Tab 6
Rhythm and Timing

Rhythm and Timing

Why is this Important? Timing is inherent in everything! Repetitive, rhythmic movement is calming, regulating, and organizing. These activities help improve and internalize rhythm and timing, which ultimately impacts total functioning including (to name a few) verbal and reading fluency, coordination, social skills, organization, planning, sports, dancing, learning, being on time, and being in synch with the world and others.

Coaching for all Rhythm Activities: Do the activity with the student and let him work it out and entrain with you over time, using non-verbal or very limited coaching only if needed. **Do not rush from one step to the next. Spend time really settling into each step of the activity.** This should feel easy and fun.
Purpose: Increase rhythm, timing, sustained attention, flexibility, ability to notice changes and adjust or shift.

Activity 1

Set timer for 1 minute. Keep steady rhythm going for 1 minute, moving to the next step in the sequence as the student is ready.

Together with the student, stomp in place to a steady beat.
Continue stomping counting out loud to 5.
Continue counting and stomping to a count of 5, stomping harder on the 1-beat.

Activity 2

Set timer for 90 seconds. Keep steady rhythm going for 90 seconds, moving to the next step in the sequence as the student is ready.

Together with the student, stomp in place to a steady beat, counting aloud to 5.
Continue counting and stomping to a count of 5, stomping harder on the 1-beat.
Continue stomping to a count of 5, stomping harder on the 1-beat, but counting in your head.
Continue stomping to a count of 5, stepping forward on the 1-beat.

Activity 3

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp to a count of 5, emphasizing the 1-beat and counting in your head.

Stomp in place.

Step forward on the 1-beat.

Step forward and clap on 1-beat.

Step to the side on the 1-beat (no clap).

Step to the side on the 1-beat (no clap).

Activity 4

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp to a count of 5, emphasizing the 1-beat and counting in your head.

Step forward on the 1-beat.

Step forward and clap on 1-beat.

Step to the side on the 1-beat (no clap).

Step to the side and clap on the 1-beat

Start sequence again.

Activity 5

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp in place to a count of 5, orally counting **1**-2-3-**1**-2 and emphasizing the 1-beats with voice and stomp.

Add a clap on the 1 beats.

Clap high (above head) on the first 1-beat (**1**-2-3) and clap low on the 2nd 1-beat (**1-**2)

Start sequence again.

Coaching: Bending the knee and sinking into the 1-beats will help the student both see and feel the beat. When you add the clap, really sink into the knee, coordinating the clap, stomp, and knee like dancing.

When you begin clapping high and low, keep the body loose and use the whole body to go high and low. We want the whole body flowing in the rhythm in a coordinated, integrated way, versus over-thinking one part.

Activity 6

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp in place to a count of 5, mentally (silently) counting **1**-2-3-**1**-2 and emphasizing the 1-beats with the stomp.

Add a clap on the 1 beats.

Clap high (above head) on the first 1-beat (**1**-2-3) and clap low on the 2nd 1-beat (**1-**2)

Clap high on the 1 beats for the whole 5 count (**1**-2-3-**1-**2); then clap low on the 1 beats for the whole 5 count.

Start sequence again.

Activity 7

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp in place to a count of 5, mentally (silently) counting **1**-2-**1**-2-3 and emphasizing the 1-beats with the stomp.

Step forward on the second 1-beat. (1-2-**1**-2-3)

Add a clap on the first 1-beat. (**1**-2-1-2-3). Step forward on the second 1-beat. (1-2-**1**-2-3)

Start the sequence again.

Activity 8

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp to a count of 5, mentally counting **1**-2-**1**-2-3 and emphasizing the 1-beats with the stomp.

Step forward on the 1-beats. (**1**-2-**1**-2-3)

Step to the side on the 1-beats. (**1**-2-**1**-2-3)

Step to the back on the 1-beats. (**1**-2-**1**-2-3)

Start the sequence again.

Activity 9

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp to a count of 5, mentally counting **1**-2-**1**-2-3-and emphasizing the 1-beats with the stomp.

Step forward on the first 1-beat (**1**-2-1-2-3) and to the side on the second 1-beat (1-2-**1**-2-3).

Step forward on the first 1-beat (**1**-2-1-2-3) and step back on the second 1-beat (1-2-**1**-2-3).

Step to the side on the first 1-beat (**1**-2-1-2-3) and step back on the second 1-beat (1-2-**1**-2-3).

Start the sequence again.

For a Challenge: Add a clap on the first, second, or both 1-beats. Add a high clap when stepping forward and a low clap when stepping backward.

Activity 10

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Together with the student, stomp in place to a steady beat, counting out loud to 7 and emphasizing the 1-beat.
Continue stomping to a count of 7, but counting silently in your head.
Step forward on the 1 beat.
Step forward and clap on the 1-beat.
Step to the side and clap on the 1 beat.

Activity 11

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp in place to a count of 7, orally counting **1**-2-**1**-2-3-4-5 and emphasizing the 1-beats with voice and stomp.

Add a clap on the 1 beats.

Step forward and clap on the 1-beats.

Step back and clap on the 1-beats.

Step to the side and clap on the 1-beats.

Start sequence again.

Activity 12

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp in place to a count of 7, orally counting **1**-2-3-**1**-2-3-4 and emphasizing the 1-beats with voice and stomp. When ready, start counting (silently) in head.

Add a clap on the 1 beats.

Clap high (above head) on the first 1-beat (**1**-2-3) and clap low on the 2nd 1-beat (**1-**2-3-4)

Step forward and clap high on the first 1-beat (**1**-2-3); step back and clap low on the 2nd 1-beat (**1-**2-3-4)

Start sequence again.

Activity 13

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp in place to 2 counts of 7, orally counting **1**-2-**1-**2-3-4-5 **1**-2-3-**1**-2-3-4 and emphasizing the 1-beats with voice and stomp. When ready, start counting (silently) in head.

Step forward on 1-beats.

Step to the side on 1-beats.

Step to the back on 1-beats.

Start sequence again.

Activity 14

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Stomp in place to counts of 7, orally counting **1**-2-**1-**2-**1**-2-3 and emphasizing the 1-beats with voice and stomp. When ready, start counting (silently) in head.

Step forward on the first 1-beat, to the side on the second, and to the back on the 3rd.

Add a clap on the 1-beats.

Reverse the pattern going back, side, front on the 1-beats (clap or no clap)

Step side, back, front on the 1-beats (clap or no clap)

Start sequence again.

Activity 15

Set timer for 2 minutes. Keep steady rhythm going for 2 minutes, moving to the next step in the sequence as the student is ready.

Alternating 5 and 7 counts

Start on right, stomping diagonally to left. Stomp and clap diagonally on the 1-beats: **1**-2-3-4-5-**1-**2-**1**-2-**1**-2-3

Start on left, stomping diagonally to right. Stomp and clap diagonally on the 1-beats: **1**-2-**1**-2-3-**1-**2-**1**-2-**1**-2-3

Start on right, step to the side on the 1-beats for **1**-2-3-**1**-2-3-4 and to the front on the 1-beats for **1**-2-3-**1**-2 (clap or not clap).

Repeat starting on the left.

Start sequence again.

Further rhythm activities: Make-up rhythms for 3,4,5,7,and 9 counts. Remember that you want to really settle into the repetition before changing the rhythm, count, or movement.

Tab 7
Relaxation and Calming

Relaxation and Calming

Why is this Important? Relaxation and calming activities build an awareness of what it feels like to relax, a first step in consciously controlling stress, anxiety, and focus. Activities stimulate:

- Proper proprioceptive sensory integration (accurately perceiving information from the joints and limbs)
- Parasympathetic nerves, which help pull the person out of "fight or flight" into a calmer state
- The stapedius muscle in the middle ear, whose job it is to decrease sensitivity to noise
- Ability to rest and refresh the eyes and mind
- Oxygen to the brain, which improves thinking and encourages muscles to relax as they are flooded with oxygen rich blood.
- Ability to reduce anxiety and control stress.
- Calmer, clearer state for thinking, learning, emotional balance, and decision-making.
- Self-monitoring and control of stress reactions to support clearer thinking for learning, relationships, and problem solving

Starting Point: Students who tend to be very tense, rigid, or anxious will begin with Activities 1-3 and work through all of the activities over the course of the training. Students who do not appear to need this level of stimulation may begin at Activity 4.

Relaxation and Calming activities should be introduced in order, but more than one activity can be used within the session.

Application: ***Joint Compression*** and ***Cranial Massage*** are activities that can be used any time a student is over-stimulated or anxious. Parents find that these two activities are particularly helpful in settling children down at bedtime.

The ***palming*** and ***breathing*** activities can be used by students to refocus their attention while doing homework or schoolwork, and to reduce anxiety before tests and presentations.

Activity 1: Joint Compression

Using both hands and holding on either side of each joint, pull, push, twist right, then twist left for each joint of each finger starting with the pinkie. Repeat for the wrist, the elbow, and the shoulder joint.

Work each toe, ankle and knee in the same manner. The hip is difficult, but rotate it a little.

While the student is standing, press down twice against the top of the shoulders and the head. Use both hands to "cap" the top and sides of the head.

Coaching: Coach students in a kinesthetic voice to relax, close their eyes if they want to, and discourage any talking.
Coach students to breath in and out slowly through the nose (which calms the nervous system). Take deep audible breaths in and out through your nose as you do joint compression on the student so that the student will begin to entrain to your breathing.

Purpose: Proprioception is the sense that allows us to know where our limbs are in space. The sense of proprioception uses unconscious information from the muscles and joints to give awareness of body position. This sense makes it possible to move our arms or legs without looking at every movement. Proprioception automatically adjusts body position, for example, to prevent falling out of a chair. It also allows us to manipulate small objects such as a pencil or a toothbrush.

When children are not getting enough information from their body, they may not know where they are in space. This can cause anxiety and lack of control. These children may move excessively in order to get enough information/stimulation to know where they are. Children with poor proprioception may have difficulty with sports.

There are sensory receptors between each joint. This exercise allows for proper proprioceptive sensory integration. It is very calming and helps children know where their limbs are in relation to their body.

Activity 2: Cranial Massage

Start in the middle of the forehead.

With 2 fingers and using moderate pressure, trace the area above and around the outside of the eyes to below the nose, then toward the ear, below the chin, back up and around the ear lobe, then going down to the base of the neck. Bring fingers up the midline of the head to the top of the head, massaging the scalp as you go.

Repeat with deeper pressure.

Cranial massage can be done on one side, then the other, then both together; or it can be done with both sides simultaneously.

Coaching: Coach students in a kinesthetic voice to relax, close their eyes if they want to, and discourage any talking.

Coach students to breath in and out slowly through the nose (which calms the nervous system). Take deep audible breaths in and out through your nose as you do cranial massage on the student so that the student will begin to entrain to your breathing.

Purpose: The parasympathetic nervous system is the ”rest and digest” part of the autonomic nervous system. Is conserves energy and slows the heart rate.

Cranial Massage stimulates the parasympathetic nerves, which pull the child out of the "fight or flight" mode into a calmer state.

For children who are hypersensitive to noise, this is particularly important because in going up and around the ear lobe, we stimulate the facial nerve. This nerve is directly connected to the stapedius muscle in the middle ear, whose job is to decrease sensitivity to noise.

Activity 3: Joint Stretch (3-5 minutes)

Have the student lay face down on the floor, arms straight out and legs straight, feet extended.
Grasp the student's wrists and pull firmly, raising the shoulders off the ground.
Hold 5 seconds and release.
Repeat 6 times, waiting 5 – 10 seconds between each stretch.
Then grasp the student's ankles and pull firmly, raising his legs off the ground.
Repeat 6 times, waiting 5 – 10 seconds between each stretch.

Coaching: Coach students to breath in and out slowly through the nose (which calms the nervous system). Take deep audible breaths in and out through your nose as you do Joint Stretch on the student so that the student will begin to entrain to your breathing.

Purpose: This exercise will help center and calm the student while increasing stimulation and energy to the brain. Activating the joints and resting in between helps increase proprioceptive awareness.

Activity 4: Five-Count Breath (3-5 times)

Instructions to student:
Inhale slowly through your nose and count to five on your fingers by lifting one finger at a time. Without holding your breath, begin exhaling slowly through your mouth in five counts as you put your fingers back down. (Do a 3-count breath if 5-counts is too much for the student at first).
Repeat 3-5 times.

Modification: If student lacks the coordination to lift fingers or wants to be more discreet (i.e. for application to school), have her place her hand on her knee and gently tap once with each finger starting with the thumb for the five-count inhale and reverse for the five count exhale.

Application: Help student to determine times in his day when he feels anxious, overwhelmed, too speedy, or unfocused. Determine a specific time when he will try using the 5-Count Breath to help him settle and focus. Get parents or teachers on board to help younger children use the 5-Count Breath. Check back with the student to see how it worked for him and continue to talk about using this tool outside of your sessions.

Purpose: Deep breathing immediately forces oxygen into the brain, which improves thinking and encourages muscles to relax as they are flooded with oxygen-rich blood. Deep breathing calms the nervous system. Students can use the 5-count breath before taking a test, giving a talk, when they need a brain break during homework, or anytime they feel overwhelmed, nervous, or out of control.

