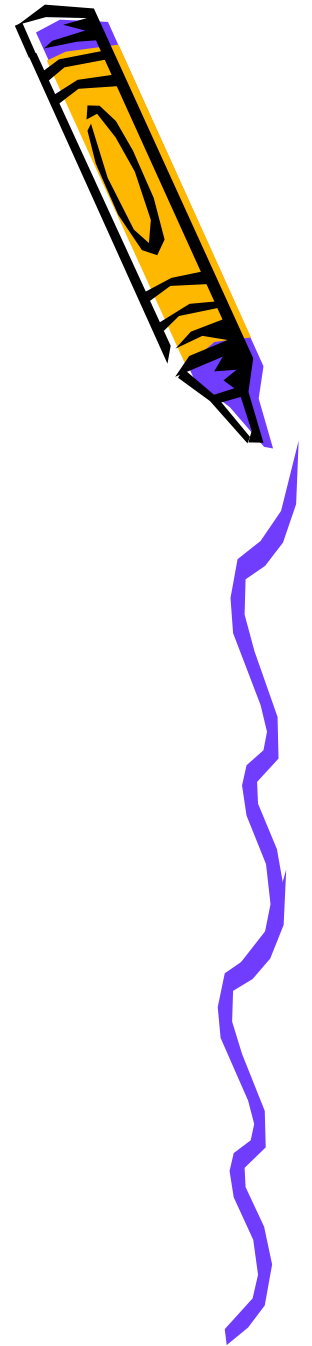
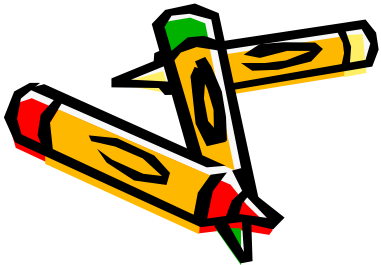
	ack	ap	est	ing	ot	
ail	ash	ice	ink	uck	ain	my words
at	ick	ip	ug	ake	ate	my phrases
ide	it	ump	ale	aw	ight	gateway popup
ock	an	ame	ay	ill	oke	keyboard

Clear



# Strategies to Facilitate Vocabulary Development

- Read cooperatively and actively
- Model expansions, extensions
- Use semantic webs and maps
- Place books on lower shelves
- Ensure good positioning
- Encourage page-turning
- Try CD-ROM books
- Use communication displays

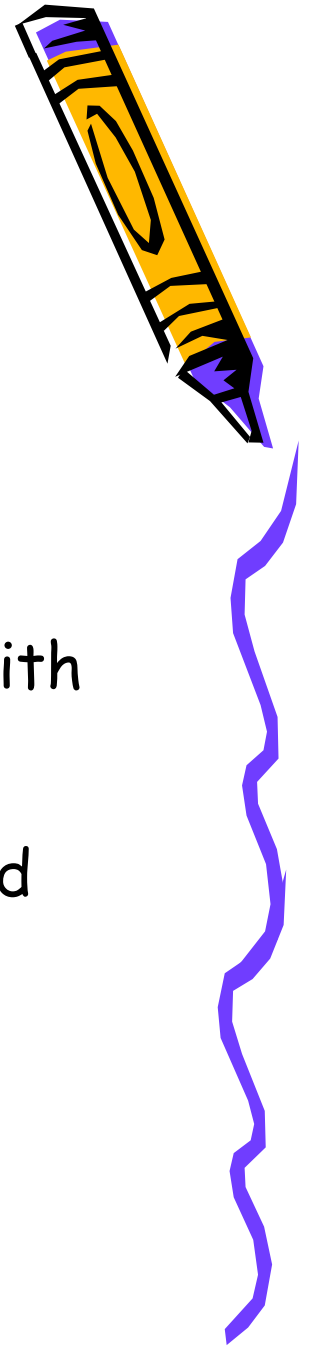


# Intervention Strategies

- Aided Language Stimulation

A language stimulation approach in which the facilitator points out picture symbols on the child's communication display in conjunction with all ongoing language stimulation. Through the modeling process, the concept of using the pictorial symbols interactively is demonstrated for the individual.

- Light Cueing



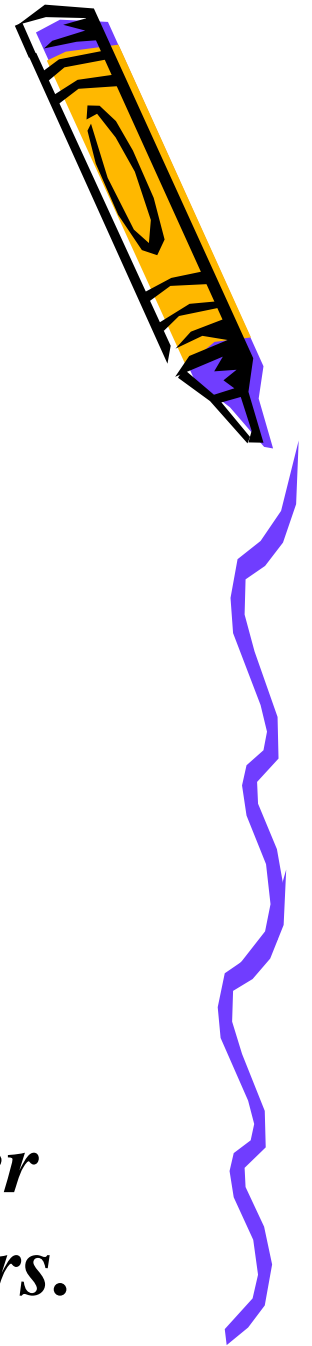
# Vocabulary Expansion?

Also try:

- Introducing vocabulary in meaningful experiences.
- Brainstorming
- Questioning
- Predicting
- Discussing
- Reading
- Using graphic organizers

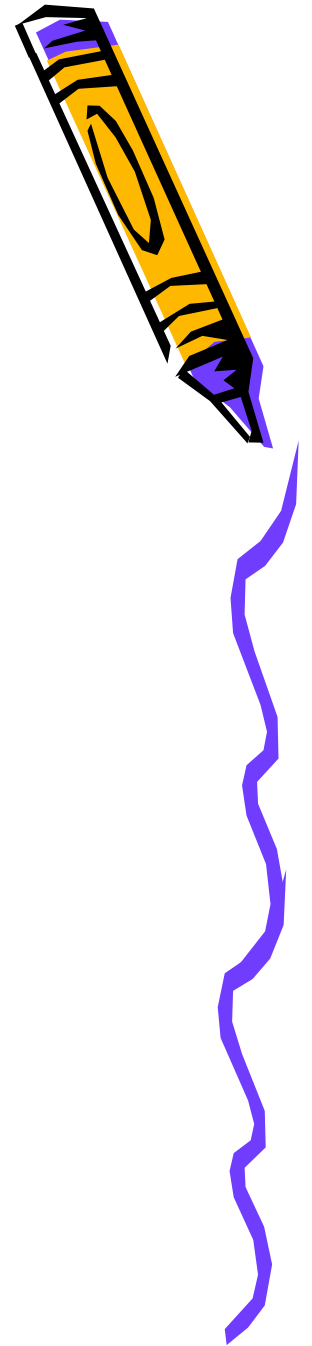


*Students who write become better readers...and writers, and thinkers.*



# Comprehension

- Ultimate goal of reading process
- Emphasize from the beginning
- Includes all essential linguistic concepts

