



# KINESTHETIC CLASSROOM: A USER'S GUIDE



*Kidsfit, A Division of Internationl Youth Fitness - 2130 Cainhoy  
Rd - Huger - SC - 29450 - 843 336 5090*



*Kidsfit has developed its reputation for allowing kids to workout and improve at their own pace. Many*

*kids write-off gym and exercising at a young age, often having the false impression that "they aren't good enough." This is usually due to the fact that physical fitness is linked to competition and the motto, "may the best man win." At Kidsfit, we believe that all kids are made for movement, and our goal is to make it fun for ALL types of children! We keep our emphasis away from competition and focus on individual progress. We are teaching much more than exercise, we are teaching a lifestyle!*

*The concept of kinesthetic classroom implies exercising while learning major subjects such as science, mathematics, and language. Students are learning the importance of physical fitness and they are able to experience the positive result of exercising- improved grades, improved mood, improved strength and endurance, and a*

*better understanding of how their bodies work!*

*In 2008, The Physical Activity Guidelines for Americans recommended that students get at least 60 minutes of physical activity a day. Prior to this in 2007, only 18% of students were meeting this guideline (Youth Risk Behavior Surveillance System, 2010). Kidsfit wants to make this statistic 100%! We are excited to bring exercising directly into the classroom.*



*With the Kinesthetic Classroom, class time is not cut short, students grades improve, the classroom runs more smoothly, students mood/mental health improve, all while the child's physical health is improving. This is a win-win for all involved.*

*We are excited to work with you to transform the classroom for the benefit of our children and their future!*

Instead, consider the possibility that any man could, if he were so inclined, be the sculptor of his own brain, and that even the least gifted may, like the poorest land that has been well cultivated and fertilized, produce an abundant harvest.

—Santiago Ramón y Cajal (1852 – 1934), Spanish neuroscientist and winner of the Nobel Prize in Physiology or Medicine, 1906

## ***To Our Valued Customers:***

Thank you for choosing Kidsfit for your Kinesthetic Classroom needs. In this manual you will find valuable information regarding your new Kinesthetic Classroom equipment. We've included general information on the operation and maintenance of your equipment that will help it last longer and remain in top condition. However, it is your responsibility to create a site-specific Operations and Maintenance Manual for your staff that reflects the environment in which you are operating. Kidsfit is not responsible for accidents and injuries resulting from improper use of the equipment and/or improper operation and maintenance of the Kinesthetic equipment.

Again, thank you for choosing Kidsfit. We appreciate your business and will strive to exceed your expectations relating to our products and services. Please call our Customer Service Department at 843.336.5090 if we may be of assistance.

Sincerely,

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# Introduction

## ▪ **Safe Usage**

Kidsfit is dedicated to offering our customers safe equipment that is designed and manufactured in accordance with the highest industry standards and safety guidelines. It is critical that your staff is properly trained as to the appropriate rules, guidelines, cleaning and maintenance requirements, and operational procedures of your Kinesthetic Classroom Equipment, and the Classroom in which it is located. It is equally important that your staff is trained to spot and immediately correct any situation that could compromise the proper function of your Classroom equipment. Staff should be proactive when it comes to finding and correcting maintenance issues before they become problems, and they should be able to identify and order replacement parts. Finally, employees should document inspection and maintenance actions.

## ▪ **Kidsfit Kinesthetic Classroom Rules**

It is important that all employees are fully aware of your Classroom rules so that they may be enforced. At a minimum, Kidsfit recommends posting the following rules and cautionary statements. Contact Kidsfit for more information on Kinesthetic Classroom signage.

- Children must be supervised by a teacher or adult at all times in the Kinesthetic Classroom.
- One person per kinesthetic station at a time. Kinesthetic Movement Desk must come to a complete stop prior to exiting station.
- Seat height and tabletop height must be adjusted by an adult.
- Please no food, gum or drinks in the Kinesthetic Classroom

## **Why We Provide This Important Information**

The purpose of this Owner's Manual is to provide you with general instructions, suggestions and tips as to how to clean and maintain you Kinesthetic classroom equipment at a level of performance that will provide a safe and enjoyable learning environment for your children, extend the life of the components, and conform to Kidsfit Warranty requirements. The Owner/Operator of a Kinesthetic Classroom bears the ultimate responsibility for staff training, classroom monitoring, and equipment maintenance.

## ▪ **Alteration of Kinesthetic Equipment**

Kidsfit Kinesthetic equipment is generally designed and manufactured to adhere to the ASTM Standards, the ADA, and to safe practices within the industry. Your specific classroom equipment was carefully designed and configured to be compliant with such standards, laws and practices as well. Any unauthorized alteration of the equipment, its configuration, or any of its components will likely cause the altered item to become non-compliant, and therefore, unsafe. Likewise, any unauthorized change to, adaptation of, or reconfiguration of the equipment will cause the system or component to become unsafe. For these reasons, Kidsfit strictly prohibits the unauthorized alteration of, change to, adaptation of, reconfiguration of, or attachment of your Kinesthetic Classroom, its configuration or any of its components. Kidsfit is not responsible for any injuries arising out of any such unauthorized action.

▪ **Corrective Action**

Corrective Action should be taken when, among other things, you encounter:

- Foreign materials and inappropriate objects (including food or drink) in the Classroom
- Children using the equipment without adult supervision
- Components removed from originally installed positions
- Loose or missing bolts
- Exposed threads
- Loose or broken parts
- Pinch Points
- Sharp or rough edges
- Chipped, cracked, cut or missing parts.
- Dirt or other inappropriate objects around the equipment
- Misuse of the Kinesthetic equipment

▪ **Control Access to the Kinesthetic Classroom Equipment**

Access to the Equipment should be denied when:

- The facility is closed.
- Maintenance or repair is being performed.
- Problems or hazards are identified at any time.
- Any section or component of the Kinesthetic Classroom equipment requires maintenance, repair, and/or replacement

# KC-35 Pedal Desk

## Parts List



Padded Back Rest

Padded Seat Cushion

Twist & Pull Knob for Seat Height Adjustment

Left Rear Floor Leveler

Right Rear Floor Leveler

Round Rubber Safety Caps

Twist and Pull Knob (Use for Tabletop Height Adjustment)

Clear Stabilizing Screw

## Adjusting the Seat Height

Twist and Pull knob. This will allow user to adjust the seat height up or down. This will require an adult's strength to adjust. The knob was created so that student's do not mess with or adjust the desks, on their own. Ideally, one adult will twist and pull the knob, while the second adult raises/lowers the seat height.

The general rule for seat height is that when you are sitting on your pedal desk and one foot is at it's lowest point, your knee should be mostly extended. This reduces the compression on the knee when bent and also increases the amount of power you have when pushing on the pedals. Make sure the leg is not completely straight at that lowest point however. If this is the case, it forces you to stretch to reach the farthest point in the pedaling motion.

Keep a general rule that the leg should be more extended than bent.

## Adjusting the Tabletop Height

The Twist and Pull knob is located directly below the tabletop. It is recommended that one adult twist and pulls the knob, while the second adult holds the tabletop for height adjustment. You will notice the knob requires the strength of an adult. The knob was created so that student's do not mess with or adjust the desks, on their own, in order to avoid injury.

Each child varies in size. However, the general rule for tabletop height is adjusted so the user's arms are between 90-120 degrees.

After the tabletop is raised/lowered to appropriate height, the twist and pull knob must be twisted back into the groove, tightly. It is important to twist the knob tightly until it is unable to twist any further.

The final step in the process is tightening the clear screw located on the table top stem (see image diagram on page 1). This can be tightened using a flathead screwdriver. If no screwdriver is available, a coin will work too! This screw acts as added support for the tabletop stem and will prevent any slight wiggling of the stem.



## Stabilizing the Pedal Desk

The KC-35 Pedal desk is manufactured to be stable on all surface types. In order to ensure the most stability, the desk is equipped with two rear floor levelers. These need to be rotated until the desk is balanced to floor level.



