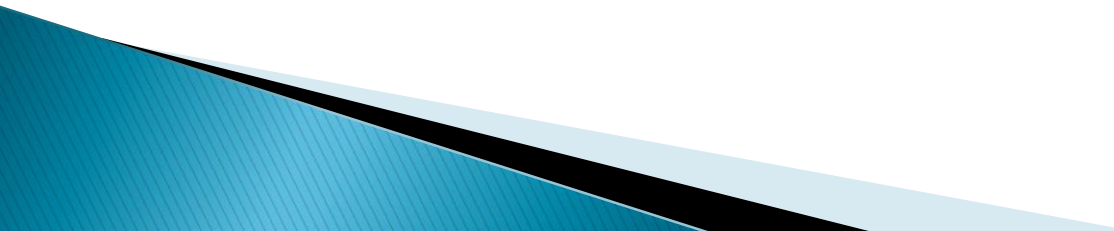


Reading Readiness: Intervention Support with the Young Learner in Mind

Colleen Doyle M.S. OTR/L

Reading Readiness – What is it?

- ▶ What is reading readiness?
 - ▶ What skills do you think are important for children to have in order to read?
 - ▶ How do you know a child is ready to read?
- 

Sensory processing skills

Motor skills



Overview

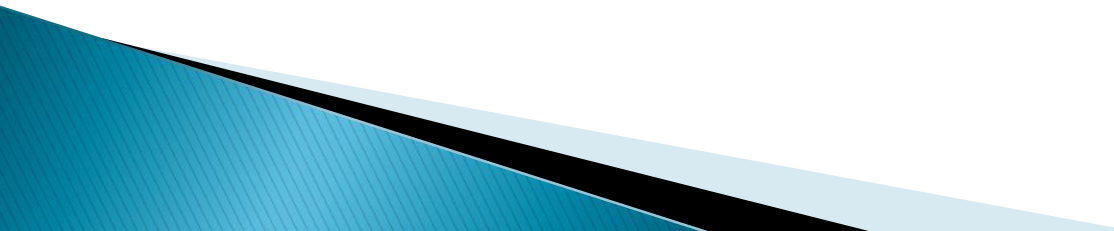
- ▶ **What is occupational therapy & how does it relate to reading readiness?**
 - Basics of gross motor, fine motor, visual motor & ocular motor skills
- ▶ *Break out #1:*
 1. Understand the difference between gross, fine, visual perceptual and ocular motor skills
 2. Break down the skills you think are important for reading
 3. Identify ways to support all children in your classroom
- ▶ **The sensory system & how it relates to reading readiness?**
 - Explore the auditory, tactile, vestibular, proprioception, taste, visual and olfactory systems
- ▶ *Break out #2*
 1. Identifying how the sensory system works
 2. Identify how sensory input may play a part in your classroom
 3. Think about how the sensory system effects reading readiness

Overview

▶ Reading Readiness

- Identify all the skills required to read effectively
 - Dr. Johnson reading readiness checklist
- ▶ *Break out #3* : Discuss activities to work on reading readiness including Brain Gym, ocular motor games, letter games and postural control

What is Occupational Therapy?

- ▶ Helping people (birth–elderly) engage in activities of living
 - Activities of daily living: eating, bathing, sleeping, dressing, driving
 - Activities of pleasure: playing, dancing, singing, running
 - Activities of school/work: typing, writing, reading, sitting
- 

“Activity Engineers”

Attention/self-regulation

Visual spatial skills

- Where to point the stick
- Where body is in relation to stick

Ocular Motor:

- Visual Tracking
- Visual Fixation

Shoulder/arm stability

- activation of the rotator cuff
- activation of the biceps
- activation of forearm flexors

Oral Praxis

- knowing what facial position you are making
- activation of facial muscles

Grasp

- Type: Power
- Activation of hand flexors

Postural Control

- Activation of transversus abdominis

Bilateral coordination

- One hand push button
- Other hand hold stick



Gross Motor Skills

- ▶ Large body movements
 - ▶ Postural control: Able to maintain upright position in sitting & standing
 - ▶ Crossing the Midline: Ability to cross the physical midline



Photo Credit: <http://1st-day-as-an-english-teacher.blogspot.com/2015/03/circle-games.html>
<http://www.otc-frederick.com/blog/scissor-skills-under-rated-but-highly-utilized/>

Gross Motor Skills & Reading Readiness

- ▶ Postural control
 - Maintain an upright position
 - Head/core stability
- ▶ Crossing the physical midline
 - Turn the pages of the book



Fine Motor Skills

- ▶ Small hand movements
- ▶ Bilateral Coordination
 - Cutting, stabilizing paper while writing
- ▶ Manipulating objects
 - Playing with blocks
 - Forming playdough into shapes
- ▶ Writing
 - Grasp
 - Letter formation