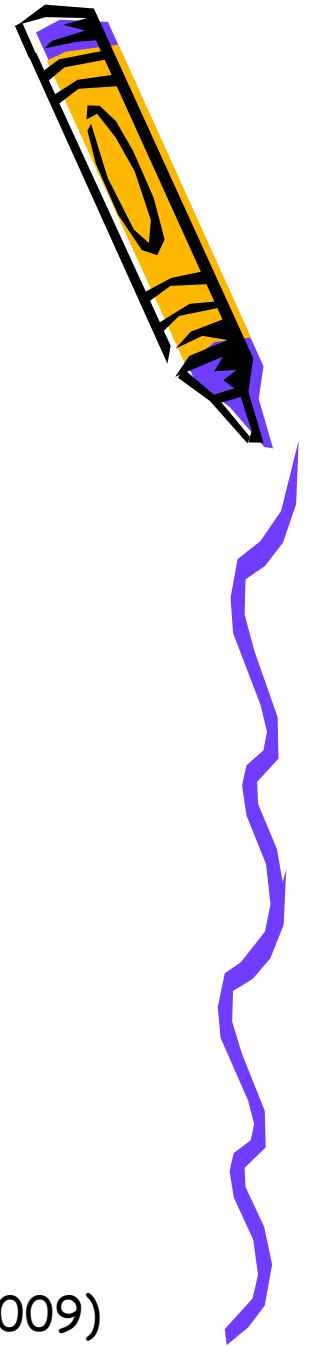


# Strategies

- Comprehension monitoring
- Summarization
- Graphic organizers
- Question generation
- Cooperative learning

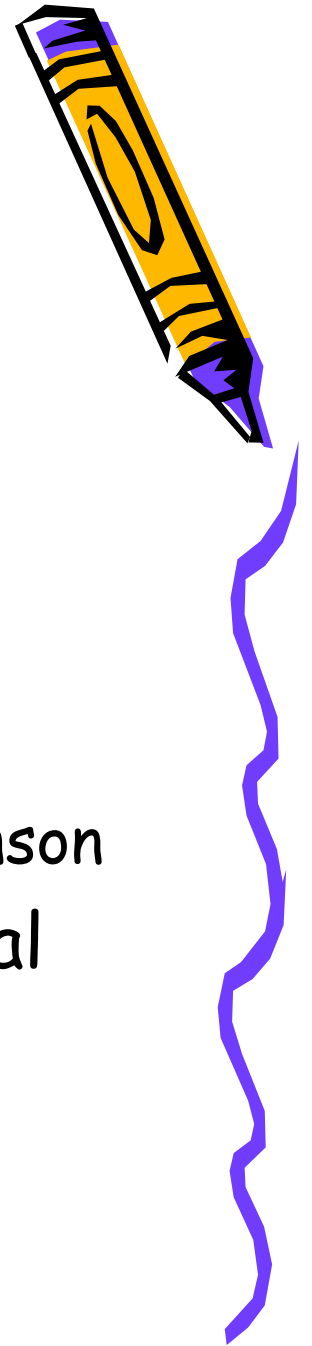
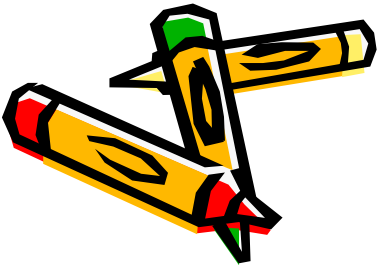


Soto & Zangari (2009)



# Writing

- Make sure items are easily accessible
- Place markers and crayons in holders
- Try computer programs:
  - KidPix software
  - Writing with Symbols 2000 by Mayer-Johnson
- Use keyboard and blank screen for equal early scribbling



# Writing with Symbols 2000

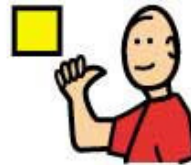
Mayer-Johnson, Inc.

## Get Ready For Bed

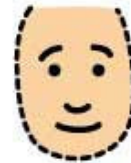


1.

Wash



my

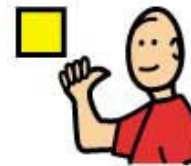


face.



2.

Brush



my

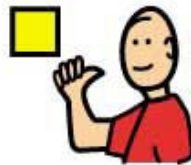


teeth.



3.

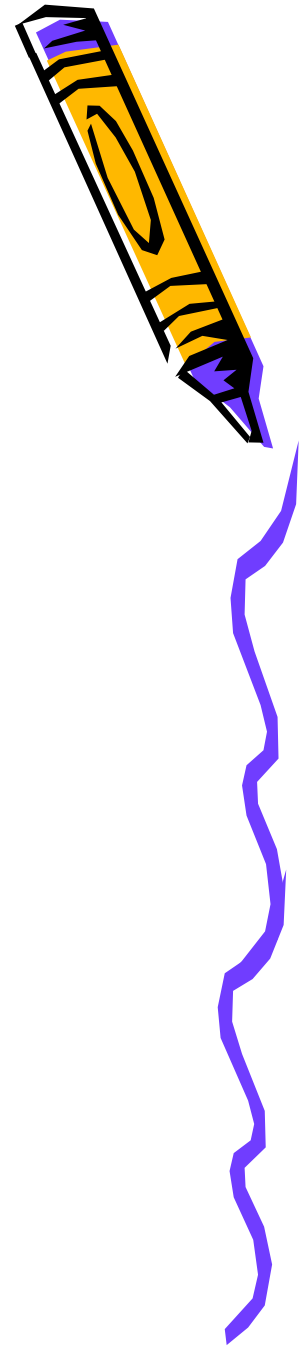
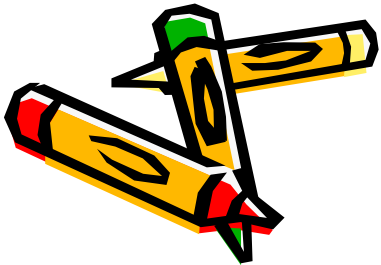
Put on



my

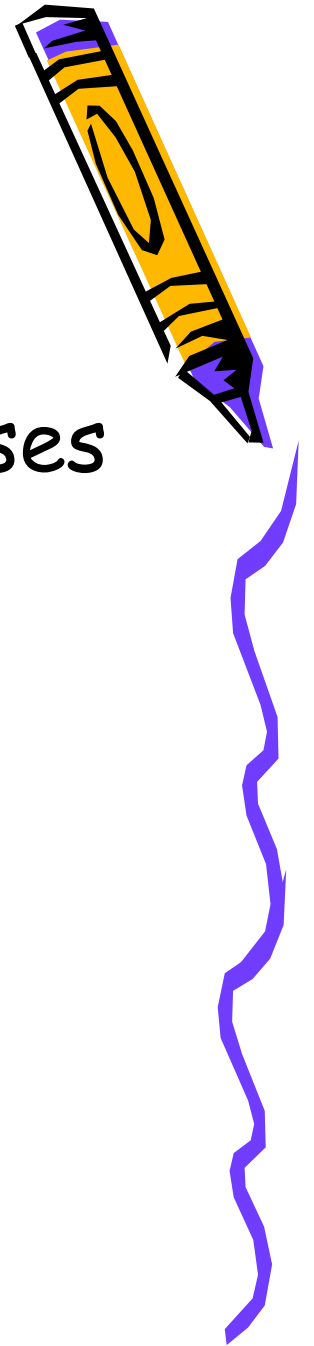
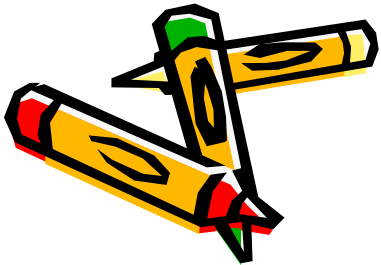


