

ACTION BASED LEARNING

Building Better

Brains

through

Movement

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Building Better Brains through Movement

Educators teach the whole child. Each child has interactive interdependent intellectual, physical, emotional, social, and moral systems that educators seek to balance in order to achieve maximum student performance. A successful learning environment teaches to all of these systems. The outcome is that students will understand how to learn, how to be physically fit, how to control emotions, how to get along with others, and how to set goals.

Brain research supports the link of movement and physical activity to increased academic performance. Movement activities involving the 19 senses are necessary components to enhance whole brain learning and to access the parts of the brain that may be otherwise underdeveloped. If no child is to be left behind, then we must find where the child is, determine why they are behind, and bring them forward as we fill in the missing or underdeveloped systems. The physical education curriculum provides such motor learning for better cognition.

Movement builds the framework for learning. A student's physical movement, emotional, social and cognitive learning systems are interactive and interdependent. Proper development, enrichment, and remediation of these systems are critical to a child's ability to learn. For example, motor development provides the framework used to sequence the patterns needed for academic concepts like reading. The body's vestibular system interacts with the cerebellum to control balance, coordination, and spatial awareness. These systems turn thinking into action and facilitate the student's ability to place words and letters on a page. The four visual fields needed for eye tracking in reading are strengthened through navigation of space and crossing the brain and body midlines. Sensory components of balance, coordination, spatial awareness, directionality, and visual literacy are developed as the child rolls, creeps, crawls, spins, twirls, bounces, balances, walks, jumps, juggles, and supports his/her own weight in space. Locomotor movement crosses the brain and body's midlines to integrate and organize brain hemispheres. When students perform cross lateral activities, blood flow is increased in all parts of the brain making it more alert and energized for learning.

A child's mental development is based in part on his/her early motor development. The brain begins to wire up its ability to process information by wiring up the body's systems of balance, coordination, vestibular and motor movement. What makes us move is also what makes us think. As the brain and body begin to work together to process motor sequences and patterns such as rolling over, crawling, walking and jumping, the brain creates the pathways used for processing sequences in reading and math.

There are three basic human motor movements: rolling, crawling/walking, and jumping. These directly correspond with the way that information travels in the brain: side to side across the corpus callosum, back to front across the motor cortex and up and down from the bottom to the top of the brain. The brain uses its motor patterns as the framework for other learning.

The body's motor, balance and vestibular systems must be developed properly in order for the brain to have the mechanisms necessary to process information. If a child did not crawl or crawl enough, for example, the brain may have missed a step in developing and/or practicing processing information and struggles to learn. Physical education gives the student the opportunity to practice and rewire those systems to give the brain needed processing mechanisms.

Checklist

Many times students are not ready to learn because of developmental issues that aren't in place YET. Through movement and physical activity, many of these issues can be addressed and corrected. When a student is learning differently, check to see if these processes are in place.

Physical Needs: Balanced Diet, Regular Exercise, Adequate Rest, Proper Hydration

Circadian rhythms and daylight

Cardiovascular fitness and endurance: *YMCA, 12 Days of Gym Class from Physical Ed CD*

Water: *Energy Ball*

Stress levels: *Paper Dance*

Sitting for long periods and its effect on learning: *I Can Dance from Jump Start Action Songs, Seatwork from Jive Bunny and the Master Mixers*

Emotional Needs/Social Competency

Trust: *Robot Master, I Like Me from Jump Start Action Songs*

Touch

Play

Balance: Spatial Awareness, Vestibular System

Stand on one foot with control: *I Can Balance from Physical Ed*

Walk a straight line forward and backwards: *Neckties*

Motor cortex: *Artist and the Canvas*

Motor Skills

Crawling/Walking: *Sparks of Speech, Read a Book from Rock and Roll Songs that Teach by the Learning Station*

Rolling in both directions

Jumping

Skipping is reading readiness (mastered at 8 years old)

