

# Learning Disabilities

What you need to know

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# Theory of Multiple Intelligences

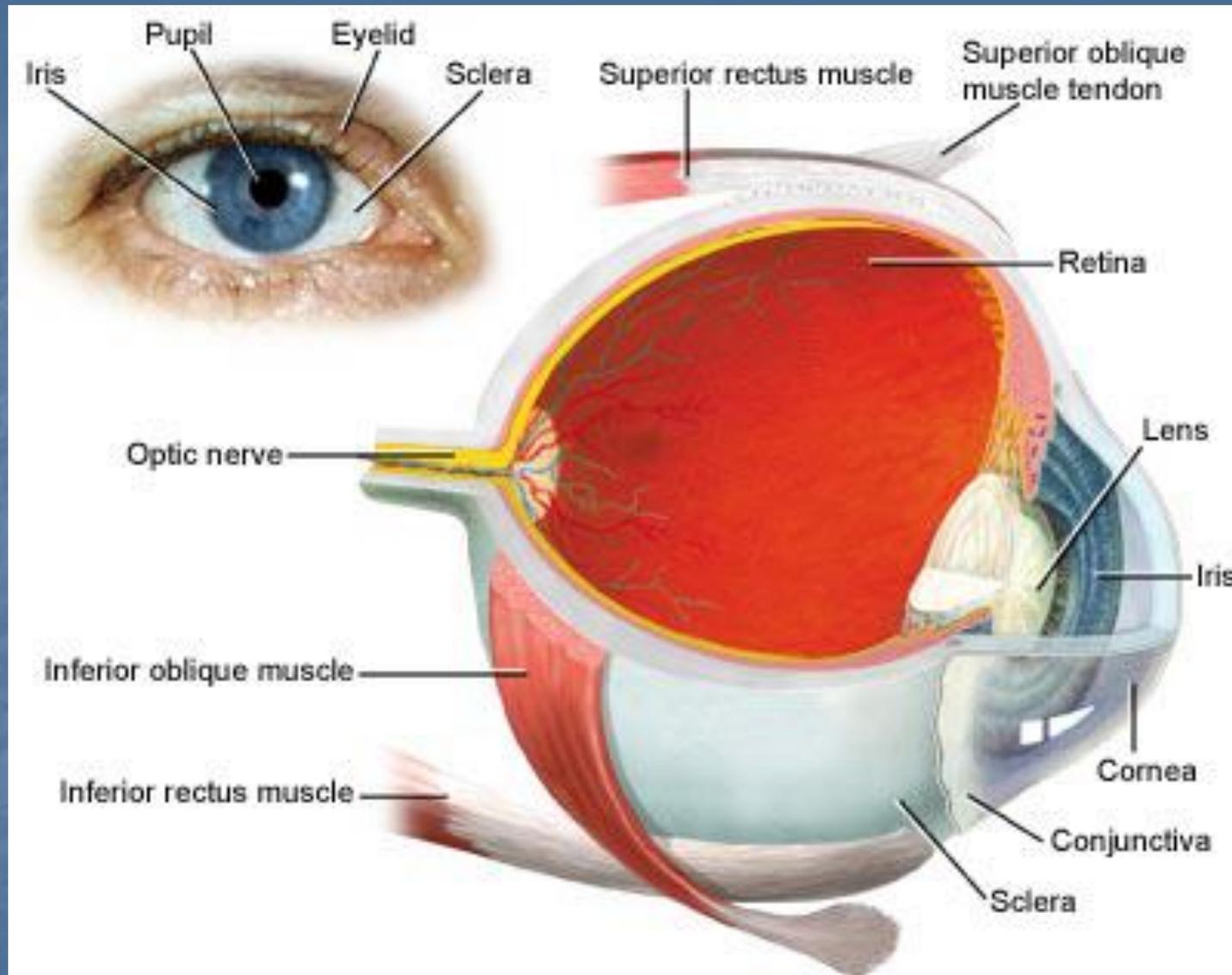
In 1983, Howard Gardner, a Psychologist and Professor of Neuroscience at Harvard University, questioned the idea of intelligence. "What makes people 'smart'?"