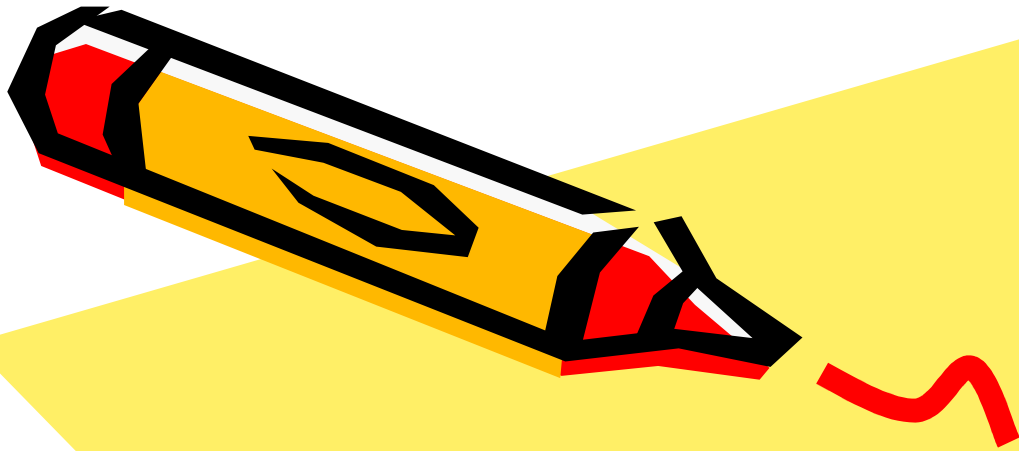
pajamas.



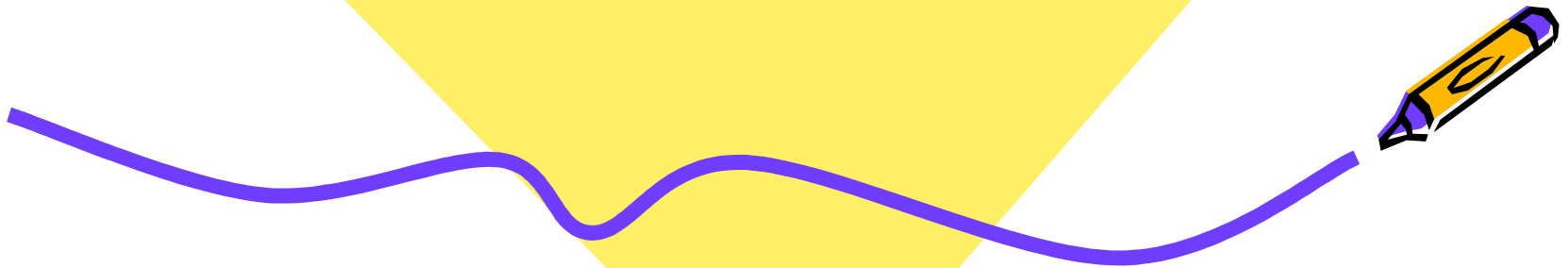
# Motivation

- Use writing for a variety of purposes
- Lists
- Email
- List servs
- Games



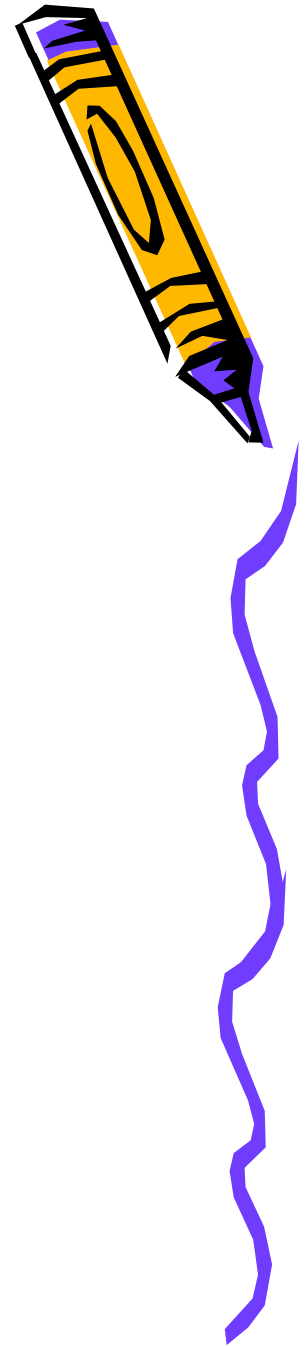


# Literacy Activities using AAC



# Communication Builder

Enabling Devices, Inc.



I want to read a book

A cartoon illustration of a woman with blonde hair, wearing a blue shirt, holding an open red book and reading it.

Yuck!

A cartoon illustration of a face with a disgusted expression, showing a wrinkled nose and a downturned mouth.

That's funny!

A cartoon illustration of a face laughing with its mouth wide open and eyes closed.

What is that?

A black question mark inside a black square frame.

I want you to read it

A cartoon illustration of a hand with the index finger pointing forward.

turn the page

An illustration of an open book with a red cover and white pages. A black arrow points from the left page to the right page.

Let me see!

A cartoon illustration of a pair of large, blue eyes with long eyelashes.






















The End

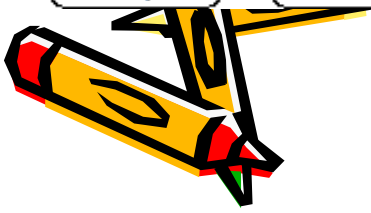
An illustration of a closed book with a red cover and white pages.

# Tech/Speak

AMDi - Advanced Multimedia Devices, Inc.



















I want 						What is that? 	Who? 
						When? 	Why? 
I have a book 	I can read it 	I can't read it 	I like that 	I don't like that 	Let me see! 	Oh no! 	That's funny! 
I want you to read it 	turn the page 	Read it again 	Let's read something else now 	Me, too 	Let me do it 	I don't understand 	The End 



# Tech/Speak

## Book Choice Overlay

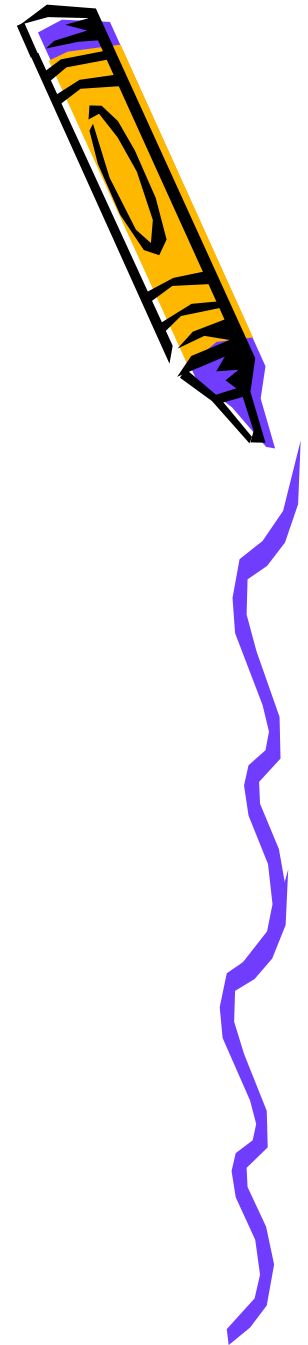


I want 	Dora the Explorer 	The Wiggles 	Blues Clues 	Brown Bear 	Where's Spot? 	What is that? 	Who? 
						When? 	Why? 
I have a book 	I can read it 	I can't read it 	I like that 	I don't like that 	Let me see! 	Oh no! 	That's funny! 
I want you to read it 	Turn the page 	Read it again 	Let's read something else now 	Me, too 	Let me do it 	I don't understand 	The End 



