

Road Blocks to Learning



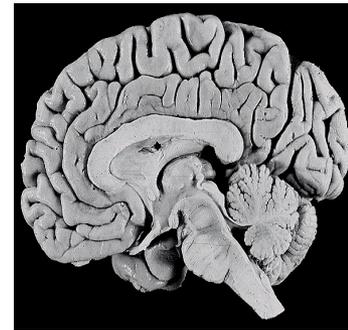
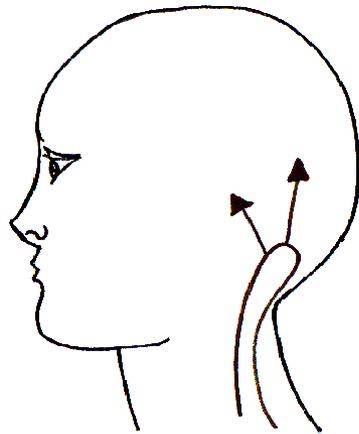
by Drina Madden



The Working Brain

- **The Works**
- **Glitches**
- **Repairs**

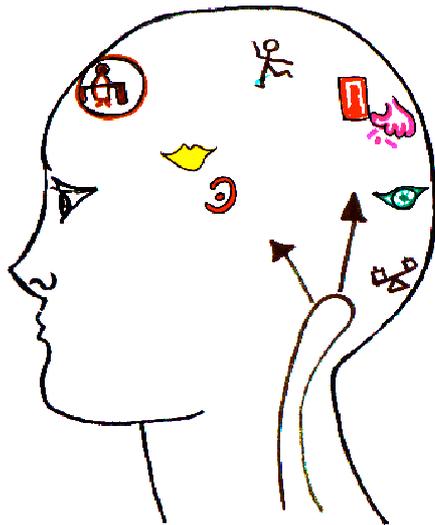
The Works - Attention



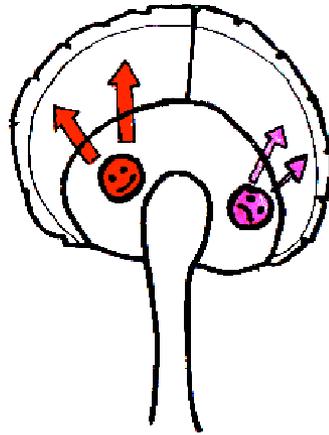
- **The "switch" of the brain (brain stem), wakes the brain up each morning.**

The Works – Attention

- Brain chemicals send electrical "wakeup" messages to receiving, gathering, holding and sending stations.



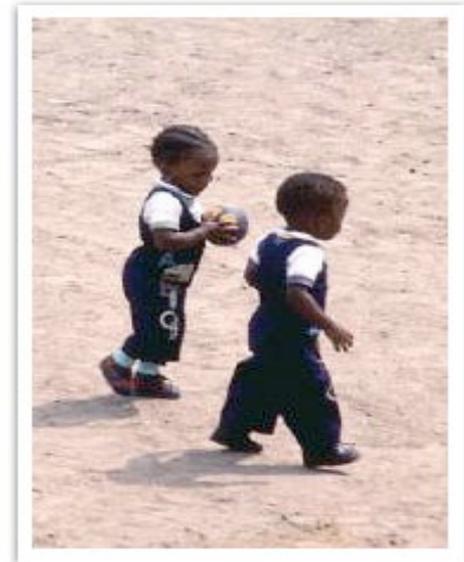
The Works - Attention



- **Activation must go through the mood part of the brain before thoughts and actions can occur.**

The Works - Attention

- **The brains of children are more "general" than adults. They need many varied experiences so visual, auditory, speech. areas may develop**



The Works – Attention

- Children under 5 have less effective message carrying chemicals (esp. dopamine) than adults.



- They have more trouble focusing their attention.

