Assistive Technology to Support Struggling Readers

Georgia Department of Education
Divisions for Special Education Services and Supports
1870 Twin Towers East
Atlanta, Georgia 30334

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Assistive Technology Definitions

And

Current Focus

Definition of Assistive Technology

Assistive technology device

- Any item, piece of equipment or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of children with disabilities.

- EXCEPTION. The term does not include a medical device that is surgically implanted, or the replacement of such device.

Individuals with Disabilities Education Improvement Act of 2004

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Current Educational Focus

- The way in which special education and related services are provided to students with high incidence disabilities has changed as a result of recent legislative mandates.

  - **Increased inclusion** in the general education curriculum.
  - Increased **academic demands** for all students.
  - **Required accountability** for student progress

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Current Educational Focus

- The change in focus is due to recent legislative mandates including:
  - No Child Left Behind Act of 2001
  - Individuals with Disabilities Education Improvement Act of 2004

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No Child Left Behind Act of 2001

- State and local education agencies are responsible for developing academic standards that are utilized to develop high quality instructional programs for all students.

- Students with disabilities must have access to the same standards-based curricula as their general education peers. The student's Individual Educational Program also determines educational programming.

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No Child Left Behind Act of 2001

- Students with disabilities must participate in testing to assess their progress in meeting these standards.
  - Students with the most significant cognitive disabilities may participate in testing based on alternate achievement standards.   The number of students participating in the alternate assessments must not exceed 1% of all students in the grades tested.

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# Individuals with Disabilities Education Improvement Act of 2004

- Children with disabilities should achieve to high academic standards developed for all students.

- Students should be provided with appropriate assistive technology devices and services as well as accommodations and modifications to assist them in making progress in their educational programs.

- School systems must be accountable for student achievement for all students.

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Georgia Performance Standards
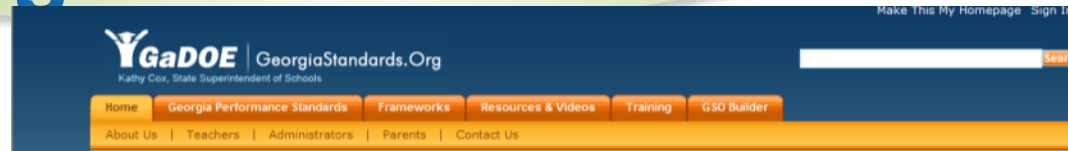
- The Georgia Department of Education has established academic standards across core content areas.

- These standards are referred to as the Georgia Performance Standards and are available at http://www.georgiastandards.org

- Students with disabilities must have access to the standards-based general education curriculum.

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Georgia Performance Standards

- Reading across the curriculum is a major focus of the new Georgia Performance Standards.
    - It is acknowledged that students must read content materials in order to acquire new information and participate in relevant instructional activities.

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Reading
Difficulties and Supports

Types of Reading Difficulties

- **Struggling readers often have difficulty in one or more of the following areas:**

  - **Phonemic awareness**

  - **Phonics**

  - **Vocabulary**

  - **Comprehension**

  - **Fluency**

- **To provide appropriate supports, we must determine the types of difficulties the student is experiencing.**

Types of Reading Difficulties

- **Some students with reading problems are diagnosed with dyslexia which is characterized by difficulty with:**

    – Learning the components of words and sentences

    – Writing and spelling

    – Spatial directional orientation

    – Differentiating letters that look similar

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Types of Reading Difficulties

- **Dyslexia** (continued):

  – Representation of letters and numbers (reversals)

  – Accurate visual and/or auditory feedback

  – Word-by-word oral reading

  – Reading known words

 – Recognizing words in isolation but not in context

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Research-based Strategies

- **Read Aloud/Think Aloud**
    - RATA strategy enables teachers to scaffold metacognitive learning processes for students.
    - Teachers model the habits of good readers.
    - Students are able to practice and internalize these strategies to comprehend text.
    - Students with disabilities benefit from this strategy - provides them with a model that enables them to break down complex concepts into meaningful chunks of information that they can understand.
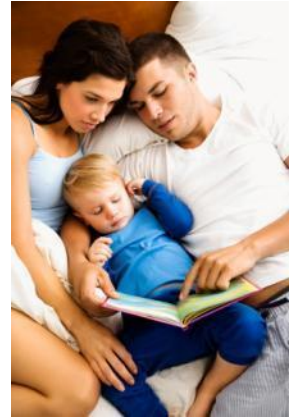
Research-based Strategies

- **Peer Tutoring - PALS - Mathes and Fuchs (1994)**
  - analyzed the results of 11 studies of peer tutoring in reading for students with disabilities
  - found that that peer tutoring was an effective intervention for students with disabilities
  - students with disabilities made greater gains in reading when they served in the role of tutor
  - additional research-based studies results http://kc.vanderbilt.edu/pals/library/readingres.html

Research-based Strategies

- **Explicit Instruction in Reading Fluency** –
  - An analysis of 24 studies indicated that students with learning disabilities who were experiencing difficulties in reading fluency benefitted from "an explicit model of fluent reading, multiple opportunities to repeatedly read familiar text independently and with corrective feedback, and established performance criteria for increasing text difficulty." (Chard D.J.; Vaughn S.; Tyler B-J. 2002)

Research-based Strategies

- **Technology** –
  - Both assistive technology and accessible instructional technology have increased the availability of instructional materials in digital formats and have proven to address more learning needs of students with reading disabilities.

  - Technology has been beneficial in building computation fluency, converting symbols, notations and text, building conceptual understanding, etc. (National Center for Technology Innovations, October 2004)

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Technology Supports for Reading

- **Assistive technology for reading is used to:**

  – **Remediate deficits**
  – **Compensate for deficits**

Remediation of Deficit Areas

- **Strategies and skill based instruction is needed to improve deficits areas. Assistive technology can play a role in remediating skills.**

    - For example, for a deficit in decoding skills, use of a phonics program which utilizes multiple learning avenues, along with teaching strategies, can assist the student with improving his phoneme identification.