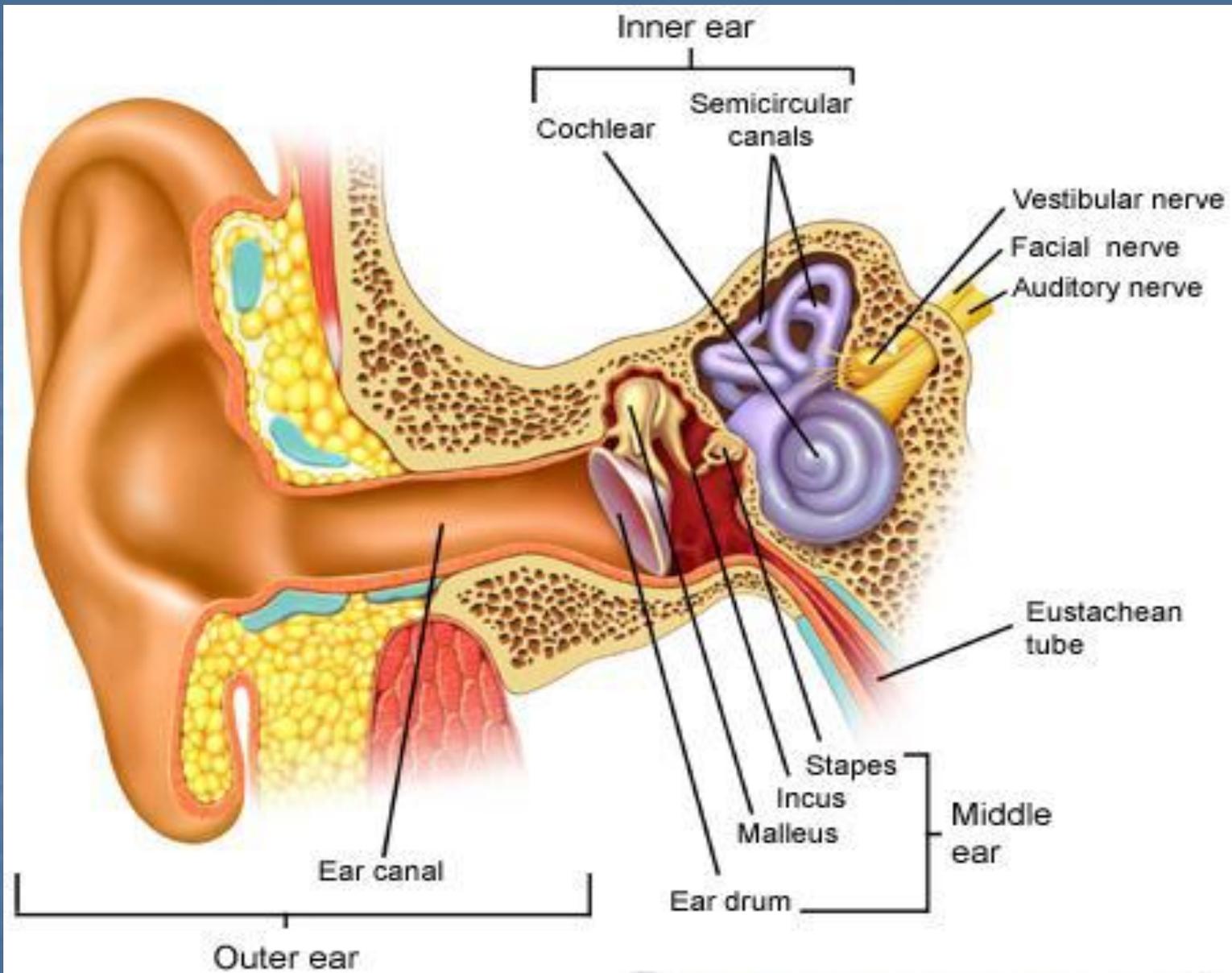
He talked about *9 types of intelligences* that reflect how people interact with the world.