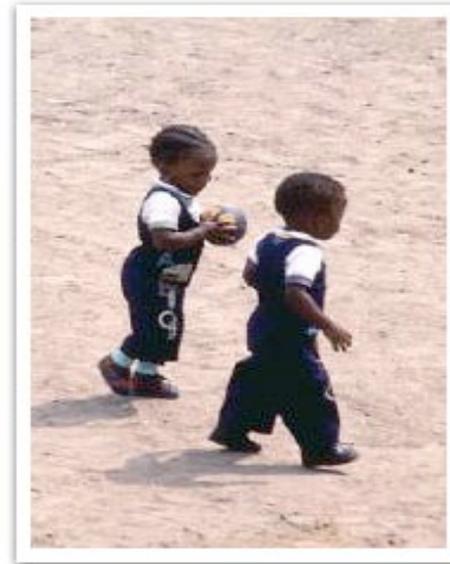


The Works - Attention

- **Top-down attention begins to appear in preschool**

The Works – Attention/Memory

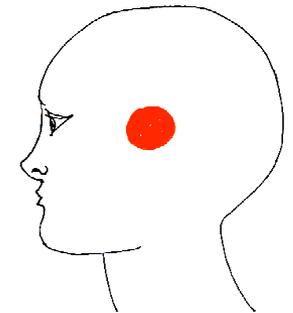
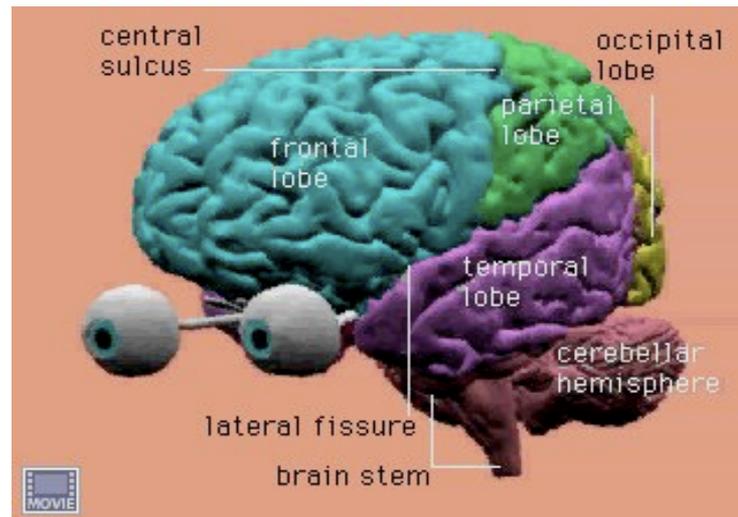
Clear, repeated experiences help young children build memories.



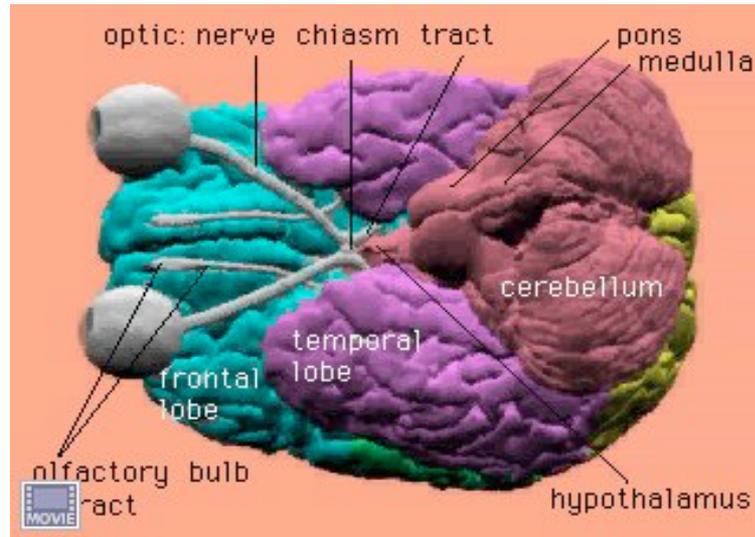
The first, or primary areas begin to develop.

The Works - Memory

Motor, speech, touch, pressure temperature, and taste awareness develop.