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WordMaker

Earobics

Simon SIO

Examples of
Frequently Used Remediation
Tools

Starfall

Thinkfinity

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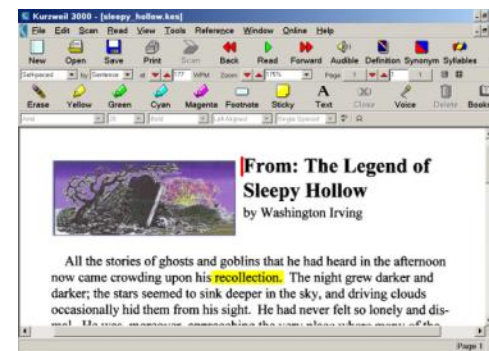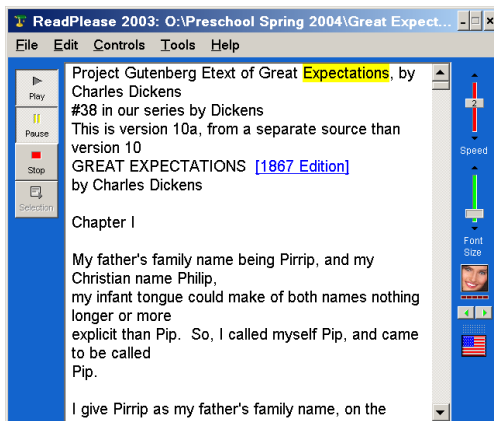Kathy Cox, State Superintendent of Schools

Compensation of Deficit Areas

- **Generally, assistive technology serves to compensate for deficit areas by enhancing access to and success in completing instructional tasks which require students to read and comprehend instructional materials**
  - For example, a voice output word reading program will compensate for difficulties in decoding, word recognition, and vocabulary. It will not directly remediate reading difficulties.

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Examples of Frequently Used Tools

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Reading Chart
AT Devices for Struggling Readers

- **This document contains information on the range of assistive technology devices that can be used by struggling readers to increase their decoding, fluency, and comprehension skills.**

Compensatory Tools

Category	Examples	Age Range			Skill Area				
		Elementary	Middle School	High School	Phonemic Awareness	Phonics	Vocabulary	Comprehension	Fluency
Positioning Aids	Book Stands / Slant boards (Pocket Full of Therapy, Sammons Preston Rolyan, Onion Mountain Technology)	X	X	X					X
	Teacher-made slant boards with three-ring binders	X	X	X					X
	Clipboard, binder clips	X	X	X					X
	Page-Up (Onion Mountain Technology)	X	X	X					X

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Positioning Aids

- **Allows for optimal positioning of text**
  - Book Stand (office supply)
  - PortaBook Stand (Onion Mountain Technology)
  - Slant Boards (Pocketful of Therapy)

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Tracking Aids

- **Enable students with visual tracking difficulties to maintain their place in the text**
  - Reading Window (Teacher Made)
  - Bar Magnifier (Independent Living Aids)
  - EZC Reader/ Colored Reading Helper (Really Good Stuff, Onion Mountain Technology)
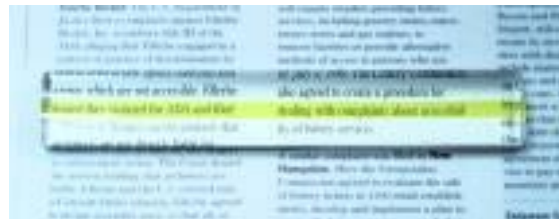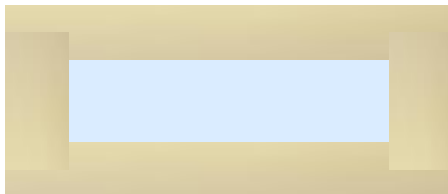
Click for Demo

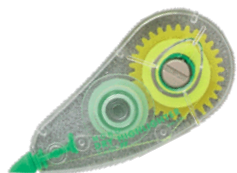*"We will lead the nation in improving student achievement."*

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Contrast Aids

- Alters the foreground-background contrast to promote visual access to text

  – Highlighters

  – Highlighting Tape

  – Acetate Report Covers

  – Color Overlays (National Reading Styles Institute or Onion Mountain Technology)

  – E.Z. Reader (Really Good Stuff)

  www.dyslexiacure.com
  www.irlen.com

Contrast Aids

- **Students needing contrast aids may display symptoms such as:**
  - Rubbing eyes
  - Complain about eyes hurting or headache
  - Difficulties with tracking
  - Not wanting to read aloud
  - Fidgeting
  - Acting out

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Without Overlay

Some students perceive letters as reversing, doubling, and even moving off the page, making it very difficult for them to read.

Click here to see the difference

The dog
was cute.

With Overlay

The correct colored overlay placed over a printed page can help many students to perceive letters more accurately, and to read the words with greater ease.

Distortion Effect - River

Weall seethings the same way. Wesee words in groups or phrases. Theprint is more dominant thanthe background. Theprintshows no movement. Theprinted letters areevenly black.Black print on white papergives thebest contrast for everyone. Whiteback ground lookswhite.

We all see things the same way. We see words in groups or phrases. The print is more dominant than the background. The print shows no movement. The printed letters are evenly black. Black print on white paper gives the best contrast for everyone. White background looks white.

Distortion Effect - Swirl

We all see things the same way. We all see words in groups or phrases. The print is more dominant than the background. The print shows no movement. The printed letters are evenly black. Black print on white paper gives the best contrast for everyone. White background looks white.

Distortion Effect - Halo

We all see things the same way. We see words in groups or phrases. The print is more dominant than the background. The print shows no movement. The printed letters are evenly black. Black print on white paper gives the best contrast for everyone. White background looks white.

Distortion Effect - Seesaw

We all see things the same way. We see words in groups or phrases. The print is more dominant than the background. The print shows no movement. The printed letters are evenly black. Black print on white paper gives the best contrast for everyone. White.

Distortion Effect - Blurry

We all see things the same way. We see words in groups or phrases. The print is more dominant than the background. The print shows no movement. The printed letters are evenly black. Black print on white paper gives the best contrast for everyone. White background looks white.

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Color Contrast Examples

Common contrast aids include colored overlays/filters, highlighter tape, colored light bulbs, and choosing appropriate background and text colors when using the computer for reading and writing tasks. Colored filters or overlays are available in many different colors and sizes. Colored light bulbs are also available commercially (they are sometime called party lights). Some students use these lights in study lamps. Most word processing programs, text reading software, and other computer based reading aids provide the option of changing font and background colors. Students are often better able to focus and attend to text that is presented to them on the computer by choosing background and font colors that make their eyes 'feel comfortable'.