# Types of Intelligences

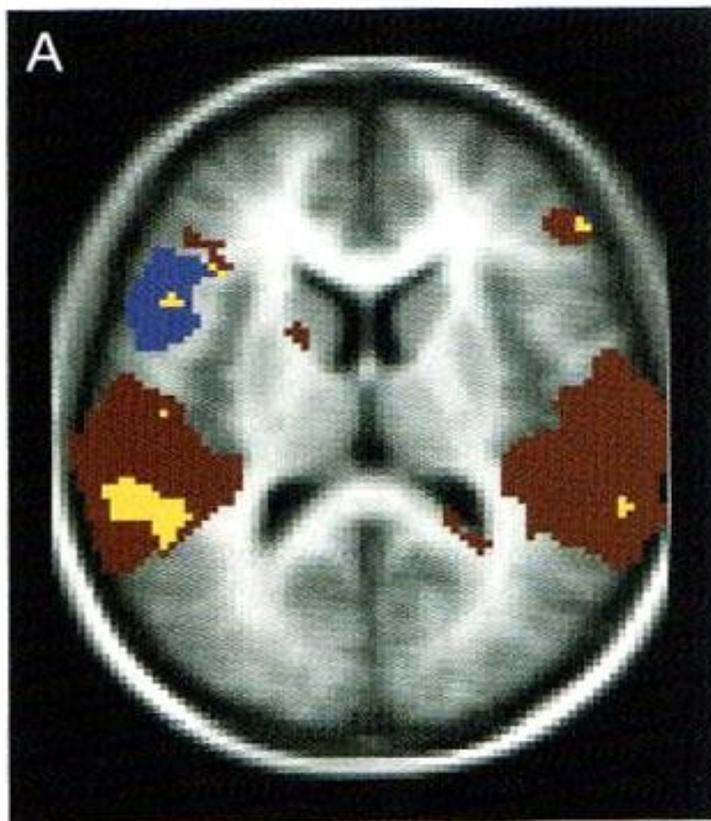
- Visual-Spatial (3-D)
- Verbal-Linguistic
- Logical-Mathematical
- Body-Kinesthetic
- Musical-Rhythmic
- Interpersonal (social skills)
- Intrapersonal (the ability to be in touch with yourself)
- Naturalistic (farming)
- Existential (philosophical)



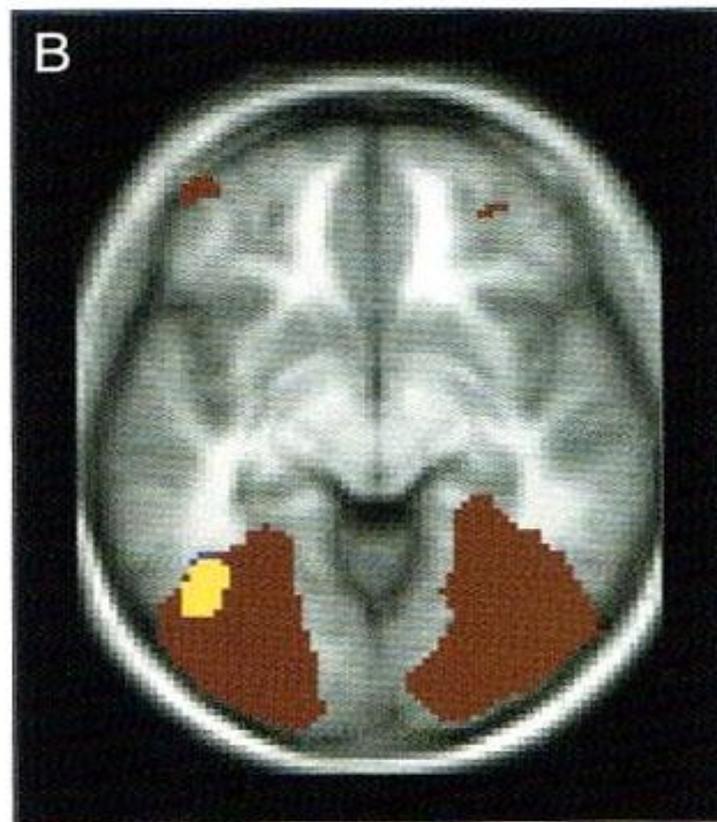




# AUDITORY



# VISUAL



PERCEPTION  
ONLY

OVERLAP

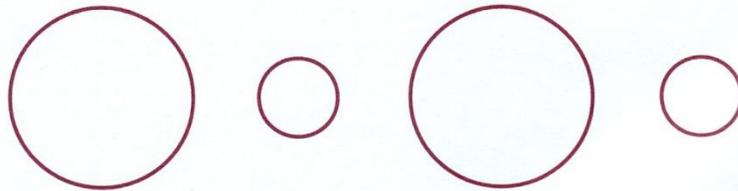
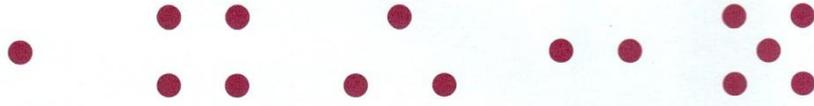
REMEMBERING  
ONLY

