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 student 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

UNESCO – Education for All – Global Monitoring Report – Chapter 5 – Why Literacy Matters, 2006

- 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

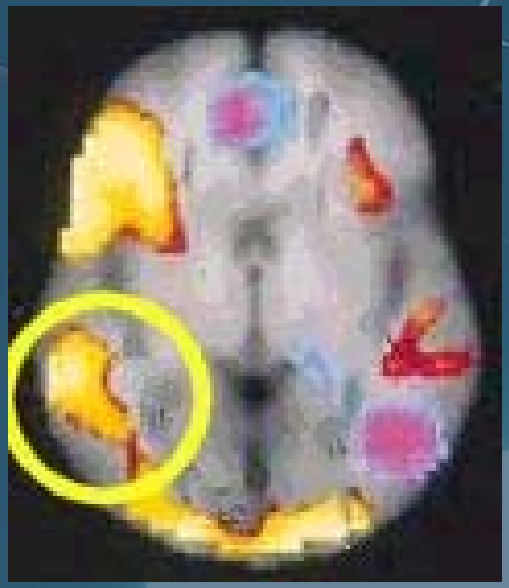
Current Research: Learning to Read

- “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

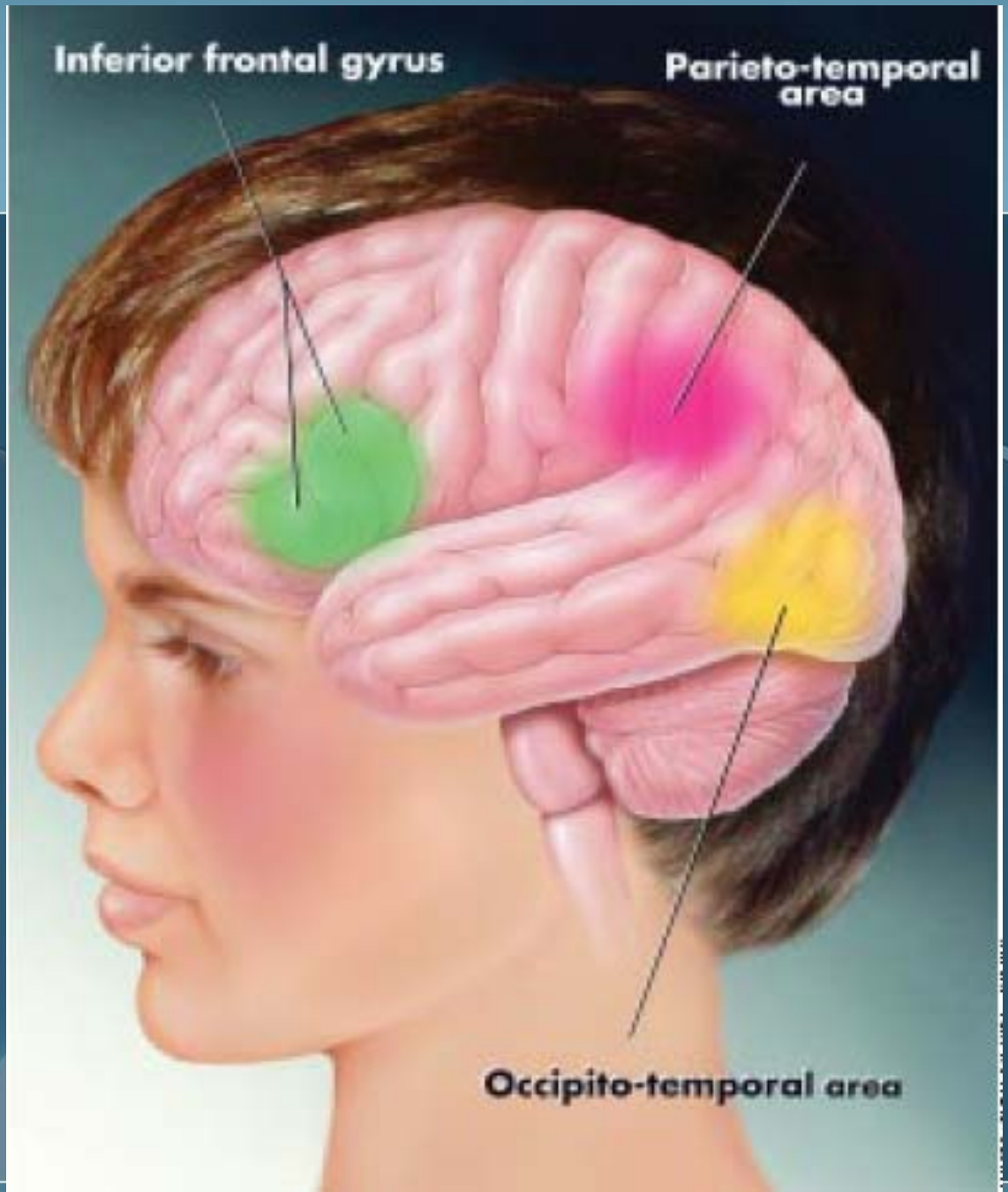
functional magnetic resonance imaging

functional MRI



Normal - reading

