

# ***Thinking and Moving with Brain Boosting Activities for Elementary Students***

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## **Movement and the Brain**

- ◆ Most students, up to 85%, are pre-dominantly kinesthetic learners. (Hannaford)
- ◆ “When people engage in exercise, glucose and oxygen (brain food), will circulate to the brain. Movement, physical activity, and exercise change the learning state into one appropriate for retention and retrieval of memory, the effects lasting as much as 30-60 mins depending on the student.” Jean Blaydes Madigan, *Thinking on Your Feet*
- ◆ “Our physical movements can directly influence our ability to learn, think and remember. Our physical movements call upon some of the same neurons used for reading, writing, and math. Physical active people report an increase in academic abilities, memory, retrieval, and cognitive abilities. Certain kinds of exercise can produce chemical alterations that give us strong, healthier, and happier brains. A better brain is equipped to think, remember and learn.” Dr. John Ratey, *A User’s Guide to the Brain*
- ◆ Benefits from using Action Based Learning: Jean Blaydes Madigan “*Building Better Brains through Movement*”
  - Anchors learning when more of the senses are involved to increase the executive function of frontal lobe
  - Grows new brain cells in the learning and memory center of the brain
  - Crossing the midline of the brain and body aids in coordination of movement and thoughts by organizing, integrating and energizing the brain’s hemispheres
  - Uses repetitive gross motor movement to aid the brain in putting patterns into a sequence

## **Memory and Learning:**

*I hear and I forget. I see and I remember. I do and I understand. Confucius*

### **Action-Packed Classrooms K-5: Using Movement to Educate and Invigorate Learners**

**Cathie Summerford**

- ➔ **10%** of what they read
- ➔ **20%** of what they hear
- ➔ **30%** of what they see
- ➔ **50%** of what they see and hear
- ➔ **70%** of what they discuss
- ➔ **90%** of what is experienced
- ➔ **95%** of what is actively taught

**Studies show that children begin to lose focus and attention after talking for 90 seconds!**

# Action Based Learning Lab--Brain Stations

These **6 stations** are designed to develop necessary components to enhance whole brain learning and further develop weaker areas of the brain. Jean Blaydes Madigan "*Action Based Learning Lab Manual*"

## 1. Station 1-Building the Framework

- Motor Skills and Concepts: Bilateral Movement, Spatial Awareness, Levels, Crawling, Creeping, Balance, Jumping, Landing)
- Brain Link: Concepts assist the brain in placing words on a page, reading from left to right, and writing patterns in sequence
- Station Progressions: Bilateral Crawling (alligator crawl) across mat, on a scooter, under and obstacle, Crawling under and stepping over obstacle, Creeping (on hands/knees), through and under obstacles (hula hoops), Jumping and landing off low mats/object or hula hoops

## 2. Station 2-Integrating the Senses

- Motor Skills and Concepts: Eye tracking sequencing complex motor skills, Patterning, Rolling, Pattern Jumping, Leap Frog, Hopping, Balancing on Beam
- Brain Link: Concepts assist the brain in following the flow of words, sequencing patterns in math and reading, and sorting information
- Station Progressions: Rolling (Pencil/Log Roll) across mat, Leap Frog across mat, Jumping through hula hoop hopscotch, Jumping over an obstacle, Balance walking across beam or stepping stones

## 3. Station 3-Vestibular Development

- Motor Skills and Concepts: Development of inner ear to coordinate senses, spatial awareness, body control, dynamic balance, Locomotors, Spinning, Jumping and Landing, Bouncing)
- Brain Link: Concepts assist the brain by sequencing numbers or letters, discriminating different sounds, placing letters and words in a page, and writing letters in proper proportion
- Station Progressions: Standing Spinning, Seated Scooter Spinning, Airplane Scooter Spinning, Locomotor movements, Scooter spin then forward movement, Bounce and Spin on Stability Ball Jumpers, Forward Roll

## 4. Station 4-Visual Development

- Motor Skills and Concepts: Visual-Motor Control, Beat competency, dynamic balance, Cross Lateralization, Eye Fitness, Tracing, Tracking, Encoding symbols
- Brain Link: Concepts assist the brain by recognizing and writing letters and numbers, following words from left to right, reading for longer periods, organizing information
- Station Progressions: Tracing Pictures (with finger) on Wall (Shapes) and Floor (with feet), Bounce and Catch ball, B & C while moving, Dribble, Dribble around perimeter, Rope Tracing Balance and Walking, Cross Lateral Rope Walking through obstacle, ABC Pathways Mat Tracing shapes and letters