## Manufacturing Details

Height of table is adjustable and can range from 35" to 45" tall to fit various users

Target Age Range: Ages 6- 18 years old

Dimensions: L 28 x W 40 x H 35-45"

Product weight: 71lbs

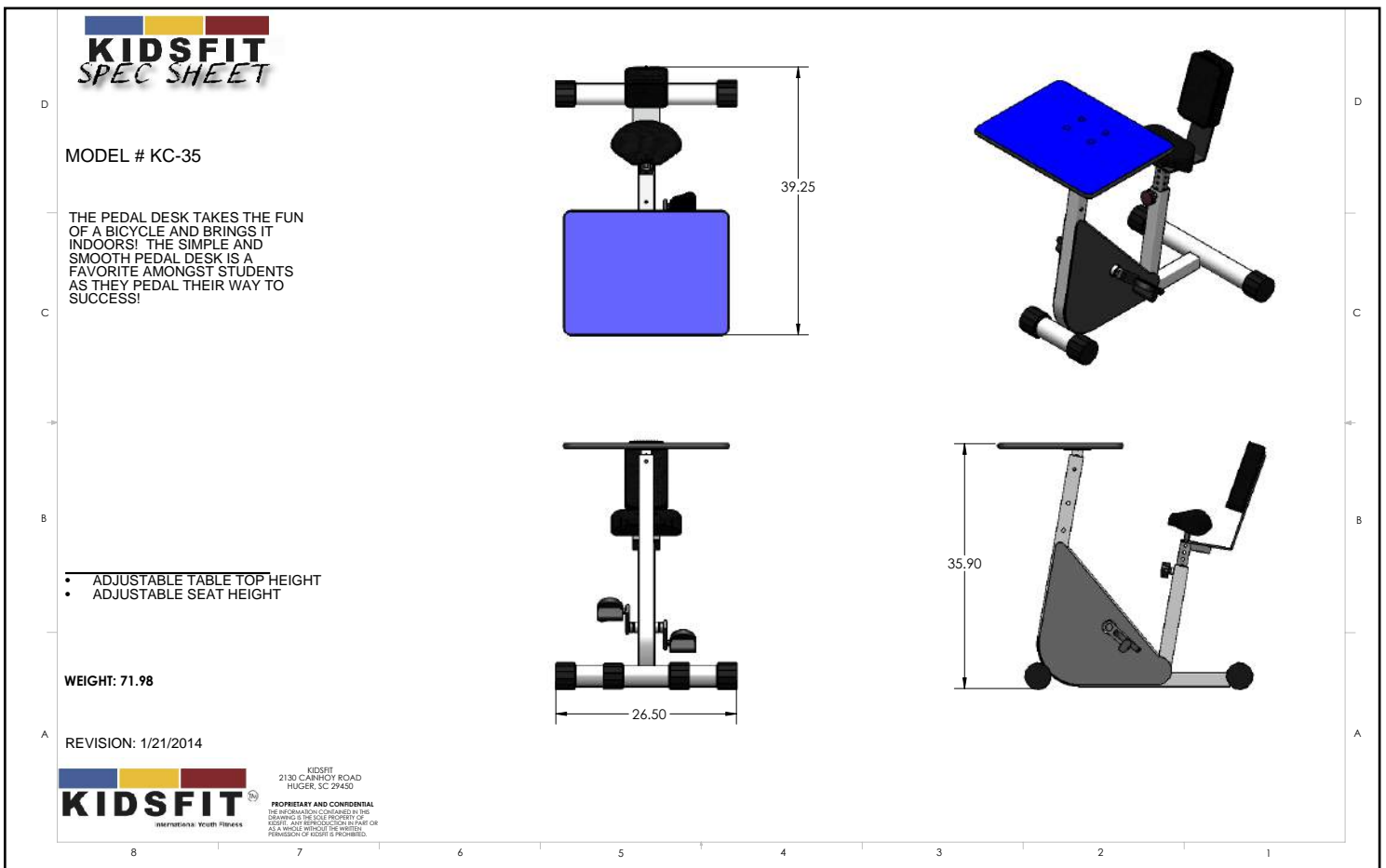
Adjustability: Tabletop and seat height are adjustable.

Made in the USA at KIDSFIT's manufacturing facility in Huger, SC. Steel, powder-coated frame with commercial grade laminate tabletop. The Pedal Desk is manufactured with a one-piece welded pedal crank system. The mechanism is built to be extremely user friendly, using only 2 bolts simple, resistance free, motion is bulletproof and designed to meet the demands of continuous daily use

Optional pivoting arm with Ipad/Nook/kindle is available as an add-on feature.

Adjustable padded seat and back support reinforce postural alignment and comfort.

Requires user activation of the lower body muscles to initiate motion. Kid-powered. No external power required.



### **Kinesthetic Classroom Learning – An Innovative Concept to Improve Focus and Performance**

While some children have the capacity to focus and reinforce learning with the aid of visual and auditory input, others find it difficult to absorb information unless they are



physically engaged in the lesson- this is what kinesthetic learning is all about!

According to recent studies, a student's academic performance improves dramatically when learning is imparted according to the child's personal learning styles i.e., visual, auditory, or kinesthetic. With this being said, one of the most difficult jobs for a teacher is catering to the varying needs of the students. Teachers are constantly searching for innovative ways to teach using a combination of auditory, visual, and kinesthetic inputs. The Kinesthetic Classroom was created for this reason!

Kinesthetic classroom concept was developed with one goal – “motivate kids to move.”

Integrating exercise and movement into the



classroom drastically improves physical, mental, and emotional health of students, empowering them to focus, absorb, and assimilate more efficiently. The kinesthetic classroom allows students to engage

their brain and body simultaneously, and improve concentration and learning capacity. Kinesthetic classroom evolved on the basis of recent studies that validated the effectiveness of integrating learning with physical exercise. Research proves that physical exercise integrated into the



classroom significantly improves students' span of interest and concentration.

Children who are involved in both learning and physical exercise get higher test scores and grades than children who do not exercise!

## An Interview With the Owner- Ed Pinney

**How did you come up with the design for the learning tables?**

The idea for the tables started with Lindsay Beck of CCSD asking me to create a balance desk for her - thats when we realized that many of the same ideas we had about creating rooms that combined a learning component and physical activity(learning labs) could actually be accelerated by simply moving the physical activities in to the "traditional" classroom.

In terms of the actual designs - we started with what we have learned over the past 14 years -some of the same movements from our exercise equipment for children and modified the movements and mechanics to fit the classroom - see more below.

**Why the different table varieties?**

Different children need more or less levels of movement - for some kids standing is enough to help them focus while the troubled child can be dramatically helped by allowing him to listen or read at our strider desk! Plus, when you add in the opportunity to have the equipment be used to create 'Spark" and for Brain Breaks - variety becomes essential - we are actually creating "circuits" in classrooms that have multiples and varieties of the equipment.

**How much research and “behind-the-scenes” work was involved?**

TONS! Plus - we used Computer Aided Design CAD software which allowed us to rapidly change design and analyze movement via the Solidworks software and Motion Study to see exactly how the equipment will move before we ever started building it.. We did not have to build everything before we tested it we could analyze each motion for bio mechanical efficiencies right on the computer screen. We looked at everything other companies were doing in this area and talked to users about the problems they were having (controlling bouncing balls classes was not taught in their teaching curriculum) - Height ranges and necessary table adjustments etc.