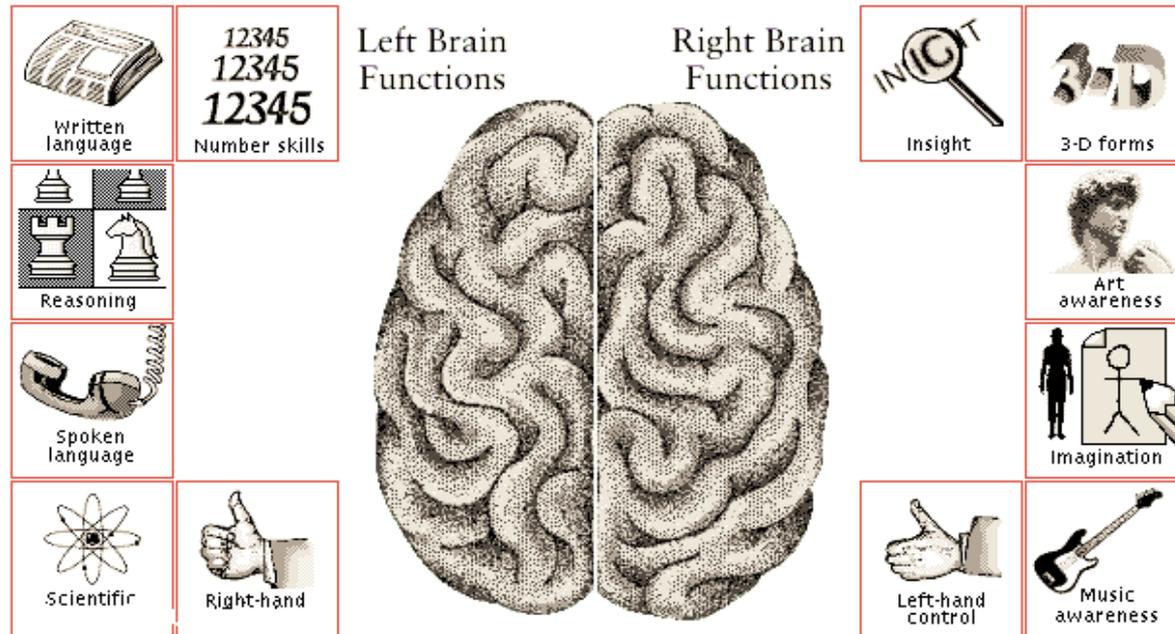


The Works - Memory



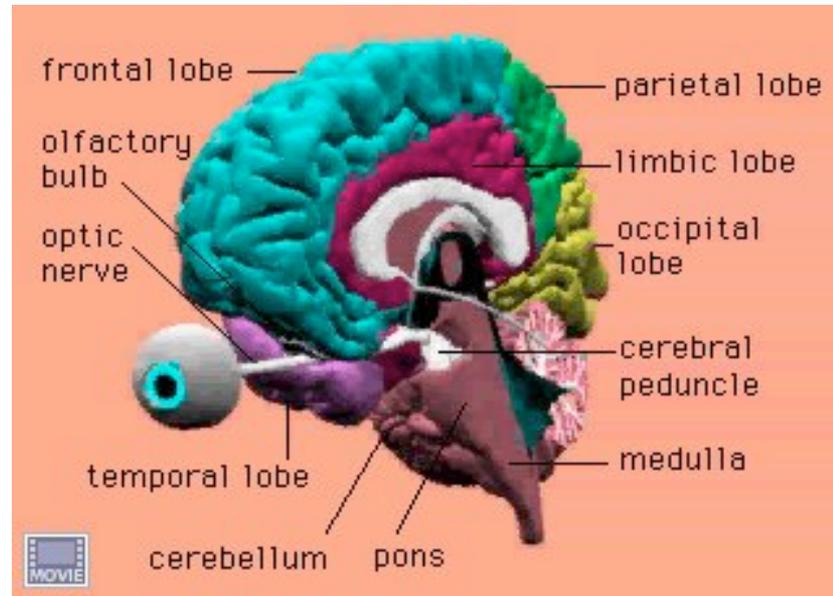
Visual memories begin to build and are connected with each other.

The Works - Learning



The two sides of the brain begin sharing more memories.

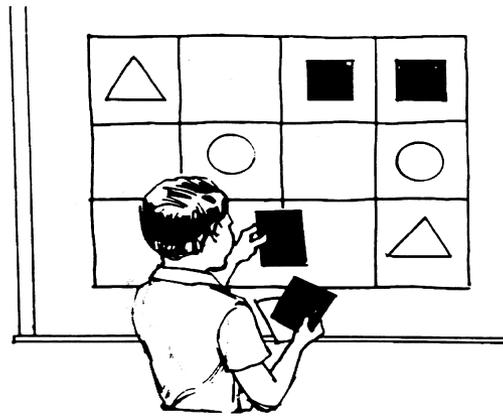
The Works - Learning



Visual, auditory, touch, smell, speech, pressure, taste, and mood experiences all begin sharing with each other.

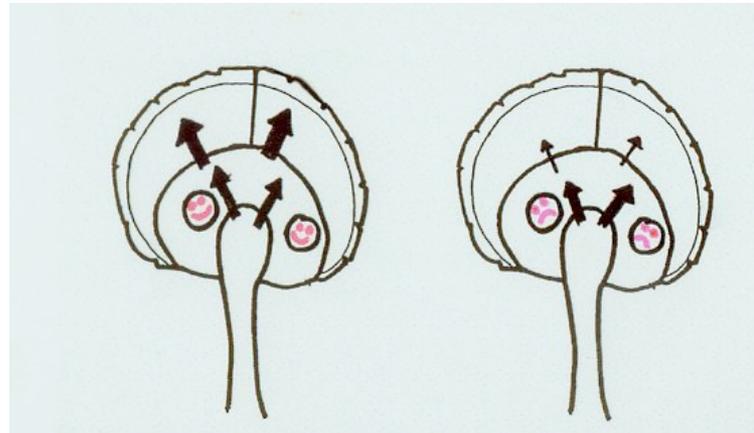
The Works - Learning

- **With strong messages, a child can hear “square”, and say “square” when shown it tomorrow.**



The Works – Mood

**A happy person can learn, play interact –
better than a sad person-**



because messages travel more easily.



The Works – Learning

Multisensory learning that leads to reading writing and math occurs

.....if the child experiences many different things,

feels safe and secure

.....and there are no

GLITCHES.