Word Identification Aids

- **Offer portable solution for reading difficult words in textbooks and worksheets**
    - Children's Talking Dictionary and Spell Checker (Franklin)
    - Merriam-Webster Speaking Dictionary and Thesaurus (Franklin)
    - Reading Pen (Wizcom)

Magnification Aids

- **Allows for controlled enlargement of text to magnification level needed**
    - Binocular and Monocular telescope (Independent Living Aids, Maxi-Aids)
    - Hand held or Stand Magnifiers (Independent Living Aids, Maxi-Aids)
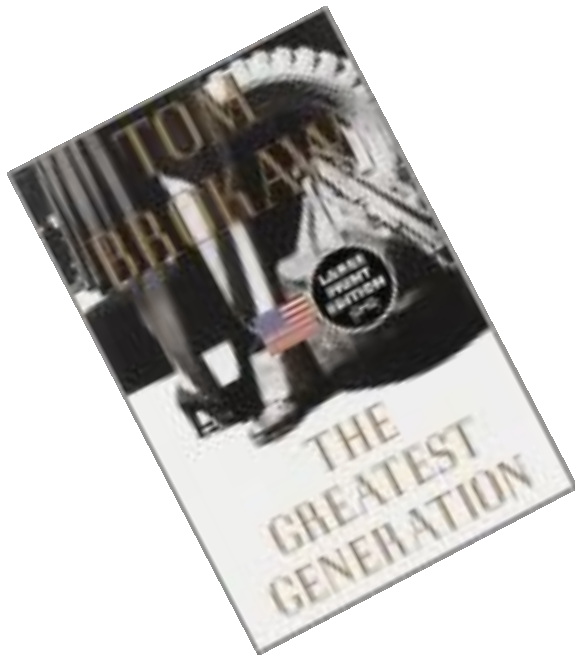   - Video Magnifier (CCTV)

Alternate Format Books
Large Print & Braille

- **Provides access to text in an optimal format**
  - Large Type Books
  - Braille
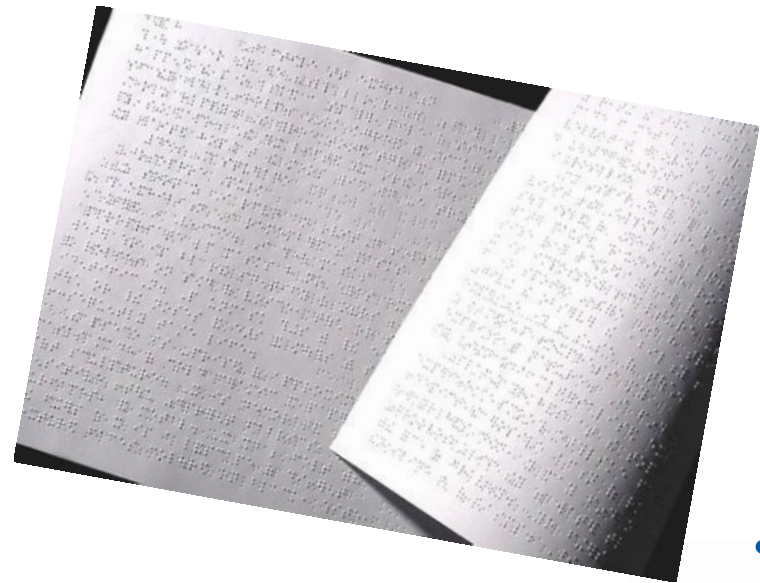
Alternate Format Books
Symbolized Text

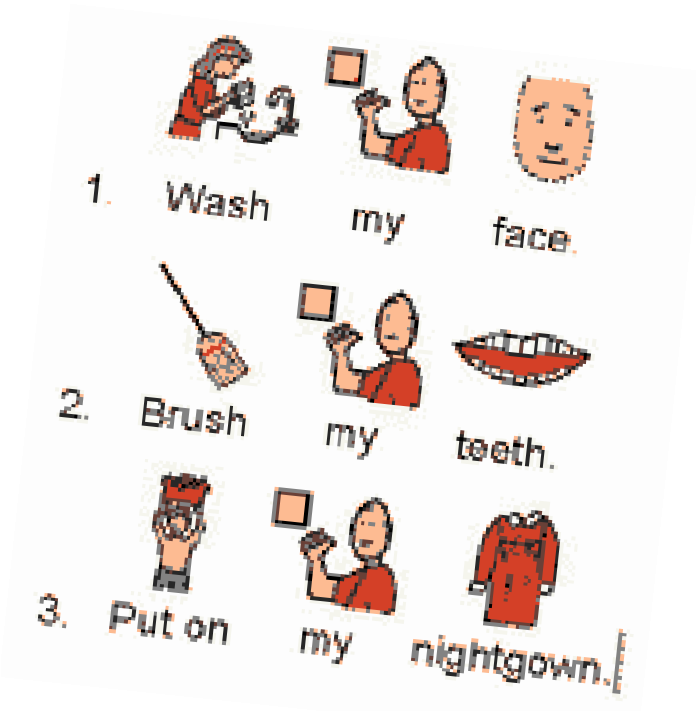- **Supplements printed text with picture symbols for beginning readers**

  - Writing With Symbols (Mayer Johnson)

  - Clicker 4 (Crick Software)

  - PixWriter (Slater Software)

  - Classroom Suite 4 (IntelliTools)

    ❖ *News 2 You weekly newspaper*
       www.news-2-you.com
    ❖ *Weekly Reader: AbleNet Edition*
       http://www.ablenetinc.com/weeklyreader/

Weekly Reader Sample Page (moderate)

Rules help everybody learn.

Your teacher could have a rule to be quiet. A quiet class helps everybody learn. You cannot learn when class is too loud. Your teacher could have

September 2007 V31 No 1 – Get Along

Student – Moderate - Pages

5

News-2-You
Sample Page
(animal regular)

January 2, 2006

page 6

News-2-You
Sample Page
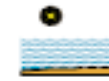(animal higher)

AND MORE NEWS

WHAT ?

ANIMAL NEWS

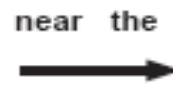The southern sea otter is cute, cute, cute. These little swimmers are called "sea clowns".

Hunters killed almost every otter in California.

But a few were found in 1938, near the Big Sur. Californians said, "Save the otters !"

Alternate Format Books
Computer Books

- **Books for older struggling readers who need age appropriate topics with reduced vocabulary and language complexities (considerate text) and other supports for comprehension.**
  - Start to Finish Literacy Starters (Don Johnston)
  - Start to Finish Library (Don Johnston)
  - Start to Finish Core Content (Don Johnston)
  - Thinking Reader (Tom Snyder)

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The worst drivers came from London. They thought that a horse was just like a train, only smaller. These drivers drove me too hard and too fast.

Soon I was sold again to a new master named Mr. Barry. Mr. Barry was a gentleman who lived in a town called Bath. He did not know very much about horses, and he hired a very bad groom to take care of me. The groom kept stealing my oats to feed his family. For two months, I ate mostly grass.

File   About

Student Names

Joseph
sally

Selection Options For Joseph

Select Task ▼

Reading Purpose

⦿ Listening Comprehension   ❓
○ Building Word Recognition   ❓
○ Building Word Recognition and Fluency   ❓
○ Recreational Reading without Testing   ❓
○ Assessment of Independent Reading   ❓

Highlight Color Options

Blue ▼   This is text to test your color choice.