# DynaVox V

DynaVox Technologies

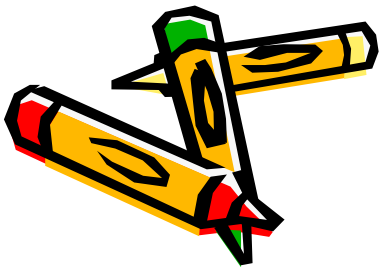


D Y N A V O X

Navigation icons: back, home, forward, refresh, search, help

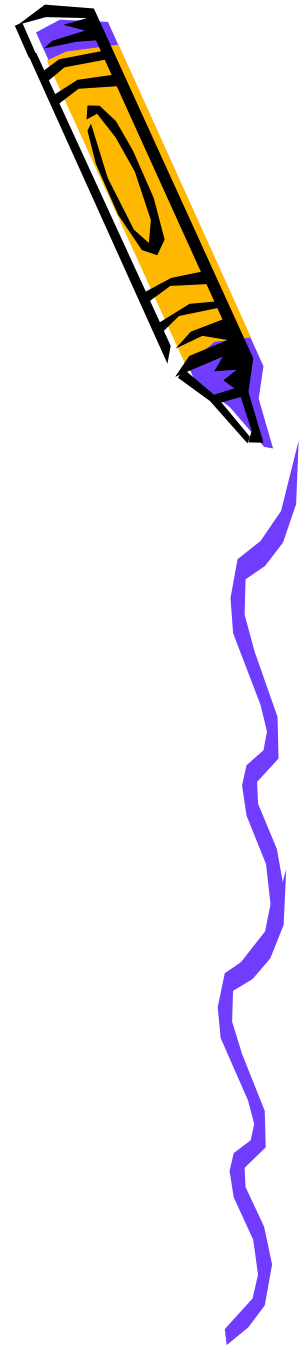
Page Title: "Reading At Home" page in DynaVox V

go back 						talk 
	close 	book choice 	book choice 	Let me do ... 	I don't like it 	
	I want you to read it! 	Let me see. 	What is 	I have a book. 	I can. 	my words 
						my phrases 
	I want 	Junie B. Jones 	Harry Potter 	captain underpants 		gateway popup 
Clear 	I want <u>Harry Potter</u> 					keyboard 



# DynaVox V

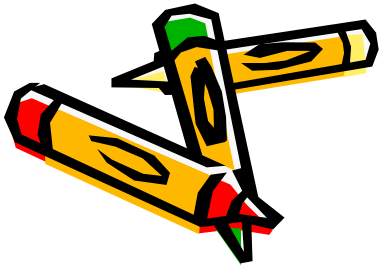
Reading At Home with additional vocabulary



D Y N A V O X

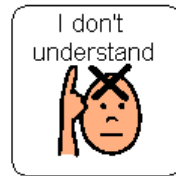
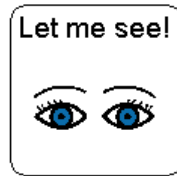
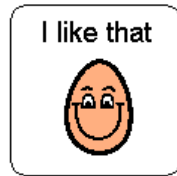
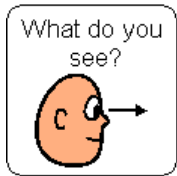
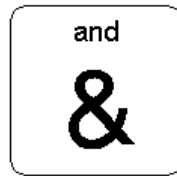
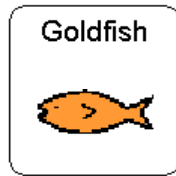
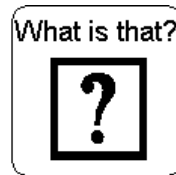
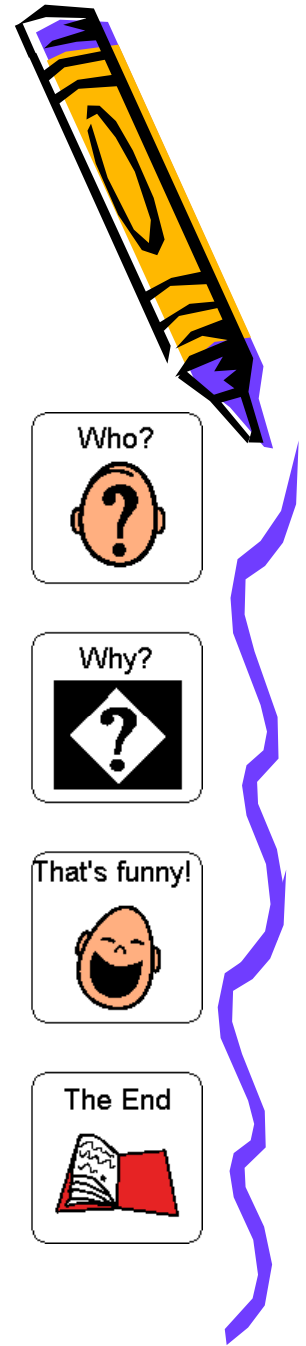
Navigation icons: back, home, forward, refresh, chat, volume, settings.

go back 						talk 
	close 	I want 	to read a book 	Let me do it! 	I don't like it 	Me too! 
	I want you to read it! 	Let me see. 	What is that? 	I have a book. 	I can. 	turn the page 
	Read it again. 	I don't understand 	Let me see! 	That's funny! 	Oh no! 	The End 
	I want 	Junie B. Jones 	Harry Potter 	Captain Underpants 		my words 
Clear 	I want <u>Harry Potter</u> 					my phrases 
						gateway popup 
						keyboard 



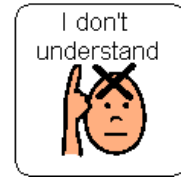
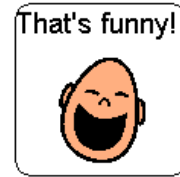
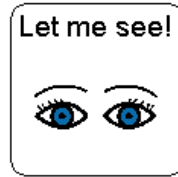
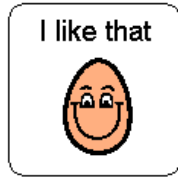
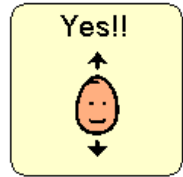
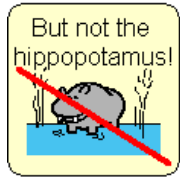
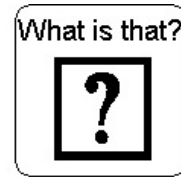
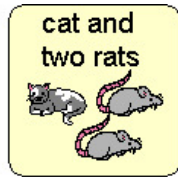
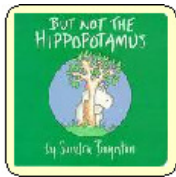
# Tech/Speak