Fine Motor Skills & Reading Readiness

- ▶ Grasping page
- ▶ Bilateral coordination
 - Hold the book with two hands

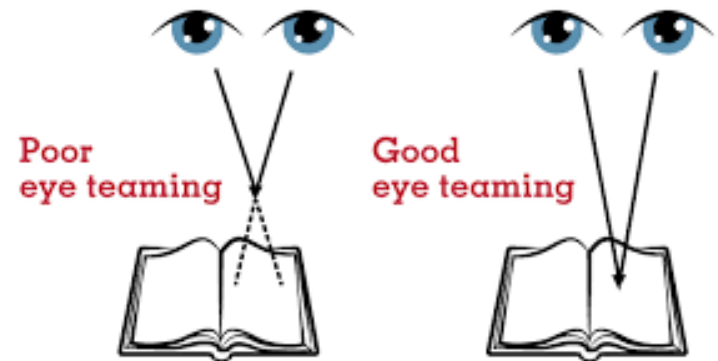


Ocular Motor

- ▶ Visual Tracking – Following an object as it moves across your visual field
 - Crossing the visual midline
- ▶ Convergence – Tracking an object as it moves close to your nose
- ▶ Saccadic Eye Movements– Looking between two points

Ocular Motor & Reading Readiness

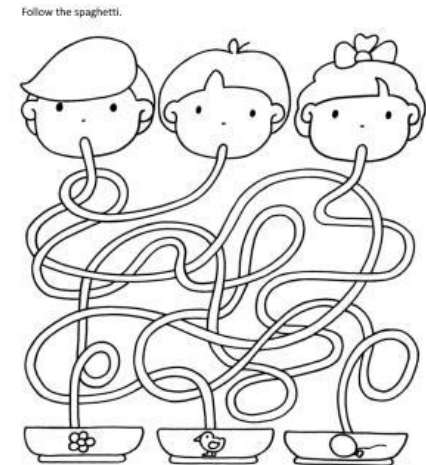
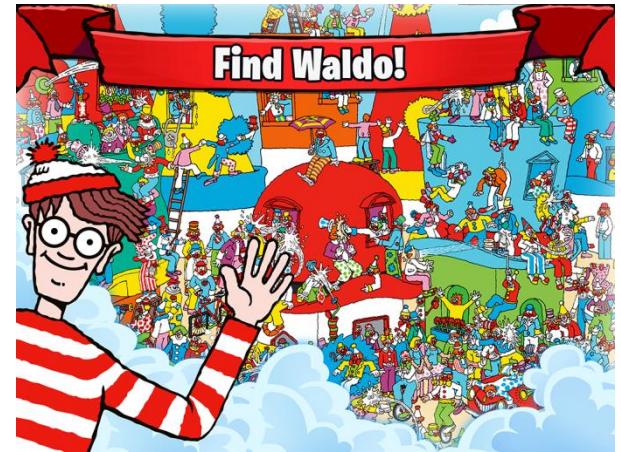
- ▶ Crossing visual midline
- ▶ Tracking
- ▶ Saccades
- ▶ Convergence



Mark had a new bike. The bike was red. One day
Mark rode his bike to the park. Mark left his new bike
by a tree. Mark played on the slide. He played on the

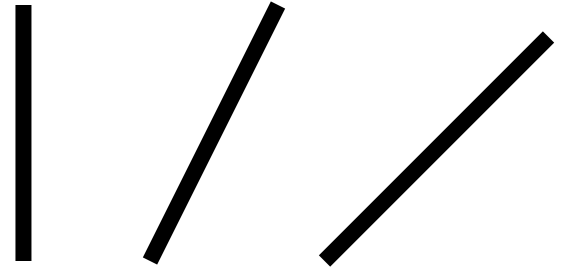
Visual Perceptual

- ▶ How the brain interprets visual information
 - Visual Discrimination: Notice detail differences
 - Figure Ground: Focus on a selected target.
 - Spatial Relations: Recognize the positioning of objects in space.
 - Visual Closure: Recognize an object/ letter without seeing all of it
 - Visual Memory: Remember letters and words



Visual Perception & Reading Readiness

- ▶ Visual Discrimination
- ▶ Visual Memory



What was he
holding

Qué estaba
llevando a cabo

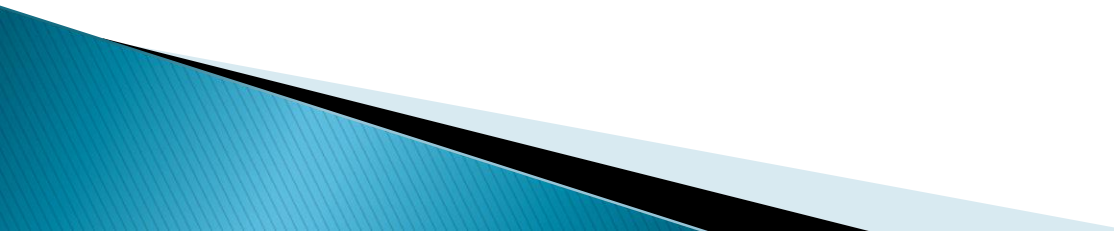
Break out #1

Goal: Identify what gross motor, fine motor, ocular motor skills you think are important for reading readiness