Activity 5: Palming (2-5 minutes)

Instructions to student:
Warm your hands by rubbing them together briskly.
Softly place the heel of your hands over your eyes.
Keep your neck and back straight; shoulders relaxed. Rest your elbows on the table.
Breathe in and out slowly through your nose, feeling the warmth and darkness soothe the muscles of your eyes and whole body.

Coaching: Coach students in a kinesthetic voice to notice the darkness and the warmth. Audibly breath in and out through your nose so that the student will entrain with your breathing.

Application: Help student to determine kinds of tasks or times of day that make his eyes feel tired or like they are working too hard. Agree on a specific time when he will try using Palming to relax his eyes and mind in order to continue a task/homework with more ease and efficiency. Get parents or teachers on board to help younger children use the Palming. Check back with the student to see how it worked for him and continue to talk about using this tool outside of your sessions.

Purpose: This is an excellent way to rest and refresh the mind and eyes. It is particularly helpful for students who struggle with reading.

It gives them a needed brain break and reduces the strain on their eyes.

Activity 6: Heart Breathing Strategy (1-5 minutes)

Instructions for younger students:

Breathe in and out slowly, imagining the breath going in a circle around your heart.

Do 3 slow heart breaths.

Keep breathing circles around your heart and think about a time you felt really, really good.

Keep thinking about that really good, really happy feeling.

Instructions for older students:

Breathe in and out slowly, imagining the breath coming in and flowing around the area of your heart; then exiting through your navel.

Once you feel yourself begin to relax, think about a time when you felt truly appreciated or deeply content and at peace.

Focus on this feeling as you continue to do heart breathing.

Application: Help student to determine times in his day when he feels anxious, overwhelmed, frustrated, or stuck. Determine a specific time when he will try using Heart Breathing to help him shift his emotional focus so that he can feel more calm and capable and

think more clearly. Get parents or teachers on board to help younger children use Heart Breathing. Check back with the student to see how it worked for him and continue to talk about using this tool outside of sessions.

Purpose: Heart breathing is an excellent technique for reducing anxiety and controlling stress. It provides a strategy for consciously slowing down one's heart waves or heart rhythm, which also slows down brain waves to produce a calmer, clearer state for thinking, learning, emotional balance, and decision making.

Activity 7: emWave (5 minutes)

Do heart breathing, using the emWave to monitor coherence (ability to control and slow heart waves).
Attach the ear monitor and use the emWave while doing tasks that are typically anxiety producing for the student, such as oral reading, math, or presenting an oral report. The student practices remaining calm and relaxed while doing the task.

Application: Help student to determine times in his day when he feels anxious, overwhelmed, frustrated, or stuck. Determine a specific time when he will try using Heart Breathing to help him shift his emotional focus so that he can feel more calm and capable and think more clearly. Get parents or teachers on board to help younger children use Heart Breathing. Check back with the student to see how it worked for him and continue to talk about using this tool outside of sessions.

The emWave and the Inner Balance App for iPhone and iPad, both researched and developed by Heartmath (www.heartmath.com) help students to see both their stress reactions and the change they can

induce using Heart Breathing. This is so effective for students in learning to control their stress reactions that many families opt to purchase the emWave or the Inner Balance App for use at home.

Purpose: Learning to self-monitor and control stress reactions supports clearer thinking for learning, relationships, and problem solving.

Tab 8
Differentiation and Body Awareness

Differentiation and Body Awareness

Why is this Important? Children with apraxia and severe challenges with body awareness and control may not be able to locate, isolate, and move specific parts of their body without a great deal of conscious effort or help. This greatly impacts self control and the ability to coordinate sequences of movements needed for general ease of functioning. For example, throwing a ball involves using the shoulder, elbow, and wrist in a fluent, coordinated sequence. A child who has not differentiated his shoulder, elbow, and wrist, may throw with his whole arm in a wild, jerky motion.

Differentiation activities include isolated movements and control of:

- Shoulders
- Head
- Arms, elbows, wrists, hands, fingers
- Legs, knees, ankles, feet, toes
- Hips, waist, tummy, back, sides

Body Parts

Activity 1: Brushing and Naming Body Parts

Point to body parts on student and name them. Student repeats.

Say body part and have student point on herself. i.e. "Touch your cheeks."

Point to body parts and have student name them.

Brush body parts that student doesn't know, going top to bottom with toothbrush, soft brush, or soft Luffa sponge.

Give commands using body parts. Using a stuffed animal "helper" helps make it fun and engaging. i.e. "Put the monkey on your shoulder." "Touch the rabbit with your wrist." "Pat your head."

Once student has body parts down, see if he can memorize a sequence of directions and copy you. Say and point to a body part. Tell student to do the same. Next, give 2 directions, then 3, and so on. To make it fun, switch roles and have student be the one to give you cues.

Body Parts: Head, forehead, eyebrows, nose, cheeks, lips, chin, neck, chest, shoulders, arms, elbows, wrists, hands, palms, each finger, stomach, waist, hips, legs, knees, ankles, toes, feet.

Purpose: Learning occurs first through an awareness of self. When children do not have themselves as a reference point, they tend to feel lost, disconnected, and anxious in their environment. Poor body awareness causes lack of coordination and control, as these children do not know they have a body, or cannot adequately perceive where their limbs are in space.

In addition to developing sense of self, identifying and naming body parts provides language for developing mental control over the body.

Differentiation Training Guidelines
Student should be lying on back. Put a pillow under student's head and legs. The pillow should elevate the legs slightly. Position yourself at the student's side. Gently stroke student's legs to ground and calm. Keep one hand on legs as needed throughout activity to provide information for student about where he is in space.

Differentiate the body piece by piece. When student first begins to try to do the movements on his own, he may make fast, jerky movements. Use a kinesthetic voice to coach the student to go slowly.

Do differentiation exercises on the floor first. Then move to sitting and then standing.

Your goal is for students to motor plan and execute the movements themselves. When you start, you will do the talking and move the child's body. Then, say, "Help me," and lighten up your touch.

If the child is "all over the place," you will need to guide his movements. You don't want him to practice with confusion, but you do want him to try

Once the student has awareness and control of one part of the body, give him motor activities that use that part of the body.

Purpose: Differentiation activities give tactile input so that students can

1. Feel and recognize that they have that body part
2. Understand how that part of the body moves and what it can do
3. Increase motor planning
4. Gain conscious, then automatic, control over the body

Activity 2: Shoulder Differentiation

Hold student's shoulder from the side with your thumb on top and fingers underneath.

Up and Down: Move shoulder up (towards face) like a shrugging shoulders motion and then move it back down firmly, saying, "This is your shoulder. It can move up (as you move it up) and down (as you move it down)."

Sing it: Up and Down, Up and down, Feel your shoulder go UP (say it) and DOWN (say it).

Ask the student, "Can you help me?" Keep hand on student's shoulder. Try to be aware of when she's taking the lead and gradually reduce the pressure and guidance you are applying. Goal is for the student to control self internally and independently.

Front and Back: Place the hand of the shoulder you are working with on student's stomach. Repeat the process above bringing shoulder forward and back.

Repeat shoulder differentiation in sitting, then standing position. Work each shoulder separately and then both together.

Activity 3: Head Differentiation

Position yourself with knees on either side of student's head. With both hands, gently lift head up and down. Sing Up and Down song. Bring head up. Ask, "Can you hold it?" Gradually lighten your support as student takes over control. Do not let head fall.

Make sure the rest of the student's body is flat on the floor. Slightly push down on their shoulders as they keep their head up for a set amount of time. Goal is to move the head independently from the rest of the body.

Once student is able to do that task independently, put your hands on student's head to turn it to each side. First, turn to the left then back to center, and then turn it to the right then back to center again. Say each direction as you are moving head. Make sure student has awareness of "center." When ready, have the student do the movements with only verbal cues from you.

Next, have student move his head to the left, then right, then back to center from verbal cues.

If having difficulty differentiating between left and right, you can start off by saying "turn head to the wall" or "turn head to the chair" (whichever is on the side of the student).

Activity 4: Hip Differentiation

Front and Back: When working with the hips, position yourself on the opposite side of the area you will be moving. Make sure you grab the hip so that your thumb/palm fit into the hip bone. The rest of your fingers will be on the side of the hip enabling you to lift the hip bone front and back.

Show contrast between hip and waist. Position your hand so that the hip is locked in. Then place your other hand on the side of their waist. This all must be taken place on the same side you will be working on. Say, "This is your waist (move up and hold 3 seconds, then go down) and this is your hip (repeat). Ask student what each part is as you move it up and hold for a couple of seconds.

Say, "This is your hip. It can move front (as you move it towards you) and back (as you move it back onto the floor)."

Sing it: Front and back, front and back, Feel your hip go FRONT (say it) and BACK (say it).

Up and Down: Grab hold of one side of the hip and move it up towards the waist and hold it for a couple of seconds and bring it down. Repeat the same process as Front/Back

Activity 5: Arm Differentiation

Lift Up / Put back Down

Move Out and In

Do first on floor, then sitting, then standing as with all differentiation exercises.

Activity 6: Leg – Knee - Ankle Differentiation

Student lying on back / No pillow under legs: Lift leg Up / Put back Down. Move whole leg Out and In.

Student lying on side / Put your hands on student's knee and ankle: Lift leg Up and Down. Move leg Front and Back.

Student lying on side / Put your hands on student's knee and ankle. Bend knee Back and Front.

Student lying on side / Put your hands on student's ankle and foot. Flex foot Up and Down.

Do leg, knee, and ankle differentiation on one side and repeat on the other side. If this is too much for student, do just legs; then when ready, add knees, then ankles.

Do first on floor, then sitting, then standing as with all differentiation exercises.

Activity 7: Tummy Differentiation

Student lying on back. No pillow under legs. Knees bent.

Lift Up / Put back Down

Move Side to Side.

Do first on floor, then sitting, then standing as with all differentiation exercises.

Activity 8: Side Differentiation

Student lying on back. No pillow under legs. Knees bent.

Lift Up / Put back Down.

Bend in and out.

Do first on floor, then sitting, then standing as with all differentiation exercises.

Activity 9: Hands and Fingers Differentiation

Student sitting.

Open hand – Close fist. Do with each hand separately; then both together.

Open Them Shut Them Song (Open them –Shut them - Open them – Shut them – Give a little Clap Clap Clap - Open them –Shut them - Open them –Shut them – Put them in your lap.

Put palms together and press

Put fingertips together and press

Hold up and name each finger one at a time. Put finger up and down.

Interlock fingers. Touch finger and have student wiggle it.

Tactile Perception Training Guidelines

Begin with gross discrimination (points farther apart – i.e. shoulder and palm) and move to finer discrimination (points closer together – i.e. wrist and hand)

Activity 10: One – Point Touch

Student's sleeves need to be rolled up and eyes closed. Tell student you will touch some parts of the arm with your finger. Ask student to find the exact place you touched, using the index finger of the opposite hand. Use medium-deep pressure and immediately remove your finger.

Repeat using a light touch.

Do 5 different spots on each arm.

Activity 11: Two – Point Touch

Student's sleeves need to be rolled up and eyes closed.

Simultaneously touch two parts on student's arm and/or hand on the same side of body. Have the student identify the parts touched by pointing with index finger of opposite hand.

Simultaneously touch two parts on student's arm and/or hand on the same side of body. Have the student point to and verbally identify the parts touched (i.e. R elbow, R pointer finger).

Simultaneously touch two spots on different sides of the body (arms and hands). Student touches each spot.

Simultaneously touch two spots on different sides of the body (arms and hands). Have the student point to and verbally identify the parts touched (i.e. R wrist, L thumb).

Purpose: Our tactile sense, or sense of touch, helps us gather information about our surroundings and establish trust and social bonds with other people. Being able to localize and interpret touch is important in order for children to feel safe and to react appropriately to touch.

Working with both sides of the body increases integration of information across the hemispheres of the brain.

Tab 9
Moro Reflex Integration

Moro Reflex Integration

About the Moro Reflex: The Moro Reflex acts as a baby's primitive fight or flight reaction. It is a survival mechanism that helps initiate breathing at birth and which occurs as a reaction to potential danger, such as sudden change of head position, a loud sound, a frightening visual stimulus, or an unpleasant touch.

The baby's Moro reaction is characterized by first taking a deep breath and stretching the arms and legs out away from the body, head back; then pulling the arms and legs into the middle of the body and starting to cry.

The Moro is fully present at 30 weeks in utero. Absence of the Moro in newborns is abnormal as is its continued presence after 4 months of post-natal life. The Moro reflex is replaced by an adult "startle" reflex. If it persists in the older child, it can be associated with:

- Hypersensitivity
- Hyper-reactivity
- Poor impulse control
- Stimulus bound effect (cannot ignore peripheral stimuli to focus attention on one thing – has to pay attention to everything)
- Sensory overload
- Anxiety (particularly anticipation anxiety)
- Labile emotions
- Temper tantrums
- Emotional and social immaturity

- Poor balance and coordination
- Visual motor processing problems (inability to fixate, excessive blinking, and difficulty maintaining eye contact)
- Biochemical and nutritional imbalances
- Higher incidence of ear and throat infections leading to weakened immune system and allergies
- Fatigue and mood swings
- Motion sickness

The Moro reflex triggers a fight or flight reaction, causing the child to go into his survival mode. He may react either with paralysis or temper tantrums when stressed.