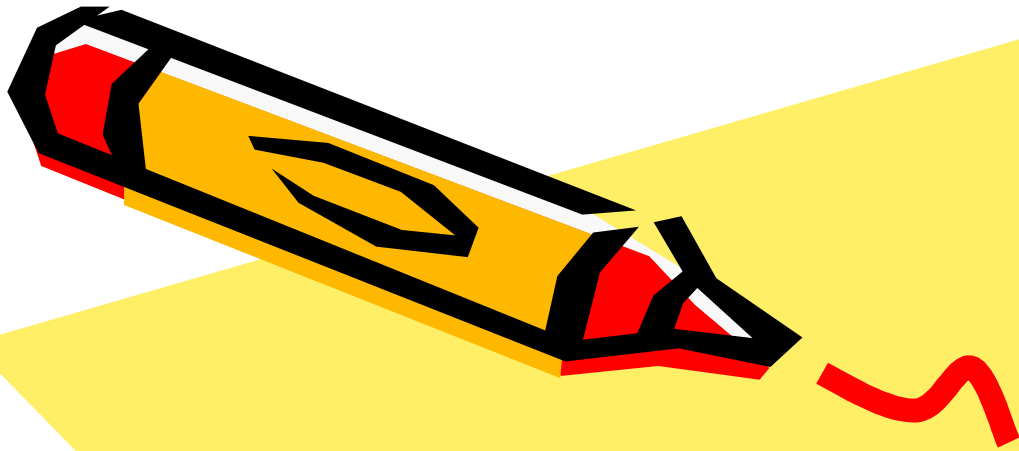
## Brown Bear, Brown Bear, What Do You See?



# Tech/Speak

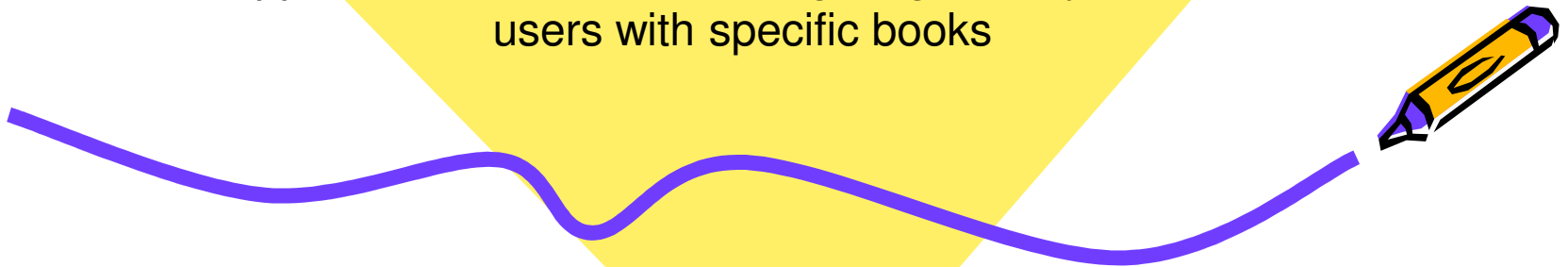
## But Not The Hippopotamus





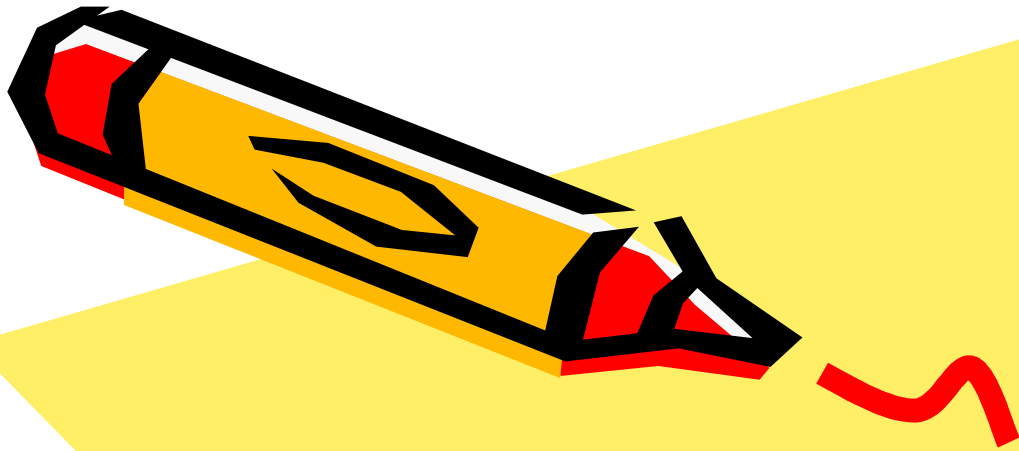
# HANDS ON ACTIVITIES

Please work in small groups and come up with practical applications and ideas for targeting literacy for AAC users with specific books