Scanning Options

☐ Enable Scanning   Scanning Speed   2 Seconds ▼

☑ Button & Quiz Speech   Scanning Mode   Sentence - Blue Libr ▼

Additional Data Collection

☑ Collect Words Clicked on for Help

New Student   Delete Student   Customize   Quit
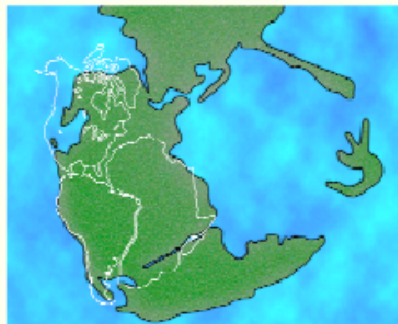
Start-to-Finish Core Content | Web

Earth Is Always Changing

One Giant Continent

So why do North America, South America, and Africa look like connecting pieces of a jigsaw puzzle? Wegener believed that it was because they were once connected and formed one giant continent. In fact, he believed that *all* the land on Earth had been one giant continent, and he called this giant continent Pangea.

Pangea

The word Pangea comes from two Greek root words: *pan*, meaning "all," and *gea*, meaning "land." Two other words that come from *gea* are geology and geologist. Geology is the study of how Earth changes over time, and a geologist is a scientist who studies these changes.

Wegener's theory was that Pangea broke into pieces millions of years ago, and the pieces drifted apart. A theory is an explanation of something we observe in the natural world. Wegener called his theory continental drift.

The shape of the continents was the first big clue that led Wegener to the theory that all the continents had once been connected. Another clue came from ancient fossils that were found in South America and Africa.

9

Understanding Volcanoes and...

- "Wegener"
- "North America, South America, and Africa"
  - "they were once connected and...
- "Pangea."
  - "allthe land on Earth had been one...
  - "comes from two Greek root words:"
  - "pan, meaning " all,""
  - "gea, meaning " land.""
- "Geology"
  - "study of how Earth changes over time,"
- Unassigned Notes

Alternate Format Books
Audio Books

- **Provide access to texts in audio format as a CD or digital file**
  - Use requires membership and possibly an adapted player
    - Recordings for the Blind and Dyslexic (www.rfbd.org)
    - GLASS, National Library Service (www.georgialibraries.org/public/glass/html)

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Alternate Format Books
Digital Audio Files

- **Allows student to listen to text**
    - Teacher made files with digital recorder
    - Computer generated files
    - Creation can be with inexpensive or purchased MP3 or Wav software
        - TextAloud (NextUp)
        - Alive Text to Speech (text-speech.com)

Alternate Format Books
Electronic Books (e-books)

- **Material is presented in primarily visual format**
  - Depending upon the reading device, some can have text to speech, book-marking and annotation features
  - Available both commercially and free
    - Project Gutenberg (www.projectgutenberg.org)
    - Bookshare (www.bookshare.org)
    - Accessible Book Collection (www.accessiblebookcollection.org)
    - Commercial resources such as Amazon, Audible.com

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Chapter 1

Into the Primitive

"Old longings nomadic leap,
Chafing at custom's chain;
Again from its brumal sleep
Wakens the ferine strain."

Buck did not read the newspapers, or he would have known that
trouble was brewing, not alone for himself, but for every tide-
water dog, strong of muscle and with warm, long hair, from Puget
Sound to San Diego. Because men, groping in the Arctic darkness,
had found a yellow metal, and because steamship and transportation
companies were booming the find, thousands of men were rushing
into the Northland. These men wanted dogs, and the dogs they
wanted were heavy dogs, with strong muscles by which to toil, and
furry coats to protect them from the frost.

Buck lived at a big house in the sun-kissed Santa Clara Valley.
Judge Miller's place, it was called. It stood back from the road,
half hidden among the trees, through which glimpses could be
caught of the wide cool veranda that ran around its four sides.
The house was approached by gravelled driveways which wound about
through wide-spreading lawns and under the interlacing boughs of

Text Reading Software

- **A variety of programs that can be used to read text on the computer display. They convert text-to-speech via speech synthesizer software.**
  - Some can be downloaded from the Internet
    - ReadPlease 2003 (www.readplease.com)
    - Natural Reader (www.naturalreaders.com)
    - E-Text Reader (www.readingmadeez.com)
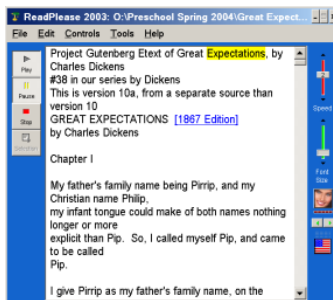
"We will lead the nation in improving student achievement."

ReadPlease 2003: .\Help\rpInstructions.txt

File Edit Controls Tools Help

Play

Pause

Stop

Selection

-2

Speed

Font Size

Instructional and Assistive Technologies: Today's classrooms are equipped with instructional technology that is used to promote teaching and learning. For some students with disabilities, this technology can be extremely beneficial in accommodating their learning styles and needs. For example, an interactive board in the classroom can provide a visual representation of information for those students who don't do well just listening to lecture or class discussion. The computer with a word processing program can provide an effective alternative for students who struggle with handwriting. Instructional software used to provide skill remediation and

New   Open   Save   Cut   Copy   Paste   Undo   Settings   Purchase

Instructional and Assistive Technologies:
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Administrators and educators should work together to ensure that all students have access to instructional technology that is available in the school. Additional information and resources about instructional technology is available through the Department of Education's Educational Technology Training Centers.

Assistive technology devices can also be used to provide students with tools that they can use to independently complete classroom assignments. Each student's IEP team must consider his or need for assistive technology. If it is required, the technology should be documented in the IEP and provided to the student.

Speed   0

Speaker

VW Kate

Paul   Kate   More Voice...   Go to Miniboard

File Edit Format View Help

Chapter I

Into the Primitive

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> Chafing at custom's chain;
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The house was approached by gravelled driveways which wound about
through wide-spreading lawns and under the interlacing boughs of
tall poplars. At the rear things were on even a more spacious

Text Reading Software
Specialized Format

- **Electronic books can be read with specially formatted text and reader:**
  - Computers
  - Portable devices (PDA, Pocket PC)
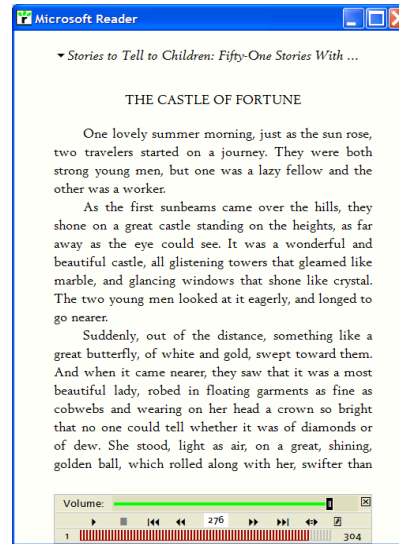
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Text Reading Software
Specialized Format

- **Programs that will display specially formatted text on the computer – both are free and have free converters.**

  - **eReader** – presents book visually on computer, giving the user the ability to change the font and background. Does not provide text-to-speech.