When children (or adults) have a retained Moro, they tend to operate in a heightened state. This causes intense chemical reactions in the body. The constant secretion of stress hormones such as cortisol and adrenaline put stress on the immune system, often resulting in allergies and upper respiratory infections and illnesses.

When the Moro reflex is present, it can be difficult to inhibit other active reflexes.

Educational Implications of a retained Moro Reflex: Easily distracted; difficulty focusing on details; difficulty copying from board; allergies and chronic illness. Panic attacks; mood swings; anxiety; fearfulness. Unexpected changes in behavior; aggressive outbursts.

Starting Points: Young students and students with a strong Moro reflex should start at Activity 1. Other students may start at Activity 3 or 4.

How to Work with Activities: Students should be introduced to these activities in order, but may work on more than one at a time.

If the student struggles to coordinate the movements, help him get his body into the right position and help him move his body as needed. Getting down on the floor and doing the movements together helps the student see how they should look and helps older students feel more willing to engage.
Work on each activity until the student can execute it independently, showing ease, flow, and control in the body and speed.

Ending Activity: End every Moro integration session with the following activity:

Lay down on back with eyes closed, arms comfortably at sides, and legs straight and slightly spread.

Take 3 slow deep breaths in and out through the nose.

In a kinesthetic voice, coach student to feel his breath going in and out, in and out.

Coach him to think of his favorite color or favorite place. He should continue to breath slowly and notice his breath going in and out.

Start with 30 seconds of relaxation and build to 60 - 90 seconds. At the end of the relaxation time, use a kinesthetic voice to direct student wiggle his fingers and toes; then turn on his side and come a into a sitting position.

Coaching: Students with a strong Moro reflex may have trouble closing their eyes. Try gently putting a towel over their eyes. (Be sure to let the student know you are going to do this. Do not surprise him).

To help students take slow deep breaths, try saying slowly, "Breathe In- 2- 3; Out 2 – 3." Until you see their breathing deepen and slow down.

Purpose: Students with a retained Moro reflex often operate in "fight or flight." This is a high alert state that makes it difficult for them to relax. Ending the Moro session with this activity is giving them an opportunity to practice letting go and relaxing. Breathing in and out through the nose is calming to the nervous system. Focusing on the breath helps direct their attention inward.

Activity 1: Popcorn

Have child lie on her back and hug her knees to her chest.

Say, "Pop!" and have her pop her legs and arms open into a half-curl.

Student should hold legs, arms, and head up for 2 -3 seconds in the half-curl position; then lay back on mat with arms and legs out (spread eagle). Rest 2 – 3 seconds.

Repeat 3 – 4 times.

Coaching: When student lies back on mat, neck should be relaxed and head all the way down.

Purpose: This exercise activates the upper and lower Moro pathways.

Activity 2: Hand Press

Have student sit crisscross on the floor or comfortably in a chair.

Have him practice taking a deep breath through his nose, hold it, and then let the air explode out his mouth.

Have him practice putting hands together in a praying position. With elbows out to sides, press hands together tightly; then release and drop hands to sides.

Putting it together: Student takes a breath and holds it as long as he can while pressing his hands together.

Then, he should release his hands and his breath at the same time in an explosive release.

Activity 3: Prayer Pose

Student lies on his back with feet as close to the buttocks as possible. Put his hand in prayer position with elbows out to sides.

Have him practice pushing his stomach up as high as possible while keeping shoulders on the ground.

Putting it together: Student pushes his stomach up as high as possible while keeping his shoulders on the ground. He takes a deep inhale as he presses his hands together in prayer position over his chest.

Student holds breath until face becomes red; then very abruptly, tell the student to release and let go. Hips and arms come down and breath comes out the mouth explosively.

Let student rest for 10 seconds and then repeat.

Do Prayer Pose 3 times.

Coaching: Adjust your language to match the student's age and understanding. i.e. "Push your tummy up to the sky."

Purpose: The key is the release! Holding the breath and pressing the hands together activates the sympathetic nervous system. Releasing and letting go stimulates the parasympathetic nervous system. The balance between the two is important.

A person who has a retained Moro and operates in "fight or flight" deprives his system of the much-needed "rest and restore" function of the parasympathetic nervous system. The release in this activity helps the student feel what it is like to let go of stress and activates the parasympathetic nervous system.

Activity 4: Starfish

Student sits towards the front of a chair leaning against the back of the chair so his back is inclined at a 45-degree angle. You may want to put a towel behind the student's upper back for comfort.

Start with head resting back against the towel or back of chair and arms and legs spread out to create a starfish position. Arms and legs should be loose and relaxed.

Inhale.

In a synchronized motion, bring arms and legs inward with dominant leg and arm on top; head down. Arms will be crossed over chest. Foot of bottom leg can lightly touch the ground with the ankle of top leg resting on the knee.

Hold for 5 seconds in this position; then slowly open back up into then starfish. **Inhale through the nose** while extending.

Repeat with non-dominant ankle and arm on top. **Exhale through the mouth** as pull in.

This is one cycle. Repeat for a total of 5 cycles.

Coaching: Coach the student to notice if his arms, legs and neck feel stiff or relaxed. Have him notice (by feeling, not looking) if he has the same side arm and leg on top. Coach him to count to 5 in his head as he holds both the open and closed positions.

Relaxing the neck is important in both the open and closed positions of the Starfish. If this is difficult for the student, coach him to relax his jaw and let his mouth fall open to help release the tension, as well as coaching him to let his neck and shoulders relax.
The goal is for student to be able to execute 5 cycles independently with ease, automatically holding and crossing the opposite arm and leg each time he folds in.

Purpose: The Starfish mimics the Moro reflex movement in a newborn. When startled the infant's head will go back, legs will stretch out and arms will fly up. Then the arms, legs, and head curl in. Having the student alternately cross limbs with same side arm and leg on top, brings conscious awareness and control to the movements.

Activity 5: Neck Rolls

Student instructions:

In a relaxed standing position, slowly rotate your head and neck five times in a clockwise rotation and five times in a counter clockwise rotation. Breathe in and out slowly while you are doing this exercise.

Modifications: If the student is unable to roll his neck all the way around, practice tipping head forward as far as he can, back to center, and then back as far as he can. Repeat 5 times.

Practice tilting head to side with "ear looking at shoulder, back to center, and then tilting to the other side. Repeat 5 times.

Do this activity sitting down first if student has balance problems or is scared when doing it standing.

Purpose: This activity helps the student release tension in his neck and bring head movement under conscious control. It also helps integrate the Head Righting and Tonic Labyrinthine reflexes and connects the visual and vestibular systems**.**

Tab 10
Spinal Galant Reflex Integration

Spinal Galant Reflex Integration

About the Spinal Galant Reflex: The Spinal Galant reflex occurs at twenty weeks in utero and integrates between 3 - 9 months of age. When the baby's skin is touched on either side of the spine, the hips will flex towards that side. This reflex helps with the birthing process and allows the fetus to hear and feel vibration in utero by pushing its spine up against the mother's. It is important in the development of auditory processing.

If it is retained beyond nine months, the Spinal Galant can interfere with bladder control, causing bedwetting beyond age five. Children with this reflex often don't like tight fitting clothing around their waist, and when they have to sit in a chair, they are likely to fidget and squirm and wiggle. It is very difficult to sit still when you have a reflex causing your hips to flex every time you lean against the back of your chair. This reflex is always competing with the child's attention and short-term memory because the child is distracted by the need to be in a constant state of motion.

Retained Spinal Galant Reflex affects:

- Ability to sit still (fidgety, squirmy, wiggly)
- Attention/concentration
- Short-term memory
- Speech, reading, and spelling
- Coordination
- Gross and fine motor skills
- Posture
- Bladder control leading to bedwetting beyond the age of 5

- Can contribute to the development of scoliosis (curvature) of the spine
- Some studies suggest if this reflex remains uninhibited in adults, it may cause irritable bowel syndrome
- Dislike of clothing fitting tightly around the waist
- Near focusing
- Hypersensitivity to touch

Educational Implications of a retained Spinal Galant Reflex: Difficulty with fine motor skills (handwriting); dislike of physical education due to coordination difficulties; making noise to relieve pent-up energy; prefers to do homework or watch TV on floor; ADHD or ADD; speech disorders or spelling difficulties; auditory processing issues; poor concentration and short term memory

Starting point: Students will begin with Activity 1.

Criteria for moving to next activity: Execute the activity independently for the given number of cycles, showing ease, flow, and control in the body and speed.

Activity 1: Angels in the Snow

Student lies on the floor on back with legs straight and arms at sides.

Very slowly, move arms and legs out like a jumping jack. The arms and legs should be touching the floor at all times.

The arms should stretch until the hands touch each other above the head. Student should try to make hands touch at the same time as the legs reach their widest position.

Then bring arms and legs down to starting position very slowly.

Work towards a full cycle taking 60 seconds (30 seconds to open and 30 seconds to close).

A cycle is bringing the arms and legs all the way up/out and all the way back. Repeat for 3 cycles.

Coaching: We want students to move their arms and legs slowly in order to gain mental control over the movements. Say to the student, "How slowly can you go?" However, do not sacrifice flow in order to get slowness.

If the student cannot go slowly, try adding some resistance by placing your hand on the outside of the arm or ankles so that the student has to push against you slightly. This heightens the student's awareness of his limbs and speed.

Coach the student to notice the feel of the mat on his arms or legs as he moves them.

Coach the student to notice if his arms and legs are moving together.

Student's palms should be face down to start the activity and stay down as long as they can. When the arms get to about shoulder level, the hands will need to turn over in order to maintain contact with the mat. Let the student figure this out. If he doesn't automatically figure out that he needs to flip his hand over, say, "What does your hand need to do in order to keep touching the mat?"

Purpose: The Spinal Galant is triggered by stimulation along the sides of the spine. By having the students move their arms and legs slowly, touching the floor at all times, it is keeping the spine in contact with the floor and adding conscious control over the muscles and movements.

Activity 2: Angels in the Snow 2

Student lies on the floor on back with legs straight and arms at sides.

Very slowly, move right arm and leg out like a jumping jack, while touching the floor at all times. The left arm and leg do not move.

Bring right arm and leg down to starting position very slowly.

Repeat with left arm and leg.

A cycle is bringing the arm and leg on each side all the way up and all the way back. Repeat for 3 cycles.

Coaching: Use resistance as needed to help increase student's awareness and control over his limbs and speed.

Purpose: The Spinal Galant can be triggered on either side of the spine. By working one side of the body at a time, we are increasing cognitive awareness of body and muscle control. Work on this activity until the student can fluidly and independently complete all three cycles, switching easily from one side to the other.

The goal with reflex integration is to inhibit the retained reflexes and bring control of body, speed, and force into automatic, unconscious control so that the brain is freed up for higher attention, learning, and retention.

Activity 3: Angels in the Snow 3

Student lies on the floor on back with legs straight and arms at sides.

Very slowly, move right arm and left leg out like a jumping jack, while touching the floor at all times. Opposite arm and leg do not move.

Bring arm and leg back to starting position very slowly.

Repeat with left arm and right leg.

A cycle is bringing the arm and leg on opposite sides all the way up and all the way back. Repeat for 3 cycles.

Purpose: In addition to integration of the Spinal Galant reflex, Angels in the Snow brings awareness to where the limbs are in space and increases laterality (sense of right and left on oneself) and bilateral integration (being able to move both sides of the body separately and together in a coordinated way).

Working with opposite arm and leg activates both hemispheres of the brain and ability to work across the midline of the body.

Activity 4: Angels in the Snow – Mental Flexibility (MF1)

Student lies on the floor on back with legs straight and arms at sides.

Call out a pattern for the student to execute: Examples:

Right Arm, Left Leg, Right Leg, Left Arm.

Right arm and Left Arm; then Left Leg, Right Leg

Student should visualize the pattern as you are saying it; then execute it.

Repeat 5 times varying the pattern each time.

Coaching: Instructions for this activity should be given verbally only – no demonstration – so that student has to think it. If student struggles to remember all of the commands, start with 2 or 3 commands and build to 4. When 4 commands is easy, challenge the student with 5 – 6 commands.

The student should visualize as you give the commands. He may need the interim step of saying and visualizing the steps again in his mind before executing.**Purpose:** Increase ability to visualize and plan. Increase working memory and physical and mental flexibility (trying something in different ways and from different starting points). Increase body awareness in space and intentional body control. This kind of thinking is used in sports and mentally planning routes within a space or from place to place.

Activity 5: Angels in the Snow – MF2

Student lies on the floor on back with legs straight and arms at sides.

Call out a pattern for the student to execute: Examples:

Right Arm, Left Leg, Right Leg, Left Arm.

Right arm **and** Left Arm; then Left Leg, Right Leg

Student should visualize the pattern as you are saying it; then execute it 3 times.

Then have the student reverse the pattern and execute 3 times.

Repeat 3 times varying the pattern each time.