# Types of Learning Disabilities

- Auditory Processing (Receptive Language)
- Expressive Language
- Temporal-Sequential
- Gross Motor
- Fine Motor
- Dyslexia

# Auditory Processing

- Receptive Language - the ability to understand what people say to you at your grade level
- Subtle
- Anxious
- Test them
- Speak to them as though they are younger than they are
- Remediate



# Expressive Language

- The ability to say things at grade level
- Sometimes it's due to organizational problems
- Sometimes they *over verbalize* to cover up
- Test with a picture vocabulary test
- Be patient

# Visual ~ Spatial

The ability of the brain  
to perceive things  
around it.

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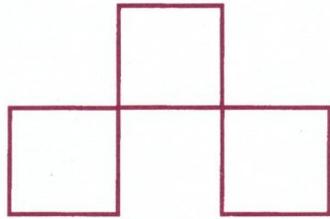
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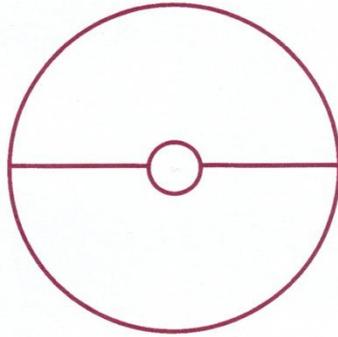
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1.



2.



# Temporal ~ Sequential

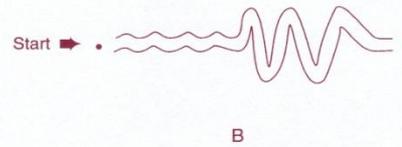
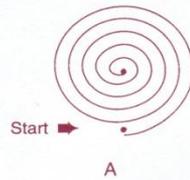
- The *ability* to put things in order  
(like the days of the week)
- The *ability* to remember *math facts*
- The *ability* to do things in order