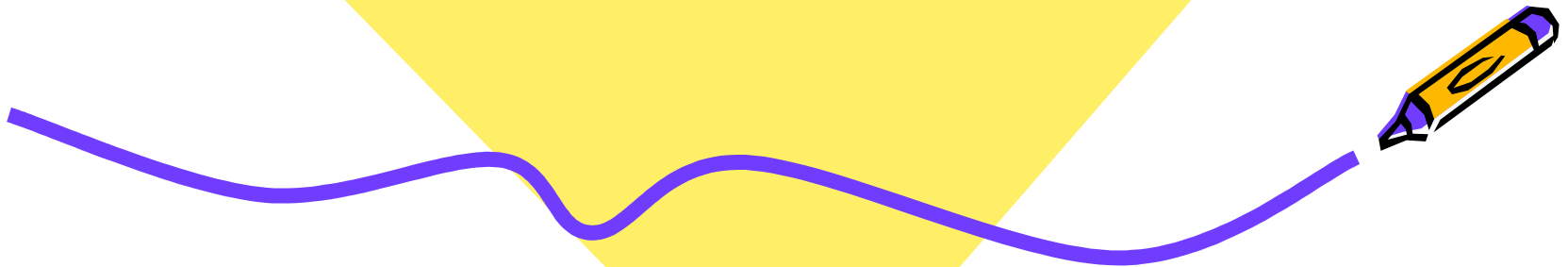


# Hands-On Activity



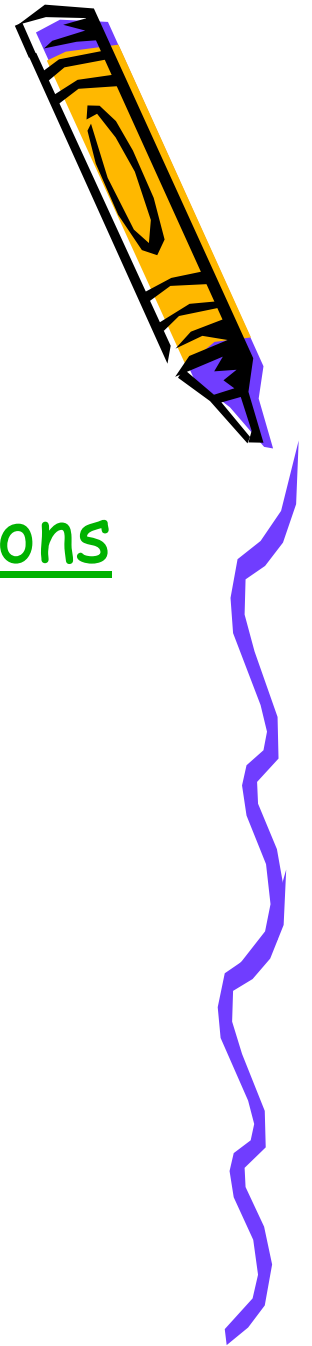



# RESOURCES FOR LITERACY and AAC



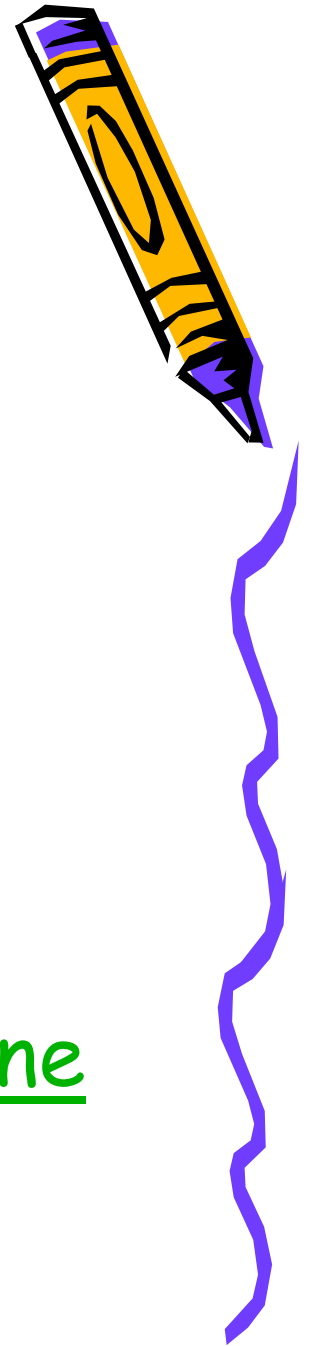
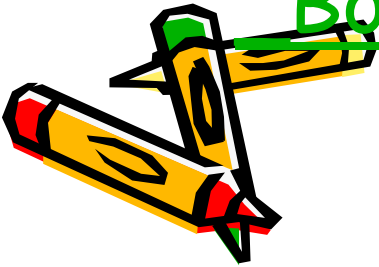
# Helpful Websites

- ASHA's Literacy Gateway
  - <http://www.asha.org/about/publications/literacy>
- Reading Rockets
  - <http://www.readingrockets.org/>
  - Also contains milestones/accomplishments by age
- Story props
  - <http://kizclub.com/stories.htm>



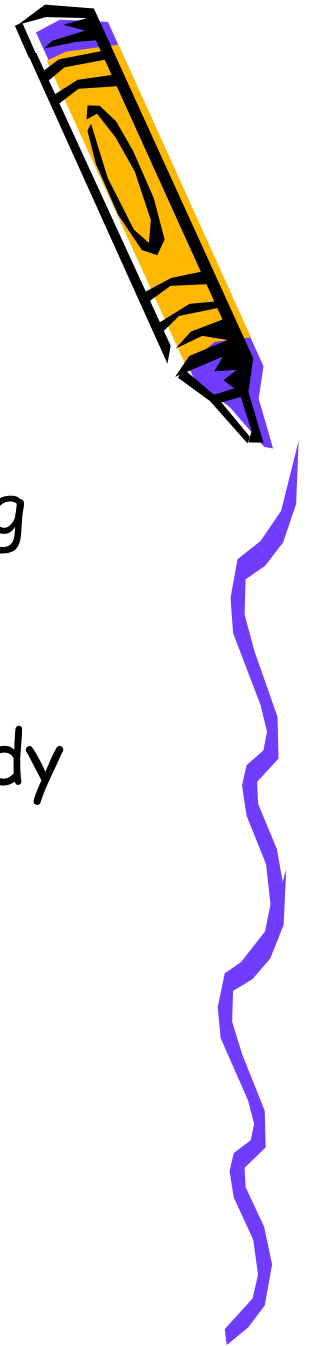
# Reading Activities on the Internet

- [www.starfall.com](http://www.starfall.com)
- [www.getreadytoread.org](http://www.getreadytoread.org)
- [www.booknutsreadingclub.com](http://www.booknutsreadingclub.com)
- [www.nationalreadingpanel.org](http://www.nationalreadingpanel.org)
- [www.internet4classrooms.com](http://www.internet4classrooms.com)
- [http://members.tripod.com/Caroline Bowen/devel.htm](http://members.tripod.com/CarolineBowen/devel.htm)



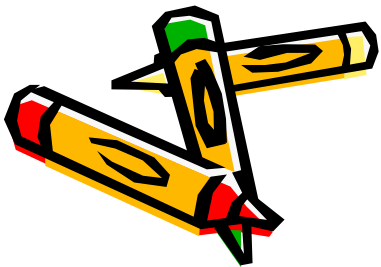
# Additional Literacy Resources

- [www.tarheelreader.org](http://www.tarheelreader.org)
- Great for children with print processing issues
- [www.Route66Literacy.org](http://www.Route66Literacy.org)  
Activities to support reading, word study and writing
- [www.Flickr.com](http://www.Flickr.com)  
Fantastic photo on-line resource



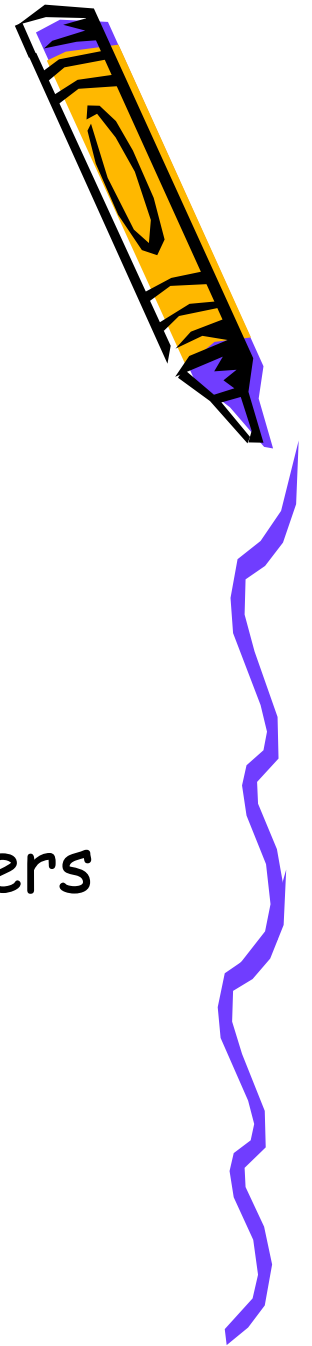
# Additional Literacy Resources

- [www.news-2-you.com](http://www.news-2-you.com) Developed by Jacquie Clark, SLP  
Subscription required (\$140 per year individual rate)  
Weekly paper (180+ pages per week)  
"Speaking" version available (Created using Writing with Symbols software)
- [www.aacintervention.com](http://www.aacintervention.com) Maintained by Dr. Caroline Musselwhite and Julie Maro  
Tips & Tricks  
Activity Ideas  
Book Boards  
Tip of the Month (years of ideas available on website)