Coaching: When reversing the pattern, let the student **think** it. Do not demonstrate or tell him.

Purpose: Increase ability to visualize and plan. Increase working memory and physical and mental flexibility.

Tab 11
Asymmetrical Tonic Neck Reflex (ATNR)

Asymmetrical Tonic Neck Reflex (ATNR)

About the ATNR: The ATNR in an infant is activated as a result of turning the head to one side. As the head is turned, the arm and leg on the same side will extend while the opposite limbs bend. This pattern helps develop the muscle tone and vestibular system. This reflex is needed at birth so that the fetus can help "unscrew" itself from the birth canal. This twisting movement is the first experience of the infant to understand coordinating both sides of the body together. This is why children taken by Cesarean Section are at a higher risk for developmental delay. Without experiencing this twisting action, they do not get the necessary bilateral integration needed for developing later skills.

The ATNR helps develop hand-eye coordination, as well as visual and auditory processing. Learning difficulties often result from a retained ATNR.

The reflex should be inhibited by 6 months of age. If the ATNR remains active in a child at a later age, it can affect or cause:

- Hand-eye coordination difficulties such as ability to control the arm and hand when writing, throwing, and catching
- Binocular vision – the ability for the eyes to work together as a team. Difficulties may result in blurring, double vision, rubbing and redness of eyes.
- Ability to cross the vertical midline for reading and writing (a right-handed child may find it hard to write on the left side of the page)

- Discrepancy between oral and written performance (poor handwriting and difficulty expressing ideas on paper); dysgraphia
- Development of lateral eye movements such as visual tracking necessary for reading and writing
- Dyslexia, reading, spelling, and grammar
- Dyscalculia (Math)
- Control of automatic balance; loss balance and bumping into objects while walking or running
- Bilateral integration (differentiated and integrated use of the two sides of the body)
- Dropping objects when head turns
- Attention
- Messy eater
- Impatience; childish behavior; selfishness

Educational Implications of a retained ATNR : High distractibility; delayed long distance and binocular vision (causes print to jump around); omission of letters, words, or whole lines; reversal of letters and numbers; difficulty crossing midline; hard to read small print; spelling & grammar difficulties; dyslexia; poor reading comprehension; impaired handwriting; tight grip on pencil; writing at angle across page; persistence in drawing a circle clockwise and difficulty with writing 8s; dysgraphia; dyscalculia; dominant hand/eye/leg/ear not established; difficulty in following multiple instructions; poor memory.

Starting point: Students will begin with Activity 1.

Criteria for moving on to next activity: Execute the activity independently, showing ease, flow, control in the body and speed, and ability to relax the body. Eyes must be able to follow the hand on Activity 1, The Fencer.

Activity 1: Fencer

Student sits in a chair, feet flat on the floor, bent forward with head down and arms crossed. The dominant arm should be crossed on top.

Turn head towards dominant side. As head turns, the foot and arm on that side go out. The student should look at his hand as his arm straightens out to the side.

The other hand simultaneously goes up near the ear (non-dominant side). The other foot does not move.

Have the student go back to the pulled in (fetal) position, arms crossed with the non-dominant arm on top.

Turn the head in the other direction, repeating the sequence: arm and leg go out, eyes are looking at hand; other arm comes up by ear.

Repeat 3 the full cycle (both sides) 3 times.

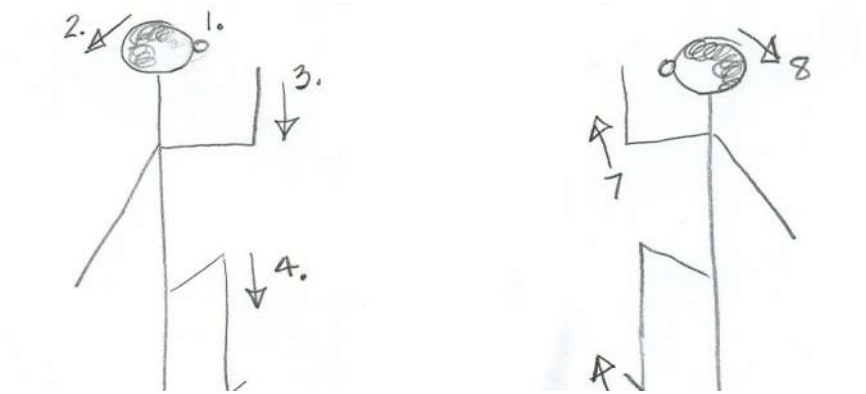
Coaching: To help student check to see if the correct arm is on top, ask questions such as, "Notice/feel which arm is on top. Which one is it? Is it the same one as last time or the opposite?"

Coach student verbally to get her body in the correct position and execute the fencer. As needed, tell just one step at a time (sit in chair – feet flat on floor – bend head forward with chin on chest, etc.). Demonstrate as needed, but we want students to get to the point that they can think about and consciously position and move their body by thinking about and visualizing the instructions.

Purpose: This activity trains the eyes and will increase integration, hand-eye coordination, tracking, and convergence (eyes coming together at the same point). These are skills needed for reading and writing success.

Activity 2: Lizard

Student lies on the floor on stomach with right arm and leg bent and head turned to right. Left arm is down to side and left leg is straight.



1. Nose is facing the side where arms and legs are bent. Palms are facing down.
2. Ask client to move his head SLOWLY to the other side (other ear). See if he can actually lift his head as he turns it.
3. Move bent arm down, keeping palm on the floor.
4. Then move bent leg down until it is straight.
5. **When both legs are straight, have the student pause for 5-10 seconds before he begins to roll to the other side. <u>The pausing is very important</u>.**
6. Move straight leg until it bends.
7. Move straight arm until it bends.
8. Turn head to other side.
9. Move bent arm down.
10. Then move bent leg down until it is straight.
11. **When both legs are straight, have the student pause for 5-10 seconds before he begins to roll to the other side. <u>The pausing is very important</u>.**
12. Move straight leg until it bends.
13. Move straight arm until it bends. At this point, one cycle is completed.
14. Repeat this cycle 3 times. **Do the Lizard <u>2 times per day</u>.**

Coaching: Move the arms and legs as slowly as possible. Then try to relax as much as possible on the pause. (Going slowly is about building conscious awareness and control of body and overriding the reflexive movement).

Ask the student to feel each part of the body while moving. For example, can he feel his hand, his arm, his foot, etc. Can he turn his head more? Can he feel his back? Can he feel his muscles relax during the pause?

The key is developing body awareness and relaxation while doing this sequence.

Purpose: The activity puts the exact same information from each side of the body into the opposite side of the brain. It is an important activity for easily working across the midline on either side of the body.

Tab 12
Symmetrical Tonic Neck Reflex Integration

Symmetrical Tonic Neck Reflex Integration

About the Symmetric Tonic Neck Reflex (STNR): The Symmetrical Tonic Neck Reflex emerges at six to nine months of age and should integrate by nine to eleven months. When the baby is in a quadruped position (position of being on all fours), bending of the legs (sitting on heels) will cause the head to come up and arms to straighten. When the arms bend, head will go down and the bottom will come up as the legs begin to straighten. This rocking motion helps the baby to get on hands and knees in order to crawl and helps develop near to far vision. As the head comes down, his eyes focus to near distance and as the head is brought back up, the eyes adjust to far distance.

This reflex helps the infant learn to rise on hands and knees in order to creep and crawl. Creeping and crawling are essential for visual development. In fact, creeping is one of most important movement patterns for helping the eyes move across the midline (vertical center line) of the body. As the infant moves from one hand to another, the eyes also move from one side to the other. This is very important visual training for reading.

A retained STNR is **highly correlated to learning challenges**. Without the ability to move the eyes easily across midline, the child will lose his place often when reading, and lose his attention as he crosses the page when writing. The focusing distance from the eyes to the hands and the eye-hand coordination skills used for creeping and crawling are at the same distance that will eventually be used for reading and writing.

If the STNR remains active in an older child, it can cause or affect:

- Integration of upper and lower portions of the body (creeping, crawling and swimming)
- Sitting posture (tendency to slump when sitting at a desk or a table)
- Poorly developed muscle tone (causing “clumsiness”)
- Poor hand-eye coordination; poor writing
- Attention, concentration, short-term memory
- Poor visual development (difficulty copying from the board)
- Poor attention to work; decrease quality and quantity
- Difficulties with reading and learning
- Difficulties with shifting focus from near to far and back to near; slow copying
- Wandering around classroom
- Messy eater

Starting point: Students will begin with Activity 1.

Criteria for completion: Execute the activity independently, showing ease, flow, and control in the body and speed.

Activity 1: Rocker

Have student get on hands and knees, then sit back on his feet and calves. He then lowers his chest between his knees so that his forehead touches the ground. He stretches arms in front of him with head in between the arms. (Yoga Child's Pose)

Begin by moving the head and body forward together in a synchronized motion, breathing in through the nose. Move slowly and feel the arms stretch. Come forward as much as possible, keeping the arms straight and looking straight ahead.

After coming to a crawling position, move backward down to the beginning position with the chest between the knees and forehead touching the floor, exhaling through the mouth while moving.

Move and breathe continuously in this way for 3 minutes (18 – 25 cycles).

Coaching: Be aware of body, breathing, and eyes during the movement. The eyes should be open and looking in an arc from floor up to straight ahead and back as body rocks forward and back. Have student notice what his eyes are seeing in the different positions.

Coach student to notice if his arms are straight and to notice where he feels the stretch in his arms as he rocks forward (forearm) and back (upper arm and shoulder).

Start with however many cycles student can do and gradually increase the number of cycles and amount of time.

Purpose: This movement helps train the eyes for near to far vision. This is important for copying from the board, looking from teacher or presentation to notes, from speedometer to road when driving, etc.

Activity 2: Yoga Cow – Cat

Student starts on all fours in crawling position. Weight should be evenly distributed between arms and legs.

While taking a deep inhale through the nose, student will sway his back (cow) and lift his head and eyes up so he is looking straight ahead.

Breathing out slowly through the nose, student will arch his back (cat), tighten stomach muscles, and bring head and eyes down so eyes are looking at legs.

Move and breathe continuously in this way for 8 - 10 cycles (Cow – Cat is one cycle).

Coaching: Student should be aware of his breathing and eyes throughout the activity. Have student notice what his eyes are looking at in each position.

If student has trouble swaying or arching his back, try to find language that he can relate to, such as “keep your arms straight and strong, and pull your tummy towards the floor (sway) or your back up to the sky (arch).

Purpose: This movement helps train the eyes for near to far vision. It helps students improve motor fluency and coordination, calm the nervous system through slow breathing in and out through the nose, and increase eye control and attention.

Students with attention challenges (particularly as related to hyperactivity) often have shallow breathing, frantic movements, and darting eyes. Focusing on breathing, eye control, and slow controlled body movements in this and other CLS activities supports attention awareness and control.

Tab 13
Tonic Labyrinthine Reflex Integration

Tonic Labyrinthine Reflex Integration

About the Tonic Labyrinth Reflex (TLR): The TLR is important for developing correct head alignment, balance, visual tracking, auditory processing, and muscle tone.

When the baby's head goes forward, his legs and arms bend and come in toward his body. When the head goes back, the baby's arms and legs and arms straighten. This reflex helps the newborn straighten out at birth and begins to train balance, muscle tone, and proprioception, or the ability to know the position of different body parts.

The TLR forward (flexion) emerges at 3 – 4 months in utero and should integrate at approximately 3 - 4 months of age. The TLR backward (extension) emerges at birth and integrates at 3 – 4 months to 3 ½ years of age.

If this reflex does not integrate when it should, it gets in the way of developing gravitational security. The child may literally and figuratively feel a little off-balance much of the time because his center of balance is thrown off every time his head moves. He doesn't develop a strong sense of himself as the reference point from which to view the world. He never gets a secure sense of where he is in space, which can affect his sense of direction and understanding of up/down, left/right, and front/back. Interestingly, astronauts in a gravity-free environment (where there is no secure reference point) will show some of the same symptoms that learners with poor reference point do: writing from right to left, reversing letters and numbers, and producing mirror writing.

Characteristics of Retained Tonic Labyrinthine Reflex:

- Weak or tense muscle tone
- Motion sickness
- Difficulty crossing the midline of body
- Mixed right/left dominance
- Difficulty climbing
- Fatigue, poor stamina
- Poor posture
- Late walker
- Difficulty walking up and down stairs or on uneven ground
- Stiff, jerky movements
- Difficulty judging space, direction, distance, velocity

Purpose: These activities help integrate the TLR and Landau reflexes. The Landau is sometimes called the joy reflex, as it seems to have a connection with behavior and emotions. When the Landau is retained, the person may tend toward depression, have difficulty being assertive, not ask for what he needs, not accept what is offered, and have trouble transitioning from one activity to another.

These activities build core strength, muscle tone, coordinate the upper and lower body, improve posture and balance, and help develop visual skills (fixation and near to far vision).

Starting point: Most students will start at Activity 1, but this will vary based on the protocol and degree of upper core strength. Students with good upper core strength may be able to start on Activity 4.

Criteria for moving to next activity: Execute the activity independently, showing ease, flow, and control in the body and speed. It is important that the student is breathing normally, blinking, and holding the limb(s) up with relaxed strength. Student should not look like she is straining.