  - **Microsoft Reader** – presents book both visually and with text-to-speech. Does not give the user the ability to change the font and background other than size.

eReader

Microsoft Reader

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sun-kissed Santa Clara Valley.
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tall poplars. At the rear things

were on even a more spacious
scale than at the front. There
were great stables, where a
dozen
grooms and boys held forth,
rows of vine-clad servants'
cottages,
an endless and orderly array of
outhouses, long grape arbors,
green pastures, orchards, and
berry patches. Then there was
the
pumping plant for the artesian
well, and the big cement tank
where
Judge Miller's boys took their

Little Women -- Part One.

Playing Pilgrims

"Christmas won't be Christmas without any presents," grumbled Jo, lying on the rug.

"It's so dreadful to be poor!" sighed Meg, looking down at her old dress.

"I don't think it's fair for some girls to have plenty of pretty things, and other girls nothing at all," added little Amy, with an injured sniff.

"We've got Father and Mother, and each other," said Beth contentedly from her corner.

The four young faces on which the fire-light shone brightened at the cheerful words, but darkened again as Jo said sadly, "We haven't got Father, and shall not have him for a long time." She didn't say "perhaps never," but each silently added it, thinking of Father far
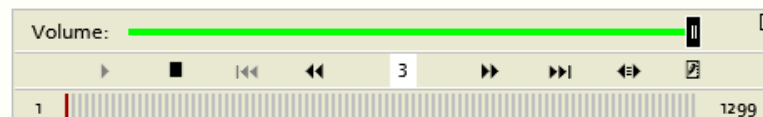
Portable Text Reader

- **Device that reads text, MP3, Bookshare.org files and daisy files outloud**
  - Classmate Reader
    - Files are saved on SD card
    - Display can be configured to student's preference – font style, text size, color, line spacing, and letter spacing

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PDF Reading Software

- **Visual and auditory - provide speech access to unlocked PDFs, does not highlight as it reads**
  - Adobe Reader (Adobe)
  - Advanced Reading Aids

...ling

...s are available fo
...severe   reading
...ilities?

...assistive   technology
...eople compensate for
...kills.   These   include
...character recognition
systems, and variable
recorders.

Speech Synthesis/Screen Reading

The benefits of speech synthesis systems are
not limited to use with word processors. They
may also be used to review materials written
by others, including software tutorials, help
systems, letters, and reports. These systems
will read essentially any text on a computer
screen. Some systems can read electronic text
on the Internet.

Some organizations, including Recording for
the Blind and Dyslexic and the American
Printing House for the Blind, are now
producing "books on disk," which make it
possible for persons with print disabilities to
listen to text by means of a speech synthesis

have the potential to be read aloud by means
of a speech synthesis/screen review system.
This technology may be particularly helpful to
those individuals with reading disorders who
exhibit no difficulty comprehending spoken
language, yet have problems understanding
language in the written form.

Optical   Character   Recognition
(...R)/Speech Synthesis Systems

...al Character Recognition_systems are of
...basic types -- "stand alone" or Personal
...uter (PC)-based. Stand alone (or "self-
contained") systems have all components built
into one device, including the scanner, OCR
software/hardware,   and   the   speech
synthesizer. Some stand-alone systems are
portable (about the size of a briefcase); others
are desktop units. The PC-based systems
consist of a number of components which are
hooked up to a PC. These components consist
of a full-page (desktop) or hand-held scanner,
an OCR board and/or software, and a speech
synthesizer. Several companies (i.e., Kurzweil
3000, Freedom Scientific's WYNN) have
designed systems that highlight words as they
are spoken by the system; this feature is
particular helpful to individuals with reading
disabilities.   In   addition   to   OCR/speech
synthesis systems described above, a fully

Electronic Word Identification Aids

- **Provides pronunciation of word. Definition, synonyms, and the Wikipedia for the word are also available without auditory feedback. Works in any program. To activate, hold down the control key and right-click on the desired word.**

  – WordWeb Dictionary Thesaurus (WordWeb Software)

    - Icon resides in System Tray

File Edit Format View Help

into the Northland. These men wanted dogs, and the dogs they
wanted were heavy dogs, with strong muscles by which to toil, and
furry coats to protect them from the frost.

Buck lived at a big house in the sun-kissed Santa Clara Valley.
Judge Miller's place, it was called. It stood back from the road,
half hidden among the trees, through which glimpses could be
caught of the wide cool veranda that ran around its four sides.
The house was approached by gravelled driveways which wound about
through wide-spreading lawns and under the interlacing boughs of
tall poplars. At the rear things were on even a more spacious
scale than at the front. There were great stables, where a dozen
grooms and boys held
an endless and orderl
green pastures, orcha
pumping plant for the
Judge Miller's boys to
hot afternoon.

And over this great de
here he had lived the
were other dogs, Ther
place, but they did no
populous kennels, or l
after the fashion of To
Mexican hairless,--str
doors or set foot to gr
terriers, a score of the
Toots and Ysabel look

WordWeb

Bookmarks   Copy   Options   Help

Lookup: interlacing   Search

WordWeb | Wikipedia | Wiktionary | WordWeb Online

Adjective: interlacing
1. Linked or locked closely together as by dovetailing
Verb: interlace `intur'leys`
1. Spin,wind, or twist together
2. Hold in a locking position

Nouns
Verbs
Adjectives
Adverbs

wordweb.info

Nearest | Synonyms | Type of | Types | Similar

enlacing
entwining
interlinking
interlocking
intertwining
interwoven
lacing
locking
twining

Copy

Close

Standard Word Processing Software

- **Allows students to enter, edit and store text**
  - Word Perfect (Corel)
  - Microsoft Word: a powerful standard word processor with built-in study support features
    - Visual accommodation - font, background, line spacing
    - Text-to-speech - Language Bar or WordTalk
    - Auto-summarize, Readability Statistics, Word Count
    - Highlight text and colored fonts
    - Outlining feature
    - Dictionary and Thesaurus
    - Comment