▶ Gross Motor

- Do a star jump (postural control)
- Try to write while balancing on one foot (balance)
- Play a patty cake with your partner (crossing physical midline)

▶ Fine Motor

- Write with your left hand (fine motor precision)
 - Write your ABC's with your eyes closed (letter motor memory)
 - Cut a circle using one hand with partner (bilateral coordination)
- 

Break out #1

Goal: Identify what gross motor, fine motor, ocular motor skills you think are important for reading readiness

▶ Visual Perceptual

- Put together a puzzle facing down (visual discrimination skills)
- Draw a picture of a lion (visual memory)

▶ Ocular Motor

- Find the difference? (visual scanning)
- Identify what number your partner is holding as they move from left to right across your visual field (Crossing visual midline)
- Read the Yertle the Turtle story (crossing visual midline)
- Solve the code? (saccadic eye movements)
- Read the paragraph (saccadic eye movements)
- Throw and catch a ball (convergence)

A	B	C	D	E	F	G	H	I	J	K	L
!	@	#	\$	%	^	&	*	(?	/	'

M	N	O	P	Q	R	S	T	U	V	W	Y	Z
=	+	}	:	;	.]	-	>	--	"	...	

English

! . % ... } > . % ... %] - (. % \$

Spanish

] } +] >] } ? }] # ! +] ! \$ }]

According to a research study at Cambridge University, it doesn't matter in what order the letters in a word are, the only important thing is that the first and last letter be in the right place. The rest can be a total mess and you can still read it without problem. This is because the human mind does not read every letter by itself, but the word as a whole.

Sensory Skills

Motor Skills



Visual Perceptual

- letter/word identification
- visual memory

Ocular Motor

- Saccadic Eye Movements
- Crossing visual midline
- Convergence
- Visual tracking

Postural Control

- Head & Neck strength/endurance
- core strength/endurance

Bilateral Coordination

- hold book with both hands

Write down how can we work on these motor skills in the classroom?

- ▶ Postural control (core strength)
 - Freeze Dance, Yoga, Jumping, Balancing on one foot, squats...
- ▶ Bilateral Coordination (two hands together)
 - Ball games (rolling, catching, bouncing), pushing/pulling large objects, wiping chalkboard with two hands, marching, cutting ...
- ▶ Visual Perceptual (eyes interpret information)
 - I spy games, multi-sensory exposure to letters/numbers, complete the picture games

More activities for the classroom

▶ Crossing Physical Midline

- Clapping games, playing with cars on the carpet, playing with balloons, giving high fives, placing objects on the non-dominant side of the child's body

▶ Ocular motor

- Visual tracking & crossing visual midline: Move around the room while teaching, play games with airplanes/cars
- Saccades: Have the child look between two choices
- Convergence: Ball skills, arts & crafts at the table

The Sensory System

How it relates to self regulation, academic performance & reading readiness

Sensory Input & Reading Readiness

- ▶ 2 meaningful ways sensory input affects reading readiness
 1. Child's level of arousal & self-regulation
 2. Specific skills developed as a result of a fully functioning sensory system

What is Sensory Processing?

- ▶ Sensory processing is the ability to take in, interpret & organize input in order to respond appropriately.
- ▶ Everyone relies on their sensory system to navigate life



Basic Sensory Systems

Tactile ~ Touch

Olfactory ~ Smell

Auditory ~ Hearing

Gustatory ~ Oral

Visual ~ Sight

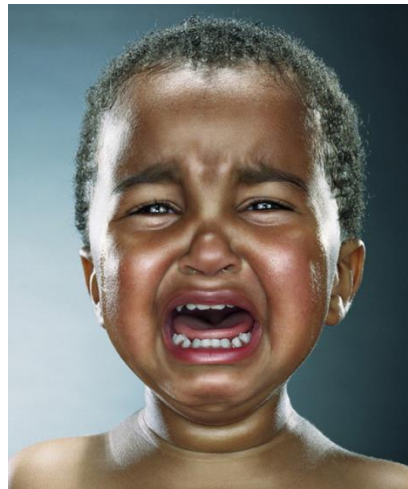
Vestibular ~ Balance

Proprioceptive ~

Body Awareness



Think about how you learn or read when you feel like this...