# Gross Motor

- Catch a ball
- Swing a bat

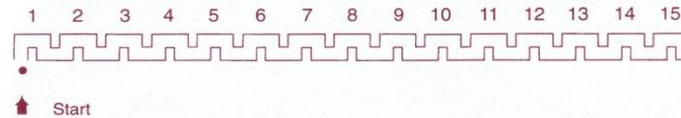
# Fine Motor

## PENCIL CONTROL



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## PENCIL SPEED



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## WRITE ALPHABET

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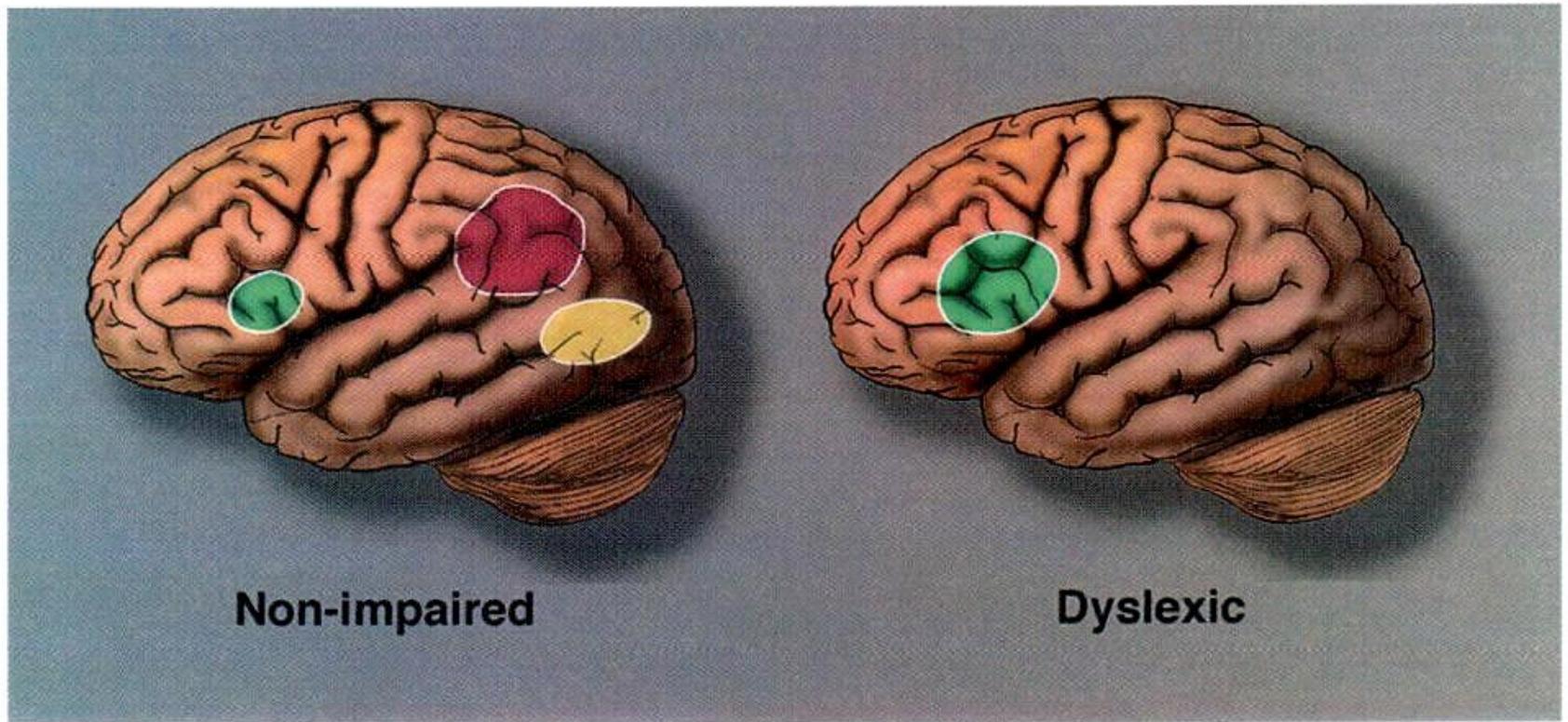
# Learning Disabilities

- Learning Disabilities do not match Gardner's *9 types of intelligences*.
- The things that are needed in school do not perfectly match that of the real world.

# Dyslexia

Is a specific learning disability characterized by difficulties with accurate and/or fluent word recognition and poor spelling and *decoding abilities*.

it is often **unexpected** in relation to other cognitive abilities of the child and the provision of effective classroom instruction.



**Figure 2**

Neural signature for dyslexia. Schematic view of left hemisphere brain systems for reading observed during fMRI in nonimpaired (*left*) and dyslexic (*right*) readers. In nonimpaired readers, three systems are evident: one anterior in the area of the inferior frontal gyrus and two posterior, the top system around the parieto-temporal region and the bottom system around the occipito-temporal region. In dyslexic readers, the anterior system is slightly overactivated compared with systems of nonimpaired readers; in contrast, the two posterior systems are underactivated. This pattern of underactivation in left posterior reading systems is referred to as the neural signature for dyslexia. Figure reprinted from (Shaywitz 2003) with permission.