## What was the thought process behind the design (the reasons perhaps)?

When we began the idea was really just to add movement - not exercise to the classroom. The reasons for doing this have been very well documented - actually for many years - the problem was/is no one seems to be paying attention or else they : don't care, don't believe the science, don't want to rock the way things have been done for the last 200 years, or simply don't know how to go about implementing the scientific fact that movement, good health, and exercise create an optimal learning environment for our brains. So we decided to set some parameters for how we would develop this crazy idea of letting kids move in their "seat"

- 1.- The design needed to be unobtrusive to the entire classroom experience
2. Along these lines it was ok to be different but not too different
- 3.- quiet is King - if it was too loud it would be an excuse for "traditionalists" to say it won't work
4. It needs to be bullet proof - thus less is more / simplicity is key - as few adjustments as possible - no adjustments is best if possible - as it turns out this is what makes it so safe (far more safe than the child who feels so compelled to move that he falls over backwards in his chair)
5. We tried to think like children, then think like our 4th grade teacher - we needed both perspectives
6. It was our belief/supported by research/ - that even just allowing a child small amounts of movement (swinging one leg) would be huge for kinesthetic learners so small movements would be as beneficial as large ones
7. We knew that behavioral problem children (I was one of them) often just needed to move and release energy so it was important to have a few stations that released larger amounts of energy without being loud or cumbersome

Later we found that teachers could very easily use the equipment to create a "spark" effect as talked about in Ratey's research - now we are developing short exercise routines that :

- A- Increase heart rate and blood flow - we know the benefits of this
- B- Act as "Brain Breaks" -since you have physical equipment right in front of every student
- C- Develop Creativity and provide a needed respite from classroom learning



It actually was never our goal to make a significant impact on obesity in children - obviously we knew some movement was better than none - but it wasn't until we started seeing studies that said things like- "children burn 17% more calories just standing at their desk versus sitting - or that sitting has the same impact of smoking if done excessively- From there, all you have to do is the math— 17% more calories (+more with movement) multiplied by 5 school days per week times 30 school weeks - that equals a huge change in a child's health after just one year - now multiply that by 12 school years! Ok, so we can make an impact on obesity! Solve it? No. - Change thinking and move towards improvements? Yes

# Brain & Body Science



John J Ratey, MD, is an Associate Clinical Professor of Psychiatry at Harvard Medical School, Research Synthesizer, Speaker, and Author. He has published 60 peer reviewed articles on the topics of Aggression, Autism, ADHD, and other issues in neuropsychiatry.

*According to John J Ratey, MD, the impact that exercise has on our bodies is important. However, this is just a small part of the big benefit of exercise- which is strengthening and improving our brain functions! The astounding impact that exercise has on the brain seems to be an unexplored topic, that research is just beginning to uncover! In 2002, Duke University conducted a groundbreaking study that showed exercise was significantly more effective than antidepressants in the treatment of depression (Small, 2010). This is due to the fact that our body releases endorphins and serotonin, which acts as a naturally occurring antidepressant, working in the same way that the prescriptions do, and evidence shows is even more effectively than pills! Much of the reason studies like this aren't widely known, is due to the fact that exercise is not something you can put in a*

*pill form and make money off of! Drug companies don't want to advertise the fact that exercise is better than their own drugs in treating depression, bipolar, ADHD and other mental health issues.*



In his book, Ratey goes further to talk about a new concept taking off in Chicago. Naperville High School kicked off a program called Zero Hour, which has changed the way we view physical exercise in the school systems. P.E. teachers decided to offer an optional "Zero Hour" class to freshman who needed a boost in their reading scores. Each morning, before classes, students run a mile while wearing a heart rate monitor to keep their heart rate between 80-90% of their maximum rate. At the end of the semester the students showed a 17% improvement in reading and comprehension as opposed to the students who didn't wish to participate, only reaching a 10% improvement. This drastic improvement was simply the result of exercising before class! The school is so impressed that they implemented Zero Hour into the daily class load, calling it Learning Readiness PE.

The school even went further to find that students who had their hardest classes immediately after PE, performed significantly better than those who had their difficult classes later in the day. If students best performance occurs right after exercise, how do we apply this to improve our education system? Kidsfit has found the solution with the kinesthetic classroom! We have created desks and classroom tables with pedals and varying degrees of movement. We have given the student ideal learning conditions by incorporating exercise into the classroom. As a result, the students performance level will significantly increase.

*Naperville school has gained so much attention that it has become the model for gym classes across the nation. In traditional gym classes, there are a lot of sports and competitive activities, which often discourages students who are not among the most physically fit. In this new model, exercise is individualized to fit each student differently, with no emphasis on competing with other students.*



**To define the success of the Zero Hour program, Naperville decided to compare performance level on an international scale. According to Thomas Friedman from the New York Times, our education system in the U.S. falls short in comparison to other countries. We can conclude this by looking at the Trends in International Mathematics and Science Study (TIMSS). Many countries in Asia have almost 50% of their students performing at the top of the scale in Math and Science. In the United States, only 7% of students score that high. Since Naperville was convinced that this program was something to be looked at, they decided to enter their school in TIMSS as a separate entity rather than grouping scores together with other local schools. This way, results were individualized.**



**On the science section of TIMSS, Naperville students scored 1st. NUMBER 1 in the WORLD! On the math section, Naperville scored number 6 in the world! The countries before Naperville were Singapore, Korea, Taiwan, Hong Kong, and Japan. The U.S. overall scored 18th and 19th in the math and science section. Although we cant conclude that exercise is the sole contributor to these test scores, we are convinced that a unique learning exercise program along with the top test scores in the world, cant just be a coincidence! Naperville is a wealthy community, which could be a contributor to students high achievements. However, there are plenty of wealthy neighborhoods in the U.S. who did not score as high, and who do not have the exercise program implemented yet. Kidsfit is convinced that if we can implement exercise into the classroom, than we are on the road to profound improvements in our children's lives worldwide.**





## BETTER GRADES?

**Recent findings from Reuter's Health, show that physical activity actually helps children do better in school. One group of 2nd and 3rd graders were given an extra 90 minutes of exercise per week and their test scores were later compared to other students in the class. Even though the first group lost out on classroom time with the extra 90 minutes of exercise, this had no negative consequences- in fact, their scores were significantly higher! The students did better in spelling, reading, and math than the students who did not get extra exercise!** (Singh A, Uijtdewilligen L, Twisk JR, van Mechelen W, Chinapaw MM, 2011)

## More Gym Time?

A two year study was conducted with 759 students to see the effectiveness of spending more time in physical education in schools. The results showed that even though students spent twice as much time on physical education than their peers, their grades were not negatively effected. The study actually concluded, "Health related physical education may have favorable effects on student's academic achievement." (Sallis JF, McKenzie TL, Kolody B et al. 1999)

## TRUST KIDSFIT!

*Kidsfit was established in 1999 with the dream of one day impacting the lives of children everywhere. Today that dream is a reality through the hundreds of products we manufacture here in the United States and distribute throughout the world. We believe that health and education are two of the most important things we can pass on to younger generations. It is for this reason we created the Active Classroom Products and have developed this comprehensive training manual. The entire team at Kidsfit recognizes that without you this is not possible. This is why we are so thankful for the opportunity to partner with you to make a difference in the lives of students everywhere/ It is our passion and our life work.*

## RESEARCH STUDIES

*Researchers, in a 2008 study, showed that regular participation in sport activities may improve children's behavior in the classroom, increasing the odds of better concentration on the academic content of the classroom*

*(Eittle T, Eittle DJ, 2002).*

*Teachers reported multitudes of positive changes in their students as a result of exercise, including self-discipline, greater sense of purpose and motivation, higher self esteem, and positive attitudes towards learning* (Fredericks CR, Kokot SJ, Krog S, 2006).