Microsoft Word
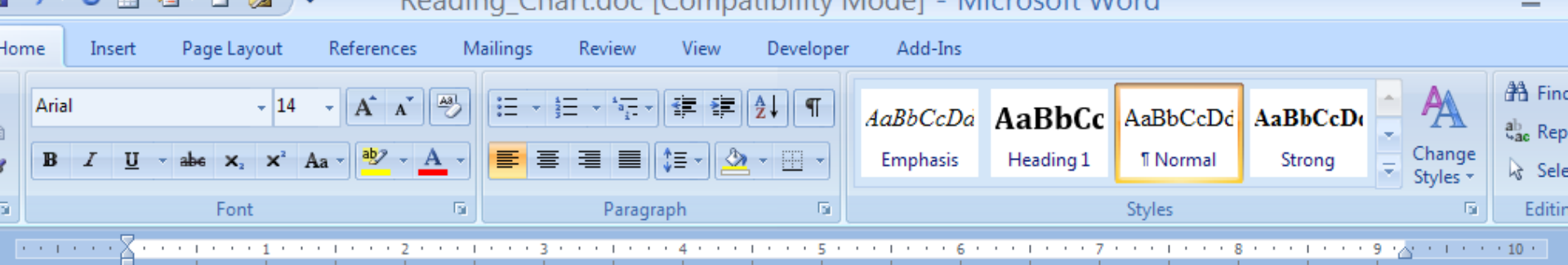
GEORGIA
DEPARTMENT OF
EDUCATION
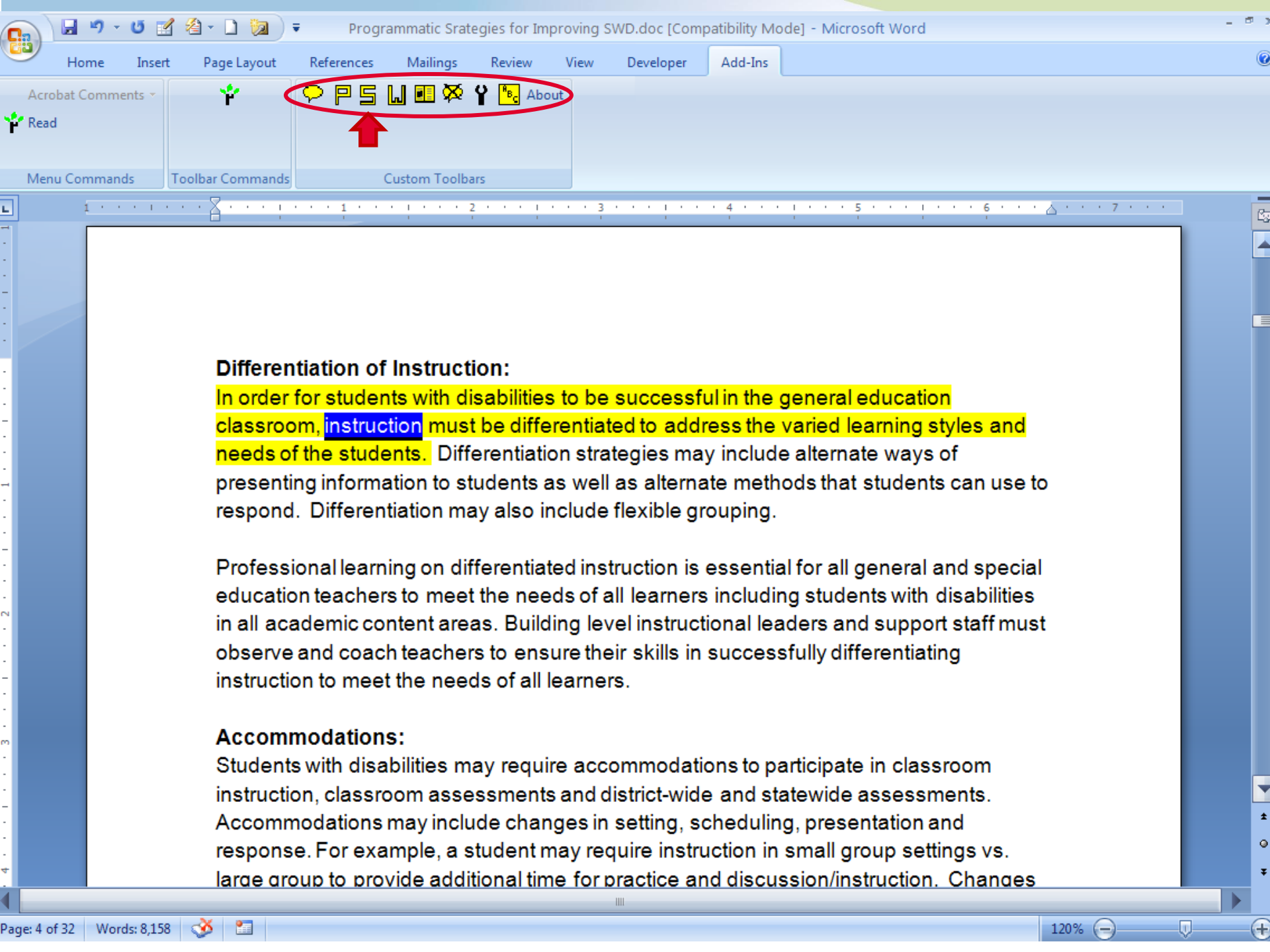Kathy Cox, State Superintendent of Schools

This document contains information on the range of assistive technology devices that can be used by struggling readers to increase their decoding, fluency, and comprehension skills. Many of these devices also support increased efficiency, productivity, independence, and enjoyment. In most instances, students use a combination of assistive technology devices to meet their reading needs. The types of assistive technology devices used to support reading are determined by individual student abilities and needs as well as the required reading tasks across all instructional environments.

In this document, assistive technology devices are organized into various categories based on the primary features or applications of the technology. Moreover, the age ranges for which the devices are appropriate are identified in the following categories: elementary, middle, and high school. Lastly, tools are linked to the various reading skills addressed in the Georgia Performance Standards. The skills areas are briefly defined below. It is recommended that individuals utilizing this document refer to the standards to determine the specific skills that are addressed at each grade level.

The following skills areas are addressed in this document:

- Phonemic Awareness: Phonemic awareness refers to the ability to focus on and manipulate phonemes in spoken words.

- Phonics: Phonics is the ability to associate sounds with letters and use these sounds to form words.

- Vocabulary: Vocabulary includes identifying the meanings of words and using those words appropriately within context.

- Comprehension: Comprehension is the complex cognitive process involving the intentional interaction between reader and text to convey meaning.

Differentiation of Instruction:

In order for students with disabilities to be successful in the general education classroom, instruction must be differentiated to address the varied learning styles and needs of the students. Differentiation strategies may include alternate ways of presenting information to students as well as alternate methods that students can use to respond. Differentiation may also include flexible grouping.

Professional learning on differentiated instruction is essential for all general and special education teachers to meet the needs of all learners including students with disabilities in all academic content areas. Building level instructional leaders and support staff must observe and coach teachers to ensure their skills in successfully differentiating instruction to meet the needs of all learners.