Spinning

Eye Fitness

Effects of TV and computer

Tracking: *Butterfly, Ribbons*

Lazy 8, ABC 8

Far and near focusing: *Starfish and Octopus, Number Ball*

Eye dominance: *Balloons*

Crossing the midline

Cross crawls (Ex: touch hand to opposite knee)

Hook ups

Juggling progression

Jumping rope (age 8)

Gotcha, Slap Slap, Quick Draw, Tie Shoes

Rhythm: How it relates to Reading and language acquisition

Beat Awareness (hearing the beat)

Beat Competency (keeping the beat)

Zoo Pals, Sport Pals with Lilo or Disney Whistle while you Work

Filling in the Gaps for Optimal Learning

Building the Framework for Learning

Bilateral movement; Opposition; Spatial Awareness; Movement in different levels; Proprioception; Jumping and Landing; Dynamic balance; Patterning; Spatial concepts of over and under

These concepts aid the brain in placing words on a page, reading words from left to right, and writing patterns in sequence.

Integrating the Senses

Coordination of the auditory, visual, and kinesthetic senses; Eye tracking for visual-motor control; Development of core muscles to strengthen neural pathways; Sequencing of complex motor skills; Patterning; Problem solving; Transfer from three dimensional to two dimensional input; Directionality

These concepts aid the brain in following the flow of words, sequencing patterns in math and reading, solving problems, and sorting information.

Vestibular Development

Development of inner ear to coordinate of the auditory, visual, and kinesthetic senses; Spatial Awareness; Body control; Dynamic balance; Locomotor skill development; High, medium, low levels; Joint compression; Beat competency; Spatial concepts of around, up and down.

These concepts aid the brain in putting numbers or letters in sequence, discriminating different sounds, placing letters and words in a page, and writing letters in proper proportion.

Visual-Motor Control

Development of visual fields including peripheral vision; Transfer from three dimensional to two dimensional input; Form discrimination; Beat competency; Dynamic balance; Directionality; Cross Lateralization; Encoding. These concepts aid the brain in encoding the stroke of each symbol of letters and numbers, recognizing letters and numbers, writing letters and numbers, following words from left to right, focusing on reading for longer periods, discriminating sounds, and organizing information.

Visual Tracking

Tracking of a moving object; Eye-hand and eye-foot coordination; Development of visual fields; Cross lateralization; Patterning; Targets; Joint compression; Beat competency; Dynamic balance; Sequencing of patterns; Transition from novice to mastery stage; Skills of toss, catch, throw, aim, strike, jump, juggle, kick, bounce, dribble

These concepts aid the brain in processing thought, organizing thoughts in sequence, discriminating likenesses and differences, discriminating sounds, and advancing to higher level thinking.

Higher Level Thinking

Higher level of dynamic balance; Complex motor control; Practice and reinforcement of academic content

These concepts aid the brain in anchoring information and improved memory retrieval, preparing the brain to take a test, and combining many skills for higher level thinking.

Body/Mind Mapping

Seatwork

Thanks to Billy Gober from Sportime for the idea
Jive Bunny and the Master Mixers CD the Album #5

Students are sitting in a chair with enough room to lean forward and sideways

Some suggested patterns:

Bounce feet on the floor while clapping hands and crossing hands up in the air to the right and left

Celebrate and hug: While bouncing feet, shake hands in the air and then hug self

Twist shoulders while leaning side to side and forward and backward

Hold on to chair and walk feet along the floor side to side and forward and backward

Chair push-ups

Clap hands and lean to touch chair leg on the left. Clap and touch chair leg on right

Touch shoulders, knees, toes, knees, shoulders, arms up in air

Twist

Tai Bo: Pretend to box with fists, right arm then left

Rockettes: Kick right leg into air the left while clapping in rhythm

Brain Regions

After reviewing the regions of the brain, sing the names while pointing to each region with both hands.