Sensory Input Affect on Arousal Level

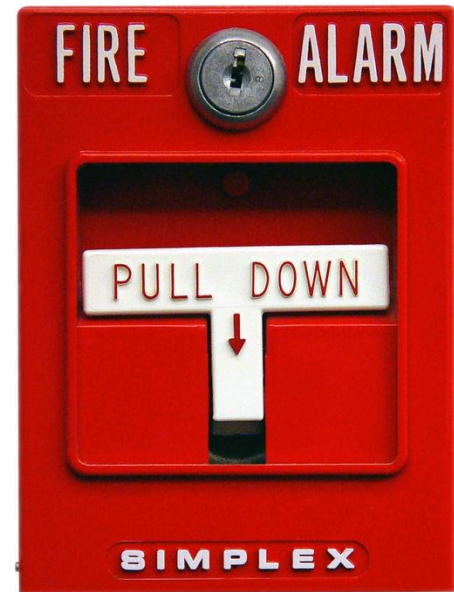
- ▶ Sensory input affects everyone's arousal level
 - Think about how you feel when you go on a roller coaster
 - Think about how you feel when you are drinking a warm cup of coffee
 - Think about how you feel after you go for a run/exercise
 - Think about how you feel when a smoke detector is low on batteries (beeping every 1 minute)
- ▶ We refer to the affect of the input on arousal level as *calming* or **alerting**

How does sensory input affect a classroom?



Auditory System

- ▶ How we process noise
 - Loud noise – **alerting**
 - High pitch – **alerting**
 - Fast beat – **alerting**
 - Soft noise – *calming*
 - Low pitch – *calming*
 - Slow beat – *calming*
 - Rhythmic – *calming*

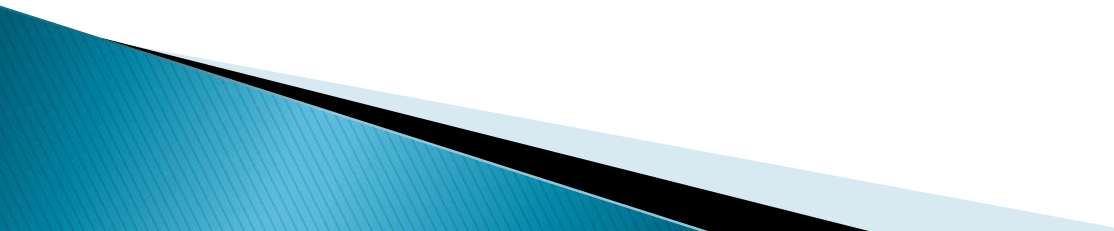


Auditory System & Arousal

- ▶ Think about your voice when teaching... use it as a tool to set the mood



Auditory input & Reading Readiness

- ▶ Think about how you tune out the noises in this room
 - ▶ Think about how much you are talking when giving instructions
 - ▶ Think about how loud your classroom is when your children are reading
- 

Visual System

- ▶ How we process visual input
 - Busy environment – **alerting**
 - Bright lights – **alerting**
 - Flickering lights – **alerting**
 - Dim lights – *calming*



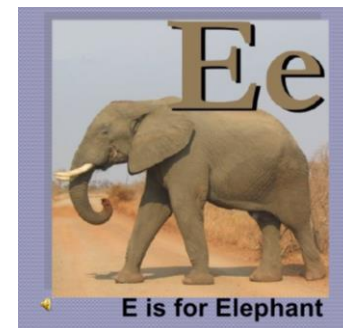
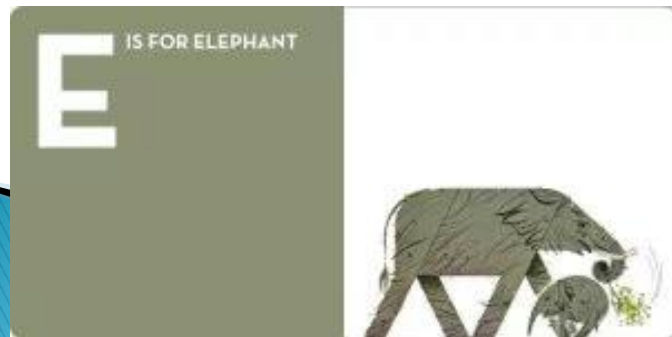
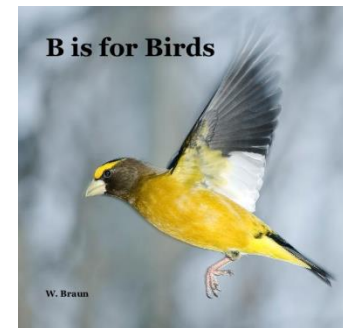
Visual System & Arousal

- ▶ MV lights – **alerting**
- ▶ Busy walls – **alerting**
- ▶ Organized classrooms – *calming*



Visual input & Reading Readiness

- ▶ Think about how busy a worksheet is before giving it to a child
- ▶ Think about the size of text in a book
- ▶ Think about how simple/complex the pictures are



Tactile System

- ▶ How we process touch input
 - Light touch – **alerting**
 - Deep pressure – *calming*



Tactile Input & Arousal

- ▶ Classroom activities
 - Wake up your body – *calming* (squeeze/massage different parts of body)
parts of your body
- ▶ Tactile bins
 - Can be **alerting** or *calming* depending on media
- ▶ Equipment
 - *Calming*: Pressure vests, howda hug chair, weighted items, fidgets



Tactile Input & Reading Readiness

- ▶ Body awareness
- ▶ What are they sitting on while reading
 - Hard chair or soft pillow?