This activity requires upper body strength. Before moving away from the activity (showing mastery), the student must show that she can sustain the lifted position for 15 seconds without undue stress or strain and complete the recommended number of repetitions.

It is OK to practice more than one activity at a time, but introduce the activities in order, and realize that each successive activity gets more challenging.

Activity 1: Arm and Leg Stretch

Student lies on the floor on stomach with legs straight back and arms straight out in front of her.

Lift head and one arm off the floor, keeping the raised arm straight and eyes focused straight ahead.

Count slowly. Build to a count of 15 (15 seconds).

Repeat with the other arm and then each leg.

Repeat cycle 2 more times.

Coaching: Student can help with the counting if it does not interfere with relaxed, controlled execution of the activity. Be sure she counts slowly (about a second per count). If student cannot hold for 15 seconds, she should hold as long as she can and try to beat her last count on the next try.

Activity 2: Super Stretch

Student lies on the floor on stomach with legs straight back and arms straight out in front of her.

Student should lift head, arms, upper body, and legs as high as she can, keeping eyes focused straight ahead. Legs and arms should be straight.

Count slowly. Build to a count of 15 (15 seconds).

Rest for the number of seconds that the position was held.

Repeat 2 more times.

Coaching: This activity should be done gently and with ease, not with excessive stress and strain. If the student can only lift for a few seconds, then start there, resting in between repetitions and gradually building up their strength and stamina.

Coach student to take a slow deep breath as she lifts. Have her notice if her arms and legs are straight. Notice if the muscles feel calm and strong or strained. If strained, use a kinesthetic voice to coach student to let go of the tightness and let muscles be strong but relaxed.

Be sure the student is breathing while arms and legs are lifted.

Activity 3: Superman

Student lies on the floor on stomach with legs straight back and arms straight out in front of her.

Student should lift head, arms, and upper body, as high as she can, keeping eyes focused straight ahead.

Relax lower body as much as possible, keeping legs and feet resting on the floor.

Count slowly. Build to a count of 15 (15 seconds).

Rest for the number of seconds that the position was held.

Repeat 2 more times.

Coaching: If the TLR backward is active, the legs will tend to come up or bend at the knees. Ask the student to feel if her legs are up or if they are relaxed down on the floor. Have her try to relax her legs down to the floor. You may need to gently hold the ankles and coach the student to relax her legs and feet, and feel the floor under them.

If the student can keep her legs and feet on the floor, but you can see that there is tremendous effort going into it, gently hold the ankles and coach the student to take a deep breath and feel her feet and ankles relax.

Do 2X per day

Activity 4: Hitchhiker 1

Student lies on the floor on stomach with legs straight back.

Thumbs are touching each other tip to tip about **6 inches** from face. Elbows are bent and lifted out to sides.

Relax lower body as much as possible, keeping legs and feet resting on the floor.

Keep eyes focused on thumbs.

Count slowly. Build to a count of 20 (20 seconds).

Rest for the number of seconds that the position was held.

Repeat 2 more times.

Coaching: Be sure that elbows, arms, thumbs, chest, and head are held up with eyes on thumbs. Coach student to check and adjust any part that is dropping or not where it should be.

Coach student to check legs and feet and feel them relaxed and touching the floor.

Do 2X per day

Activity 5: Hitchhiker 2

Student lies on the floor on stomach with legs straight back.

Thumbs are touching each other tip to tip about 6 inches from face. Elbows are out to sides.

Relax lower body as much as possible, keeping legs and feet resting on the floor.

Keep eyes focused on thumbs.

Keeping eyes on right thumb, slowly move head and right arm as far to the right as possible maintaining the distance of 6 inches from the nose. Slowly move arm and head back. This should take 15 seconds.

Repeat with eyes on the left thumb, slowly moving eyes and head to the left and back for a count of 15 (15 seconds). Student does not go down and rest in between right and left sides.

Rest for 30 seconds.

Repeat the right-left cycle 2 more times.

Do 2X per day

Activity 6: Hitchhiker 3

Student lies on the floor on stomach with legs straight back.

Thumbs are touching each other tip to tip about 6 inches from face. Elbows are out to side.

Relax lower body as much as possible, keeping legs and feet resting on the floor.

Keep eyes focused on thumbs.

Keeping eyes on right thumb, slowly move head and right arm as far to the right as possible maintaining the distance of 6 inches from the nose. Slowly move arm and head back.

Turn head as far as possible, then move the arm straight out, watching the thumb at all times.

Bring the thumb back in to about 6 inches from nose; then move head and thumb back to original position, keeping eyes on thumb at all times.

Count slowly. Build to a count of 20 (20 seconds) for one side.

Repeat on the left side. Student does not go down and rest in between right and left sides.

Rest for 40 seconds.

Repeat the right-left cycle 2 more times.

Coaching: Coach student to feel the tension in the lower back.

Have the student check her breathing to be sure she is not holding her breath.

Hold thumb at the same distance from the nose while moving the arm and thumb.

Coach student to move her head as far as she can before extending the arm.

Have student check to see if chest/upper body is still lifted throughout exercise. Challenge her to lift a little higher.

Tab 14
Vestibular Stimulation

Vestibular Stimulation

Why is this Important? The vestibular system is housed in the inner ear. This is our system of balance and movement. The fluid inside the vestibular organs moves and shifts when the head moves, constantly providing information about the position of the head and body in space (spatial awareness).

The vestibular system allows us to maintain our balance and feel secure that we can move and adjust our movements in space without falling. When the vestibular system is fully functional, we are secure and organized in our bodies and can move calmly, safely, and with confidence and control. The vestibular system helps us prepare our **posture,** maintain our **balance**, properly use our **vision**, **calm** ourselves and **regulate** our behavior.

The constant three-dimensional reference point provided by the vestibular system allows the body to adapt to movement and maintain balance without falling or getting hurt. It coordinates the eyes, head, and body so that the brain can respond to movement through space and body position. It coordinates the two sides of the body. The vestibular system impacts visual processing, coordination of movement, muscle tone, timing, and learning efficiency. It provides information to the brain needed to organize for language, reading, and writing.

Cautions: Fifteen minutes of vestibular input can have a 6 – 8 hour impact (good or bad) on the brain and self-regulation. Vestibular input can have a delayed effect in people with disordered systems that can last longer than normal. If there are **unusual or unexpected**

changes in any aspect of person's behavior, mood, sleep, eating, and toileting, **wait a few days** before doing more stimulation.

Do not force activities. If students are uncomfortable, stop or shorten the activity for that session.

Indicators of too much stimulation may be:

- Hyper excitement (still not calm 30 –minutes later)
- Become destructive in environment
- Withdrawal
- Flushed or pale face
- Fast, shallow, or arrhythmic breathing
- Nausea

Starting point: Young children and students with more severe challenges with body awareness and control will start at Activity 1. Other students may begin at Activity 5 or 8 depending upon protocol.

Criteria completing activity: The student should appear balanced and secure with the activity. Body movements should flow and show comfortable versus rigid control. Students may work on more than one activity at a time, but activities should generally be introduced in sequence.

Activity 1: Trampoline

Use a rebounder trampoline:

Jump with 2 feet together. Observe if both feet are jumping equally. Make sure student's feet are lifting off the trampoline when jumping, not just bouncing. Work up to 10 – 20 jumps.

Jump with one foot at a time. Hold student's forearms . Start with 5 – 7 jumps and build to 10 – 20 jumps on each foot.

Build up to 50 jumps, with both feet, and then on each leg.

Coaching: Coach student to "jump up." This will help her get her feet up off of the trampoline and jump as opposed to bounce.

Purpose: To build muscle tone in legs.

Activity 2: Sit-Ups

Student lies on back with legs straight and arms overhead. Hold student's feet down with gentle pressure. Student should touch toes (or get as close as possible). Work up to 20.

Student lies on back with legs straight and arms crossed over chest. Have him sit-up and touch elbows to thighs or a close as possible. Work up to 20.

Student lies back with legs bent and arms crossed over chest. Have him sit-up and touch elbows to bent knees. Work up to 20.

Coaching: As you are coaching student to get in the right starting position, give him choice and contrast questions to help him determine if his body is in the right position. Have him feel versus look. i.e. "***Feel*** if your knees are straight or bent." "***Feel*** if your arms are out to the side or over your head."
Purpose: To build muscle tone (core and upper body) and coordinated movement.

Activity 3: Log Rolls - eyes closed (3x each way)

The student lies on his back on the floor, with arms overhead and eyes closed.

He turns as slowly as possible. The outer knee will help initiate the roll from back to stomach and stomach to back.

Roll three times in one direction; then repeat in the other direction. If the student gets dizzy, he should slow down the movement.

Coaching: Coach student to roll slowly and feel different parts of his body (head, shoulder, side, arm, thigh, knee, foot) as they touch the ground during the roll. Question to help student notice if his arms, legs, and body are straight or bent.

If student is rolling too quickly, try having him go as fast as he can and then as slowly as he can. Question to help him notice the difference in how it felt and his body position.

You may need to apply some resistant with your hands on shoulders and thighs or hips if he cannot slow his speed or lack control.

If part of the body seems out of control, ask student, once he's completed his roll, which part of his body – arms or legs – were "wild" or out of control.

Purpose: This stimulates the vestibular system and connects it with information from all parts of the body. Doing it slowly allows time for the sensory impulses to get to the brain.

Activity 4: Log Rolls - eyes open (3x each way)

The student lies on his back on the floor, with arms overhead and eyes open.

The student turns as slowly as possible. The outer knee will help initiate the roll from back to stomach and stomach to back.

Roll three times in one direction; then repeat in the other direction. If the student gets dizzy, he should slow down the movement.

Coaching: As student gets comfortable with this activity, ask him what saw as he was rolling.

Purpose: This forces the eyes to adjust to various distances. There is pressure and muscle input. All of this information gets coordinated with the vestibular stimulation.

Activity 5: Chair Turn - eyes closed (4 min.)

The student sits in a swivel chair with upper part of back resting against the back of the chair. Arms are crossed over the chest and legs are crossed at the knees or ankles with dominant arm and leg on top. Eyes are gently closed and head is down with chin on chest.

The room should be as dark as possible (if the student is comfortable with this), with no noise or other distractions.

Clinician or parent touches the student 5 times on his arms and legs, counting each touch out loud. These "grounding" touches should be made with the same velocity and pressure. Touches should be made crossing the midline, touching both upper and lower body.

Clinician or parent turns chair *very* slowly 360 degrees in one minute (count silently 15 seconds for each 1/4 turn). The movement should be continuous. There should be no talking or noise to orient the student.

Stop. Wait a few seconds and repeat the grounding touches. Have the student slowly uncross his arms and legs and re-cross them with the opposite arm and leg on top.

Then turn the chair *very* slowly in the other direction.

Repeat the sequence.

Periodically during the rotations, ask the student what direction she is going. Instruct her to let you know when she thinks she is stopped.

For a challenge: Once stopped and with student's eyes still closed, ask her what direction she is facing (example: towards the wall, bookshelves, door, etc.).

Coaching: Coach student to let his neck and shoulders relax and slowly breathe in through his nose, out through his mouth. As needed, breathe audibly as you turn the chair to help the student entrain and slow down his breathing.

Watch for signs of distress or dizziness as spinning can be too much for those with a fragile or disordered vestibular system. If this is the case, move the chair very slowly for 15 seconds, then stop for 15 seconds, focusing on breathing. Repeat going the opposite direction. Over time, gradually increase the number of 15-second segments; then increase the length of the segments until the student can handle the full 4 minutes with ease.

Do not get stuck here, but continue working this activity a little bit at a time, while going on to other activities as well.

Purpose: Spinning is an extremely powerful way to activate the vestibular system. Accurately registering and responding to vestibular input improves self-regulation, posture, balance, and ability to calm oneself.

Caution: Rotary vestibular input (spinning) is the most powerful form of sensory input. Watch the student's face and responses carefully for signs of distress and reduce speed, amount of time on the activity, or stop the activity for the day if needed.

Activity 6: Chair Turn - eyes open (2 min.)

The student sits in the chair without contact to the floor.

Turn the chair at a speed of 1 rotation per second for no more than 10 rotations. Stop the chair; then turn it in the opposite direction.

Vary the number of rotations and direction frequently during the 2 minutes, always doing the same number of rotations in each direction (no more than 10) and stopping briefly before changing direction.

If the child complains of getting dizzy, slow the chair down to the point where she can tolerate it and reduce the amount of time on the activity.

Purpose: This activity connects the vestibular system and the eyes.

Caution: Rotary vestibular input (spinning) is an extremely powerful form of sensory input. Watch the student's face and responses carefully for signs of distress and reduce speed, amount of time on the activity, or stop the activity for the day if needed.

Activity 7: Ball Bounce (1 – 3 minutes)

The student should sit on an exercise ball appropriate to his height with his hands on his knees and bounce in an even rhythm.

To add interest and challenge, have the student do one or more of the following activities:

Count or say the alphabet on each bounce.

Have the student spell words or give answers to math facts while bouncing.

Have the student bounce in a rhythm. For example: bounce-bounce-hold bounce-bounce-hold

*These activities can also be done on a rebounder trampoline.