Sung to the tune of Ten Little Indians:

Frontal, Temporal, Occipital, Parietal (Repeat 3 times)

Cerebellum, Brain Stem

(Thanks to the kindergarten teachers in Marion County, Florida)

Continents/ Latitude Attitude

This activity uses the body as a mental map to anchor spatial connections.

Use a map of the world to transfer the learning.

Use the body as a model of the globe to show:

North America = left hand

Europe = nose

Asia = right hand

Africa = waist (equator)

South America = left knee

Australia = right knee

Antarctica = feet

North Pole: touch head

South Pole: touch toes

Equator: hands around waist

Latitude Attitude: Circle body around

Multitude of Longitude; Jump up and down

Tropic of Cancer = shoulders (lungs that smoke can get cancer)

Tropic of Capricorn = knee caps

After identifying the seven continents on the body, sing their names and show their location to the tune of "Are You Sleeping?"

I Like Me!

Follow the directions with a partner to the song I Like Me by Ronno on Jump Start Action Songs CD.

Hefty Zoo Pals® and or Sports Pals®

Routine Progression: (2 Plates per person, one plate in each hand)

Sway back and forth bending at the waist

T loosen the back muscles for movement

Tap shoulders to beat of music

Tap knees

Tap toes

Tap head

Creates a steady beat to develop the language brain's ability to receive and express language. Tapping down the sides of the body helps the brain identify its vertical midline. Listen for synchronized tapping to determine if the brain is integrated.

Start with plates above head and twist each hand as lower plates out to the side.

This strengthens the muscles used for handwriting. It also marks the peripheral vision field to help with visual literacy.

Hold plates between hands and rub them together up and down the midline, bending knees.

Rubbing the plates together stimulates the tactile response and helps the brain to visualize its vertical midline.

Make giant circles in front clockwise, counterclockwise, lazy 8's

This helps to encode the brain with our alphabet symbols. The brain has to be taught symbols.

Bring plates over head and bend arms at elbows to let plates drop behind shoulders
Strengthens and stretches the triceps and help upper body strength

Bring plates out and in at shoulders and make funny faces for AEIOU.

Exaggerate each long vowel sound as you alternate hiding your face behind the plate

Hold the plate up high to the right side, then touch the left knee, then hold plate up again. Alternate up and down to the beat. Repeat the movement on the other side.

Crossing the midline integrates, organizes and energizes the brain.

Hold plate above the head, touch shoulder, touch toe, touch elbow, and bow

Body and spatial awareness

Chart Paper Handwriting

Pretend that you are printing letters on the heavy blue line on the chart paper. If the letter fits on the line and up to the dotted blue line like "a", "c", "e", twist. If the letter goes above the dotted line like "h", "k", "l", jump up. If the letter goes below the heavy blue line like "g", "p", "q", squat. The exceptions are "I". Twist and tap head. "J", squat and tap head. "T" Jump up and cross the hands. "F" Raise the hands and hook to resemble an "F".

The Teacher challenges the students to use the actions to spell their name; spell Happy Birthday, spell a vocabulary word. What word would fit into this format: clap, clap T? Can you spell your hardest spelling word?

Action Based Alphabet

Action Based Learning™ Active Academics Alphabet Content Cards

Action Based Learning™ Active Academics Sign Language Content Cards

The Teacher will hold up an alphabet card and the students will perform a movement or action and sound (when appropriate) that helps recall the letter. Have your students make up their own actions and sounds.

A =AIM (shoot an arrow)

N=NOD your head and say YES

B=BALANCE on one foot, arms out

O=OPEN a door and make squeaky noise

C=CRAWL on hands and knees and cry

P=PUSH a heavy box and grunt

D=DANCE however appropriate

Q=QUIVER and say BRRRRRR

E=EAT a hamburger and say YUM

R=RUN in place

F=FLY Like a bird and tweet
G=GALLOP like a horse and NAY
H=HOP like a bunny
I=IMAGINE put finger on cheek, say HUM
J=JUMP like a frog and RIBBET
K=KICK a soccer ball
L=LEAP like a deer
M=MARCH and sing song

S=SKIP around sing Skip to my Lou
T=TWIRL in a circle
U=UNDULATE make hand like a wave
V=VOLLEY a volleyball
W=WALK in place
X= eXercise by doing jumping jacks
Y=YAWN out loud and pat mouth
Z=ZIG ZAG walk in zig zag pattern

VARIATIONS:

Have students act out names, spelling words, vocabulary words, etc. by just using actions and sounds for each letter. Example: JEAN = Jump. Eat, Aim. Nod
Show the alphabet using the Action Based Learning™ Active Academics Sign Language Content Cards.