*Whats important to understand is the integrated system of mind, body, and emotions that is constantly at work within us. In the past, teachers have separated these parts so that learning is associated with sitting still and being quiet. In reality, these three are constantly working together and we must tend to all of these needs if we expect results. Active learning classrooms allow all 3 "compartments" to function and thrive together. The simple kinesthetic classroom model allows for movement while learning- The result? improved mood, health, and academic performance!*

*Nationwide, schools have been cutting back on recess and PE classes in order to fit in the full required curriculum. It seems simple, less "play" time, more learning = better grades, right? Multitudes of studies are showing that this is actually contradictory to the goal of improving students academic performance.*

*A study, by Terrence Dwyer, separated students into two groups. One group got 90 minutes of exercise a week, the other group got 375 minutes a week. Even though the second group had less studying time, their grades were not lower than the group who had 4x the amount of study time.*

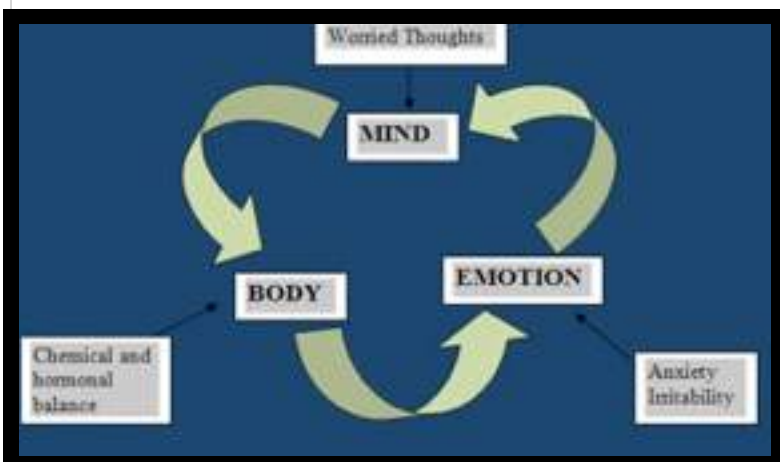
*Results showed the "loss of study time" had no effect on the students grades.*

*Dwyer also found that those who had more time to exercise showed significantly improved social skills.*

*Thanks to this study, we have proof of the strong correlation between movement and cognition.*

*This is vital for us as parents and educators to see!*

*(Dwyer T., Coonan W., Leitch D., Baghurst R., 1983)*



# WHAT ARE THE BENEFITS OF THE KINESTHETIC CLASSROOM?

***According to the University of Illinois, “Only 10 percent of secondary students learn best through auditory methods, but 80 percent of instructional delivery is auditory.”***

## **EXERCISE FUELS NEUROGENESIS — THE CREATION OF NEW BRAIN CELLS**

CHILDREN PERFORM BETTER IN ACTIVE LEARNING CLASSROOMS- EXERCISE IMPROVES OVERALL COGNITIVE DEVELOPMENT.

## **STUDENTS ENGAGE 12% MORE DURING CLASS JUST BY STANDING**

STUDENTS IN ACTIVE CLASSROOMS SHOW IMPROVED CONCENTRATION, PERFORMANCE, MEMORY AND SKILLS SUCH AS SEQUENCING, FOLLOWING DIRECTIONS, AND CRITICAL THINKING

## **ACTIVE CLASSROOMS SHOW HIGHER ATTENDANCE LEVELS AND DRASTICALLY REDUCED REFERRAL RATES**

ADEQUATE PHYSICAL EXERCISE BRINGS POSITIVE CHANGE IN MOOD, AND LOWER LEVELS OF STRESS. IT ALSO HELPS IN DEVELOPING SOCIAL SKILLS. THE CHILDREN IN KINESTHETIC CLASSROOMS ACTUALLY GET ALONG BETTER. IN ACTIVE LEARNING ROOMS, THE NUMBER OF BEHAVIOR PROBLEMS/REFERRALS DRASTICALLY DECREASES.

## **STUDENTS WHO ARE INACTIVE FOR LONG PERIODS SHOW HINDERED COGNITIVE DEVELOPMENT. THE RESULT – POOR PERFORMANCE, MEMORY, AND LIMITED ATTENTION SPAN.**

KINESTHETIC CLASSROOMS SET CHILDREN UP FOR A LONG TERM, HEALTHY LIFESTYLE. KC CREATES AN IDEAL ENVIRONMENT TO MOTIVATE CHILDREN, AND MAKE LEARNING ENJOYABLE.

## **EXERCISE GETS OXYGEN AND GLUCOSE TO THE BRAIN FASTER, BOOSTING BRAIN PERFORMANCE**

CHILDREN NEED ATLEAST 60 MINUTES OF EXERCISE A DAY IN ORDER TO DEVELOP AND FUNCTION AT THEIR HIGHEST LEVEL. KINESTHETIC CLASSROOMS SOLVE THE PROBLEM OF REDUCED PE/RECESS TIME.

## Movement and Learning in the Brain

*As we all know, movement and cognition are connected, but let's take a deeper look into how this works. The cerebellum is located in the back of our brain and controls our*



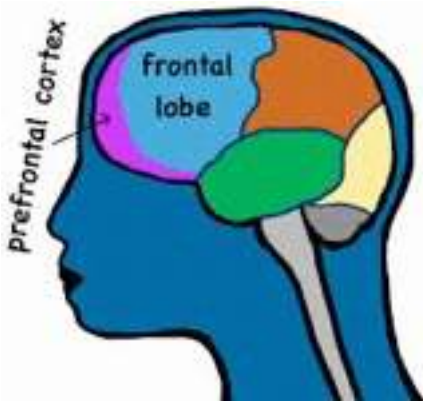
*movement. It is packed with over 40 million neurons which carry information back and forth from the body to the brain. In fact, this is one of the busiest, most complicated pathways in our brain. In a 1994 study, Peter Strick discovered a pathway from the cerebellum to the memory, attention, and spatial perception centers of the brain. This being said, we have discovered that the part of the brain processing movement is the same part that is processing learning! (Strick, 1994)*

## Exercise Grows Brain Cells!

*As far as evidence goes, the MEDLINE database alone has more than 33,000 scientific studies on the value of exercise. A University of Illinois study showed that rats who exercised regularly had a significantly higher number of neuron connections and more capillaries around the neurons than the sedentary rats (Greenough & Anderson, 1991). Exercise even aids in the growth of new neurons. This is demonstrated in Van Praag's research showing that rats grow more brain cells when they exercise than those who don't (Van Praag et al., 1999) To build on this study, in 2001,*

*researchers found evidence in animals showing how exercising influences gene expression to improve memory and learning. This means an enhanced encoding and transfer of information, increased synaptic connections, and increased activity and resilience of neurons. All of these are important factors in the learning process and prove the importance of exercise. (Ratey)*





## PREFRONTAL CORTEX

THE PREFRONTAL CORTEX IS THE AREA OF OUR BRAIN WHICH ALLOWS US TO CONTROL IMPULSES, MAKE DECISIONS, SOLVE PROBLEMS, WEIGH OUTCOMES, ETC. AS YOU CAN SEE, THIS IS A VERY IMPORTANT PART OF OUR BRAIN AND IT PLAYS AN IMPORTANT ROLE IN WHY WE THINK AND ACT THE WAY

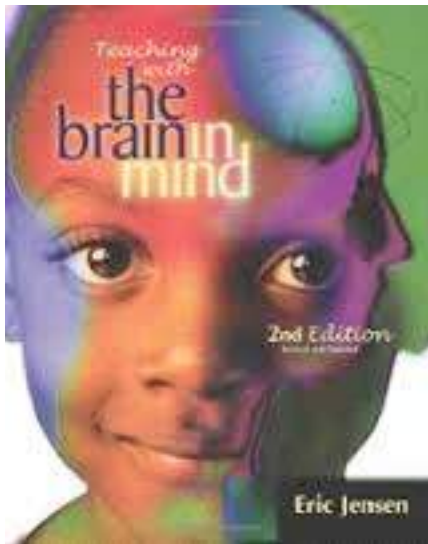
THAT WE DO. THIS PART OF A CHILD'S BRAIN WILL DICTATE HOW THEY THINK AND ACT IN THE CLASSROOM AND HOW EFFICIENT THEY ARE AT PROBLEM SOLVING, CONTROLLING EMOTIONS, ETC. THEORETICAL RESEARCH SUGGESTS THAT WHEN WE MAKE CROSS LATERAL MOVEMENTS, OUR PREFRONTAL CORTEX IS ACTUALLY STIMULATED. SEE THE CONNECTION HERE? MOVEMENT INCREASES ACTIVITY IN OUR PREFRONTAL CORTEX ALLOWING US TO BETTER CONTROL OUR BEHAVIOR, THOUGHTS, AND DECISIONS. IN ESSENCE, MOVEMENT IS ACTUALLY STIMULATING NEURAL PATHWAYS TO OPEN UP AND PREPARE THE BRAIN FOR LEARNING. KIDSFIT WANTED TO PUT MOVEMENT INTO THE CLASSROOM FOR THIS REASON!