LD - reading


Inferior frontal gyrus
Parieto-temporal area
Occipito-temporal area

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

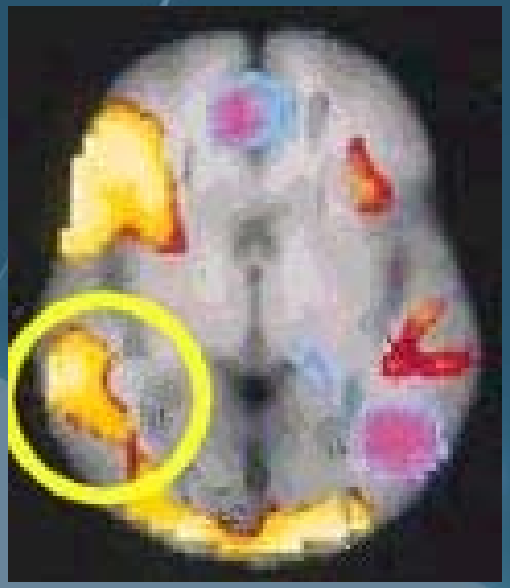
Evidence from functional MRI study

(Temple et al., 2003 Proceedings from the National Academy of Sciences, PNAS, March 4, 2003, Vol. 100, No. 5, pp. 2860-2865.)

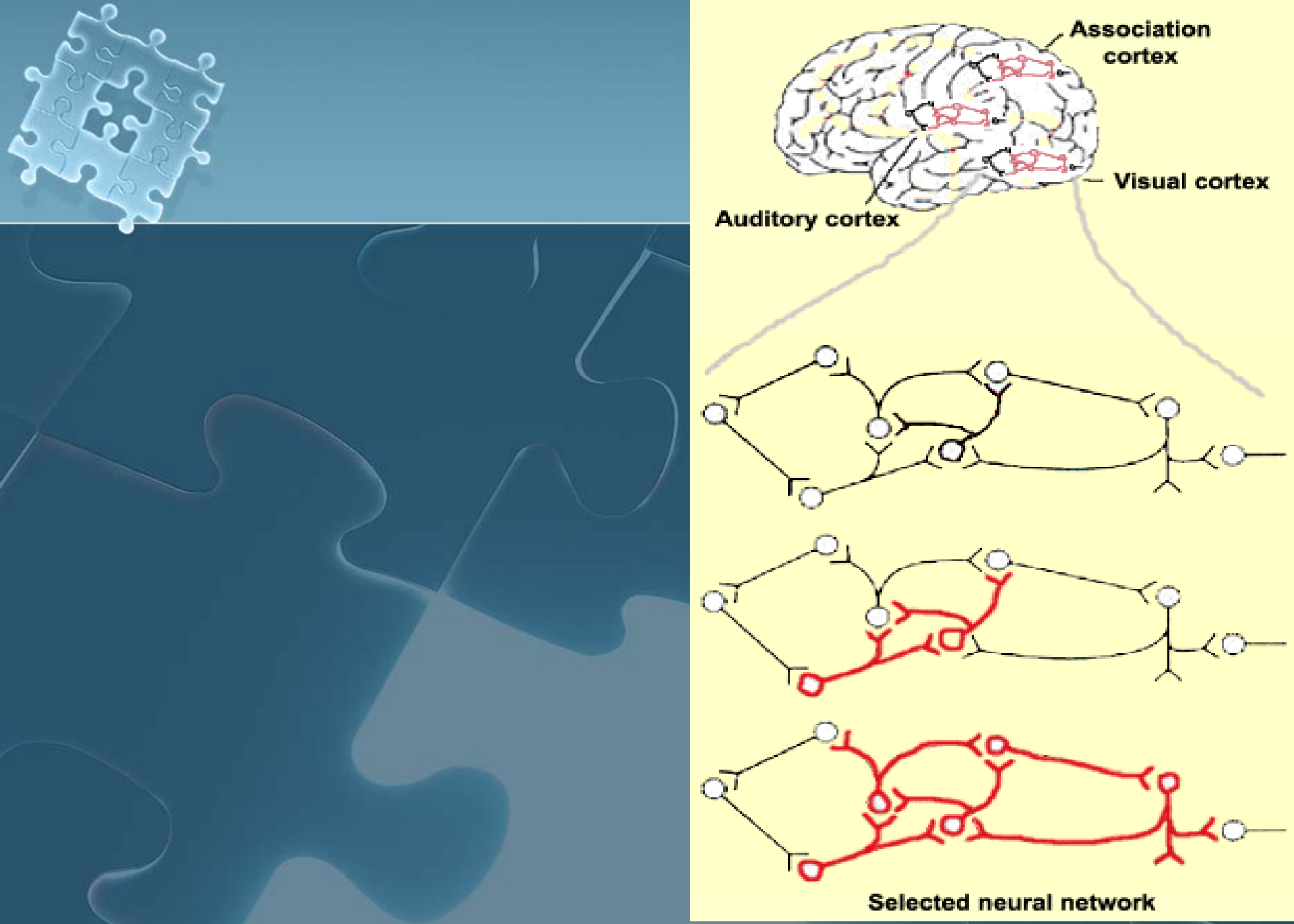
with a group of 20 children aged 8-12 years, during an 8-week intensive remediation program (using software similar to what we use)