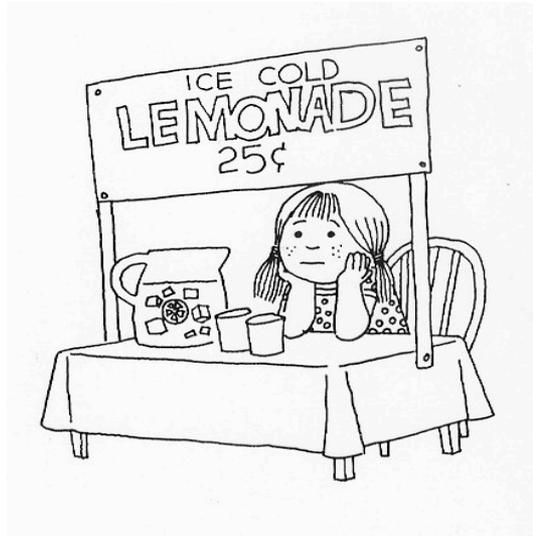


Glitches

- **Chemical difficulties**
- **Electrical problems**
- **Brain formation**

Glitches - Chemical Difficulties

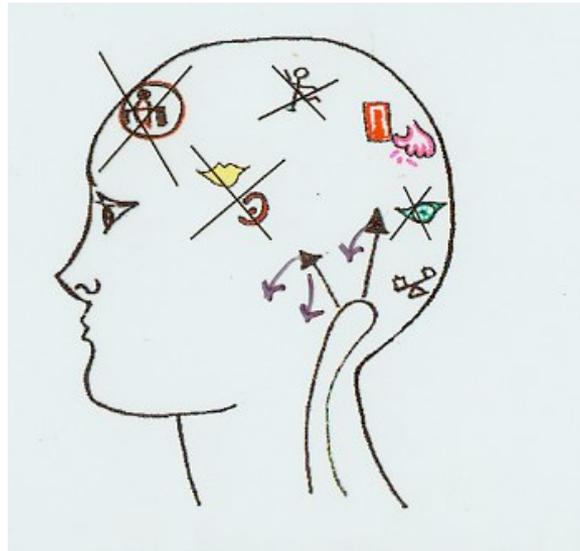
Attention Disorders



- Messages are not strong enough
- Receivers can't receive.
- Unused connections are removed

Glitches - Chemical Difficulties

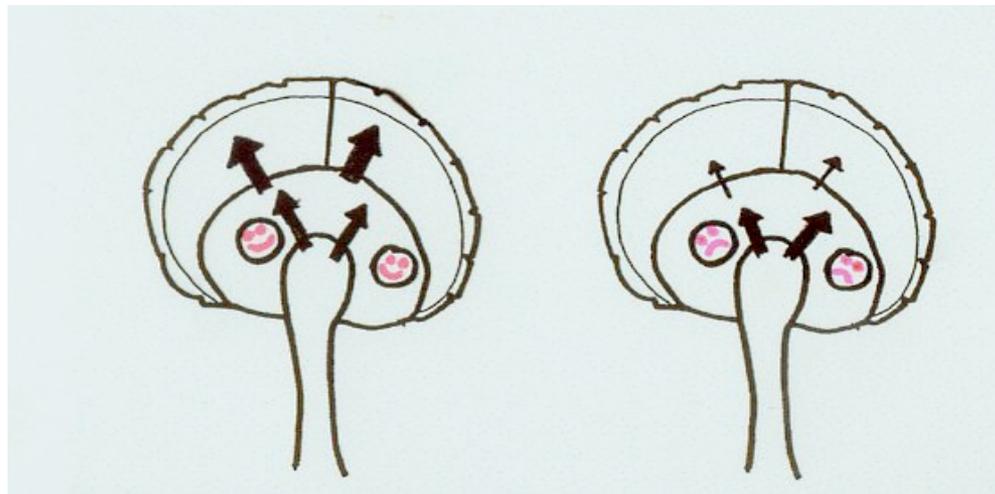
Attention Disorders



- Child or adult can't focus attention. Much information that comes in, leaks out before it can be fully stored.