## 5. Station 5-Visual Tracking

- Motor Skills and Concepts: Visual tracking objects, hand-eye coordination, Patterns, Beat Competency, Motor Skill Development, Encoding Symbols, Hemispheric Organizations, Stress Reduction

- Brain Link: Concepts aid the brain in processing thought, organizing thoughts in sequence, comparing/contrasting, higher level thinking skills
  - Station Progression: Rolling ball back and forth, Toss and Catch, Ball taps with Racquet, Bball Shooting, Jumping Rope, Juggling Scarves, Tossing, Kicking at target, Ring Toss, Target Toss
6. Station 6-Action Based Learning Ladder
- Motor Skills and Concepts: Complex Motor Control, Higher Level Thinking, Working to Long Term Memory, Academic Reinforcement
  - Brain Link: Concepts assist brain in anchoring information and improved memory retrieval, preparing the brain for testing, and higher order thinking skills
  - Station Progression: Creeping across Ladder, Walking across Ladder, Jumping, Hopping, Walking on all fours on Rails, Walking on Rails of Ladder, Academic Concepts in Ladder (different shape in between each ladder step)

## Cross-Curricular Activities for the Gym

(All of the brain links are from Jean Blaydes Madigan's book:  
Action Based Learning: Thinking on Your Feet)

### **Odd and Even Tag**—(Equipment = Music)

Students move in general space with a partner. When the music stops, the partners are back to back. One student is odd and one is even. The teacher will call out a number and the student who is associated with that number is 'it'. He/she will chase his/her partner after he/she performs two jumping jacks. For example, if the teacher yells '10', that number is even and the even partner will chase the odd partner (can also use math problems for older students; for example, "Solve and chase  $5 + 5 = ?$ "). When the music plays again, the students will move in general space until told to go back to back. If the tagger tags his/her partner, he/she will do two jumping jacks before chasing again.

- ❖ Brain Link = Physical activity facilitates cognition and anchors learning. The brain performs more efficiently when it is put in a survival flight or flight mode as in a tag game. The brain holds new learning for 18 seconds when learning is either stored or lost. Mental math trains the brain to hold the learning longer, increasing attention and concentration. The brain holds new learning for 18 seconds when the learning is either stored or lost. Mental math trains the brain to hold the learning longer, increasing attention and concentration.

### **Scrabble Snatch**

Hula hoops are spread around the gym and are used as a homebase for groups of 2-4. In the center are the laminated letters of the Alphabet turned upside down. On go, students run to the center and bring ONE letter back to their homebase. This continues until all letters are in the homebases. At this time, students may begin stealing ONE letter at a time from other homebases, but you may not go to the same base until you have made it to all other bases. After a few minutes, send all students back to their homebases. Students now must work together to create as many words possible using the letters available. There can be many variations: 2 pts for 2 letter words, 3 pts for 3 letter words, and so on; you can reuse letters vs can not reuse letters, can spell out words in scrabble format similar to how the game looks, etc

- ❖ Brain Link = Working in groups satisfies our social brain. The brain is social and likes to work in cooperation with other brains to problem-solve. Reinforces literacy skills.

**Number Rally Reporters: ----**(Equipment = balls, dice)

Students are standing across from partner at one end of the gym working on different passing skills or throwing and catching. A number of dice are dumped out randomly at the other end of the gym. One student runs down to the dice, rolls two dice and adds numbers together, then runs back to report to the other partner how many passes or throws/catches they need to complete. Partner waiting can be dribbling or tossing and catching the ball to themselves while they wait for their partner to return. Once they complete the number of passes, the other partner runs down to the dice, rolls, and returns to report the new number of passes to complete.

- ❖ Brain Link = Movement enhances system maturation according to Eric Jensen. Movement reinforces academic concepts. Raising the heart rate may grow new brain cells. Reinforces math skills.