## Movement is good for the brain and body because it:

- Activates BDNF (a protein that is stored in large muscles), the Miracle Gro™ for the brain which nourishes and protects the neural pathways for learning. Neural pathways are how information is sent to and from the brain.
- Grows new brain cells (neurogenesis) in the learning and memory center of the brain (hippocampus)
- Grows new brain cells in the learning and memory center
- Anchors learning when more of the senses are involved to increase the executive function of the frontal lobe. The frontal lobe is like the CEO of the brain. It's where decisions are made!
- Gets the brain's fuel (oxygen and glucose) to the brain faster, boosting brain performance
- Engages static (holding one position) and dynamic (balance while moving) balance to put the brain and body into focus and attention
- Crosses the three midlines(see illustration) of the brain and body to aid in coordination of movements and thoughts by organizing, integrating and energizing the brain's hemispheres. it also improves focus and attention
- Uses repetitive gross motor movement (crawling/walking, jumping, pedaling, turning) to aid the brain in putting patterns into a sequence. Our brains look for patterns in everything we do.
- Movement such as gestures, actions and motion actually help us understand a **concept better**—the mind is not only connected to the body, but that the body influences the mind- this is **called embodied cognition**
- Puts the brain and body back into hormonal balance which also regulates mood and behavior.

## Teaching with the Brain in Mind



Eric Jenkins is an educator and speaker who has written 20 books, most of which deal with the "Brain Based" education trend. Simply stated, "Brain Based" systems present the idea that the brain is a part of everything we do and everything we are. Because of this, it is necessary to incorporate the brain science into teaching.

Jenkins states in his book "Learning with the Brain in Mind" that there exists a strong scientific foundation for incorporating movement into learning environments. Movement strengthens learning, it helps improve memory, is a mood booster, increases

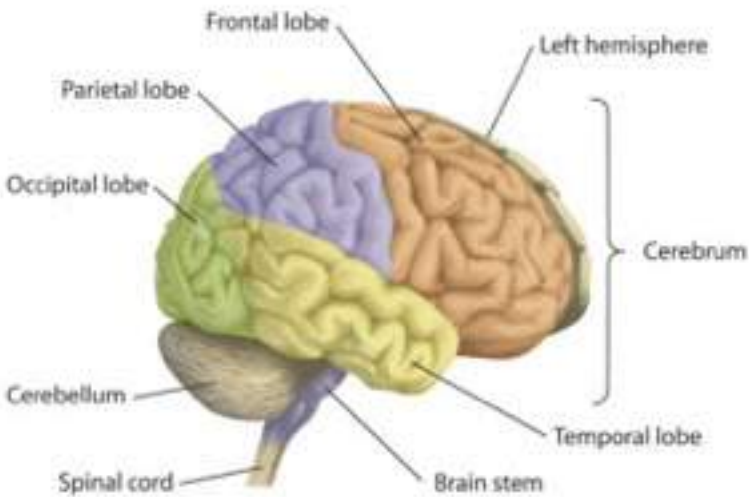
The Cerebellum is a small section of the brain that contains nearly half of all the brain's neurons. This section of the brain has many more times the nerve fibers than the optical nerve, which is generally considered to be one of the most complex organs in the human body. The cerebellum is responsible for **language, attention and movement**. When we use movement we are able to activate these areas in the cerebellum. Standing, as opposed to sitting at a desk will raise your heart rate (therefore blood flow) up to 8 percent in seconds. By standing at a Kinesthetic desk, the body is increasing blood flow, using more calories and incorporating movement, which arouses the cerebellum. Aerobic exercise has even more beneficial effects, Jenkins states. Aerobic exercise, which raises the heart rate, increases the brain chemicals responsible for neurogenesis - in his words " **Exercise may grow a better brain!**"

To maximize the attention and learning capabilities of students, educators should purposefully integrate movement into their classroom activities. In fact, Larry Abraham in the Department of Kinesiology at the University of Texas-Austin says, "Classroom teachers should have kids move for the same reason that P.E. teachers should have kids count" (personal communication, 1997).

### *Teaching with the Brain in Mind*

By simply incorporating movement into your classroom, you can raise epinephrine among drowsy learners; reduce restlessness and distraction of "antsy" learners while reinforcing the content for all learners.

Most of us have learned at some point that the brain is divided into hemispheres and that these hemispheres control opposite sides of the body (The right side of the brain controls the left side of the body). Jenkins suggests using cross lateral exercises to help



the hemispheres communicate better. He gives the example of patting your head while rubbing your belly as an exercise which promotes this cross hemisphere communication.

Jenkins states that movement activities in the classroom should be considered on par with book work. You cannot have one without the other. While he was an early pioneer in this approach, the science has caught up with him and we can now definitively state that movement is indeed critical to the learning process.

Exercise not only tones and strengthens the body, but it also strengthens important parts of our brain such as the basal ganglia, cerebellum, and the corpus collosum. In a sense, exercise is literally growing a better brain! When you look at it like this, it seems diminishing to leave exercise out of the classroom. If we want our children to reach their maximum potential in and outside of the classroom, we must provide them with the tools and ways to do it- What simpler way than to exercise?



# Occupational Therapy

Learning Disorders and Behavior Problems: ADHD, Dyslexia, Autism, and all the in-between...

**"Thank you!! You will not believe how much of a difference it has made today with one of my severely autistic students!!! ITS AMAZING!!! I hope this is the golden ticket to keeping him in my class. "** (in reference to the KC Pedal Desk)

**-Larsyn L. Runion, M.S., Wando Wellness Coordinator,**

*Pictured below is the first pedal desk*



## **A Student's Occupation: Learning from an OT perspective.**

Did you know that the term occupation does not solely mean what someone does for a living? In fact, even kids have occupations! Within an occupational therapy context, occupations are defined as activities that bring meaning and purpose to life. This includes what an individual wants to do as well as what they need to do (WFOT, 2013). For children, their predominant occupations include play and learning.

Each learner is equipped with varying degrees of skills, capabilities and cognitive and physical abilities. For some children, sitting in a chair for most of the day, five days a week is devastating. Students who thrive from experiencing, touching and moving within their environment are considered kinesthetic learners. Kinesthetic learners are most successful when they are completely engaged in the learning process (McWilliams, 2013). In other words, the amount of knowledge they take in is most efficient when they are participating in action activities and movement.