Glitches - Chemical Difficulties

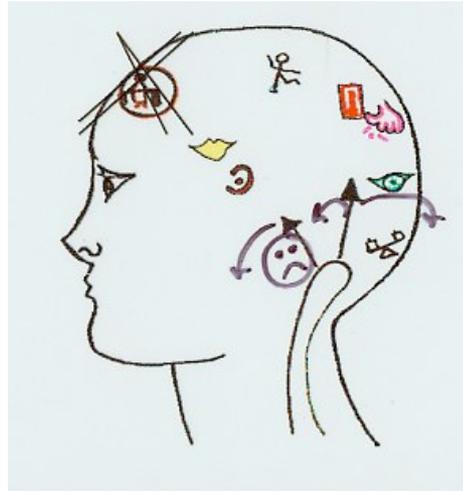
Mood Disorders



- **Brain chemicals are inefficient**

Glitches - Chemical Difficulties

Mood Disorders

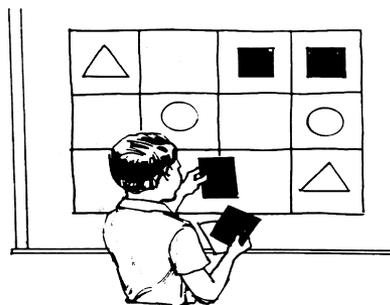


- Messages are not efficient enough to sustain mood
- Messages are not efficient enough to activate higher brain

Glitches - Electrical Problems

Seizure Disorders

- Remember - all brain messages are electrical



- “Square” heard and seen is sent, stored and the person can say “square” tomorrow.

Glitches - Electrical Problems

Seizure Disorders

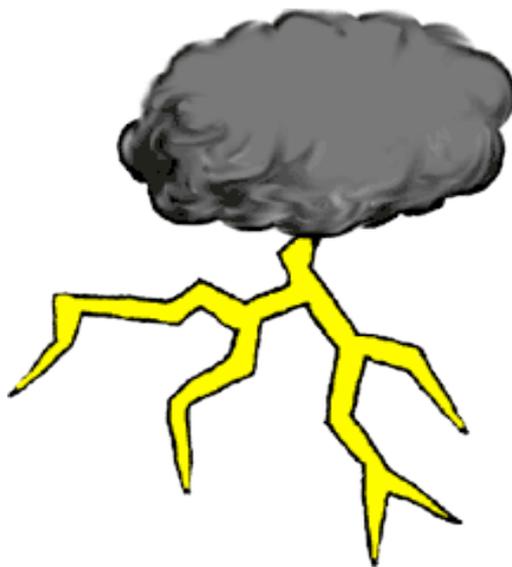
- "Bad Electricity" (seizures) can scramble the stored messages.



- The person will not remember today what he knew yesterday

Glitches - Electrical Problems

Seizure Disorders



- **"Bad electricity" can change chemicals in that area of the brain, damage cells and interfere with connections.**



Glitches – Brain Formation

- **Dyslexia – a language disorder**

- **It can affect**

 - Reading**

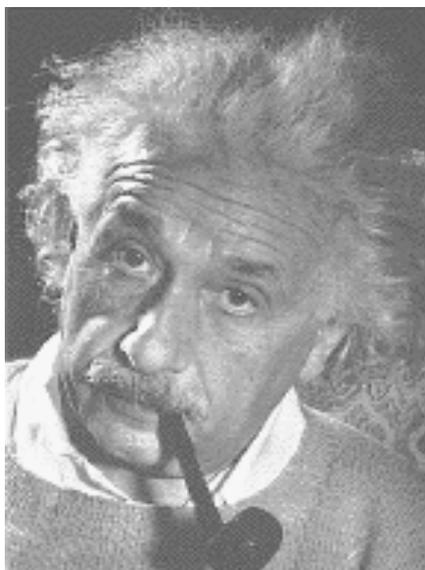
 - Spelling**

 - Writing**

 - Math**

 - Organization/Planning**

Glitches – Brain Formation



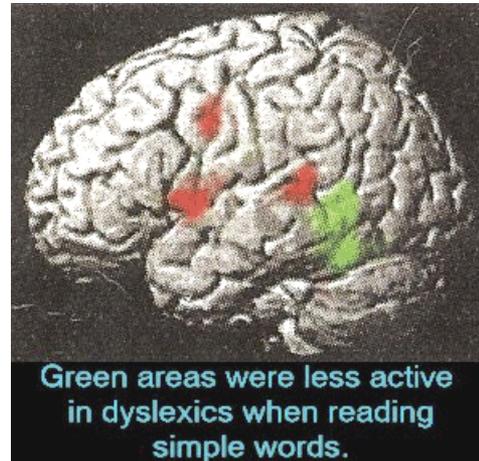
Dyslexia



A person can be GIFTED and have dyslexia

Glitches - Brain Formation

Dyslexia



- Inefficient activation/synchrony
- Extra neurons with no function

Glitches - Brain Formation

Dyslexia



- Inefficient activation/synchrony
- Bulges that contain working neurons make sounds and symbols hard to locate

Glitches - Brain Formation

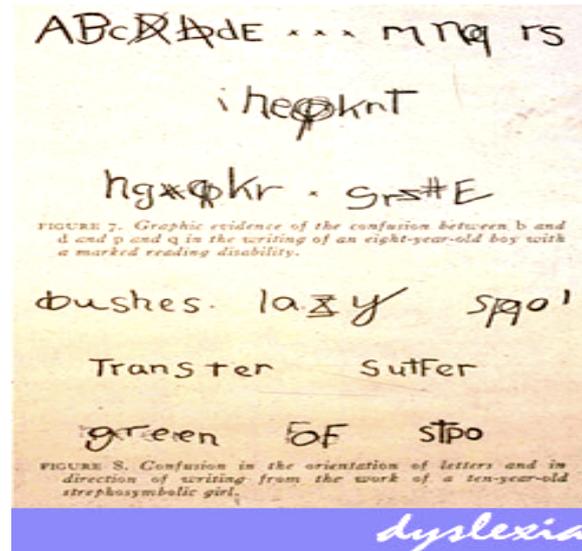
Dyslexia



- Reading is slow and laborious.