- Resulted in the temporal lobe firing at near normal
- Real-word and pseudo-word decoding improved significantly

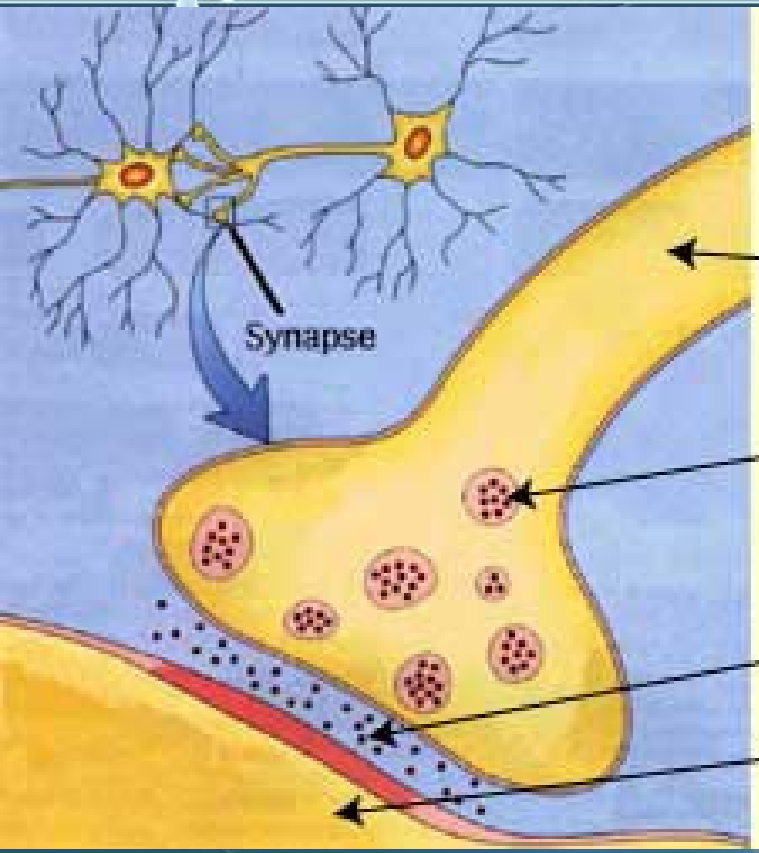
functional MRI



LD - reading



http://thebrain.mcgill.ca/flash/d/d_07/d_07_cl/d_07_cl_tra/d_07_cl_tra.html



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.

http://thebrain.mcgill.ca/flash/d/d_01/d_01_m/d_01_m_ana/d_01_m_ana.html#1

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

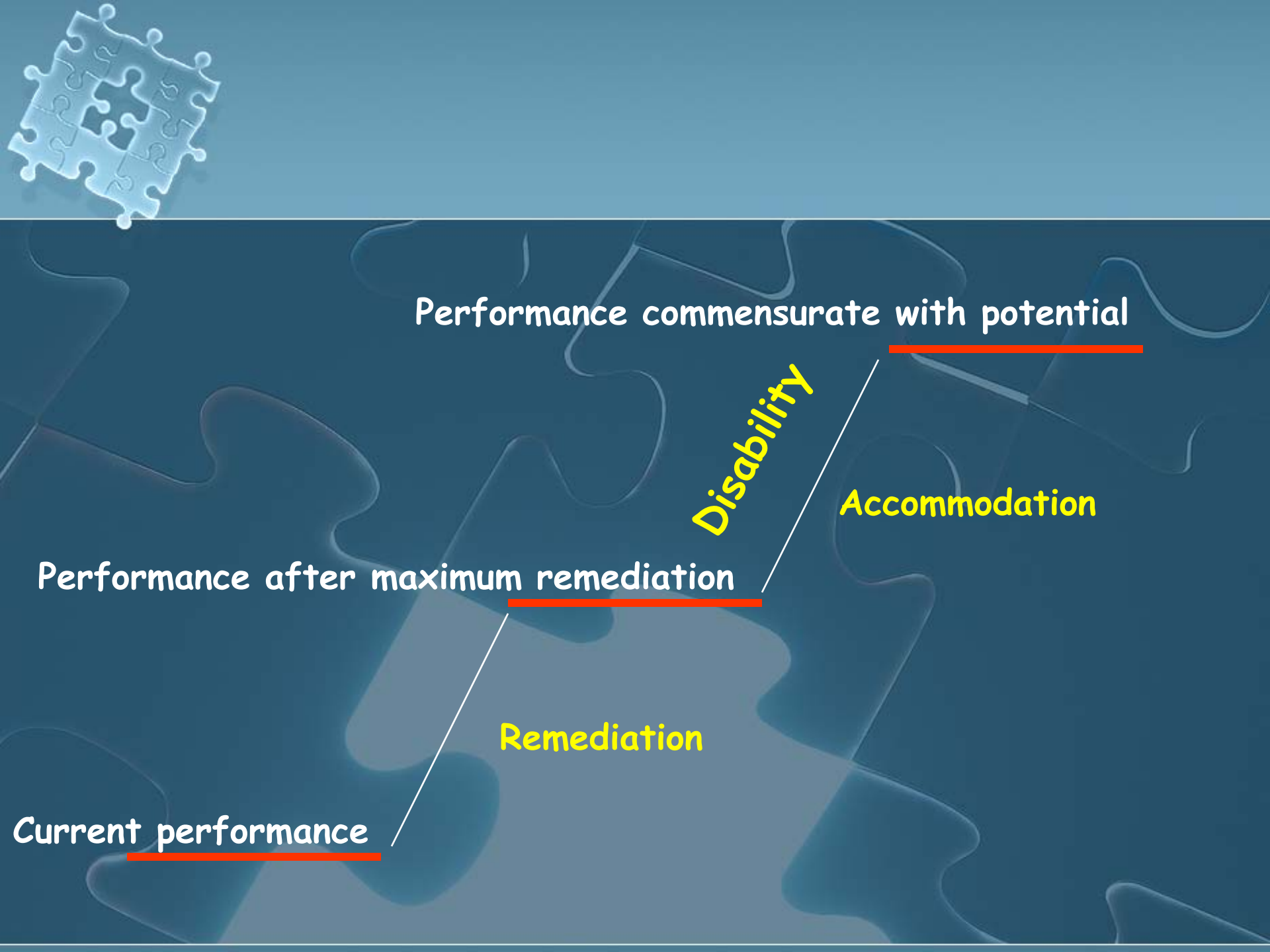
- Reading rate, reading accuracy, and spelling improved significantly at least to low average ability