Accommodations:

Students with disabilities may require accommodations to participate in classroom instruction, classroom assessments and district-wide and statewide assessments. Accommodations may include changes in setting, scheduling, presentation and response. For example, a student may require instruction in small group settings vs. large group to provide additional time for practice and discussion/instruction. Changes

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Home | Insert | Page Layout | References | Mailings | Review | View | Developer | Add-Ins

Arial | 12

AaBbCcDdE ¶ Normal | AaBbCcDdE Strong | AaBbCcDdE ¶ No Spacing | AaBbCc Heading 1

Change Styles
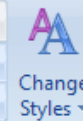
Find | Replace | Select

Styles

Editing

AutoSummarize

Word has examined the document and picked the sentences most relevant to the main theme.

Type of summary

Highlight key points

Insert an executive summary or abstract at the top of the document

Create a new document and put the summary there

Hide everything but the summary without leaving the original document

Length of summary

Percent of original: 50%

Summary: 2,628 words in 143 sentences
Original document: 5,231 words in 282 sentences

☑ Update document statistics

OK | Cancel

...ure that a parallel program and consistent ...formative assessments and trend data.

...education directors play a vital role in coordinating ...l education directors are primarily responsible for ...dents with disabilities will be taught the grade level ...data through frequent formative assessment that will ...native assessment instructional decisions may be ...s of instruction throughout the school year.

...rmine which students need supplemental instruction or ...ction to ensure mastery of the standards. Also, the ...g and support for teachers may be noted and provided.

**Supplemental Instruction and Assistance:**
Since students with disabilities may perform significantly below grade level in some areas, supplemental assistance is necessary to support the success of these students. This supplemental instruction is necessary to close the achievement gap and may be provided in a variety of ways. Supplemental instruction may be provided by "double dosing" the student in the subject area(s) in which the student is struggling. To achieve this additional instruction, students with disabilities may be instructed in the general education setting, and then taught in a small, flexible group for an extra period of 45 – 60 minutes per day. The flexible group may be provided during a "specials" period such

Talking Word Processing Software

- **Speaks selected text by letter, word, sentence, or paragraph with optional simultaneous highlighting**

- **Text may be created in the application, imported from another source, or scanned**

    - Talking Word Processor (Premier AT)

    - Writing with Symbols (Mayer Johnson)

    - Text-edit Plus (TransTex Software)

    - Write:OutLoud (Don Johnston)

    - Classroom Suite (IntelliTools)

    - CAST eReader (CAST)
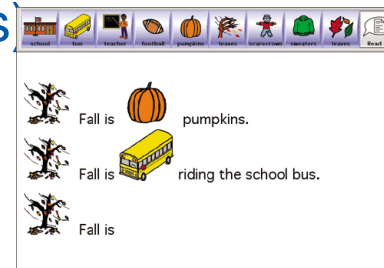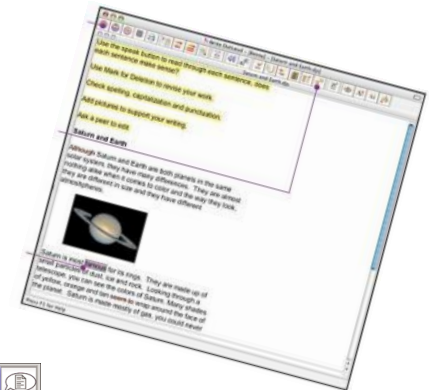
"We will lead the nation in improving student achievement."
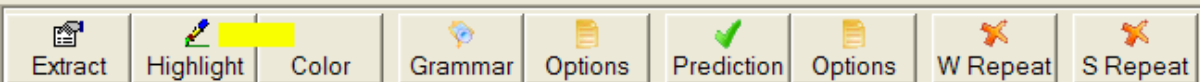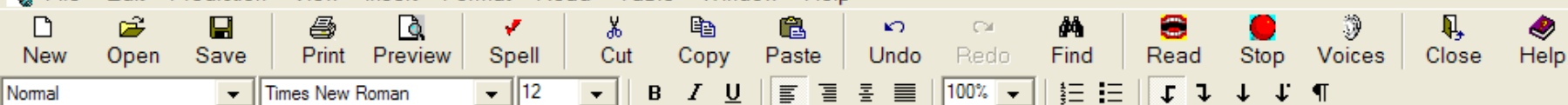
The Talking Word Processor

The Talking Word Processor is a full functioning word processor with the added features of Voice and Word Prediction. With the added benefit of Voice, you can do the following:

- Proofread your own documents.
- Hear the words or keys as you type.
- Increase your reading comprehension by seeing and hearing.
- Track the word that is being read.
- Help learn the English language.
- Word Prediction.
- Word View.
- Built-in Dictionary. Double click any word to hear the definition of that word.
- Talking Grammar Check.
- Sentence Repeat. Reads the entire sentence when it is complete.
- Graded Word Prediction.

The Talking Word Processor can work with almost any type of existing word processor. The default document style is Microsoft Word. However, you can use the Rich Text Format style to work with WordPerfect and Microsoft Works documents as well.

The Talking Word Processor is an MDI style application. MDI stands for Multiple Document Interface. This style of application allows you to have more than one document open at the same time. This is a handy feature because you may want to copy and paste from one document to another. If you ever want to see which documents you have open, select the Window menu. At the bottom of the Window menu, you will find a list of all the open documents. Keep in mind

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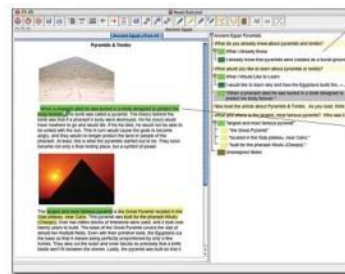
Accommodations:

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Advanced Reading Aids

- **Provides auditory reading support as well as visual enhancement features. Some have OCR software.**

- **Some aids offer study aids as well as writing support.**
  - SOLO (Don Johnston)
  - Kurzweil 3000 (Kurzweil Educational Systems)
  - WYNN (Freedom Scientific)
  - Read & Write Gold (Text Help)

Start-to-Finish Core Content | Web

Earth Is Always Changing

One Giant Continent

So why do North America, South America, and Africa look like connecting pieces of a jigsaw puzzle? Wegener believed that it was because they were once connected and formed one giant continent. In fact, he believed that *all* the land on Earth had been one giant continent, and he called this giant continent Pangea.

Pangea

The word Pangea comes from two Greek root words: *pan*, meaning "all," and *gea*, meaning "land." Two other words that come from *gea* are geology and geologist. Geology is the study of how Earth changes over time, and a geologist is a scientist who studies these changes.

Wegener's theory was that Pangea broke into pieces millions of years ago, and the pieces drifted apart. A theory is an explanation of something we observe in the natural world. Wegener called his theory continental drift.

The shape of the continents was the first big clue that led Wegener to the theory that all the continents had once been connected. Another clue came from ancient fossils that were found in South America and Africa.