# Incidence

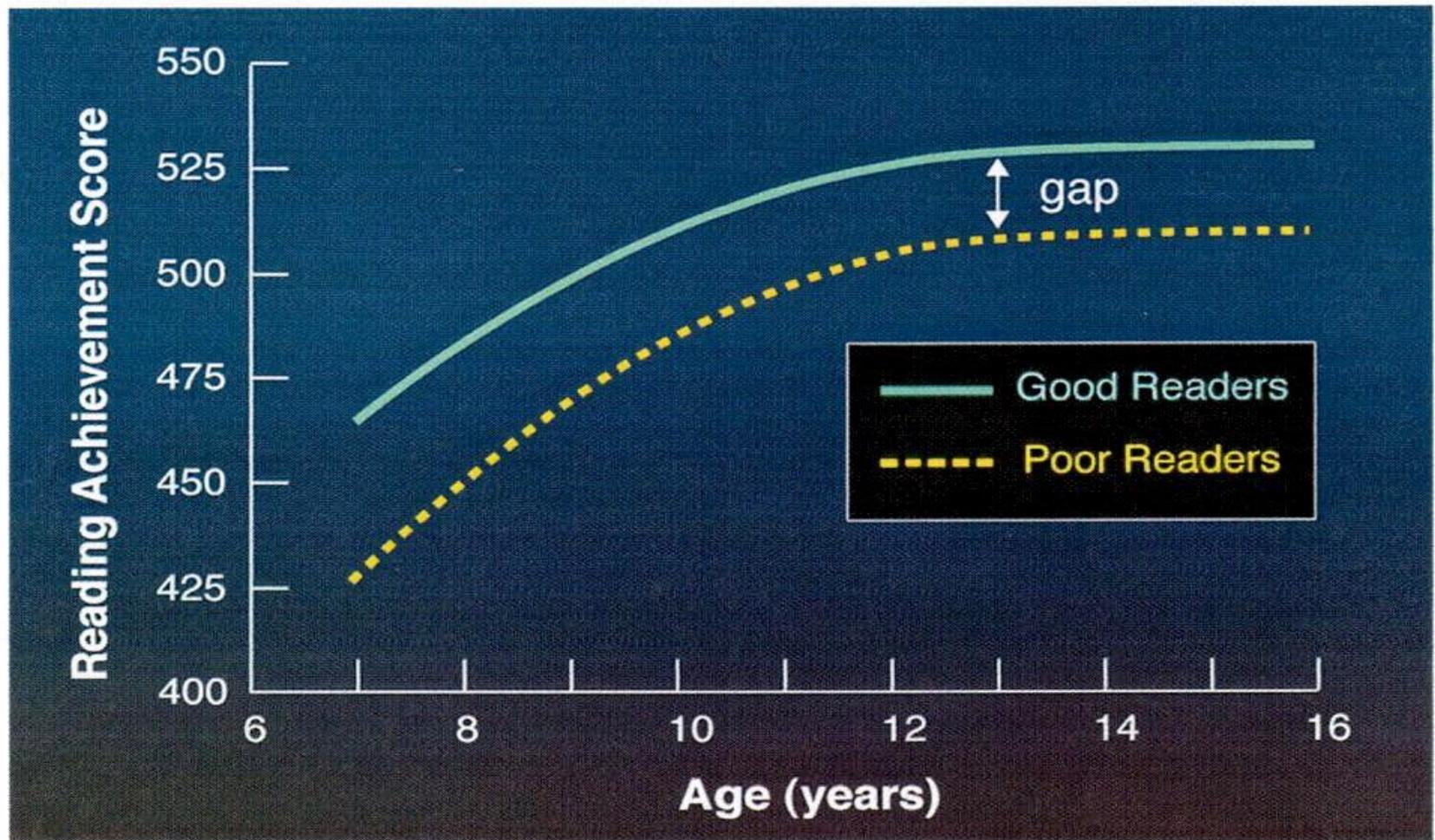
- 5-17 % of children have reading problems
- It is the most common learning disability
- It affects 80% of those identified as *learning disabled*

# Getting help

- Boys and girls get help based on a referral basis
- Girls often struggle quietly and are ignored
- Some are in third grade before they are identified
- We have to get rid of the “wait to fail” model

# Early Intervention

- Data suggest early intervention is important
- Since there is a bell curve of reading then “children who do not meet these arbitrarily imposed cut points may still require and profit from special help.”