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

- 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
Disability
Accommodation
Performance after maximum remediation
Remediation
Current performance

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

The Software

Performance commensurate with potential

Accommodation

- Digital books
- Wynn

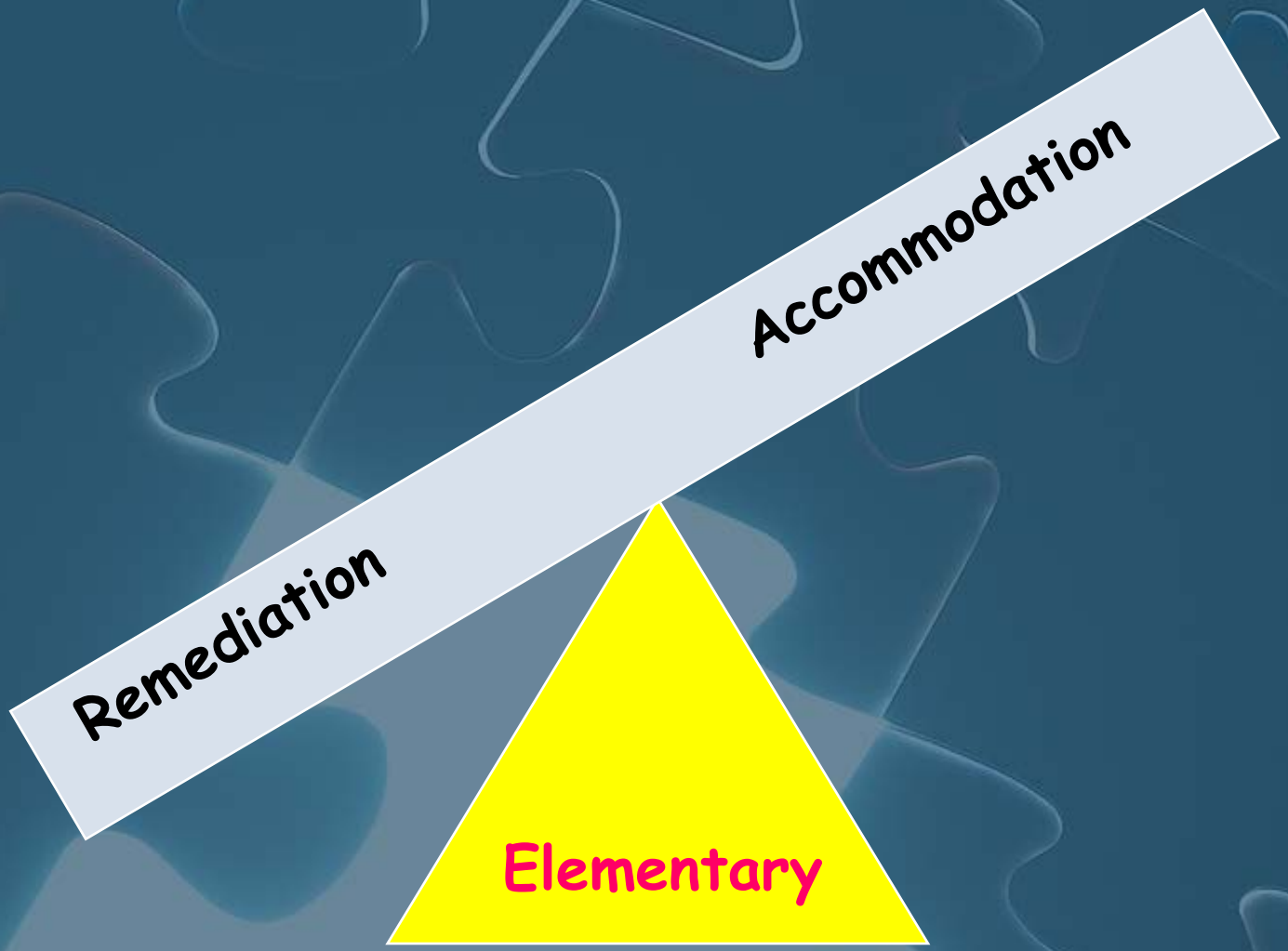
Performance after maximum remediation