Glitches - Brain Formation

Dyslexia



- Some people have trouble noticing and then "recording" the symbols they see (dyseidetic).

Glitches - Brain Formation

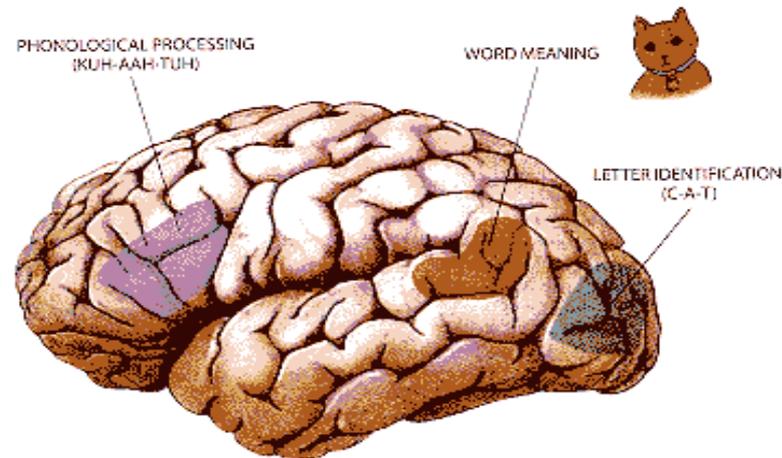
Dyslexia



- Some people have trouble:
 - Telling one sound from another
 - Storing them in memory (dysphonetic)
 - Retrieving them

Glitches - Brain Formation

Dyslexia



- Some people have trouble :
 - Noticing sounds AND symbols
 - Recording them (combined)
 - Retrieving them

Glitches - Brain Formation

Dyslexia



- Some can record sounds AND symbols
- Can't put them into whole words (mnestic or memory).

Glitches - Brain Formation

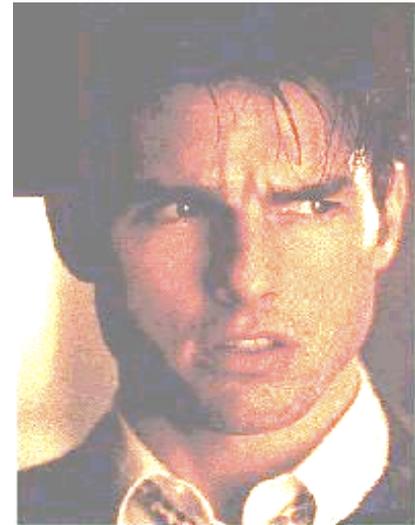
Dyslexia



- Some people can record symbols, sounds and combine them
- Cannot bring the pieces together to understand what they have read (memory + synthesizing).

Glitches - Brain Formation

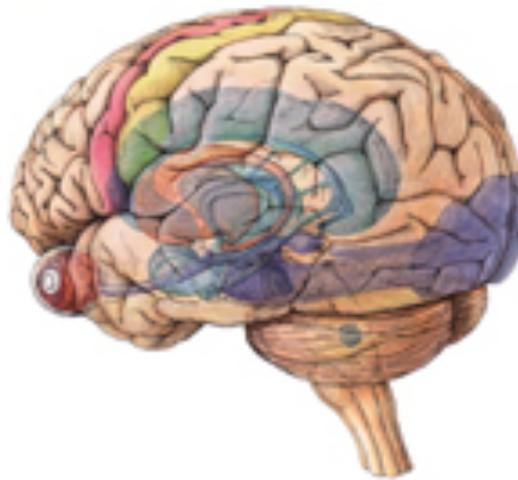
Dyslexia



- They all need deep, repetitive sound/symbol connections
- and the GIFT OF TIME.