# *Special Needs*

*Special Needs Teachers have found that movement allows for a more productive learning environment for their students. This may be because special-needs learners get stuck in a thought pattern and incorporating movement helps to break this up and allow external information to be absorbed.*



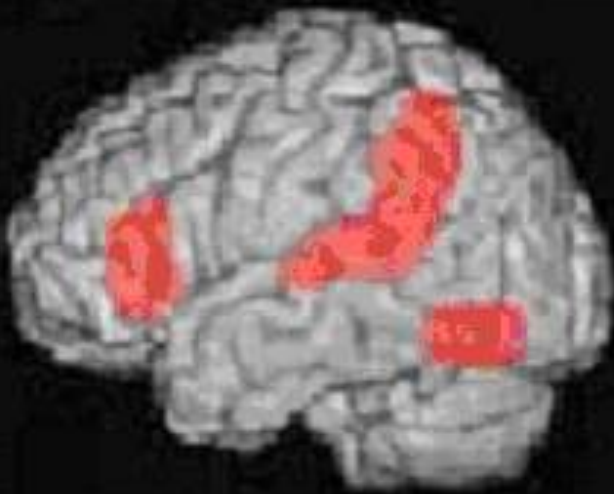
*Movement also stimulates multiple parts of the brain and gets the brain working in areas that may not be as active in a special-needs student.*

*A simple reason may be that the student gains a sense of security in movement, which sets the stage for a greater willingness to learn new information.*

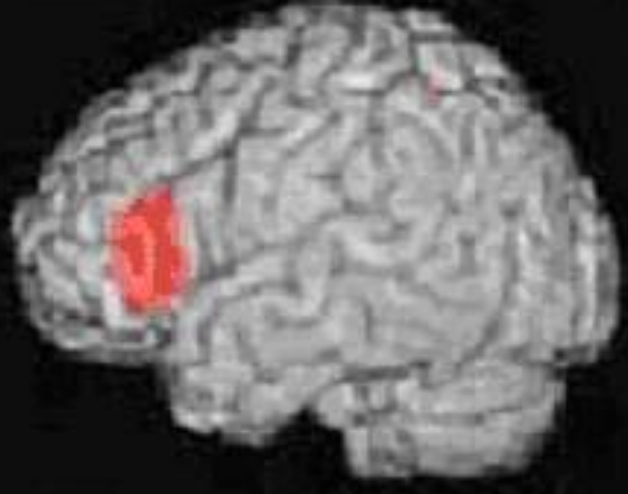
*For students using the Kidsfit pedal desks, they are able to control the intensity and duration of the movement. This gives the student a sense of control in the classroom environment and allows for an individualized learning environment tailored to specifically fit each person's needs. (Ratey, 2008)*

# DYSLEXIA

Typical readers



Dyslexic readers

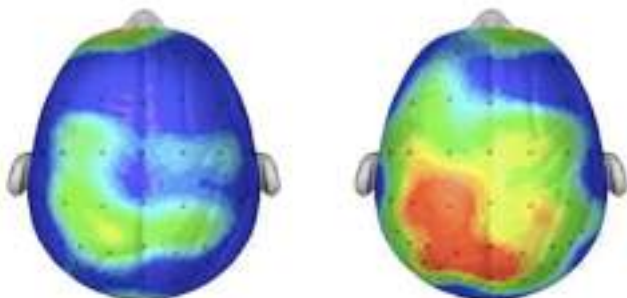


*Image courtesy of Society for Neuroscience and Guinevere Eden*

## Scan of Dyslexic Brain shows Less Activity Occurring While Reading

A team of researchers at the Medical University in Washington D.C. teamed up to conduct a study on Dyslexia. Dyslexia is a learning condition which makes it difficult to read. The study took 38 participants, half of which were diagnosed with dyslexia. As the image reveals, the Dyslexic group has less activity going on in their brain as they read, meaning the brain is unable to interpret the phonics of language. This study was helpful to disprove some old beliefs that people who had trouble reading lacked intelligence. In fact, Albert Einstein had Dyslexia!

Composite of 20 student brains taking the same test



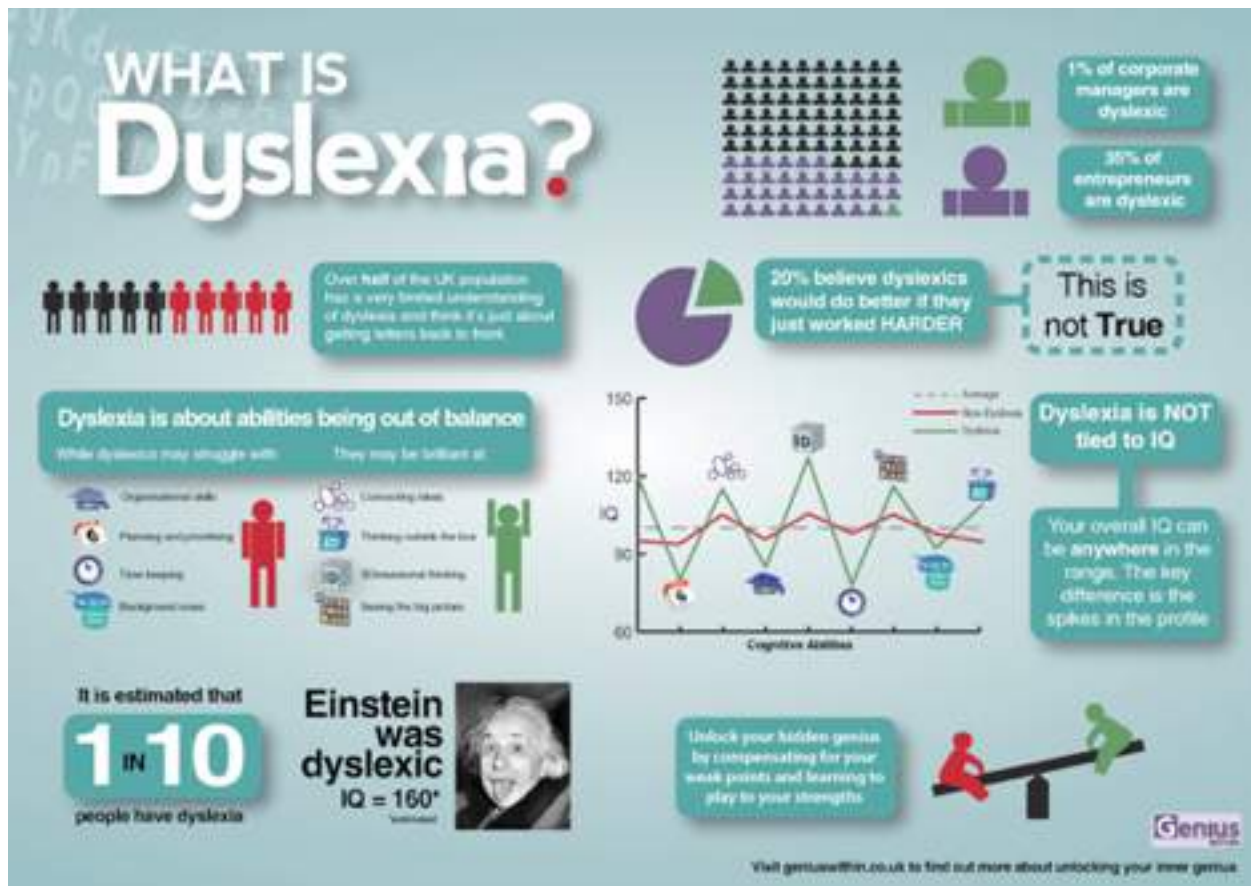
After sitting quietly

After 20 minute walk

Research/Scan compliments of Dr. Chuck Hillman University of Illinois

## How Can We Apply What We Know About Dyslexia To Help Our Students?

Well, we know movement triggers activity in the brain! If Dyslexia is a lack of activity in the brain, the answer is simple- Get these students moving! This is WHY Kidsfit created the Kinesthetic Desks-- they provide the child the opportunity to move **at the same time** they are reading and activate parts of the brain that are used while reading.



[geniuswithin.co.uk](http://geniuswithin.co.uk)

## Research Studies Conclude Exercise Helps Dyslexic Readers Improve Reading Skills!

*A test of students with dyslexia showed a significant improvement on standardized test scores and verbal fluency in the group which incorporated movement into learning, vs the group who had no movement.*

There have been many new ideas to “cure” Dyslexia, yet our efforts are to no avail. However, researchers have recently found a way to help improve the reading abilities of those with Dyslexia. In Britain, the idea of incorporating exercise and “brain breaks” into learning sessions is taking off. The basis for the idea is that these simple exercises actually stimulate the parts of the brain that aren’t as active in a Dyslexic brain.

60 Minutes decided to follow two people diagnosed with Dyslexia who were enrolled in the program (which implements learning and exercise). Their readings skills increased DRAMATICALLY! Check out the video below.