Remediation

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

Current performance

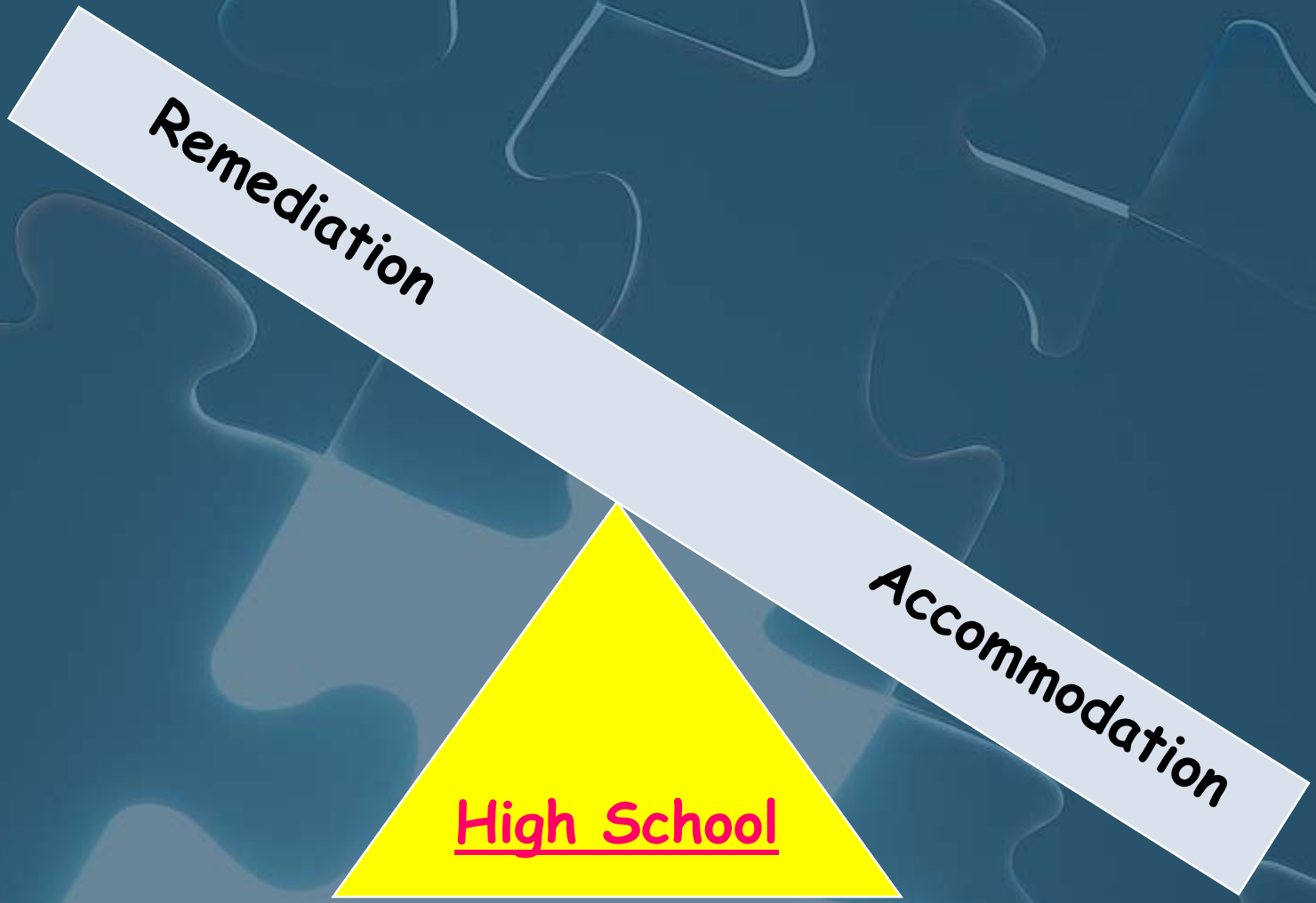
Remediation & Accommodation



Remediation & Accommodation

Remediation	Accommodation

Remediation & Accommodation



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

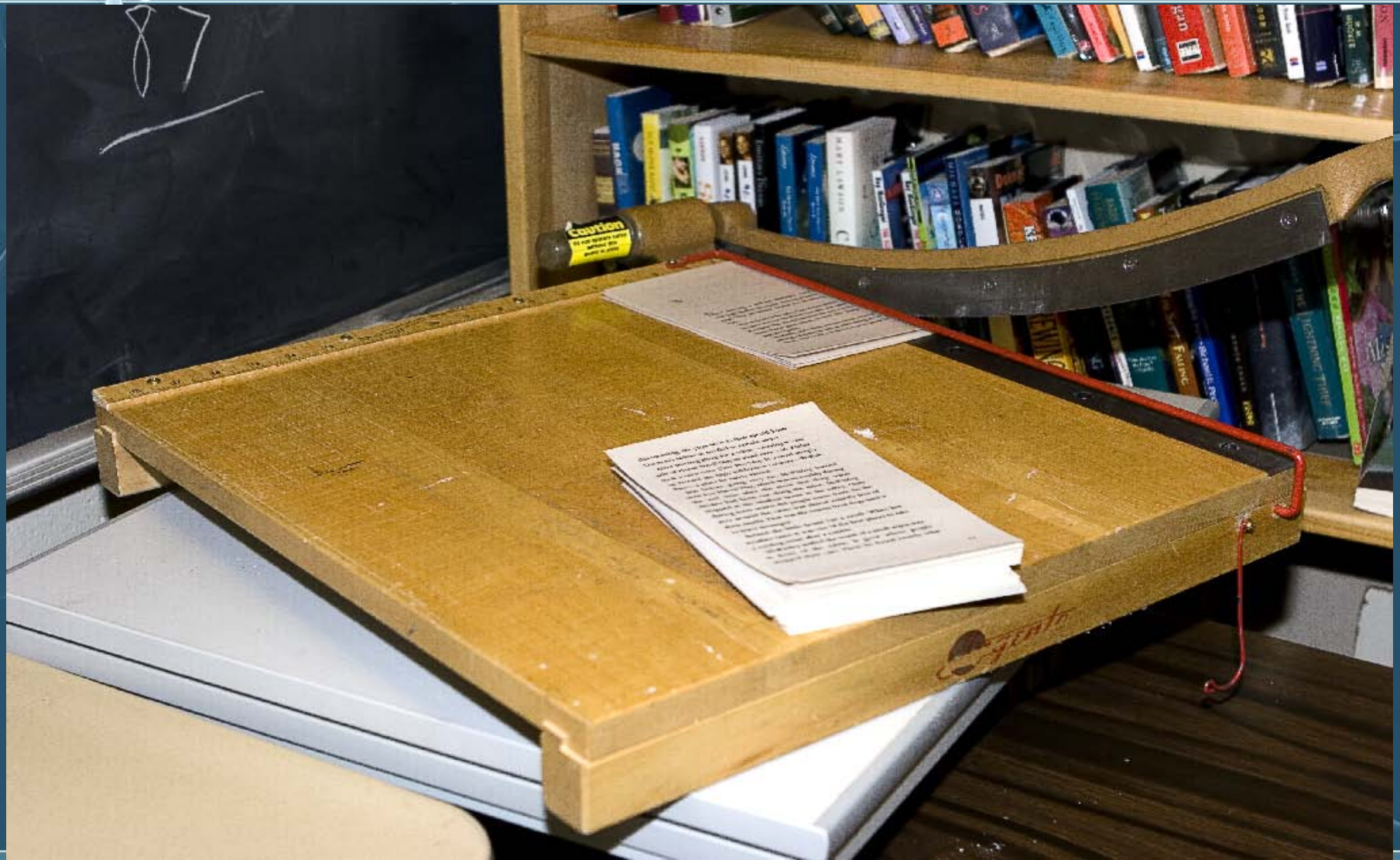
- engaging narrative chapter books
- text is carefully written and edited to match the interests, social maturity and reading issues of an older struggling reader
- Professional reader
- Word-by-word highlighting
- Comprehension and fluency check

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

Adobe Acrobat Standard

File Edit View Document Comments Forms Tools Advanced Window Help

Create PDF | Combine Files | Export | Start Meeting | Secure | Sign | Review & Comment