Oral System

- ▶ How we process oral input
 - Almost always – *calming*
- ▶ How we process the different foods we eat
 - Can be **alerting** or *calming*



Oral System & Arousal

- ▶ Chewing – *calming*
 - Chewy necklace, chewing gum, chewy snacks (bagel, fruit leather, licorice)
- ▶ Blowing – *calming*
 - Blow bubbles, blow toys, blow pinwheels
- ▶ Sucking – *calming*
 - Drink through a water bottle with a straw



Food & Arousal

- ▶ Temperature
 - Warm – *calming*
 - Cold – **alerting**
- ▶ Taste
 - Spicy – **alerting**
 - Minty – **alerting**
 - Sour – **alerting**
 - Sweet – *calming*
 - Savory – *calming*
- ▶ Texture
 - Crunchy – *calming*
 - Chewy – *calming*



Olfactory System

- ▶ How we process smell
 - Can be **alerting** or *calming* depending on the person



Proprioception

- ▶ Proprioceptive receptors are found in the muscles, tendons and joints
- ▶ Tells us where our body parts (arms, legs, fingers, etc) are in relationship to each other without looking at them



Proprioception & Arousal

- ▶ Proprioceptive input is generally *calming*
- ▶ “Heavy work”



Exercise



Carrying



Crashing



Climbing



Pushing



Pulling



Proprioception & Reading Readiness

- ▶ Left and right awareness
- ▶ Body awareness
- ▶ Positional relationships of the child's body in space



Vestibular System

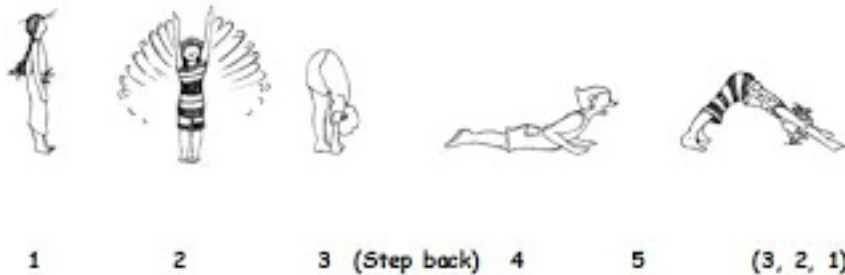
- ▶ Sense all movements of the head
 - Ability to balance
 - Closely tied to the ocular motor and postural systems



Vestibular System & Arousal

► *Calming*

- Rocking back and forth in a ball
- Rocking back and forth on all fours
- Linear
- Yoga positions



► **Alerting**

- Unstructured movement (freeze dance)
- Spinning (rotary or orbital)



Vestibular System & Reading Readiness

- ▶ Integrates the two sides of the body
- ▶ Promotes trunk control
- ▶ Promotes control of the eye muscles
- ▶ Essential in the ability to visually focus despite head movement