<http://www.cbsnews.com/news/dyslexia/>

# CREATING THE IDEAL LEARNING ENVIRONMENT FOR ADHD

*“Everyone is a genius. But if you judge a fish by its ability to climb up a tree, it will believe its whole life that it is stupid.”*

*-Albert Einstein*



## ADHD or Kinesthetic Learner?

ADHD have been gaining increasing exposure with more and more children being labeled as having an attention disorder. According to the Association for Comprehensive Neurotherapy (ACN), of all the learning styles, kinesthetics are least likely to receive appropriate teaching (Linksman, 1999). Since mainstream education predominantly utilizes a seated-desk style of auditory and visual teaching strategies, the students who require movement are often prematurely prescribed Ritalin or labeled as a troublemaker and a poor achiever based on their reactions to the imposed learning environment . This information is not surprising since according to Madison

McWilliams, headmistress at the Joule school, “the symptoms of ADHD in the classroom are almost identical to those of a kinesthetic learning style (2013).” It is no coincidence that a large number of attention disorders are diagnosed around 1st grade, as this coincides with a drastic shift from interactive, group song and dance learning environments in kindergarten to more seat-based learning from first grade on (Linksman, 1999).



## Kinesthetic Learning Style

If a kinesthetic learner craves movement, muscle contraction, and complete engagement to learn, then why are they required to sit at a desk most of the school day? Many would answer that it would be too disruptive to allow these students the type of learning style they need. Ironically, allowing movement would cut back on distractions such as wiggling, tapping, playing at their desk or trying to get out of class (Linksman, 1999). True kinesthetic learners will actually be able to stay on task during lessons when they are allowed to use their bodies (Linksman,

1999). Just like visual learners require pictures for successful learning, kinesthetic learners must have the freedom to move in order to prevent the chances of becoming stuck in a pattern of poor academic achievement, decreased motivation and low self-esteem (McWilliams, 2013). This is why it is critical to optimize educational environments to maximize success for all learning types.

# *Teaching Through Movement*

*Excerpt from author and pioneer Kinesthetic Classroom Teacher, Stacey Shoecraft's Book*



# INSIDE STACEY'S CLASSROOM



*“It is sometimes the journey that takes the longest that is the sweetest in life. Sounds deep, doesn’t it? However it is true, in my case. I consider myself to be a real-life “Mulan”. Remember her, the girl in the Disney movie, who saves China from the Huns? Her father told her not to worry about being like everyone. He told her that the lotus blossom that blooms last, blooms best, or something like that. I haven’t saved a nation from the Huns but I feel that there is mission out there that is worthy of a crusade. However, I do not have an army like she did. That is...yet. This is where YOU come in, I need your help! You’re thinking, “Wait, I was looking for a light read, I am not into doing anything that involves physical exertion.” Sorry, I need all the help I can get. Don’t let that stop<sup>3</sup> you from reading this, I think there’s a reason why you chose to read this too....”*

## The Early Years

Everyone has a story. I include mine only to let you know I have been “that student”. From the age of six or seven, I played teacher and created materials for my students also known as my “students”. All went swimmingly until sixth grade. Then I discovered boys, the phone, TV, and anything else that might momentarily catch my attention. My grades started to slip, slowly each year until I ended up graduating from high school with a “C” average and no longer thought of being a teacher. I didn’t think I was smart enough and I had at least one teacher (who shall remain nameless, rhymes with Barton) that made me feel stupid.

While in the Navy, I was an air traffic controller. It was easier when things were busy and planes were landing and taking off. When things calmed down and it was boring? Let’s just say that I may have forgotten that the painters were right next to the runway when a plane was taking off. Not a good thing. There was definitely an attention issue that I was not aware

of and didn’t figure out until I was 32! It was when my son was in first grade that my son’s teacher said he might have a problem with paying attention. I was **incensed** and did not want to put my kid on medicine so I read a gazillion books. You’re not going to believe this, not only did I find out that yes, my son was probably ADD but...so was I! My husband just shook his head and reaffirmed that he had known this (and he had suffered from my erratic behavior) for quite some time. I eventually put my son (and myself on medicine) and it did help a lot. However, I have learned so much since then and wonder if I wasn’t a little premature in putting my son on medicine. Why you ask? He didn’t even grow a whole inch during his fourth grade year from a lack of appetite!

For that, I feel bad and think that we need to tackle teaching from every angle. Just last spring I saw the newspaper and on it was a sticker advertising that one in five kids has ADD. This was right after report cards were issued for the county. There was a number so you could check to see if your child might have ADD too. I can just see that now, the average parent looks at his or her child’s report card and then wonders if it might help their kid to have better grades. Am I against medicine? Yes and No. There are some children that really could benefit from taking medicine. However, what if we changed our approach to teaching?

My goal with this book is to merely tell my story and what has worked for me.





## It Has To Be The Dress!



I can still remember my first day as a substitute teacher. It was a fourth grade class in a nice, suburban school. I didn't even teach the whole day, just the last half. Things started out well enough until I saw the math, I know that I probably blanched inside as I saw geometry figures and terms I had not seen in 16 years! I can remember feeling that my ideal day was slipping away from me, minute by minute. By the time it was over, I felt defeated. Being ever the optimist, I thought about what had gone wrong and reflected (as all good teachers do!). I came to the conclusion that I probably needed to brush up on my math.

Maybe I would even come earlier to look over the sub plans to ensure I really knew the material. Oh yeah, and one more thing, I was getting rid of the dress I was wearing because deep down, that was the problem. The dress was in the trash that night.

Moral of the story? Reflect, reflect, reflect. Think about what works, what doesn't work, and go shopping regularly, you're going to need it!

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## You Want Me To Do WHAT?

I started in a private school where the children all seemed to be homogeneously the same, or so I thought. After three years of teaching, I knew that I needed to hone my skill. I knew that children weren't the same and that I needed to learn how to service all my children.



I went to a new school with children of all ranges. My first year, I had a child who was never truly diagnosed with anything other than ADD but had issues every year with the teachers and the students. I was asked to do certain exercises to help calm him. At the time, I was wondering how I was going to make this happen when I had so many other things to do

during the day.

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How ironic that even though it was for that one particular child, it impacted the other third grade students as well. I never wanted to isolate him and make him feel singled out, so the entire class did the exercises. He seemed to be nonchalant about the whole thing. I wondered to myself if it was really worth it. It didn't take long until the other students asked if we would be doing the stretches and then I realized how much they liked it too. It gave them a chance to move and all kids need that, regardless if they have special needs or not. At this point, I only did the exercises to help the one student. It took a while before I connected the dots and realized there was a bigger benefit from having movement in the classroom.

For some people, they already have their students move in the classroom, so this is not a new concept. However, you would be surprised that there are still many teachers afraid to get the kids moving. I mean, what are you going to do once you get them all wired up? Two things: First, start slow and within your comfort zone and second, use some technique that works for you. When I first started incorporating movement in the classroom, it would be something simple like "Toss the Duck" during a review session or to assess prior knowledge. No, not too original but most things we use we have borrowed from someone else. The kids loved it because it was throwing something. I used my Beanie Baby duck and told them that the only rules were that they couldn't nail someone in the head and my duck couldn't hit the ground. The reason why I liked this is because it helped draw in kids who might otherwise just sit there. Cause who doesn't want to throw a duck around the classroom while answering questions? (Rhetorical question,

don't answer) The way I calm them down after I have spun them up is to use the "Egg of Calmness". Remember when you were a kid and your Uncle \_\_\_(insert name here)\_\_\_ would crack the pretend egg on your head? It felt really cool as it went down your head. After I have my kids move, I tell them to get their egg. Depending on how excited we are, depends on the size of our pretend egg. We use both hands and crack it (together) on our heads. Then we let the "yolk" ooze down our head, on our shoulders, down our arms, down our bodies, and slide all the way to our feet. I talk calmly to them as we are doing this and explaining each part. Once we reach the feet, I tell them to come up slowly and be ready to move on to our next activity. The funny thing is that after a while, we didn't always have to go through all the steps. I could just tell them to "Crack your egg!" and they would calm down and quickly transition. It is a good way to bring them back without saying the same thing and it is important to do with them. I know that I can get pretty excited, so it works for me too!