Coaching: Have student do a body check to see if he is sitting with back tall, head up, hands relaxed on knees, and feet planted firmly on the floor. This is an excellent learning posture and shows mental control.

Have the student notice and enjoy the steady rhythm before adding any cognitive challenge. If the rhythm or body begins to get off when cognitive challenges are added in, have the student go back to just bouncing to regain focus, centering, and control.

Purpose: Stimulate the vestibular system through vertical movement. Improve regulation and timing. Bouncing is alerting and rhythm is calming. A calm, alert state is optimal for learning. Adding cognitive activities while bouncing helps push the movement and timing to an automatic, internalized level.

Activity 8: Rotation Board

Student stands on the rotation board with feet equidistant from the center of the grid.

Allow students to explore movement on the board at first, turning any way that they can. Twist body from side to side and feel the movement of the board.

Rotate the board making most of the movement come from the upper part of the body.

Rotate the board making most of the movement come from the lower part of the board.

Move the body so that the board rotates in a clockwise direction.

Move the body so that the board rotates in a counter clockwise direction.

Move so that the board rotates 3 times in a clockwise direction and then stops.

Move the body so that the board rotates 3 times in a counter clockwise direction and then stops.

Coaching: Allow students to explore movement on the board at first, turning any way that they can; then, using a kinesthetic voice, have them check their posture and body position to make sure everything feels centered, tall, and aligned.

Try the activities with the student **looking in the direction he is moving**. Then have him do the activities **looking in the opposite direction** from the way he is moving.

Purpose: This activity connects the vestibular system and the eyes and improves spatial awareness. Many people who suffer from dyslexia and attention deficits have spatial awareness and vestibular integration problems.

Activity 9: Tight Rope Walker

Do this activity first on a 10 – 15 foot line or piece of tape on the floor. If available, this activity can also be done on a low, stationary balance beam and a variable balance beam.

The student's arms should be relaxed at his sides, eyes looking at an X mounted on the wall at eye-level at the opposite end of the tape.

The student walks slowly forward and backward on the line with hands relaxed, back straight, chin in a comfortable position, and blinking normally.

The student maintains balance, control, and attention to target without shifting eyes for 30 seconds, 1 minute, 2 minutes, and 3 minutes.

Coaching: Stand next to the X on the wall so that you can see the student's eyes as she walks. Coach as needed with a kinesthetic voice to help student slow down, keep eyes on the X, relax her shoulders, straighten posture, blink, relax jaw, etc.

Tell student to come forward or start to go backward when nearing the end of the tape or beam so that there is no disruption in flow.

If the student is very wobbly, walk next to her with your hands bracketing, but not touching her shoulders. Model the speed that you want her to walk.

Purpose: Increase and maintain conscious awareness of speed, balance, body control, relaxation, posture, and attention (eyes on target). As the amount of time increases, stamina and automaticity will also increase.

Activities that involve balance can have a significant effect on visual processing, reading, and learning efficiency and academic performance.

Activity 10: Tight Rope Walker with Mental Activities

Do the Tight Rope Walker while resisting distractions and drifting of attention caused by answering questions and solving problems (mental activities). Mental activities can include such things as:

Telling answers to math facts

Hearing, visualizing, and repeating sequences of letters or numbers

Mental math problems

Vocabulary practice

Oral spelling

Carrying on a conversation

The student maintains balance, control, and attention to target without shifting eyes for 30 seconds, 1 minute, 2 minutes, 3 minutes.

Application: When done with this activity, have the student step off the tape or beam, close her eyes, and imagine an X, while taking a slow deep breath. Have the student anchor, or remember, this calm, alert, focused feeling. In sessions, during homework, or at school, the student can access this feeling by taking slow deep breaths while thinking about an X and remembering the feeling. Practice this in sessions and discuss times when the student can try it at home or school to re-energize or refocus. Always check-in at the next session to see how it worked.

Purpose: Adding mental activities pushes speed, balance, body control, relaxation, posture, and attention (eyes on target) to a more automatic level. In school, students have to be able to maintain attention and body control automatically, without thought, in order to be mentally fully present for learning.

Tab 15
Balance and Mind-Body Control

Balance and Mind - Body Control

Why is this Important? Physical balance is the foundation for attention and mental control. The body must be relaxed and centered to be truly balanced.

About these Activities: Control of balance and attention requires the ability first to keep the eyes focused on and maintain attention on an external object or anchor with eyes open; then internally with eyes closed.

Control of balance and attention is more difficult with reduced motion. Balance without movement requires maximum mind – body control. Therefore, arms and body movements should be at a minimum for good mind – body control

Starting Point: For most students, the starting point will be Activity 3. Students with very poor body awareness and control will start at activity 1.

Criteria for completion: Student may work on both 1 and 2 foot balance activities at the same time, but in order to show completion, he should be able to execute the activity for the specified amount of time, keeping eyes on the X or target, and showing strong, relaxed control. If the student is fighting to maintain balance, he has not mastered the activity even if he is able to mange the full amount of time.

Activity 1: Rocking Board

Show and explain board. Show how it rocks and where student will sit.

Student should sit with legs crossed. Say, "I'm going to tip this board and see if you can stay on."

Tip board slightly. Hold to a count of 2 and come back to center.

When come back to center, press on student's hips and say, "Pull to center." This will help student begin to feel being "centered."

Gradually, tip the board further to each side. Always "pull to center" before tipping to other side.

When ready, have the student look at a focal point at least 5 feet away and keep her eyes on that point throughout the activity.

Coaching: If student struggles to stay on the board, hold student's hips from the front and tip board with your knee.

Once you have started having the student look at a focal point, coach her lean with her shoulders but leave her head straight.

If the student leans head and body as a unit and the head does not "right" itself back to center, hold the board to that side for 8 seconds or until her eyes go back to being level. Verbally coach or gently guide head to return to center as needed.

Note: Turning or angling the rockers will increase the amount that the board can tip.

Purpose: To help student get the feeling of being centered and integrate the ocular head-righting reflex. The head-righting reflex stabilizes the head and allows the eyes to stay fixed on a target despite movement of the body. An underdeveloped head-righting reflex may cause vestibular problems, low muscle tone, and poor balance, ultimately leading to learning challenges.

Activity 2: Ball Balance

Have student sit on an appropriate-sized exercise ball and balance on it by sitting and keeping feet planted on the ground.

Put two pieces of tape on the ground where feet will be placed. Push down on the student's feet and time how long she can balance.

Student's hands will be placed on her knees.

Goal is to balance for 10-20 seconds. Have student help you count.

Activity 3: Ball Balance Bean Bag Game

Have student sit with feet on the tape and center her body on appropriate-sized exercise ball.

Place 3 different colored bean bags 6 inches away from her feet.

Clinician will direct the student to use a specific hand to pick up a specific bean bag and touch a body part. To make sure the student understands the directions, ask her to repeat what she needs to do.

Example: "With your right hand pick up the red bean bag and touch your left shoulder with it.

Coaching: Coach student to keep her feet flat on the tape and look at the bean bag as she reaches for it

Purpose: Exercises work on balance, laterality, midline crossing, eye-hand coordination, and ability to follow verbal directions.

Goal is to maintain balance while doing cognitive tasks.

Activity 4: Two-Foot Balance (Eyes Open)

Student stands with arms relaxed at sides, eyes looking at an X on wall approximately 6 feet away at hip level. Do activities without distractions.

Two feet on floor, touching side by side (wider base). Build up to 5 minutes.

Dominant foot in front, touching heel to toe (narrow base). Build up to 3 minutes

Non-dominant foot in front, touching heel to toe (narrow base). Build up to 3 minutes.

Repeat all activities while resisting distractions and drifting of attention caused by answering questions and solving problems (mental activities). Math problems and spelling words are good questions while student is balancing.

Coaching: Watch to see if the student's eyes are able to remain, effortlessly on the X. Control of the eyes gives insight into the student's mental control.

In the Mind – Body Control activities, have the student be aware of his stomach muscles as a way to feel his center. If he tightens and lifts his stomach / core muscles, he will feel his center and balance more easily. He should focus on slow, controlled breathing.

Activity 5: One-Foot Balance (Eyes Open)

Student stands on one foot, with the inside of the other foot against knee of balancing leg, arms by sides.

Student should look at an X on wall approximately 6 feet away at hip level. Build up to 1 - 2 minutes without distractions.

Do on the other foot.

Repeat all activities while resisting distractions and drifting of attention caused by answering questions and solving problems (mental activities). Math problems and spelling words are good questions while student is balancing.

Coaching: If student struggles to bring leg to knee, have him put foot next to ankle or calf at first. Student may need to put hands out to sides to help with balance at first.

Challenge and Flexibility: Do the One-Foot Balance with the **bottom** of the counterbalancing foot held gently against the calf or inner thigh of the balancing leg (knee of counter-balancing foot out to side). Try it with arms at sides and with arms straight above head.

Activity 6: Two-Foot Balance (Eyes Closed)

Student stands with arms relaxed at sides, **Mentally focus on internal target** or focal point in mind's Do activities without distractions.

Two feet on floor, touching side by side (wider base). Build up to 2 minutes.

Dominant foot in front, touching heel to toe (narrow base). Build up to 1 minute

Non-dominant foot in front, touching heel to toe (narrow base). Build up to 1 minute.

Repeat all activities while resisting distractions and drifting of attention caused by answering questions and solving problems (mental activities). Math problems and spelling words are good questions while student is balancing.

Coaching: To help student focus on an internal target, you may want to have him look at an X on the wall about 6 feet away at hip level. Then have him close his eyes and still "see" the X in his mind's eye.

Activity 7: One-Foot Balance (Eyes Closed)

Student stands with arms relaxed, at sides, or straight out (airplane). Mentally fixate on internal target or focal point in mind's eye.

Stand on one foot, with the inside of the other foot against knee of balancing leg. Goal of 1-2 minutes.

Do on the other foot.

Repeat all activities while resisting distractions and drifting of attention caused by answering questions and solving problems (mental activities). Math problems and spelling words are good questions while student is balancing.

Challenge and Flexibility: Do the One-Foot Balance with the **bottom** of the counterbalancing foot held gently against the knee of the balancing leg (as in Yoga Tree Pose). Try it with arms at sides and with arms straight above head.

Activity 8: Breath Stretch

Student should do activity with shoes off. Instruct him to:

Breathe in deeply through your nose as you bring your arms up above your head and come up on your toes.

Hold for a slow count of 2.

Exhale through your mouth as you bring your arms down and come down off your toes.

Repeat 3 – 5 times.

Coaching: Student should tighten core muscles to support balance. Arms should be stretched. The whole activity should feel relaxed and controlled.

Purpose: Increase sense of center and balance through stretch. Bring balance under more automatic control by adding cognitive loading and focus on breath.

Application: This activity brings energy, balance, and focus, making it a good exercise to use as a brain break when student needs to regroup or refocus.

Activity 9: Breath Walk

Student should do activity with shoes off. Instruct him to:

Breathe in deeply to the count of four, bringing you arms above your head and taking one step forward on your toes. Stay on your toes until you get to the count of four.

Exhale to the count of four as you bring your arms down and come off your toes.

Repeat, stepping forward with the other foot.

Repeat the pattern above taking two steps forward to the count of four; then three steps to the count of four; then fours steps forward.

Tab 16
Laterality (Right-Left) And Flexibility

Laterality (Right-Left) and Flexibility

Goal: Execute each activity independently and easily, showing control of the body and speed, and the physical and mental flexibility to shift gears and try a new pattern. Easily work on both sides of the body and label left and right. Coordinate movements of upper and lower body and across the midline.

Criteria for completion of activity: Activities should be introduced in order, but it is OK to work on similar activities at a time if the student is ready, as this encourages mental flexibility and provides variety. To have completed an activity, student should be able to execute the activity independently, showing ease, flow, flexibility, and control in the body and speed.

Activity 1: Robots 1

Student lies on his back, legs relaxed and straight and arms at his sides.

Direct him to raise his arms and legs slightly to tap the floor in the following pattern: right arm – right leg – left leg – left arm. Repeat for 3 complete cycles.

Reverse the pattern starting with the left arm and rotate: left arm – left leg – right leg – right arm.

Repeat for 3 complete cycles.

Coaching: At first, you may have to tap the arm or leg that needs to move. As you tap, say "left arm" or "right leg" as appropriate. When physical cue is no longer needed, give a verbal cue only. When ready, have the student say "left" or "right" as he lifts his arm or leg and touches the floor.

The student should lift arms and legs about 6 inches off the ground and tap the ground with moderate force. You or student might say, "Bum," for each tap as this word indicates the right amount of force or impact.

If student is lifting his limbs too high or not high enough, provide a contrast for him to feel the difference, by having him lift as high he can, as low as he can, then medium. Ask him to show you with his hands the distance of 6 inches (model as needed). Ask if this is a high, low, or medium distance. Tell him to lift his arms and legs 6 inches off the ground for this activity.

If student is using too much or too little force as he taps the grounds, provide a contrast for him by asking him to hit the ground hard, super softly, and medium. Have him say, "Bum" as he tries the activity tapping with medium force. The hand or foot should make a sound on the tap but should not hurt.