Quick Guide to Arousal – Think about a baby



“Busy” toys provides visual input = **alerting**



Rocking provides rhythmic Vestibular input = *calming*



Baby swaddled provides deep pressure = *calming*



Startled by loud noise = **alerting**

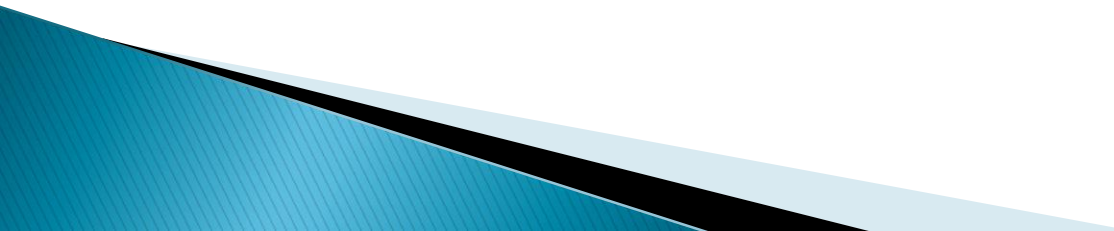


Spinning baby provides irregular vestibular input = **alerting**



Sucking thumb provides Oral input = *calming*

Break out #2

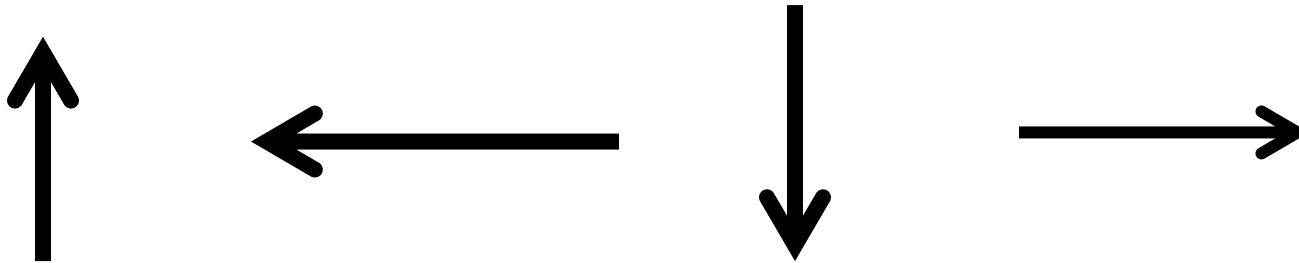
- ▶ Have a conversation about your weekend (filtering auditory input)
 - ▶ Identify all the words in lowercase words (filtering visual input)
 - ▶ Why is proprioception important for reading readiness? Solve the question
 - ▶ Vestibular system activities to demonstrate importance for reading readiness?
- 



What does this say?

English

gnidaer ni srettam ytilanoitcerid



Spanish

arutcel ne atropmi dadilanoiccerid

Hint: Proprioception – left/right awareness

The vestibular system & eyes work together

- ▶ Spin 10 times and then read this sentence
 - “My head and eyes work together to suppress my dizziness so I can read this sentence”
 - “Mi cabeza y mis ojos trabajan juntos para suprimir mi mareo para que pueda leer esta frase”
- ▶ Shake your head while reading this sentence
 - “Despite moving my head, my eyes are able to maintain visual fixation on this sentence.”
 - “A pesar de mover mi cabeza, mis ojos son capaces de mantener fijación visual sobre esta frase”

Break out # 2

- ▶ Identify one way you use *calming* and **alerting** input in your daily lives
- ▶ Think of 3 ways to incorporate sensory input into your circle time routine

Sensory processing skills

Arousal/self-regulation

- Ability to tune out visual & auditory distractions

Vestibular input

- Head righting
- Integration of the two side of the body
- coordination of head/eyes

Proprioception

- Left right awareness
- Body awareness

Motor skills

Visual Perceptual

- letter/word identification
- visual memory

Ocular Motor

- Saccadic Eye Movements
- Crossing visual midline
- Convergence
- Visual tracking

Postural Control

- Head & Neck strength/endurance
- core strength/endurance

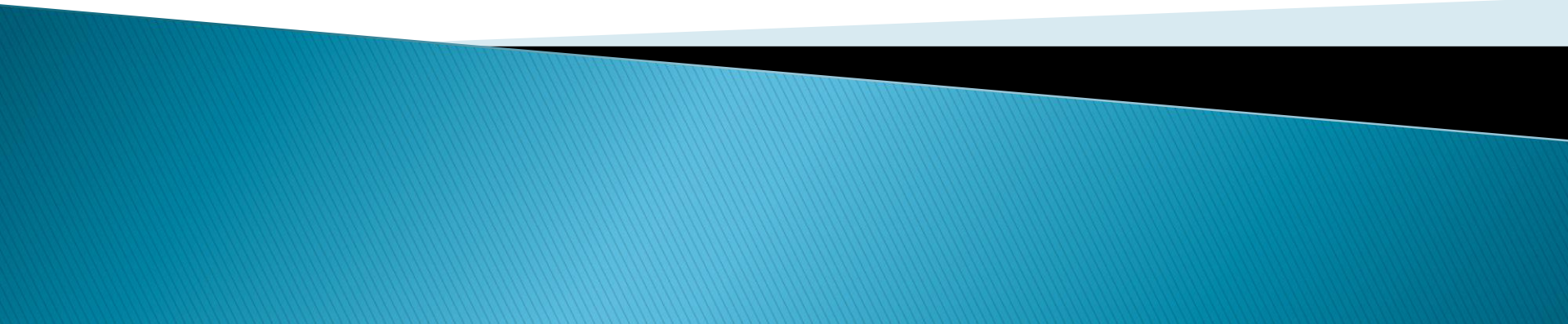
Bilateral Coordination

- hold book with both hands
- cross midline to turn page



Reading Readiness

How do we determine whether children
are ready to read?



How can YOU identify children ready to read?