Giant Letters

Students “draw” large letters in the air in the visual fields: front, sides, above, down.

Long Vowel Sounds

The Teacher reviews or teaches the vowels in sign language by showing students vowels on the sign language cards and allowing the students to practice the vowel signs. The Teacher sings or plays the song:

I told the nice doctor I was in love with you. I told the nice doctor you didn't love me too.

And then the nice doctor, he told me what to do. He said that

Ooo eee, ooo ah ah ting tang

Walla walla, bing bang

Ooo eee, ooo ah ah ting tang

Walla walla, bing bang...

Ooo eee, ooo ah ah ting tang

Walla walla, bing bang

Ooo eee, ooo ah ah ting tang

Walla walla, bing bang

When the students know the tune, the long vowel sounds are substituted to A E I O U for Ting Tang Walla Walla Bing Bang. To add action, the students make the sign language sign for each vowel and then add:

Ting Tang: slap thighs twice

Walla Walla Bing Bang: roll hands around and around 4-5 times.

VARIATION: The consonants fit in the song as well in place of Ting Tang etc.

Short Vowels (Sung to the tune of BINGO)

The short vowel “a” has a sound and “a” is it’s name-o

a-a-alligator (repeat 2 more times) is it’s name-o

e= elephant

i=igloo

o=octopus

u=umbrella

Locomotor Charades

Today we are going to act out the verbs in a guessing game. You will be giving as many action clues as possible to help your guesser to say the verb first. This is an active way to use context clues.

Review and act out the actions on each card as a whole group before starting the activity.

The teacher holds up a card. All of the students act out the word on the card trying to give clues to their guesser with saying words. Sounds are okay. The guesser that says the word first gets a point for his/her team. The Teacher then changes to the next word. The team with the most points wins.

Parts of Speech

Divide the students into groups of 4 with each student having a card with a noun, verb, adjective, and prepositional phrase. The different colors also help know if you have a complete sentence.

Play a posse tag format tag game. The verbs are wild, so each verb in each group leaves the group. The other three parts of speech stack hands in the middle of their small circle and say, "I love to read" three items. The three of them then split and all 3 begin to chase their verb until one of them tags the verb. When the verb is tagged the part of speech that tagged him/her goes away and the remaining three stack hands in the middle and repeat the procedure. Play until all have had a chance to be chased.

Sparks of Speech:

Make 3 sets of large poster size cards, one with locomotor movements, one with adverbs and one with prepositions. Have students identify and describe the parts of speech of the three categories (verbs show action, etc.). Three students hold the cards while the students scatter and as the music plays follow the directions that the cards create. Example: JOG AROUND HAPPILY, SKIP THROUGH CAREFULLY, LEAP OVER GRACEFULLY, And GALLOP BETWEEN NOISILY. Teacher signals the cardholders to change to the next card simultaneously.

Silly Sentences

Have each student think of a word that is their part of speech and, when they find their group, have them arrange themselves in sentence order and read the silly sentence. Punctuate the sentence by having the first person in the line hold up his/her hand to represent a capital letter and the last person point to their nose to represent a period. Make up other punctuation marks.

Punctuation in Action

Read a sentence or story. Punctuate using the following body movements and sounds.

Capital letter: jump up and say, "Go"

Period: Put your fist on your nose and say, "Whoa"

Comma: Hands on hips and circle hips around and say, "Slow down"

Question Mark: Shrug shoulders with hands up in air and say, "Huh?"