Challenge and Flexibility: To increase flexibility, have the student start with a leg instead of an arm and go either clockwise or counter-clockwise. Say, "Switch," and have him switch directions.

Purpose: This activity helps student internalize sense of right and left on himself (laterality) as he has to think about right and left from verbal cues, visualize where that is on his body, and move that part.

Switching directions helps the student mentally shift and "go a different direction" or do something in a different way.

Activity 2: Robots 2

Student lies on her back, legs relaxed and straight and arms at her sides.

Verbally direct her to raise her arms and legs slightly to tap the floor in various patterns and with various starting points. Do 3 complete cycles of each pattern given.

Sample patterns:

Start with right arm and go in a clockwise direction, tapping twice with each arm and leg. Do 3 times. Reverse.

Alternately tap right arm and left leg simultaneously; then left arm and right leg simultaneously. Do 3 times. Reverse.

Right arm – left leg – left arm – right leg. Do 3 times, then reverse, starting with left arm.

Right arm – left leg – right leg – left arm. Do 3 times, then reverse.

When the movements are getting comfortable, have the student call out right or left for each tap.

Purpose: This activity brings the internal sense of right and left to a more automatic level. It improves mental flexibility and ability to both mentally and physically shift. Being able to mentally and physically shift is important for many sports, getting along with others in groups or social situations, and in problem solving.

Activity 3: Duck Walk

Walk forward and backward with feet turned out, elbows at sides, and hands turned in at chest level. Create an obstacle course for student to walk around.

Coaching: This is not a natural walking pattern, but we are working towards walking with as natural and relaxed a body posture and gait as possible.

Coach the student to stand tall, look forward, and walk naturally, even though her feet are turned out. You may want to have the student walk in a normal, feet-forward gait to feel the flow; then go to the feet turned out position and walk with the same flow.

Caution: For many students, doing the Duck Walk with good posture and flow is very difficult. Do not get stuck here. Continue to work with Duck Walk while moving on and working on other activities as well.

Purpose: When there is neurodevelopmental delay (retained reflexes and inefficient development of early visual and motor patterns), the hands will mimic the position of the feet when feet are turned in or out. This activity is repatterning that automatic response by having the student turn her hands in the opposite direction of the feel. It is adding conscious awareness and control to movement, limbs, and posture.

Activity 4: Pigeon Walk

Walk forward and backward with feet turned in, elbows at sides, and hands turned out at chest level. Create an obstacle course for student to walk around.

Coaching: This is not a natural walking pattern, but we are working towards walking with as natural and relaxed a body posture and gait as possible.

Coach the student to stand tall, look forward, and walk naturally, even though her feet are turned in. You may want to have the student walk in a normal, feet-forward gait to feel the flow; then go to the feet turned in position and walk with the same flow.

Caution: For many students, doing the Pigeon Walk with good posture and flow is very difficult. Do not get stuck here. Continue to work with Pigeon Walk while moving on and working on other activities as well.

Challenge and Flexibility: Try having student walk with Pigeon Walk; then switch to either feet forward (normal) walking or Duck Walk as directed when you say, "Switch." When walking with feet in normal forward position, arms should swing loosely at sides. Turn hands out (elbows at sides) for Pigeon Walk and turn hands in for Duck Walk.

Goal is to keep posture, gait, and flow as relaxed and typical as possible and bring conscious control over hands and body position. To improve posture, tighten core muscles and lift head and chest up and shoulders back. Challenge student to try to shift between walks without noticeably changing posture.

Purpose: When there is neurodevelopmental delay (retained reflexes and inefficient development of early visual and motor patterns), the hands will mimic the position of the feet when feet are turned in or out. This activity is repatterning that automatic response by having the student turn her hands in the opposite direction of the feel. It is adding conscious awareness and control to movement, limbs, and posture.

Activity 5: Opposites

Standing with elbows at sides, arms up, turn right foot out and right hand in. Switch direction of hand and foot 5 times.

Repeat with left foot and hand.

Add a metronome and do on a slow beat (60 BPM). Repeat on a fast beat (100 BPM).

Coaching: Watch to see if student is using her whole leg (lifting leg or turning out from hip) as opposed to using ankle (mainly) and knee to turn foot out. If so, help student see the contrast by putting your hands on your hip and upper thigh and very obviously turning your whole leg in and out. Then put your hands on either side of your knee and move just the bottom part of your leg in and out. Have student do the same in order to feel the contrast on herself.

Some students may need for you to put tape on the floor in the forward and side positions for their foot to tap.

Caution: If the student has tremendous difficulty with using the lower part of her leg versus whole leg and hip, she may need to work with differentiation activities before attempting these activities.

Challenge and Flexibility: Have student do activity switching back and forth from side to side without a pause after a given number of repetitions.

Have the student do the activity, switching to the other side without a pause when you say, “Switch.”

Have the student do the activity to the metronome and adjust to the beat without a pause when you increase or decrease the beats per minute.

Activity 6: Windshield Wipers

Standing, turn right foot out and right hand out. Move foot and hand in and out simultaneously 5 times.

Repeat with left foot and hand.

Repeat with both feet and both hands going the same direction.

Add a metronome and do on a slow beat (60 BPM). Repeat on a fast beat (100 BPM).

Activity 7: Cross-Lateral

Standing, turn left foot out and right hand in. Move foot and hand in and out simultaneously 5 times.

Repeat with right foot and left hand.

Repeat with both feet and both hands going the same direction.

Add a metronome and do on a slow beat (60 BPM). Repeat on a fast beat (100 BPM).

Activity 8: Top-Bottom Opposites

Standing, turn both feet in and both hands out. Alternate direction 5 times.

Add a metronome and do on a slow beat (60 BPM). Repeat on a fast beat (100 BPM).

Activity 9: Marsden Challenge

Do various patterns, but tapping the Marsden Ball with hand.

Add a metronome and do on a slow beat (60 BPM). Repeat on a fast beat (100 BPM).

Coaching and Flexibility: Student should experiment to see how she can most comfortably hit the ball while doing the activity. Can she alternate hands? Can she hit the ball only when the hand turns out? Only when the hand turns in?

Tab 17
Midline and Bilateral Movement

Midline and Bilateral Movement

Why is crossing the midline so important? The "midline" is the imaginary line running from top to bottom down the center of the body that separates the it into right and left halves. Crossing the midline means that one body part (i.e. the hand) is able to go across that centerline and work on the other side of the body.

The ability to cross the midline is important for both the body and the brain. The two hemispheres of the brain have different functions and approach tasks from different perspectives. The two hemispheres need to communicate with each other across the corpus callosum in order to contribute their unique perspective and coordinate movement and learning.

When a child crosses the midline spontaneously with his dominant hand, that hand will get the practice needed to develop good fine motor skills. If the child avoids crossing the midline, he may tend to use both hands interchangeably to do tasks that should be done with the dominant hand. As a result, both hands get practice but neither one becomes dominant and "expert." Hand dominance does not get firmly established and fine motor skills, such as pencil control and handwriting, will be affected.

Signs that a student has trouble crossing the midline:

- Tips head far to the side and turns the paper or book sideways when writing or reading so that she is never crossing the midline from left to right, but reading or writing essentially from bottom up.
- Uses one hand on one side of the body and switches to the other hand at the midline. For example, if a student is pointing under the words as she is reading, she may start out with her left pointer and then switch to the right at the midline. Young students sometimes switch the pencil from one hand to another when writing to avoid the midline.
- Shifting the body way over to the left side while writing so they never have to cross the midline.
- Subtle shift of the paper toward the dominant side while writing so the dominant hand never has to reach further then the midline.
- Tend to hold self very stiffly, moving the body as a whole unit instead of turning or rotating their trunk. For example, a student with poor ability to cross the midline may turn his hips or whole body when handing something in his right hand to someone standing to the left of him, as opposed to just turning his upper body.

Why work on bilateral movement? Crossing the midline is developed as children develop bilateral movement skills. Bilateral movement is the ability to use both sides of the body at the same time in controlled, coordinated, organized movement (i.e. writing or cutting with one hand while using the other hand to hold the paper). Students who have poor bilateral coordination may have trouble with basic living skills (tying shoes, getting dressed), fine motor skills (buttoning, stringing beads), visual motor skills (writing, drawing, catching, throwing), and gross motor skills (crawling, walking, climbing stairs, riding a bike).

Starting Point: Will vary based on protocol.

Criteria for completion of activity: Execute the activity independently, showing ease, flow, flexibility, and control in the body and speed. It is OK to work on more than one activity at a time, but activities should be introduced in order and do increase in complexity with each activity.

Activity 1: Midline Reach - Arms

Student should be lying on back. Put a pillow under student's head and legs. The pillow should elevate the legs slightly. Be sure the head is propped up enough to see the stuffed animal stimulus you will be using.

Position yourself at the student's side. Gently stroke student's legs to ground and calm. Keep one hand on legs as needed throughout activity to provide information for student about where he is in space.

Hold a medium to large-sized stuffed animal (i.e. bear) at the student's midline above stomach.

Touch one of student's hands and say, "Touch the bear's nose with this hand." Work toward student touching the bear's nose for a count of 3 seconds. Raise the bear up higher and lower for student to touch. Always return to original position before the next command.

Move the bear **slightly across midline to one side**. Touch the hand on the opposite side and say, "Touch the bear's nose with this hand." Work toward student touching the bear's nose for a count of 3 seconds.

Practice crossing the midline moving the stimulus up and down (closer to head and farther away) and moving it further across the midline.

Begin using the terms right hand and left hand instead of "this hand" while still giving touch cue. When ready, give verbal cue only.

Coaching: Always start with the stimulus (bear) at the midline. Student should look at the bear. As you move the bear, the student should follow the bear with his head and eyes.

Purpose: To help the student cross the midline without overflow. Lying on back is grounding, gives the student better information about where he is in space, and keeps balance issues from being a factor.

Activity 2: Midline Reach - Legs

Put a pillow under student's head. Be sure the head is propped up enough to see the stuffed animal stimulus (i.e. bear) you will be using. Hold bear at the student's midline above feet.

Holding bear up **high at the midline**, touch one foot and say, "Touch the bear with this foot." Work toward student touching the bear for a count of 3 seconds.

Move the bear **slightly across midline to one side**. Touch the foot on the opposite side and say, "Touch the bear with this foot." Work toward student touching the bear's nose for a count of 3 seconds. Always return to original position before the next command.

Activity 3: Bicycle

Do one leg at a time. Student is lying on floor. Use your hand to push against leg so that it bends, going towards student's chest. Make sure there is resistance. Tell student to "push against your hand". Then extend leg and bring down slowly.

Repeat on the other leg.

The goal is for the student to be able to do the bicycle movement on each leg independently 5 consecutive times.

Challenge: When ready, have student do the bicycle 3 times on each leg and then repeat. Then have him push twice on each leg the repeat twice. Finally, have him bicycle, alternating leg each time.

Activity 4: Play Cards

Lay cards in rows of rows of 5 in front of student. Be sure the student is centered on the floor or at a table in front of the cards. Play a card game or activity appropriate to the child's age and ability. The point of the activity to have the student use his dominant hand to reach for the cards on both sides of the midline.

The non-dominant hand should be next to the student on the floor or table.

When the student reaches for a card, he should use his arm and twist his upper body only. He should not move his hips or lean his whole body.

Suggested Activities with Cards:

- Memory or Concentration: Using a set of cards that has 2 identical cards of each type, lay cards face down. Student turns over 2 cards at a time trying to make pairs. If he gets a pair, he takes it. If not, he turns the cards back over and tries to remember the position for future reference.
- Use pictures cards, colors, letter or number cards, sight words, math facts. Call out what is on the card and have student find it and pick it up.
- Lay out number cards and have the student pick them up in numerical order.

Coaching: If the student has trouble not using his non-dominant hand, gently hold it down so he has to use his dominant hand and cross the midline.

Purpose: To help the student cross the midline and strengthen dominant handedness.

Activity 5: Ball Toss

Toss a beanbag or a ball back and forth with student. Stand slightly to the side so student has to turn the upper body to catch and throw.

Coaching: Student and instructor should throw underhand as this will allow for greater control.

Challenge: Have student stand on the teeterboard, keeping the board balanced and level.

Activity 6: Ball Passing

Two students or student and instructor sit back to back.

Pass a ball around to each other 5 times in one direction and then 5 times in the other direction receiving and handing the ball with both hands.

Repeat, reaching across midline with one hand to receive the ball. Transfer the ball to the other hand at the midline and hand the ball by reaching across the midline. (If ball is traveling clockwise, student will receive the ball with his right hand and pass it with his left).

Coaching: Student should be looking at the ball as he receives and passes it. Student should twist his upper body but keep his hips facing forward.

Purpose: Move eyes and hands across midline, twist upper body independently of lower body, and increase eye-hand connection and coordination.

Activity 7: Cross Crawls

Have student stand with feet slightly apart.

Lift left knee and touch it with right hand. Repeat with right knee and left hand.

Cross crawl for 1 - 2 minutes. Encourage student to swing your upper body slightly as hand touches the knee.