**Figure 1**

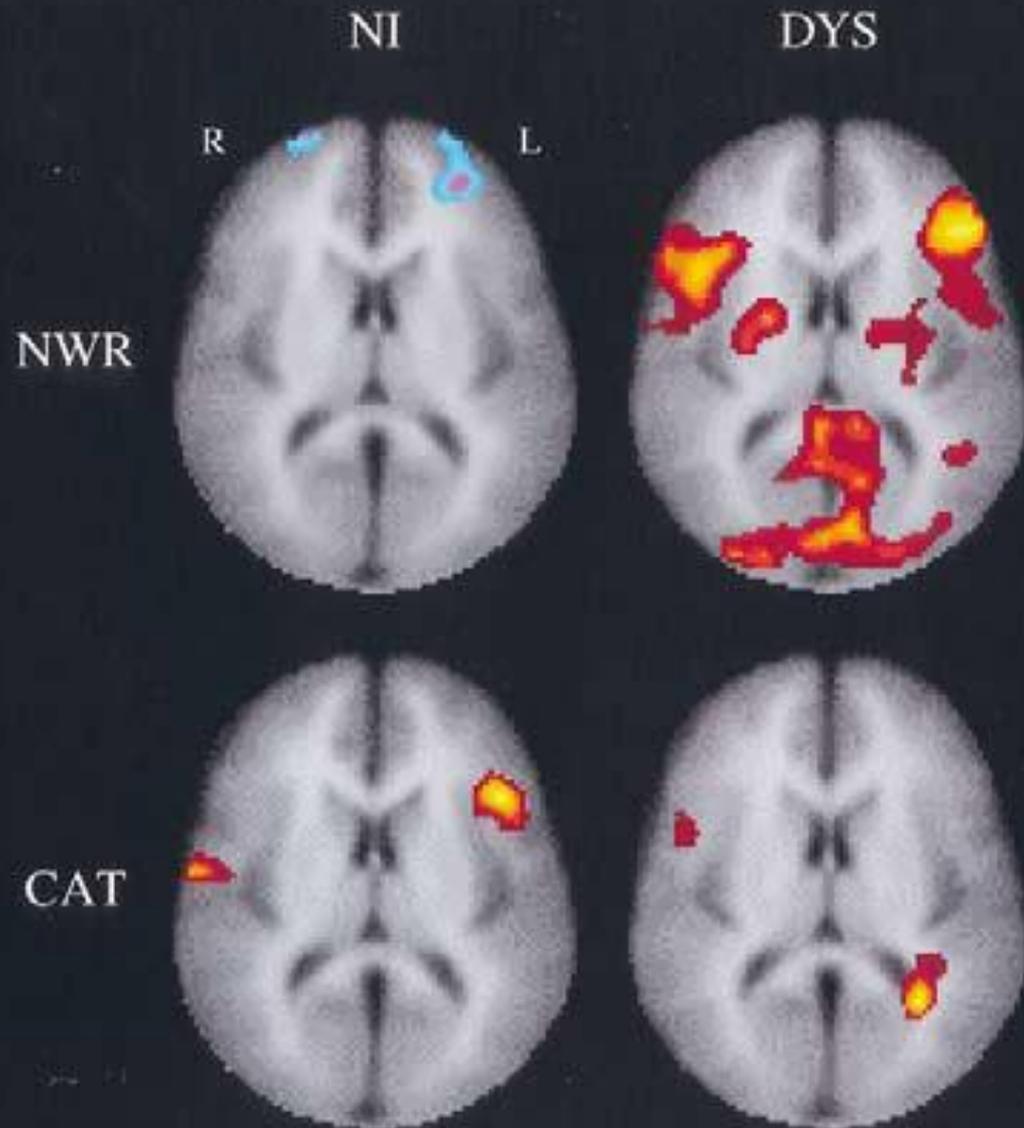
Trajectory of reading skills over time in nonimpaired and dyslexic readers. Ordinate is Rasch scores (W scores) from the Woodcock-Johnson reading test (Woodcock & Johnson 1989) and abscissa is age in years. Both dyslexic and nonimpaired readers improve their reading scores as they get older, but the gap between the dyslexic and nonimpaired readers remains. Thus, dyslexia is a deficit and not a developmental lag. (Figure derived from data in Francis et al. 1996 and reprinted from Shaywitz 2003 with permission.)

# Challenge of Reading

- The prime challenge for beginning readers is to map the letters onto the elemental sounds of spoken language
- Symbol-sound association