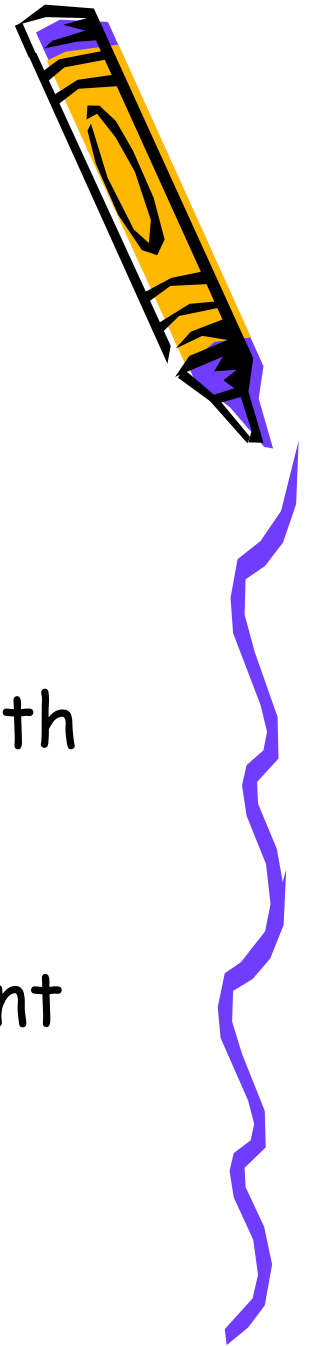
# Additional Literacy Resources

- [www.DK.com](http://www.DK.com)  
Thousands of sticker books  
Also available in book stores
- [www.EnchantedLearning.com](http://www.EnchantedLearning.com)  
Subscription required (\$20 per year)  
Printable books of Early to fluent readers  
Easily adapted using PCS  
symbols/Boardmaker software



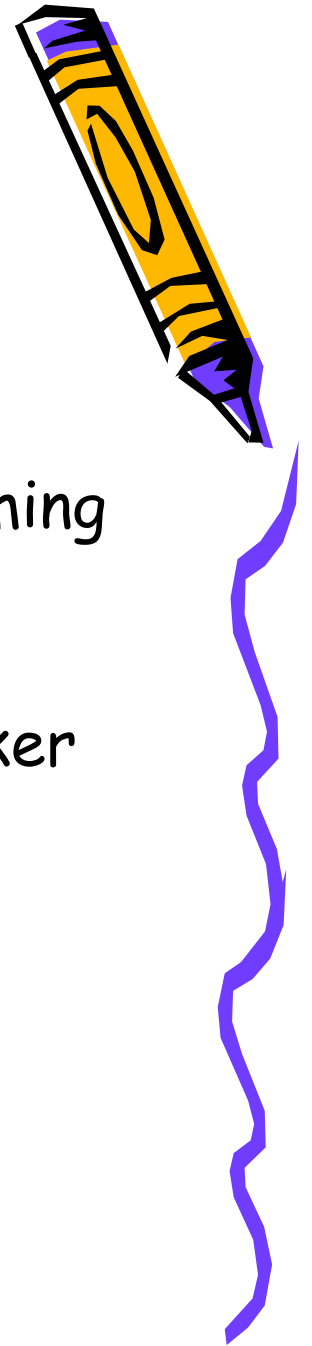
# Additional Literacy Resources

- [www.speakingofspeech.com](http://www.speakingofspeech.com)  
Free Materials Exchange
- [www.dltk-teach.com](http://www.dltk-teach.com)  
"Book Breaks" Activities (Coordinate with popular children's books)
- [www.dotolearn.com](http://www.dotolearn.com)  
Games, songs, communication cards, print resources

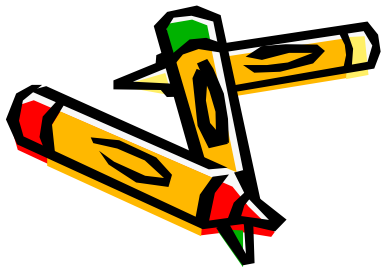


# Additional Literacy Resources

- [www.lil-fingers.com](http://www.lil-fingers.com)  
Free online storybook activities including rhyming print and audio
- [www.magneticpoetry.com](http://www.magneticpoetry.com)  
Can choose beginning word level and story maker
- <http://trainland.tripod.com>  
Incredible resource for no cost images, PCS symbols, etc.  
(Including IntelliKeys activity exchange)

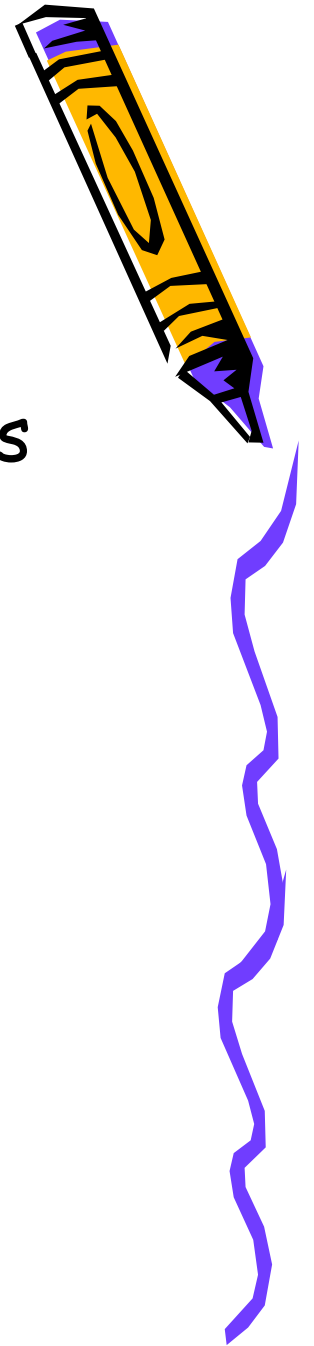
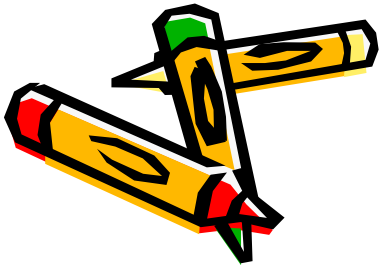


# Suggested Book Lists



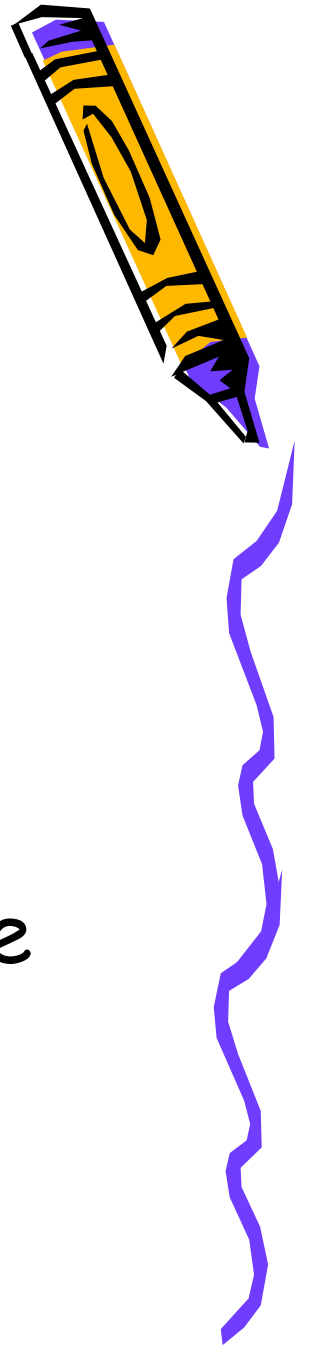
# Chain or Circular Story

- Why Mosquitoes Buzz in People's Ears  
by Verna Aardema
- If You Give a Mouse a Cookie  
by Laura Numeroff
- If you Give a Moose a Muffin  
by Laura Numeroff