Exclamation Mark: Grab the air with the right fist and bring down forcefully and say, "Yes"

Quotation Marks: Pretend to make quotation marks in the air with fingers and say, "Ching, ching"

Apostrophe: Use the elbow to make an apostrophe in the air and say, "Not"

Snap Clap Snap Tap

To develop a cross lateral pattern to develop the internal voice to wake up reading and math skills:

Basic pattern:

Slap = Slap thighs

Clap = Clap hands together

Snap = snap fingers

Tap = Tap shoulders with both hands
 Challenges:
 Pat = Touch head
 Nose = Touch nose
 Cross = Cross arms and touch opposite shoulders
 Belt = Touch belly button with both hands
 Knees = Touch knees
 Toes = Touch toes
 Calves = Touch back of calves
 Glut = Touch bottom with both hands

Using a slap clap pattern, say the alphabet. Now say only the letter that happens on the clap. Use this method to spell words.
 For math, skip count and do the multiplication tables by saying only the word that happens on the tap (the 4 Multiplication table) or the knees (9's)

Quick Math

Face your partner. Pretend to put your water gun in your holsters. For one-hand addition, on the signal "Draw" each partner shows any number of fingers and thumbs on one hand. The first partner who adds the fingers and thumbs of both partners wins the draw. For two-hand addition, add partner #1 and partner #2 fingers and thumbs together for the sum. For one-hand multiplication, multiply partner #1 times partner #2 for the product. For two-hand multiplication, multiply the sum of Partner#1's hands times the sum of partner #2's hands for the product.

Neuro Numbers

Students act out numbers with creative mind pictures.

Number	Clue	Action	Number	Clue	Action
0=ZERO	goose egg,	make egg w/hand to bowl	10=TEN	Bowling (10 pins)	pretend to bowl
1=ONE	Sun,	make sun overhead	11=ELEVEN	Football (11 players on team)	Pass
2=TWO	Pants,	rub legs of pants	12=TWELVE	eggs in a dozen,	break open eggs
3=THREE	Tricycle,	pretend to ride	13=THIRTEEN	Black Cat (bad luck)	Whiskers
4=FOUR	Table,	make top & 4 legs	14=FOURTEEN	Valentine's Day,	make a heart
5=FIVE	Starfish	Make w/five fingers of hand	15=FIFTEEN	Boxing (15 rounds)	Punch a bag
6=SIX	Subway Sandwich,	eat small sandwich	16=SIXTEEN	Driver's license,	pretend drive
7=SEVEN	7 Up	Pretend to drink from a can	17=SEVENTEEN	Magazine	Turn pages
8=EIGHT	Octopus	Make hand an octopus	18=EIGHTEEN	Vote,	make a check in air

9=NINE Baseball (9 innings) Swing bat

19=NINETEEN TV (19" screen)

<u>Number Operation</u>	<u>Clue</u>	<u>Action</u>
ADD	Plus	Make a plus sign by putting arms in a plus sign
SUBTRACT	Take away	Hitch hike thumbs back over shoulders
MULTIPLY	Times	Make a large X with arms
DIVIDE	Divided by	With left forearm // to floor, make a fist with
EQUALS	Same as	Stack forearms one over the other to make =
GREATER THAN	Greater than	Make > sign with right hand facing you
LESS THAN	Less than	Make < sign with left hand facing you

Have the students use the numbers in math problems. Example: pants, plus sign, bowling, same as eggs is $2+10=12$.

Number ball:

Students practice throwing and catching skills with equipment designed to practice number concepts. Work with a partner. First person throws the partner a ball marked with numbers. The partner catches the ball and looks at the number under the right thumb. Add that score to the running sum. The goal is to add up to a designated sum. To practice subtraction skills, give each set of partners 50 points and as the ball is caught subtract that number from the running sum and the first person to reach zero or beyond wins. To practice multiplication skills, the partner who catches the ball multiply the 2 numbers under each thumb. A variation is look at the numbers under the thumbs, multiply them together. Tell the partner that the product is 24 and the number under the left thumb is 8. Ask the partner to guess the number under the right thumb.