**Crows and Cranes with Academic Concepts—**(Jean Blaydes Madigan)

Students will experience the brain's ability to think fast to practice test-taking skills while practicing math and language art skills in a fun tag game. Divide the class into two teams. Each group will have a team name that will make them 'it' if their name is called. For example, if the game is verbs and nouns, when a noun is called, the nouns will chase the verbs to the end line. If a person who is a verb is tagged before the "safe" end line, he/she will join the noun team. The groups will all meet again in the middle and get ready for the next word. Other team names can be odd or even, capital or lower case letters, higher or lower numbers, true or false, fact or opinion.

- ❖ Brain Link = The brain thinks well under positive pressure as it practices retrieving information. Movement enhances sensory integration. Simulation of concepts increases understanding. Linking movement to literature motivates students to read. The brain performs more efficiently when it is put in a survival fight or flight mode as in a tag game.

**Spelling Around the Room: ----**(Equipment = Letter Cards, spelling words, any skilled unit)

Students receive spelling words that they are working on. Each letter of the alphabet should be taped up around the room for students to see. Students begin moving to the letters and touching each of the letters that are in their spelling word. You can incorporate this with most skill units. Students dribble a basketball and spell their name or a spelling word. You can add letter dice (or letter cards) in the center of the circle and have students roll the dice (draw a letter card) and then dribble a soccer ball to the next 3 letters of the Alphabet.

- ❖ Brain Link = Movement enhances system maturation according to Eric Jensen. Movement reinforces academic concepts. Raising the heart rate may grow new brain cells. Reinforces literacy skills.

**Body Nutrient Locomotor Activity Game: ----**(Teach/Reinforce body nutrients...carbs, proteins, fat; calcium, sugar foods to yell out so students can identify what nutrient is in what food and the purpose)

Students learn "nutrient song"...proteins, carbs, vitamins, minerals, water, fat, oh yah...plus a few more including calcium and sugars). Discuss what all these different nutrients do for your body. Identify a pose to demonstrate what each does for your body (Carbs-steady jog in place, Proteins-flex bicep muscles, fat-wrap both arms around body to signal warmth, calcium-stand up straight like a toothpick for bones, sugar-sprint in place). For the activity, students move around the gym performing a locomotor while the music is playing, when the music stops the teacher calls out foods which are high in a certain nutrient and students must pose in the appropriation position. For example... "I had a glass of milk today" so students stand like a toothpick, followed by "I had a chicken breast for dinner" and students then flex their muscles. Then give another locomotor and repeat several times.

- ❖ Brain Link = Movement enhances system maturation according to Eric Jensen. Movement reinforces academic concepts. Raising the heart rate may grow new brain cells. Reinforces health concepts.

**Right Left Clothespin Tag—**(Equipment = Red and Green Clothespins for every student)

Each student begins by placing a Green Clothespin (labeled Left) on their left upper left sleeve, and a red clothespin (labeled Right) to their upper right sleeve. On the signal, students attempt to grab a clothespin one at a time from the sleeves of other students. If you retrieve one, kneel down and place the clothespin on the appropriate sleeve,

kneeling signals that other students may not steal from you at this time. If a student loses both right and left clothespins, they may still keep playing.

- ❖ Brain Link = Corpus Callosum divides the brain into two hemispheres, left and right. This activity teaches the left side of the brain controls the right side of your body and vice versa, as well as reinforces which is right and left.

### **Finger Flashes**—(Equipment = Groups and Music)

Divide the class into equal groups. Each person in the group will count to three and each hold up a hand with fingers showing from 1-5. The group will add the total number of fingers showing. Divide that number by 2 and that is how many jumping jacks the group will perform on the first round. The group will follow a leader until the music stops and then the group will count to three and show their fingers again. The group will add and divide by three again and a new exercise can be done (stretching, sit-ups, push-ups, toe touches, crab kicks). Repeat several times with different locomotor movements in general space and new exercises. Math challenges can change, too—subtract 2, add 3, multiply by 3, etc.

- ❖ Brain Link = Working in groups satisfies our social brain. The brain is social and likes to work in cooperation with other brains to problem-solve. Reinforces Math skills.

### **Group States**—(Equipment = A visual with all states and capitals, music, colored jerseys/pinnies, pedometers).

When the music starts, students follow the leader with the states and capital information using a locomotor pattern around the gym. When the music stops, the leader chooses a state and the students in that group have 3 tries to guess the capital of that state. When the music starts, the states and capital information is passed to the next person in line and a new locomotor movement is called. Switch until all students have been the leader. Students could recite the abbreviation for each state or say a capital and the students will recall the state.