### **Boys versus Girls?**


As a teacher and a parent of two sons, the saddest thing was to hear boys say they don't like school. We hush them and say surely they like something about it. Oh yeah, lunch, recess, and PE! Of course, they are able to move! This progression starts in middle school and is evident in high school. Two thirds of boys graduate from high school. We are missing a third of those boys. I find this alarming! Yet there is even more bad news, the graduation ratio of boys to girls from college is 60/40. I am not trying to make one sex more dominant than the other, but I do find it troubling that we are leaving our boys behind. Girls are more apt to have self control and they want to learn. Sitting still is not an issue for most girls and they are more likely to pay attention. On the other hand, these qualities can be quite a challenge for boys, until they have matured later in life. Therein lies the problem, boys (and girls) that are not allowed to move will eventually be left behind. If they don't conform, then what are the chances of their future success? We have to THINK about how we teach our students, to ensure we are engaging all of them. When they say No Child Left Behind, we are leaving quite a few children behind and there is a solution right under our nose.

## **I am NOT a PE Teacher!** (Or in other words: Why Should I?)

You are probably thinking, “I don’t know “how” to get the kids moving...I am NOT a PE teacher!” Good news- neither am I! That’s not what this is about. It’s more of a control issue. Teachers like to have control and many think that if you get the students moving, you won’t be able to rein them in to learn. I envision it like “Cats on a ceiling”...how do you get them down? First and foremost, start small and express your expectations. I always tell my kids if they like the movement activities, then they need to calm down and not act crazy after they move. Because they like to move, they are pretty compliant with that request. Although it sounds like a contradiction, allowing the students to move will actually help with classroom management. Students need to be able to move, to talk, and this will allow them to do it in such a way that is positive instead of negative. It has been proven that with regular movement, referrals in schools decline because the students are active. Exercise automatically releases a chemical in the brain called **serotonin**. To put it in everyday language, when you allow a student to move, they are in a better mood and more receptive to learning. Don’t believe me? Look at the picture below of a brain that shows the difference! Another positive effect is the ability to focus more efficiently. A short term result is the ability to focus for the next two to three hours, as well as improving memory. The end result is a happy and focused child; which is what every teacher wants for their classroom. Right?

## **How do I Start?**

Obviously, many will want to start small with baby steps. As many who read this are teachers, we have control issues (not a bad thing! kind of) and we are afraid of chaos that occurs in The Cat in the Hat books and the dreams we have of our nightmare class in the summer!

One of my student’s favorite things to do is to have five minutes of “Walk and Talk”. We start out our day by walking laps for five straight minutes right after the morning announcements before we jump into our learning. I keep an eye on the time and just walk with my kids. We talk about whatever they want to talk about but I am walking with them. Some of my boys like to run instead of walk and I am fine with that, as long as no one gets hurt. What can I say, if it gets their “ya-yas” out...who am I to say no?  After five minutes, we come together to form a circle and I give them a little positive affirmation or expectations for the day as we breath. Imagine me breathing like some exercise queen and waving my arms up and down while telling them things like: “We are going to learn as much as we can today and a little more, We are going to be kind to one another, We are going to look for ways to brighten someone else’s day, Ms. Bell and I love you, we are glad to be your teachers.” Then I finish it off with “What kind of day are we going to have?” and they tell me it is going to be fabulous! The mood has just been set for learning and they all seem to be in pretty good moods! Although you may be thinking, that is five minutes and I don’t HAVE five minutes; I think you might have that time. It gives me a chance to talk to students who may have come into school and have had a bad morning. I know one student who was always in a terrible mood because of his little brother. He would hassle him sometimes on the bus and it affected his day. Walking around and having the chance to talk to someone, to relieve the burden on his chest, prepared him for learning that he probably would not have had otherwise. It also is great for classroom management! Think of the time that may have been spent trying to redirect a student when they are off task. My students love the opportunity to be outside for even a small amount of time. It is like GOLD! Finally, we have roles as teacher and student and time is so precious in trying to deliver our “lesson” that truly getting to know our students is challenging. I look forward to our walks almost as much as the students because I can learn a little more about them, and understand them as a person.

## Students Speak About Their Kinesthetic Classroom

By [Susan](#)

Without further ado, I introduce you to Joseph and Reed. (Two of the most precious 5th grade boys you will ever meet!) \*I would also like for you to know that the three of us were working out on one of Stacey's stations throughout this entire interview. So cool!



**Susan:** *What is it like, from a kid's point of view, to go to school in a classroom like this?*

**Joseph:** You get to move around a lot! I used to go home and tell my mom I had to get my wiggles out. Now whenever I feel like I'm stressing out over some work, I can go into a burst and it helps me concentrate. (A burst is when you go as fast as you can on the equipment for a minute.)

**Reed:** When you do your work and you're also moving, your brain doesn't just stop and get distracted. Your brain can actually concentrate on what you are doing. You stay awake!

**Susan:** *Do you ever find the tables distracting?*

**Joseph:** No- it's not distracting. This year I've even gotten better report cards than last year! And Mrs. Shoecraft has a system for us if she needs to give us directions or make an announcement. She tells us to "step down" and put our feet on the floor, look at her, and stand still until she's done. Then we can get back on the equipment.

**Reed:** I think it's the opposite of distracting. There are times when we stand off and focus on the teacher, there are times we all sit on the carpet for a lesson, and there are times when we are doing work. Work time is when we are on the tables, and it really helps me stay awake and concentrate when I can move. I've been getting better grades this year too!

**Joseph:** I bet if we did a survey we'd find better grades in our whole class! (*Good idea! I think Mrs. Shoecraft is working on a study with a local university right now!*)

**Susan:** *What about concentration? Is it easier or harder to concentrate when you're moving?*

**Joseph:** I think it's easier. When you're in a regular desk, sometimes you have to work to keep your eyes open!

**Reed:** I agree with Joseph 100%- when you're moving it's actually easier to listen and keep your eyes open. I can remember times last year when I would zone out or get really sleepy. That doesn't happen this year.

**Susan:** *Do you feel like school is more fun now?*

**Joseph:** I think maybe this is my favorite year. Maybe it's because of the tables or maybe it's just because we have spectacular teachers. The only thing I don't like about 5th grade is the homework. But, Mrs. Shoecraft has taught us some exercises we can do at home and it helps me blast through the homework much faster.

**Susan:** *You mean you take movement breaks at home during homework too?*

**Joseph:** Yes! And I don't mean it's too much homework. But moving helps me get through it.

**Reed:** I play basketball and I've learned to give myself brain breaks during my homework. I work for 10 minutes and then I go run 5 minutes of drills. Then I come back and do more homework. I got that idea from this class and it really helps me stay focused when I'm doing my homework.

**Susan:** *Do you notice a big difference taking movement breaks than if you just sat and did homework for 45 minutes?*

**Reed:** Definitely! I would fall asleep.

**Joseph:** Last year 50 minutes of homework would take me 1 and 1/2 hours. I just got too sleepy and tired. This year I can do it in 50 minutes- sometimes even less.

*Susan: Why should principals invest in these kinds of kinesthetic classrooms?*

**Joseph:** I think it makes kids get better grades. And if you did this all through school, you would get so much healthier! Your muscles would get stronger because you use them while you're working.

**Reed:** It's safe and it's just better. Your body doesn't get stiff and cramped up because it's always moving.

*Susan: Thanks for your thoughts, boys!*

**There you have it, straight from the students themselves. Kind of makes me rethink many of our educational practices. How about you?**

**Movement is powerful.**