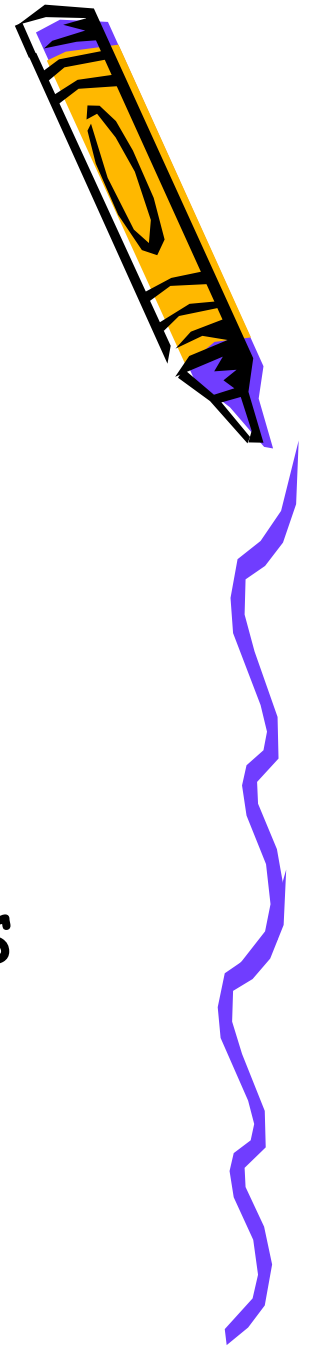
# Cumulative Stories

- Today is Monday  
by Eric Carle
- The Old Woman and Her Pig  
by Paul Galdone
- "Buzz, Buzz, Buzz" went Bumblebee  
by Colin West



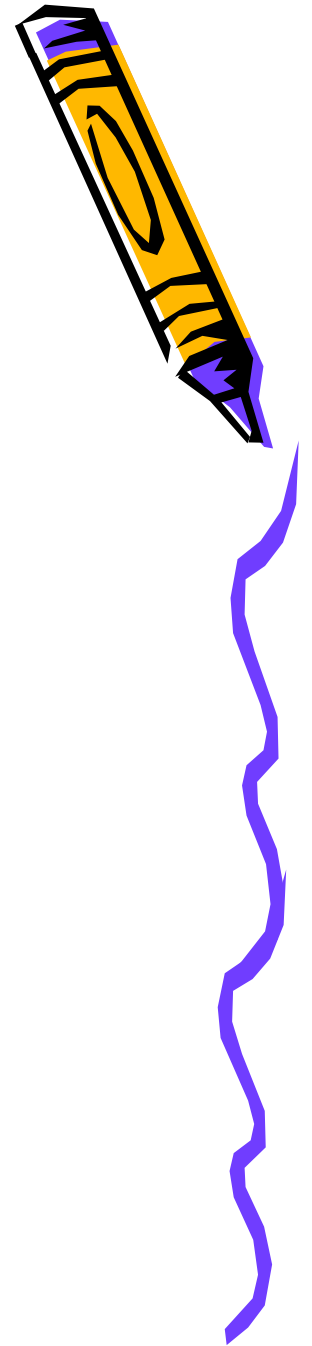
# Familiar Sequence Books

- Come Out and Play, Little Mouse  
by Robert Kraus
- Cookie's Week  
by Cindy Ward
- Sunday Potatoes, Monday Potatoes  
by Vicky Shiefman



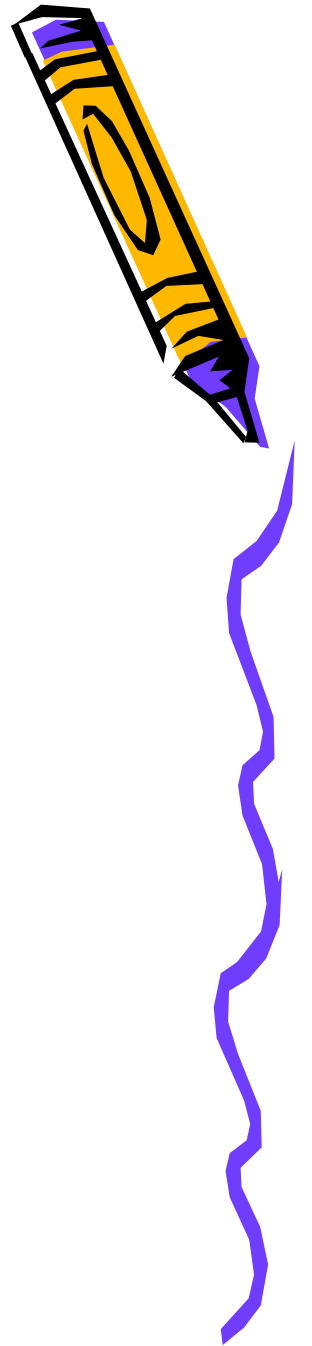
# Repetition of Phrase and Repetitive Phrase

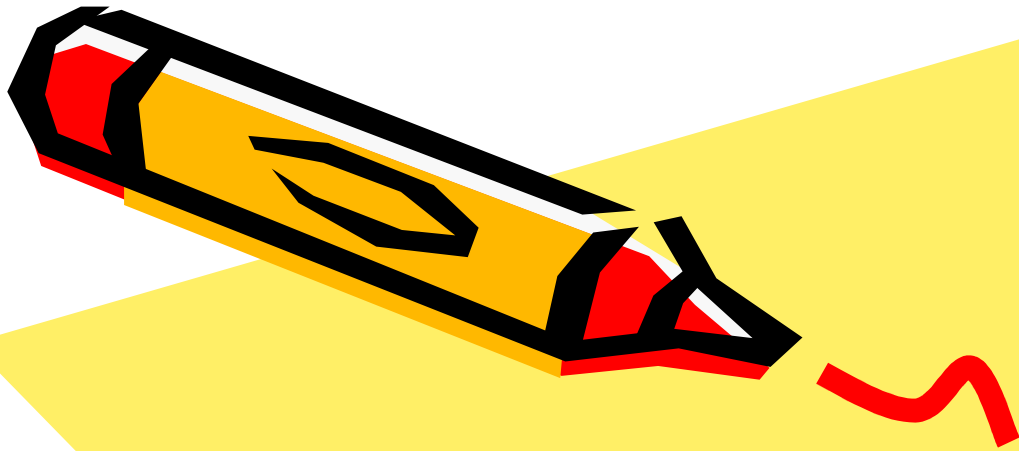
- Ten Out of Bed  
by Penny Dale
- Knock, Knock! Who's There?  
by Sally Grindley
- Is Your Mama a Llama?  
by Deborah Guarino



# Rhyming books

- Jake Baked The Cake  
by B.G. Hennessy
- There's a Cow In The Road  
by Reeve Lindbergh
- Silly Sally  
by Audrey Wood





# Questions/Comments?

Contact us:

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