- ❖ Brain Link = When the brain is asked to retrieve knowledge quickly, it strengthens neural connections in the brain. Reinforces social studies skills.

## **Cross-Curricular Activities for the Classroom**

### **Odd and Even Dice**—(Equipment = Dice)

The teacher will roll a die. If the die is an even number the students will march 6 times. If the die is an odd number, the students will do 6 jumping jacks. Encourage the students to use different movements. Each student can have their own die to use and perform movements in general space each time he/she rolls. Have students work in partners and add, subtract or multiply numbers for movements. Odd and even numbers on the dice could mean verbs or nouns. Have a student come up with a verb if the number is odd and then perform the designated movements. The partners can use the word in a sentence.

- ❖ Brain Link = Movement enhances system maturation according to Eric Jensen. Movement reinforces academic concepts. Raising the heart rate may grow new brain cells.

### **Partner Find**—(Equipment = Music)

Students move in general space. When the music stops, students must find a partner, march in place and face each other. Taking turns, they will need to find three different partners to memorize—spelling partner (someone who will give a word to spell; for example, how do you spell “cat”), a contraction partner (someone will say the word or words that can be made into a contraction; for example, “cannot” and the partner will say the contraction “can’t”) and a compound word partner (one partner will say a word and the partner will say another word to make it a compound word; for example, “base....baseball”). When the music stops, the teacher will call out which partner to find and the thinking begins. Memorization is needed to identify partners.

- ❖ Brain Link = Movement facilitates cognition. Social interactions and movement are both needed for the brain to work effectively. The brain is social. Exercise boosts brain function. Movement with intention anchors the concept of actions verbs. Raising the heart rate feeds the brain its needed nutrients (glucose and oxygen). Endorphins are raised through exercise and positive social interaction.

**Switcheroo Spelling**—(Equipment = Ball and/or bean bag, music and spelling words)

Students are in partner formation tossing/throwing and catching an object. When the music stops, students will toss and catch a spelling word from the teacher. Students continue to repeat the spelling word until the teacher stops the music and says, “Switcheroo, find someone new!” Once a new partner is found, the partners can begin to catch and toss until the teacher announces the new word. When new spelling word is announced, the catching and tossing continues.

- ❖ Brain Link = Learning through the kinesthetic modality anchors learning as the brain recalls information under positive pressure. This is the brain practicing taking a test.

**Smart Movers**—(Equipment = Variety of flash cards, i.e., math, money flash cards, letters, numbers and music)

Half of the class will have flash cards that have math problems, spelling words, numbers of shapes on them, etc. Divide the class into “teachers” and “students”. “Teachers” have the flash cards. When the music starts, all students/teachers will move around the room doing different locomotors on designated sides of the play area. When the music stops, “teachers” with cards must partner up with someone who does not have cards (“students”). “Teachers” with cards will show their partner the cards to see if they can answer the questions. Continue to repeat and encourage students to choose new partners each time. Switch roles 2-3 times.

- ❖ Brain Link = Raising the heart rate oxygenates the brain and increases the flow of glucose, brain fuel. When the brain is asked to retrieve knowledge quickly, it strengthens neural connections in the brain. Reinforces math or literacy skills depending on flash cards

**Opposites**—Rules

1. Freeze when the teacher says FREEZE.
2. Do just the opposite of what the teacher says.
3. When the teacher says the game is over, it is really over.

The teacher will simply give students directions and the students will do just the opposite of what the teacher says: stand-up/sit-down, own desk/someone else’s desk, slow/fast, tall/short, big/little, hop/jump, skip/gallop, balance on right foot/left foot, raise right arm/left arm, laugh/cry, run/walk.

- ❖ Brain Link = Kinesthetic learning brings abstract concepts into the concrete. Retention is increased when students experience the concepts and physically become part of the learning.