9

Understanding Volcanoes and...

- "Wegener"
  - "North America, South America, and Africa"
    - "they were once connected and...
  - "Pangea."
    - "allthe land on Earth had been one...
    - "comes from two Greek root words:"
    - "pan, meaning " all,""
    - "gea, meaning " land.""
  - "Geology"
    - "study of how Earth changes over time,"
- Unassigned Notes

time travel

McKELWAY

Will it really be possible to visit the future?

Travel to 2012 to find out whether your best friend makes the Olympic team. Zoom to 2020: Have robots taken over kids' chores? Take a trip to 2025 to check out the newest virtual reality games.

TIME AND SPEED

Time travel isn't something only for the future. You've already time-traveled often yourself. Flying in an airplane or even riding in an automobile results in teeny bits of time travel. Sure, those itty-bitty time travels aren't as exciting as, for example, traveling into the future to meet

means that different conditions cause time to pass at different rates.

Time doesn't tick by everywhere at a constant speed. Imagine, for instance, two identical, highly accurate watches set to show the same time. One watch is put on a rocket and blasts off

compare the time shown on the earthbound watch to that on the identical watch that had traveled in space, you would find that the earthbound watch showed a later time. Time would have passed faster on Earth than on the rocket zooming through space. As the speed of the rocket increased, the passing of time

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Time doesn't tick by everywhere at a constant speed. Imagine, for instance, two identical, highly accurate watches set to show the same time. One watch is put on a rocket and blasts off into space. It travels for a while at nearly the speed of light, then it returns to Earth. If you could compare the time shown on the earthbound watch to that on the identical watch that had traveled in space, you would find that the earthbound watch showed a later time. Time would have passed faster on Earth than on the rocket zooming through space. As the speed of the rocket increased, the passing of time would have slowed. The great physicist Albert Einstein explained this in his theory

WAAAY OUT THERE!

In a high orbit around Earth, a NASA Observatory is keeping its eye on black holes in faraway galaxies. Material pulled off stars and sucked into spinning, massive black holes superheats until it emits x-rays that produce many points of light.

To power grid

From power grid
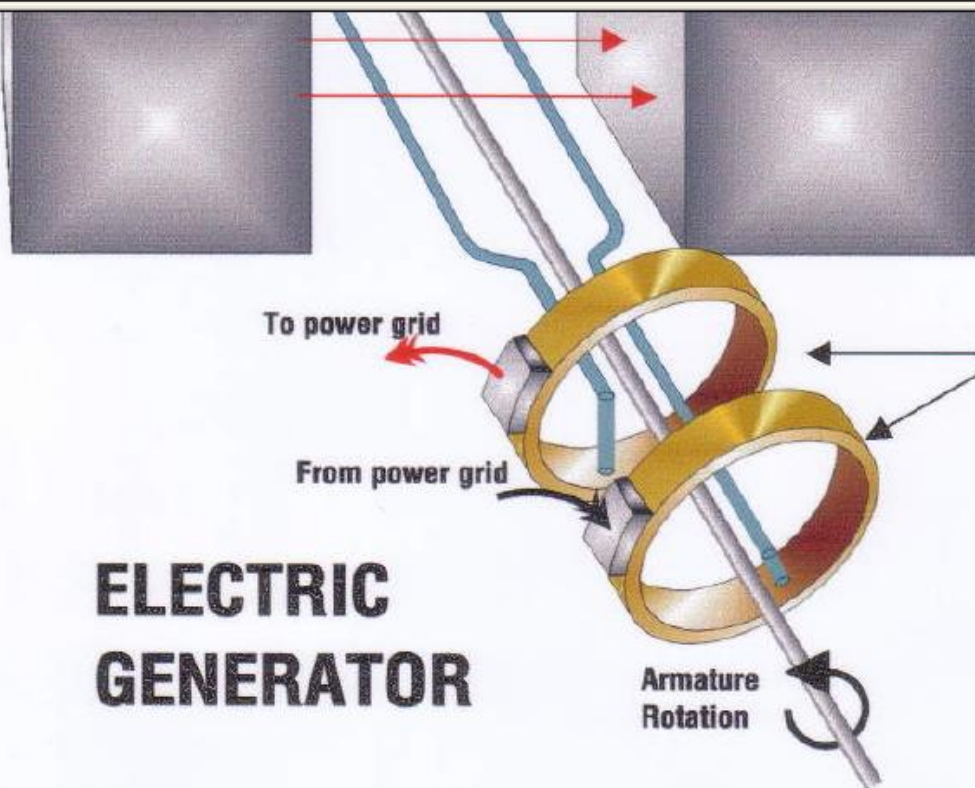
ELECTRIC
GENERATOR

Rings rotate with the
armature and are in
contact with stationary
brushes that couple the
generator with the
electrical distribution
grid.

Armature
Rotation

The armature of the steam turbine rotates an electrical cable between the
poles of a powerful magnet. As the cable rotates through the magnetic
field, the static electrical charge within the cable experiences a magnetic
force and the electrons are accelerated, creating an electrical current. The
current is connected to a city's electrical grid through a fixed brush that is
in contact with a ring that rotates with the armature. The electrical circuit
is completed by the current's return from the power grid, again through a
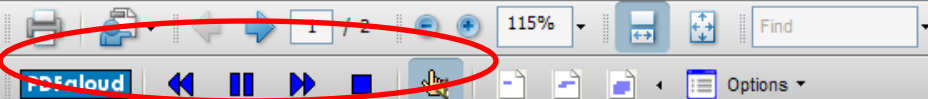
Reading

What technologies are available fo people with severe reading problems or disabilities?

There are several assistive technology devices that can help people compensate for their lack of reading skills. These include speech synthesis and screen reading, optical character recognition and speech synthesis systems, and variable speed control tape recorders.

Speech Synthesis/Screen Reading

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Advanced Portable Reader

- **Captures text and transforms it into spoken words - High resolution camera with a processor that converts printed text to digital text**

  – Intel Reader – OCR's text

"We will lead the nation in improving student achievement."

Text Enlargement Technology

- **Allows for controlled enlargement of text to magnification level needed**
  - Computer-based software applications
    - **ZoomText**

Screen Readers

- **Will read anything on the computer screen.**
  - **JAWS** (Freedom Scientific)

Determining the Right Tool(s)

Determining The Optimal Tool(s)

- Student abilities and needs

- Required tasks

- Available supports

Benefits of Assistive Technology

- Productivity

- Independence

- Achievement

Things to Keep in Mind

- Technology is no substitute for good instruction

- Technology should be used in conjunction with other available supports

- Technology use should be monitored and changes made as needed

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GEORGIA
DEPARTMENT OF
EDUCATION
Kathy Cox, State Superintendent of Schools

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