- ▶ We learned what skills are important for reading readiness now we need to talk about how to test whether a child is ready

Sensory processing skills

Arousal/self-regulation

- Ability to tune out visual & auditory distractions

Vestibular input

- Head righting
- Integration of the two side of the body
- coordination of head/eyes

Proprioception

- Left right awareness
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Postural Control

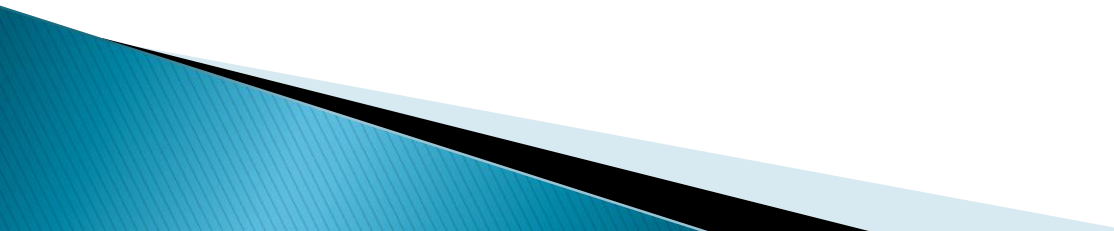
- Head & Neck strength/endurance
- core strength/endurance

Bilateral Coordination

- hold book with both hands
- cross midline to turn page




Dr. Susan Johnson

- ▶ Developmental & behavioral pediatrician
 - ▶ True reading readiness is a *biological phenomenon* that requires sensory-motor integration
 - ▶ Checklist to see if children are developmentally ready to read
- 

Dr. Johnson Reading Readiness Checklist

A child is developmentally ready to read when they can:

- ❑ Pay attention/sit still for 20 minutes without needing to wiggle or sit with feet wrapped around the chair leg
 - ❑ Stand on one foot and count backwards from 10
 - ❑ Stand on one foot with palms up & eyes closed
 - ❑ Reproduce geometric shapes (letters/numbers) written on child's back
 - ❑ Walk on balance beam
 - ❑ Jump rope
 - ❑ Skip in cross lateral pattern
- 

Checklist

- ▶ Sit for 20 minutes w/o wrapping feet/wiggling
 - Self – regulation/arousal level
 - Postural control
 - Body awareness (proprioception)



Checklist

- ▶ Stand on one foot and count backwards from 10
 - Balance (vestibular input)
 - Knowledge of number sequence (ability forward/backward)
 - Postural control
- ▶ Stand on one foot with palms up & eyes closed
 - Balance
 - Body awareness/proprioception
 - Postural control



Checklist

- ▶ Reproduce geometric shapes (letters/numbers) written on child's back
 - Letter/shape identification
 - Visual memory
 - Body awareness / proprioception



Checklist

- ▶ Walk on balance beam
 - Balance
 - Visual fixation with head movements
 - Postural control
 - Visual tracking



Checklist

- ▶ Jump rope
 - Visual tracking
 - Convergence
 - Body awareness
 - Postural control
 - Bilateral coordination

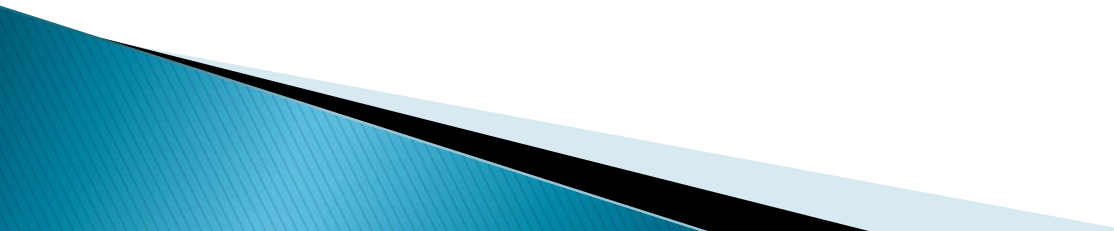


Checklist

- ▶ Skip in cross lateral pattern
 - Left/right discrimination
 - Coordination of the two halves of the body
 - Postural control



Programs that work on these skills

- ▶ Brain gym
 - ▶ Animal walks
 - ▶ Yoga
 - ▶ School Moves
- 

Brain Gym

- ▶ Brain Gym is a series of safe, natural movements that enhance learning by addressing the sensory elements involved in the integration of the body.

Animal Walks



Crab Walk



Alligator Walk



Bear Walk



Frog Jump

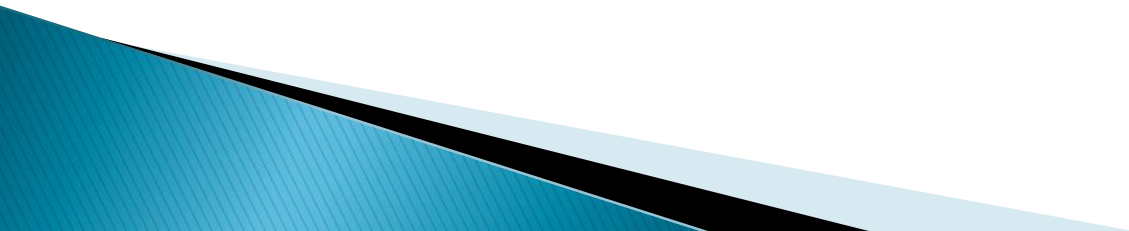


Bunny Jumps



Donkey Kicks

Yoga Movements



Break Out # 3

- ▶ Practice Brain Gym Exercises, yoga movements, School Moves and animal walks
- ▶ Sample circle time incorporating some of the activities discussed