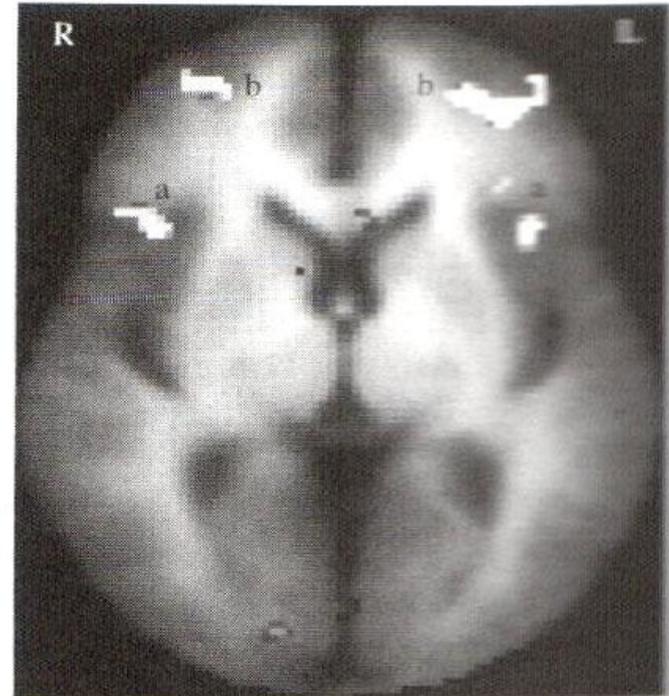
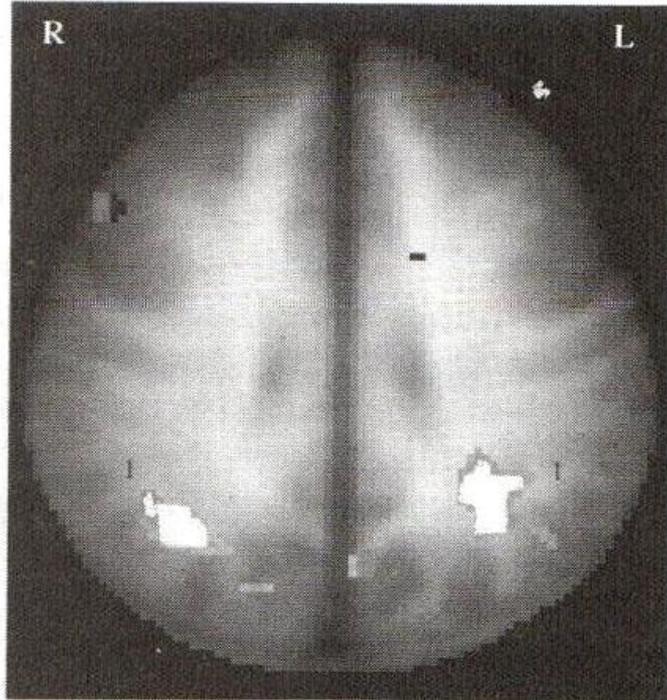
# Phonemic Awareness

- The *ability* to recognize sounds
- The *ability* to manipulate sounds



# Intervention

- Children who are in the 2<sup>nd</sup> and 3<sup>rd</sup> grades
  - Respond to phonological intervention
  - Phonetic reading
  - Meaning (vocabulary)
  - Changes your brain



**FIGURE 31.3.** Composite fMRI activation maps in readers who are nonimpaired and those who are impaired (dyslexic) engaged in phonological processing during the nonword rhyme task. Readers who are nonimpaired activate a large region involving the angular gyrus (1), supramarginal gyrus, and posterior portions of the superior temporal gyrus. In contrast, readers who are dyslexic demonstrate a relative underactivation in this posterior region and an increased activation in the IFG (a) and middle frontal gyrus (b) bilaterally. Data from S. E. Shaywitz et al. (1998). Copyright 2002 by Sally Shaywitz.

# Older Children

- Decoding and word recognition can be taught
- More challenging
- Fluency is not always obtained

# Older Children

- **Accommodations**

- Bypass by using auditory input (tapes)
- Technology (text to speech & vice versa)
- Allow more time

# Dyslexia Summary

- Dyslexia is the inability to easily associate symbols and sounds
- It can be remediated
- Early intervention is better
- Accommodations should be made

# The Law

- IDEA - Individual with Disabilities Education and Act
- IDEA mandates an IEP (Individual Education Plan)

# Individual Educational Plan (IEP)

- Has teachers and parents meet
- Review the academic function of the student
- Decide what accommodations or special teachers the child will have

# Problems

- School often test to see if the child meets “the school system’s” criteria for services
- Schools do not test to diagnose
- Children in the *gray zone* are not treated
- *Pull out programs* make children miss regular school

# What You Should Do

- Ask for Educational Testing in writing
- Sign, date your letter
- Keep your own copy
- When they tell you there's no money say: "Too bad, so sad" and call a lawyer
- Never go to an *IEP* meeting alone

# Sample Letter

*Dear Principal,*

*5/17/2010*

*I am the mother of John Smith. Because of his performance in school, I am requesting a full educational and psychological evaluation. Thank you for your cooperation in this matter.*

*Sincerely,*

*Mary Smith*

**Thank You**