Find

Kofax VRS - Fujitsu fi-4340C with SVRS

Profiles

Paperback Book
Textbook

Save

General

Source ADF

Resolution (DPI) 400

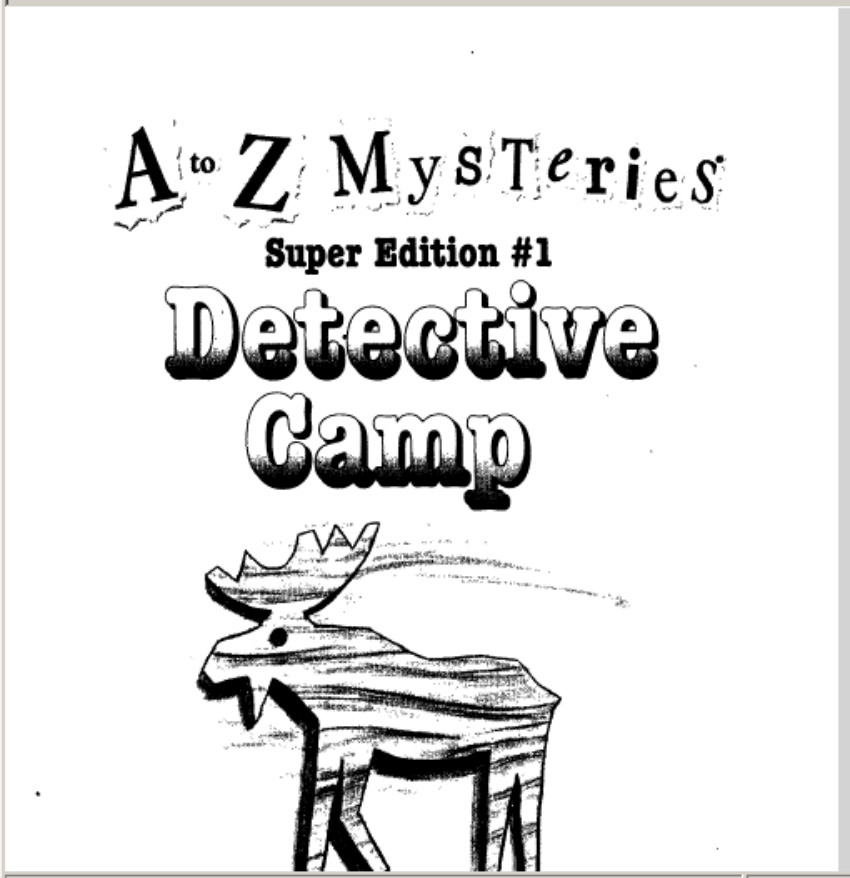
Color Mode Black/

Preview

VirtualReScan Interactive Viewer- Status: Brightness Out of Range (+/-)

Zoom Profile Help

F6 - Paperback



VRS Adjustment Controls

Clarity

Brightness and Contrast

Auto Brightness

Brightness 58

100
50
0

0 50 100

Contrast 0

Gamma

Dark Normal Light

Noise

Skew

OK Cancel Reset

Left mouse button: Click and drag to zoom, double-click to fit window. Right button: Click anc | Size:1990 x 3031 | Skew:0.50° | Brightness:94 | Contrast:42 | Bitonal | Speckles:18882

Start | Adobe Acrobat Standard | VirtualReScan Interac... | 2:06 PM

Editing

- All books are edited
- Editing has been standardized

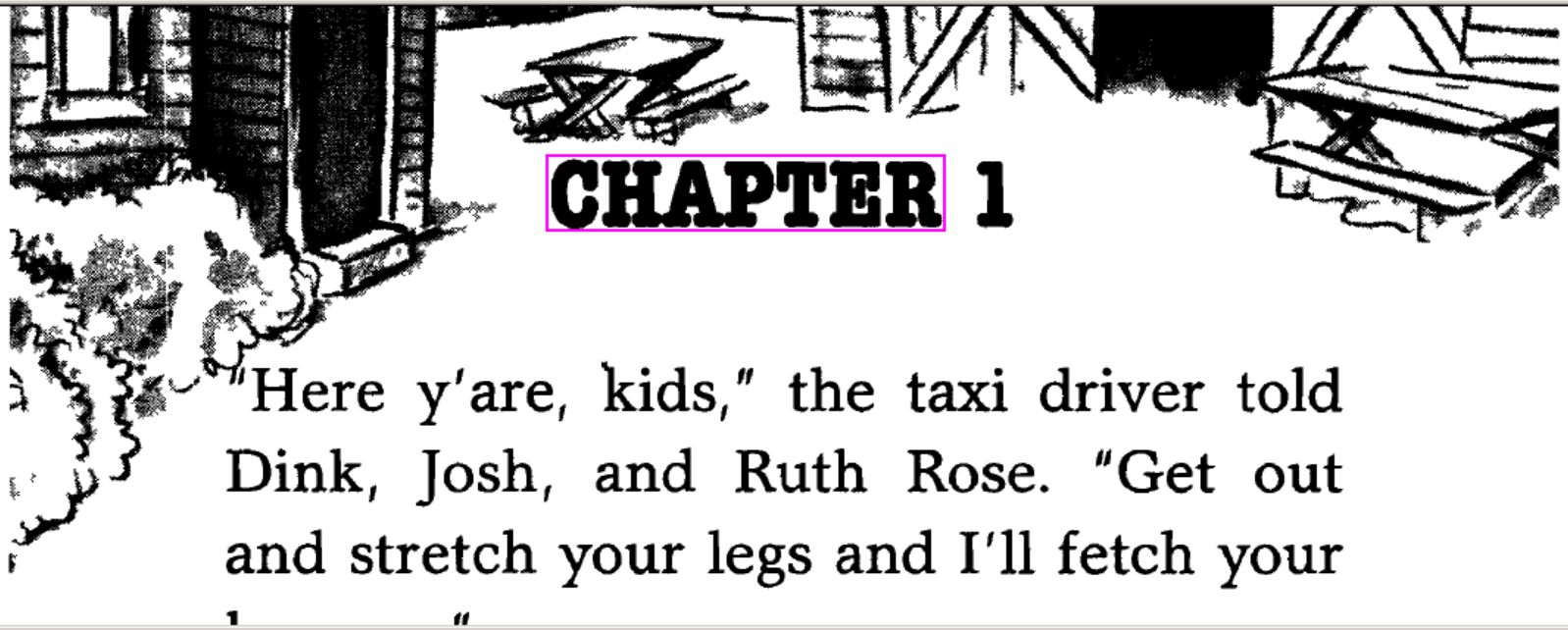
CHAPTER 1

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

WYNN - [Biology - Nelson - Chapter 02.wyn]