Other Activity Ideas

Crossing Midline

- ▶ Playing cars on a large path – draw a line on a large piece of paper or make a large path on the floor with blocks for your child to drive their toy cars. Put lots of turns in the path. Encourage your child to just use one hand to drive the car.
- ▶ Play flashlight tag
- ▶ Practice windmills or cross crawls (hand to opposite foot or hand to opposite knee).
- ▶ Wiping the table with one hand
- ▶ Draw a large figure eight (the number eight facing side to side, not top to bottom) with sidewalk chalk for your child and have them walk the figure eight OR draw the infinity sign and have your child trace it with their finger of their dominant hand.
- ▶ Water flowers with the garden hose using two hands.

Skill Acquisition, Development & Reading Readiness

What is age appropriate?


The importance of development in skill acquisition...



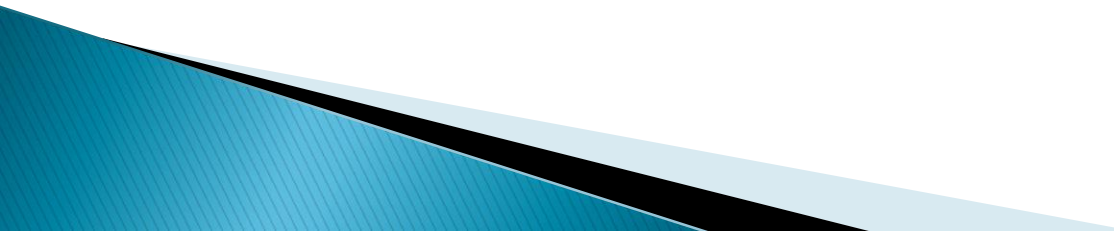
Sometimes we are not ready for a fork

Dr. Johnson Reading Readiness Checklist

A child is developmentally ready to read when they can:

- ❑ Pay attention/sit still for 20 minutes without needing to wiggle or sit with feet wrapped around the chair leg
 - ❑ Stand on one foot and count backwards from 10
 - ❑ Stand on one foot with palms up & eyes closed
 - ❑ Reproduce geometric shapes (letters/numbers) written on child's back
 - ❑ Walk on balance beam
 - ❑ Jump rope
 - ❑ Skip in cross lateral pattern
- 

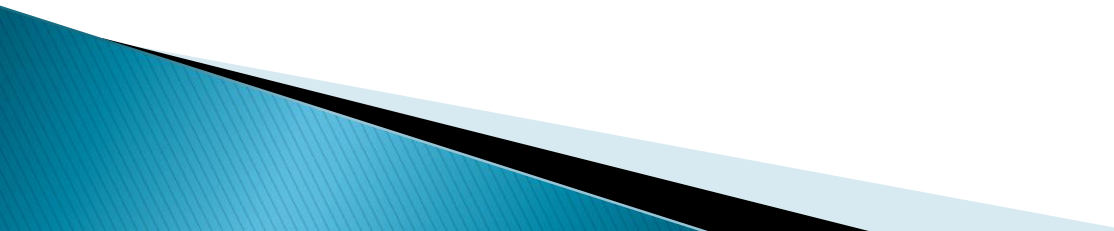
3 Year Old – Milestones

- ▶ Jumps forward with both feet together
 - postural control
 - ▶ Stands on one foot unsupported for 2 or more seconds
 - balance
 - ▶ Walks up and down stairs, alternating feet
 - emerging integration of two sides of body
 - ▶ Kicks/ catches playground ball
 - ocular motor
 - ▶ Bends over easily without falling
 - head righting – vestibular
- 

4 Year Old – Milestones

- ▶ Runs around obstacles
 - body awareness, postural control
- ▶ Walks on a line
 - balance, ocular motor, body awareness
- ▶ Balances on one foot for 5 to 10 seconds
 - balance
- ▶ Jumps over objects with a two-footed takeoff and landing without falling
 - postural control
- ▶ Catches a bounced ball thrown from 3 feet away
 - ocular motor – convergence, visual tracking
- ▶ Alternates feet going up and down stairs
 - integration of two sides of body
- ▶ Gallop 10 feet, beginning to learn to skip
 - lateralization

5 Year Old– Milestones

- ▶ Can skip 10 feet
 - Coordination of two halves of body
 - ▶ Bounces and catches a small ball
 - Ocular Motor
 - ▶ Can walk across a balance beam
 - Balance
 - ▶ Can jump rope
 - Ocular motor, bilateral coordination, postural control
 - ▶ Can kick a ball using opposing arm and leg movements
 - Coordination of two halves of body
 - ▶ performs 5 sit-ups
 - Postural control
- 

Questions?