Introductions

- Providing AT to special needs students since 1982
- Support all coded students
- Supporting student with LD since 1991
Building on a Solid Foundation

- Good, enthusiastic teachers who believe in their students
- Differentiation
- Embarking on a new journey to add technology
- Not one size fits all
- Assistive Technology
- – Tools for Learning
Assistive Technology

- The devices used by students with disabilities
- Allows students to actively engage in learning and achieve their individual learning goals
- Allows students to perform independently commensurate with their ability
- Assists students to perform functions that would otherwise be difficult or impossible
- Does not give students an advantage – but is the equalizer
Toolbelt Theory

- how to analyze a task
- about the environment
- about their own skills and capabilities
- a range of available tools

... and let them begin to make their own decisions
Why Literacy Matters

- Human Benefits – self-esteem, empowerment
- Political Benefits – political participation, democracy, ethnic equality
- Cultural Benefits – cultural change, preservation of cultural diversity
- Social Benefits – health, reproductive behavior, education, gender equality
- Economic Benefits – earning potential
Current Research: Learning to Read

- “Markedly different brain activation patterns between dyslexic readers compared to those of good readers.” Sally Shaywitz, Overcoming Dyslexia, 2004

- “The studies also indicate that the amount of blood flow to this area [temporal lobe] was highly correlated with the severity of Dyslexia.” David Sousa, How the Special Needs Brain Learns, 2001
fMRI

functional magnetic resonance imaging
functional MRI

Normal - reading

LD - reading
Current research tells us:

- There is a disconnect in the brain between the occipital lobe and the temporal lobe
- During an fMRI the temporal lobe does not “light up” while reading

with a group of 20 children aged 8-12 years, during an 8-week intensive remediation program (using software similar to what we use)

• Resulted in the temporal lobe firing at near normal

• Real-word and pseudo-word decoding improved significantly
functional MRI

LD - reading
The chemical synapse consists of:

- the terminal button of the axon containing 
- the chemical messengers that are released into the 
- synaptic gap and travel across it to the 
- dendrite of the next neuron.
Danish study (Tijms & Hoeks, A Computerized Treatment of Dyslexia: Benefits from Treating Lexico-Phonological Processing Problems, 2004) of 267 children, aged 10-14 years, who had a learning disability, participated in a computer based treatment of phonological and phonemic awareness

• Reading rate, reading accuracy, and spelling improved significantly at least to low average ability
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- This study “provided strong support for the claim that reading and spelling disabilities of children with a phonological processing disorder are amenable to treatment.”
Eden. G. F., & Moats, L. (2002) indicated that intense computer remediation that focused on phonological skills training helped students make significant gains. [The Role of neuroscience in the remediation of students with Dyslexia. *nature neuroscience supplement*, 5. (1080-1083)]
Edyburn (Failure is Not an Option. *Learning and Leading with Technology*, September 2006) concludes stating that

The use of technology tools and cognitive supports represent essential and underutilized interventions for enhancing the performance of struggling students. The long term consequences of academic failure must motivate the profession to intervene with carefully designed learning activities that ensure success from the outset. (p. 23)
Performance commensurate with potential

Performance after maximum remediation

Accommodation

Remediation

Disability

Current performance
Critical Elements to the Effective Integration of AT into the Differentiated Classroom

Student Learning Profile

The Task  AT
The Software

Performance commensurate with potential

Accommodation
- Digital books
- Wynn

Performance after maximum remediation

Remediation
- Word Maker
- Simon SIO
- Lexia SOS
- Start to Finish Books

Current performance
Remediation & Accommodation

Remediation

Accommodation

Elementary
Remediation & Accommodation

Remediation  Accommodation

Jr. High
Remediation & Accommodation

Remediation

Accommodation

High School
Wordmaker

- Developed in close collaboration with Dr. Patricia Cunningham.
- Provides planned, sequential and systematic phonics, phonemic-awareness and spelling activities to build students' core reading strategies.
- 140 lessons give students word manipulation practice
- 1000 different word combinations
- Students build sorting skills through repetitive activities and are challenged with new words to prove they can transfer learning
Simon S.I.O (Sounds it Out)

- Level 1 and Level 2 (50 words/level)
- Multi-level phonics instruction program
- Has a ‘tutor’ who presents skill-building activities
- Allows students to work at multiple levels and move at their own pace.
- Emergent readers develop core word-attack skills, developing readers learn familiar sounds and word families.
Lexia Software

- Early Reading
- Primary Reading
- S.O.S. (Strategies for Older Students)
LEXIA S.O.S.
(Strategies for Older Students)

- Levels 1, 2 and 3: Word-attack and contextual strategies that help with automatic word recognition (practice with one- to two-syllable words, sentences and paragraphs)
- Level 4: Word-attack strategies for multi-syllable words with open syllables, consonant -le syllables, hard and soft "c" and "g"
- Level 5: Word-attack strategies using prefixes and suffixes
Start to Finish Library

- engaging narrative chapter books
- text is carefully written and edited to match the interests, social maturity and reading issues of an older struggling reader
- Professional reader
- Word-by-word highlighting
- Comprehension and fluency check
WYNN Wizard

- Multi-purpose
- Scans pages and converts them into electronic text
- Scanned texts and the Internet can be read aloud
- Highlights each word as it is spoken back
- Has lots of other features
  - Highlight and create lists
  - Word prediction
  - Phonetic spellchecker
  - Dictionary
- Easy to customize (rate, voice, colour, etc.)
De-binding
De-binding
Scanning
A to Z Mysteries
Super Edition #1
Detective Camp
Editing

- All books are edited
- Editing has been standardized
CHAPTER 1

Here y’are, kids,” the taxi driver told Dink, Josh, and Ruth Rose. “Get out and stretch your legs and I’ll fetch your luggage.”

The kids stepped out of the taxi in Bear Walk, Vermont. They were standing next to a gravel driveway in front of an old lodge built of timber. A banner over the wide porch said welcome to

DETECTIVE CAMP.

Behind the lodge stood a red barn with its doors open wide.
Dynamic Zoning

Figure 6
Most of the energy transformed from solar energy to chemical energy by a plant is used to maintain the plant and to grow. Every time the plant uses some of its energy store, it also loses energy as thermal energy. As a result, when the plant is eaten, only a small amount of energy is available for the primary consumer and decomposers.

Figure 7
According to the second law of thermodynamics, energy is lost each time energy is transferred from one organism to another, and inside each organism as it uses the energy to survive.

INVESTIGATION 2.1 Introduction
Conducting Food Webs
In Part 1 of this Investigation, you will research an Antarctic ecosystem and connect the organisms in a food web. In Part 2, you will construct a food web of organisms found in your community.

To perform this investigation, turn to page 35.
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WYNN Digital Library

- Collection of electronic books in WYNN format
- Available for use at school or home (must have WYNN)
- In high school, available through online learning environment
“The success of technology has more to do with people than machines. All the right parts and pieces together won’t work miracles by themselves. It is people who make technology powerful by creatively using it to fulfill their dreams.”

Alliance for Technology Access 1996, p. 8
It’s about how you use it!