File Edit Scan View Tools Advanced Settings Web Window Help [Jason]

Re-Define | Undo All | Erase | Re-Process | Zoning

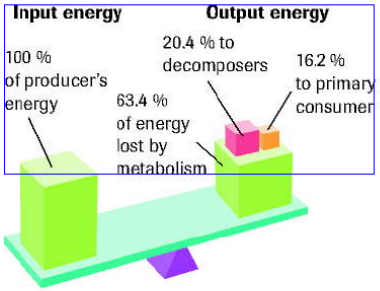


Figure 6
Most of the energy transformed from solar energy to chemical energy by a plant is used to maintain the plant and to grow. Every time the plant uses some of its energy store, it also loses energy as thermal energy. As a result, when the plant is eaten, only a small amount of energy is available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

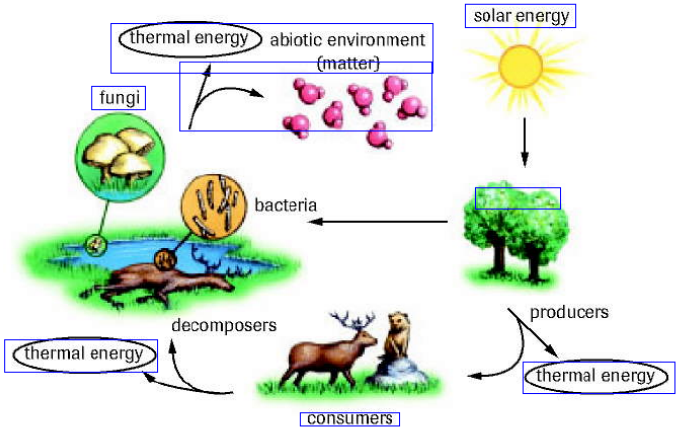


Figure 7
According to the second law of thermodynamics, energy is lost each time energy is transferred from one organism to another, and inside each organism as it uses the energy to survive.

INVESTIGATION 2.1 ***Introduction***

Constructing 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.

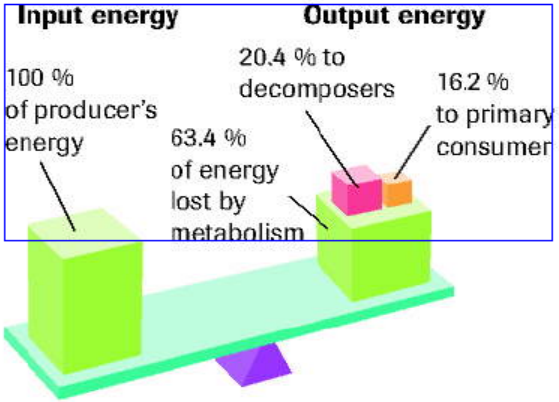
To perform this investigation, turn to page 35.

Report Checklist

○ Purpose	● Design	● Analysis
○ Problem	○ Materials	○ Evaluation
○ Hypothesis	● Procedure	○ Synthesis
○ Prediction	● Evidence	

Line 0 of 1, Page 7 of 20 Read-only Mode Exact View Dynamic Zoning Active

Start 4:50 PM



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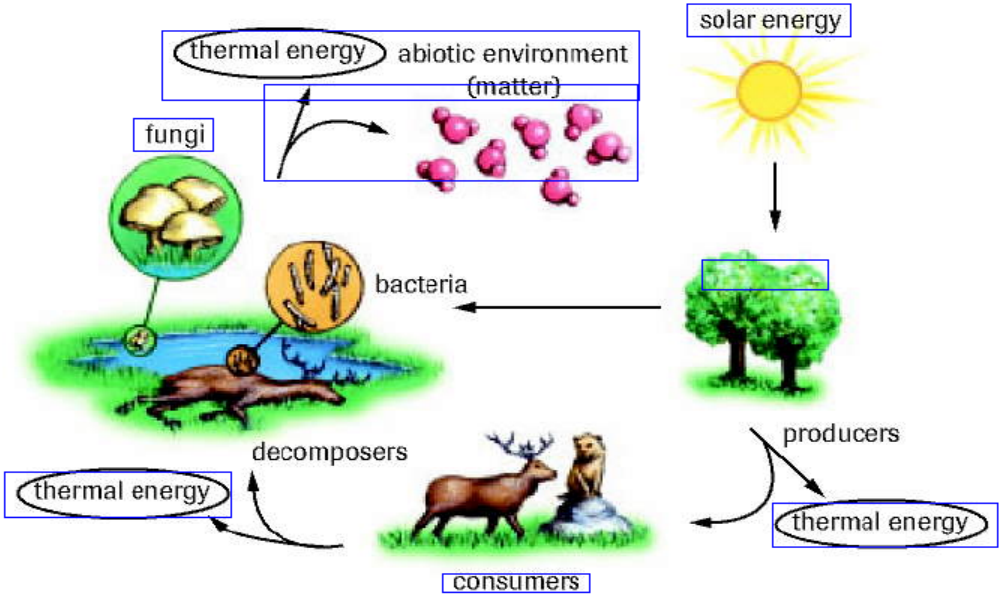

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WYNN Digital Library

- 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!