Glitches - Brain Formation

Other Learning Disabilities



- Certain brain areas are not well activated

Glitches - Brain Formation

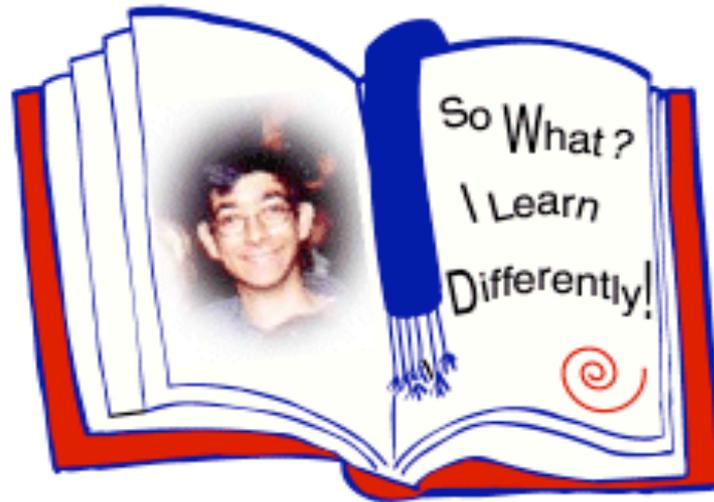
Other Learning Disabilities



- Certain brain areas do not have enough neurons.

Glitches - Brain Formation

Other Learning Disabilities



- Learning can be quite uneven - with great strengths and comparative weaknesses.

Glitches - Brain Formation

Other Learning Disabilities



- Learning can be quite uneven - often varying greatly from day to day.

Glitches - Brain Formation

Other Learning Disabilities

- The person is often perceived as a person who:
 - is "lazy"
 - "does the things well that he likes to do"
 - should just "try harder"



Glitches - Brain Formation

Other Learning Disabilities



- Many people with ADD also have Learning Disabilities
- Many with Learning Disabilities have ADD.



Glitches - Brain Formation

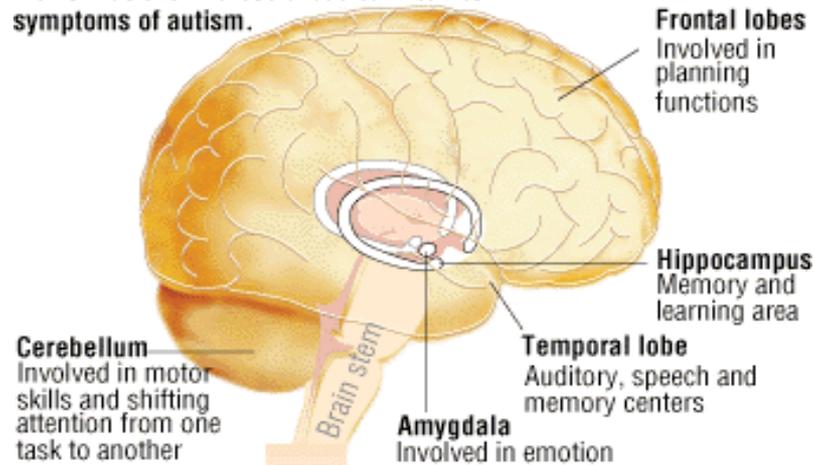
Other Learning Disabilities

- A person can have learning problems that disable him and still have standard test scores in the "average range".
- The law has drawn a line to determine the people with severe disabilities for whom tax dollars will support extra help.
- If a child does not meet the "legal" definition for learning disabilities, she may still have disabilities interfering with her learning.

Glitches - Brain Formation

Autism/Pervasive Disorders

Many children with autism have anomalies in some of the brain structures shown below. Malformations in these areas can lead to symptoms of autism.



- Some brain areas are smaller than normal causing problems "gathering" sensory impressions

Glitches - Brain Formation

Autism/Pervasive Disorders

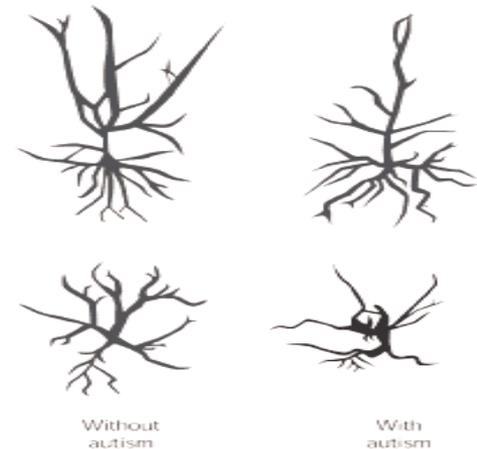
- **Chemicals are often inefficient**
 - **Affecting attention**
 - **Affecting mood**
 - **Affecting learning**



Glitches - Brain Formation

Autism/Pervasive Disorders

- People often have trouble:
 - **Processing new information**
 - **Scanning an area to focus on the important elements**
 - **With pieces of information. Need the "whole" picture**