Variation: Write numbers on the football, soccer ball or volleyball. Divide the class into two teams arranged in circle formation. The ball is kicked or passed from one person to another in the circle. The first circle to add to 50, wins. Each time a partner catches or traps the number ball, he adds (or subtracts or multiplies as explained above) that score to the running sum.

Colors and Shapes

The students listen to the directions on the song If You're Wearing Colors by the Learning Station. As each color is mentioned, the student wearing that color follows the direction given. For example: "If you're wearing red, stand up and shake your head. If you're wearing blue, stand up and shake your shoe."

The teacher reads the book My Many Colored Days by Dr. Seuss. As each color is introduced, the students with that color lead the class in the action that is described by each color.

VARIATION:

Students repeat the colors in Spanish.

Students get in groups according to their favorite color. Each color group arranges the group on a "human bar graph". The teacher and students transfer the bar graph to paper.

SLAP COUNT

Students face a partner with hands extended palms up about waist high to form "drums" to slap out a beat. Partner #1 starts by gently slapping his/her right hand into the right hand of partner #2. And then the left hand into the partner #2's left hand, keeping a steady beat. Then partner #2 slaps the right then left hands of partner #1. Say "1-2-3-4, etc." Count out loud in rhythm 1-25. Now skip count using

the same right- left- right- left slap pattern counting by 3's, then 6's, 9's, etc. (Multiplication tables). Challenge yourself by skip counting any number.

Variation: SPELLING: Partner #1 slaps his/her name 2 letters at a time into the palms of partner #2 and partner #2 spells his/her name 2 letters at a time into the palms of partner #1 using the same slapping pattern as before. Notice how much harder your brain has to work to not think about what your partner is spelling.

Variation: Each partner thinks of a spelling word but doesn't tell his/her partner what it is. Using the same slap pattern, each partner slaps out his/her word. When finished, partner #1 has to try to tell partner #2 his/her word, and vice versa.

ABC Pathways Mat

The ABC Pathways Mat is a tool used to facilitate the learning of the symbols representing the letters and numbers. The student traverses the pattern on the mat using various locomotor movements to visualize letters and numbers by engaging whole brain learning while practicing the stroke of each letter kinesthetically.

Artist and the Canvas:

The brain is divided into 4 regions separated by the corpus callosum and the motor cortex. Learning comes into the brain from the back to the front and from side to side. Some learning blocks happen when the flow is erratic. Concentrating on the midline while practicing envisioning symbols enables the brain to better organize itself and strengthen neural connections.

Students work with a partner. Partner #1 becomes the artist and partner #2 becomes the canvas.

Step 1: #1 begins by drawing the lazy 8 on the canvas' back using the spinal column as the midline. The canvas tries to mimic the design by drawing the Lazy 8 in front of them at the same size and speed that the artist is using. Artist and canvas switch to non-dominant hand. Switch roles. Repeat.

Step #2: Mystery letter

Artist thinks of a letter and draws it on the back of the canvas. Canvas tries to guess the letter by drawing it in the air while the artist watches. When the canvas guesses correctly, the canvas tries to copy the letter as the artist draws it on his back. Switch roles. Repeat.

Step #3 Mystery Word (can be done as partnerships or a relay)

Divide into groups of 4 or more standing in a line facing the same direction. The artist at the end of the line writes a word on the back of the person (canvas) in front of them. That canvas draws the word they think they felt drawn onto the back of the person in front of them. The word is passed along to the person in the front on the line that goes to the back and writes the mystery word on the back of the original artist. Was that the correct word?

Teamwork sparks Positive Thinkers: Energy Ball

Have two students demonstrate how two people working together make connections positively. Students hold hands in a circle. Connect and the energy ball lights up. Disconnect and it stops.