## Brain Breaks for the Classroom

- ◆ Part 1: “Hand-over-Hand Drill”....
  - Partner A is the “dropper” and Partner B is the “catcher.” The “catcher” has one hand, palm-down, with arm extended at waist height. The “dropper” holds the object underneath the “catcher’s” extended hand and gives the cue “ready,” then drops the object. Hands cannot touch.
    - Part 2: “Double Hand-over-Hand Drill...”Catcher” uses both hands at the same time shoulder width apart. The “dropper” will have an object in each hand and will drop them at the same time, following the “ready” cue. (Do NOT say “go” after “ready.”)
- ◆ Partner Mirroring
  - Partners take turns using upper and lower body movements and mirroring each other
- ◆ Whole Body Rock, Paper, Scissors

- Partners will play the game using their lower bodies to show their sign. On go command, the students jump up and land together three times on the forth land they show their sign: Rock-land with feet together, scissors land with your feet spread to the front and back, and paper land with your feet spread sideways.
- ◆ Finger Thumb Challenge
  - Get out of your chair! Point with your pointer finger on one hand and give a thumbs up with the other...then switch!
- ◆ Spelling Slap Count
  - Stand up and find a partner. Face your partner with your palms up. Think of a food you would like to eat for dinner...don't say it out loud! Make sure you can spell it;) First person take your right hand and cross over and slap partners right hand lightly and say out loud the first letter of your word. Then take your left hand and cross over and slap partner's left hand and say the second letter of your word. Partner's turn! Do the same thing with your right and left hand. Alternate this way until you both have finished your words. Don't guess the word till both partners are finished! You can do this with spelling words!
- ◆ Ear and Nose Switch
  - Stand up! Take your right hand and grab your left ear. Keep your right arm close to your body. Take your left hand and touch your nose. Now uncross your arms and move your left hand to your right ear and your right hand to your nose. Your left arm should now be closest to your body. Switch back and forth as fast as you can!
- ◆ Signature and Foot Circles
  - Sign your name in the air with your writing hand and do foot circles clockwise as you write!
- ◆ Gotcha
  - Stand up and get into a group that is about 3-10 people. Form a circle with your group. Each person should hold out their left hand with their palm flat facing up. Take your right hand index finger and point it directly into the palm of the person to your right. When the instructor says "Gotcha", you try to grab the person's finger that is in your palm, and at the same time avoid being grabbed by the person you are pointing to. Challenge: Arms crossed!

## Dance Breaks/You Tube Videos

- ▲ **Cotton Eyed Joe:** [http://youtu.be/fU3\\_TI6WZCU](http://youtu.be/fU3_TI6WZCU)
- ▲ Cupid Shuffle: [http://youtu.be/fAhXfcm\\_v40](http://youtu.be/fAhXfcm_v40)
- ▲ The Learning Station: Funky Monkey: <http://www.youtube.com/watch?v=S6loM2b9QWM>
- ▲ The Learning Station: Monkey in the Middle: <http://www.youtube.com/watch?v=G1nXAcVlcWM>
- ▲ The Sid Shuffle: <http://youtu.be/uMuJxd2Gpxo>
- ▲ The Backyardigans: I Gotta Feelin:  
[http://www.youtube.com/watch?v=7HLBnC\\_doXY&feature=share&list=FLMbwZDeog9wrINdADuNZWMw](http://www.youtube.com/watch?v=7HLBnC_doXY&feature=share&list=FLMbwZDeog9wrINdADuNZWMw)
- ▲ Tooty-Ta: <http://youtu.be/vBvi5PaEhpA>
- ▲ Just Dance: You don't know your Beautiful: <http://youtu.be/4WD01RMtloI>
- ▲ Just Dance: Eye of the Tiger:  
<http://www.youtube.com/watch?v=fqUmLhHflmM&feature=share&list=FLMbwZDeog9wrINdADuNZWMw>

## **BRAIN RESEARCH RESOURCES**

Blaydes Madigan, J. *Action Based Learning: How to Make Learning a Moving Experience*

Blaydes Madigan, J. *Action Based Learning: Thinking on your Feet*

Blaydes Madigan, J. & Hess, C. *Action Based Learning: Lab Manual*

[www.actionbasedlearning.com](http://www.actionbasedlearning.com)

Summerford, C. *Action-Packed Classrooms, K-5: Using Movement to Educate and Invigorate Learners*

[Cathie@fit4learning.com](mailto:Cathie@fit4learning.com) [www.fit4learning.com](http://www.fit4learning.com)

Jensen, E. *Enriching The Brain: How to Maximize Every Learner's Potential*

[www.jensenlearning.com](http://www.jensenlearning.com)

Ratey, J. J. *Spark: The Revolutionary New Science of Exercise and the Brain*

<http://www.johnratey.com/newsite/index.html>

The Learning Station: <http://www.learningstationmusic.com/>