Glitches - Brain Formation

Autism/Pervasive Disorders

- People often have trouble:
 - Organizing ideas and getting to the "core"
 - Remembering items in the correct sequence
 - Judging the passage of time
 - Their world is often "concrete" and



li

Glitches - Brain Formation

Autism/Pervasive Disorders

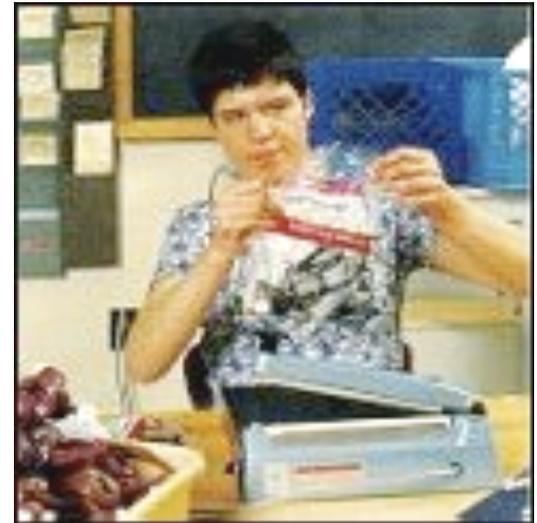
- People often have trouble:
 - **Processing auditory information**
 - **Automatically understanding visual information**
 - **Problem solving and adaptation often difficult**
 - **Controlling motor and verbal responses**



Glitches - Brain Formation

Autism/Pervasive Disorders

- The world of people is often overwhelming because of :
 - speedy verbal plus auditory
 - plus abstract presentation
 - they cannot process quickly enough to respond in an appropriate manner





Glitches – Brain Injury

- **Stroke**
- **Illness**
- **Accident**

Repairs

Brain Reorganization



- Therapy can change the receivers and senders.
- Therapy/Exercise can help the person process.

Repairs

Brain Reorganization



- Attention can be activated through specific "attention getting" exercises.

Repairs

Brain Reorganization

- Memory can be enhanced through direct exercise
 - **Auditory**
 - **Visual**
 - **Tactile**



Repairs

Brain Reorganization



- Memory "gathering" or processing can be enhanced once attention and basic memory become stronger.

Repairs

Brain Reorganization



- When mood is "open" all exercises and learning become more effective

Repairs

Brain Reorganization

- Then.....
 - the organizing
 - planning
 - reasoning

parts of the brain can be

- better stimulated
- receive more complete images





Repairs

Medication - Attention

- Chemicals work more effectively to stimulate the brain

Ritalin

Strattera

Concerta

Adderall



Repairs

Medication - Mood

- Mood is able to remain "open" allowing stronger, global brain connections
 - ◆ Prozac
 - ◆ Paxil
 - ◆ Zoloft
 - ◆ Welbutrin
 - ◆ Buspar
 - ◆ Effexir



Repairs

Medication - Seizures

- Anti-seizure medication can often stop the seizures allowing appropriate connections to be made.
 - **Depakote**
 - **Tegretol**
 - **Topomax**



Repairs

Assistive Techniques - Attention

- Limit distractions
- Devise an attention getting cue



Repairs

Assistive Techniques – Attention

- Repeat directions
- Keep lessons clear and simple
- Allow extra TIME for processing
 - **Shorten assignments**
 - **Shorten tests**

Repairs

Assistive Techniques - Mood



Solving the problem of dyslexia one mind at a time.

- Self esteem grows through success
- High self esteem helps open mood

Repairs

Assistive Techniques - Mood



- Feed the child's strengths
- Help him manage his weaknesses

Repairs

Assistive Techniques - Dyslexia

- Repetitive multisensory phonemic instruction
 - **Wilson approach**
 - **Orton approach**to strengthen sound and symbol connections



Repairs

Assistive Techniques - Dyslexia



- Visualizing techniques so the child learns to convert pieces into wholes



Repairs

Assistive Techniques - Dyslexia

- Teach how to use books on tape with note taking techniques
- Then
- the child can academically keep up with peers
- the child does not lose precious time unlocking and trying to remember all the pieces



Repairs

Assistive Techniques for all children

- **Auditory input/output**
- **Visual input/output**
- **Visual input/Motor output**
- **Reading-** speed, accuracy, comprehension
- **Math**
- **Spelling**
- **Writing**



Repairs

Assistive Techniques – Pervasive Disorders

- **Structure**
- **Routine**
- **Concrete**
- **Whole**
- **Repetition**
- **Visual schedules**
- **Social teaching**



Repairs

Assistive Techniques for all children

- Clear, simple environment
- Mood smoothers
- Repetition
- Manipulatives
- Concrete presentation
- Multisensory presentation
- Visual plans
- Awareness of Learning Styles



Repairs

Assistive Techniques for all children

- Large print
- Tape recorders
- Computer for special software:
 - **Eye Q**
 - **Motorvator**
 - **Brain Builder**
 - **Eye Spy**
 - **Inspiration**
 - **Co-Writer**
 - **Alphasmart**

Understand me



**help me to be
all that I can be**