Modification: If student is not ready to do standing cross crawls, he can do cross crawls lying on his back or sitting in a beanbag or chair. For greater twist and engagement of core muscles, have student cross elbow to knee.

Coaching: Be sure the student is twisting his upper body and crossing the midline. Some students try to move minimally so that they are actually staying right on the midline.

Do cross crawls with students or coach them to control their speed and be intentional about their movements. Students who struggle with this often go extremely fast. As a result, they often lapse into a homolateral (same-sided) movement or become very out of control.

To help a student be intentional, have him notice the feel of his hand on his knee, the feel of his waist twisting, the feel of his knee as it goes up and down.

To help regulate speed, over time you may want to add a metronome.

Purpose: Cross the midline and activate both sides of the brain for clearer, more effective thinking and learning.

Application: Cross Crawls are a simple activity that can very quickly reintegrate and reenergize a student who is getting frustrated or tired. When you see a student start to make multiple mistakes or become dysfluent when reading and writing, cross crawls can improve fluency and clarity.

Activity 8: Arm Swings

Have student stand barefoot with feet about 12 – 18 inches apart.

Loosely swing upper body and arms from side to side.

At the furthest point in the swing, student should look over his shoulder as far as he can.

Do 5 – 8 left – right cycles.

Purpose: Cross the midline and energize the student for attention and learning.

Activity 9: Weighted Crawl

Materials needed: blue tape, two 1 lb. strap weights.

Make two parallel lines with tape on floor 2 ft. apart, 9 ft. lengthwise.

Put weight on student's left wrist and right ankle or vice versa, making sure weights are on opposite limbs. The tape acts as a guide for student to crawl

The eyes need to be looking ahead, guiding the movement at all times.

Forward and Backward Crawl: First, have student get on hands and knees starting at one end of the tape. Direct the student's movements by calling the limbs with the weights by the color of the weights (i.e. "green") and the limbs with no weights "plain." Alternate saying "green" and "plain" Go slowly, assuring that the student is moving the correct limbs.

Once the student has crawled to the end of the tape, do it again with the student crawling backward.

Sideways Crawl: Instead of facing forward, student will face sideways, still alternating between "green" and "plain."

Spider Crawl: Student will crawl forward on hands and toes with knees up, still alternating between "green" and "plain."

Goal is to have student do crawls independently with only verbal cues.

Coaching: If the student is unable to move the correct limbs with verbal cues, you may need to have 2 people working with the child, one on each side. Each person holds the wrist and ankle of the student to help cue and get them moving at the right time.

Purpose: Using weights adds feedback for the student, helping him better feel his limbs, perceive the cross pattern, and discriminate between which limbs should move together.

These activities will not be necessary for all students. If students are able to go directly to activities 10 and 11, they should do so. Weights can be added to any of the exercises; however, when extra feedback is needed.

Activity 10: One-Sided (Homolateral) Crawl

Student starts in a crawling position on all fours. Move the right arm while moving the right leg forward; then move the left arm while moving the left leg forward. Make sure the arm and leg move at exactly the same time.

Repeat backwards, in a circle, figure 8, and obstacle course.

The eyes need to be looking ahead, guiding the movement at all times.

Coaching: Student should always be looking ahead at where he is going. Tell the student that his eyes are the "steering wheel."

Purpose: Increase intentional control of movement.

Activity 11: Tiger Crawl (Cross-Lateral)

Student starts in a crawling position on all fours. Move the right arm with the left leg, then the left arm with the right leg. Make sure they move at exactly the same speed.

Repeat backwards, in a circle, figure 8, and obstacle course.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 12: Mixed Crawl

Combine the homolateral crawling pattern with the Tiger Crawl.

The student should alternate while he is moving. Have him start with the Homolateral Crawl. When you call out switch, he needs to switch to the Tiger Crawl. Continue to call out switch, having the student switch back and forth between the two.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 13: Mixed Crawl Sequence

Start with the One-Sided Crawl. After crawling forward one time on right and left, switch to Tiger Crawl and crawl forward one time on right and left.

Continue, switching after every full stride of right and left.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 14: Bear Walk (Homolateral)

Student leans down and touches feet and hands to the floor.

Move the right arm and right leg forward at exactly at the same time. Then move left arm and leg forward. Continue moving forward in this manner, one side at a time.

Repeat backwards, in a circle, figure 8, and obstacle course.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 15: Bear Walk (Cross-Lateral)

Student leans down and touches feet and hands to the floor.

Move the right arm and left leg forward at exactly at the same time. Then move left arm and right leg forward. Continue moving forward in this manner, with opposite arm and leg moving at exactly the same time.

Repeat backwards, in a circle, figure 8, and obstacle course.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 16: Bear Walk (Mixed Walk)

Combine the first walking pattern with the second walking pattern.

The student should alternate while he is moving. Have him start with the Homolateral Bear Walk. When you call out switch, he needs to switch to the Cross-Lateral Bear Walk. Continue to call out switch, having the student switch back and forth between the two.

The eyes need to be looking ahead, guiding the movement at all times.

Purpose: Increase mental flexibility and increase automatic control of movement.

Activity 17: Bear Walk (Mixed Walk Sequence)

Start with the Homolateral Bear Walk. After walking forward one time on right and left, switch to Cross-Lateral Bear Walk and walk forward two strides. Continue, switching after every full pattern of right and left

The eyes need to be looking ahead, guiding the movement at all times.

Activity 18: Soldier Walk

Student walks on two feet while swinging arms. Move the right arm while moving the right leg forward; then move the left arm while moving the left leg forward. Make sure the student moves the arms and legs at exactly the same speed.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 19: Cross-Lateral Walk

Student walks on two feet while swinging arms. Move the right arm and left leg forward at exactly at the same time. Then move left arm and right leg forward. Continue moving forward in this manner with opposite arm and leg moving at exactly the same time.

Repeat backwards, in a circle, figure 8, and obstacle course.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 20: Mixed Walk

Combine the first walking pattern with the second walking pattern.

The student should alternate while he is moving. Have him start with the Soldier Walk. When you call out switch, he needs to switch to the Cross-Lateral Walk. Continue to call out switch, having the student switch back and forth between the two walks.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 21: Mixed Walk Sequence

Start with the Soldier Walk. After walking forward one time on right and left, switch to Cross-Lateral Walk and walk forward two strides. Continue, switching after every full pattern of right and left.

The eyes need to be looking ahead, guiding the movement at all times.

Activity 22: Skipping

Student skips while swinging arms. Emphasis is on coordination of upper and lower body and cross-pattern. Make sure the student moves the arms and legs at exactly the same speed. Lead with non-dominant foot. Then lead with dominant foot.

For each lead foot, repeat backwards, in a circle, figure 8, and obstacle course.

The eyes need to be looking ahead, guiding the movement at all times.

Repeat above but sing or carry on a conversation while skipping.

If the student can't skip, have her hop on two feet forward, backward, in a circle, figure 8, and obstacle course. Repeat hopping on one foot.

Activity 23: Power Walk

With **shoes off**, walk a lazy 8 pattern (∞) in a natural relaxed manner. Feet should move easily in a natural heel to toe pattern, head should be up, back straight and shoulders back and relaxed. Arms should swing naturally in a cross pattern. Eyes should guide the movement by looking ahead.

Coaching: Coach student to **feel** his feet on the carpet or floor. Question to help him think about his movements and the shape of the 8. Student should walk at a moderate speed. His body should be relaxed with good posture, head up and looking forward, and arms swinging naturally.

Both sides of the 8 should be of equal size and shape. Question to help him notice and adjust as needed.

Purpose: This activity is very integrating. Both hemispheres of the brain are activated. As the student walks through the center of the 8 there is a switch from leading with one side of the body to the other. This activity stimulates the ability to shift mentally. It is calming and focusing and can be used when students are emotionally stuck.

Activity 24: Power Walk / Tap and Think

Walk the 8, as above, but add the following finger tapping patterns:

Starting with pointer finger, tap each finger and thumb 1 time. When you get to the pinkie, tap again and go backwards. Continue going forward and backwards, tapping twice at the transitions (pinkie and pointer) for 30 seconds. Repeat with other hand.

Do finger tapping with both hands at the same time for 30 seconds.

Do finger tapping from right to left on both hands. (Left hand will start with pinkie and right hand will start with pointer).

When walking and tapping are fluid, add cognitive tasks:

Alternate counting numbers and reciting the alphabet: "1-A-2-B-3-C…"

Image capital letters. Say each letter followed by "green" if the letter is made up of all straight lines, "red" if the letter is all curved lines, and "yellow" if the letter has both straight and curved

Coaching: If the student starts to lose the pattern as he adds finger tapping or cognitive tasks, have him go back to just walking, getting secure with the pattern again, and then bring the tapping and/or cognitive tasks back in.

Purpose: Bring body and hemispheric integration to an automatic level by loading the activity.

Tab 18
Visual Skills Development

Visual Skills Development

About Visual Skills: Visual skills are profoundly important in cognitive development and school success. Visual skills are much, much more than being able to see with 20/20 acuity.

Vision is a complex process involving many different skills. Visual skills, including near-far focusing, eye-hand coordination, eyes following a moving target, integration of vestibular and visual systems, and visualization are developed throughout Core Learning skills training.

In this section, very specific attention will be paid to visual skills development, including appropriate response to light, visual tracking, fixation, eye-hand coordination, use of central and peripheral vision, perception of speed and distance, following a moving target, and focusing both eyes together equally and at various distances.

Visualization, motor planning, and mental flexibility are also developed in these activities.

Starting point: Varies based on protocol.
Criteria for completion of activity: Execute the activity independently, showing ease, flow, and control in the body and speed. Activities should be introduced in order, but more than one activity or type of visual activity can be worked on simultaneously.

Activity 1: Flashlight

Go into a dark room and let eyes adjust.
Use a penlight.
Cover person's left eye with your hand while pointing flashlight diagonally into right eye ***from your right.***
Count 6 seconds.
Close both eyes.
Sweep the light over both eyelids to the count of 12.
Cover right eye with your hand while pointing light diagonally into left eye ***from your left.***
Count 6 seconds.
Close both eyes.
Sweep the light over both eyelids to the count of 12.

Repeat.

What reaction are we looking for? Pupils should constrict and return to dilation at a moderate speed when light is shone and maintained on the pupil. The pupils should react equally.
The quicker the return to dilation following constriction when a light is shone and maintained on the pupil, the greater the likelihood of smaller visual fields. This is an indication of adrenal exhaustion and overload of the sympathetic nervous system. When the Moro Reflex is present it will cause stress in vision and the central nervous system.

Purpose: This activity reaches directly to the cortex to help the eyes begin to react correctly to light. This is especially helpful for persons with light sensitivity.

When students have a retained Moro reflex, their pupils tend to open too wide or too long, as the high-alert state of the Moro triggers the survival mechanisms to take in as much information as possible visually (and through all senses). This causes sensitivity to light and visual overload.

Activity 2: Stickers on a Stick

Patch one eye.

Use a sticker on a stick (tongue depressor). Sticker should have definitive features, such as a ladybug with a big smile. Student will sustain eye contact on the smile.

Hold the sticker about 12 inches away from the eye at the midline of the unpatched eye. (See diagram below).

Have student fixate for 5 seconds on the definitive feature of the sticker (i.e. the smile).

Repeat for left and right sides of the unpatched eye.

Repeat for the other eye.

As stamina builds, increase the length of time for each fixation by 2 – 5 seconds at a time with a goal of 30 seconds per position.

Midline

Left

Right

Modification when extra support needed: Put a soft beanbag chair against wall. Student should sit on the floor up against the beanbag so the beanbag grounds and somewhat surrounds and holds her. Have student sit with legs open at a 45 degree angle and legs stretched out so they lay across your legs to help her stay calm and know where she is in space. Have student hold a stuffed animal in her lap, if needed. It is imperative for the student not to have any balance interference during these exercises.

Coaching: If student cannot sustain eye contact with the sticker, have her use one finger to point at the highlighted feature. Student will use the hand that is the same side as the un-patched eye (i.e. Right eye patched, left hand will be used). Have student count 5 times as she taps the feature. Praise student that her eye was on the smile. Say, "Did you feel your eye on that smile?" "Your eye was looking at the smile!" This is to create awareness.
Visual activities can be very taxing for students who struggle in this area. Follow the activity with palming or do palming (See Relaxation and Calming activities) part way through as needed to help relax the eyes and refresh the student.

Purpose: This activity build fixation skills, or the ability to point the eyes at something and keep them there. Learning is very difficult if your eyes are darting around the room. Students with poor fixation skills do not have the internal control to keep their eyes on the words they are supposed to be reading. Poor fixation skills lead to distractibility and attention problems.

Activity 3: Sticker Chase

Patch one eye.

Use a sticker on a stick (tongue depressor). Sticker should have definitive features, such as a ladybug with a big smile. Student will sustain eye contact on the smile. *Use a different sticker than was used with the fixation activity for variation for the student.

Hold the sticker about 12 inches away from the eye at the midline of the unpatched eye.

Move the sticker from one side to the other in a continuous, slow movement. Then proceed to slow tracking up and down. Start with 5 seconds and gradually build to 30 seconds.

Student should follow the movement of the sticker with her unpatched eye, looking at the smile (or definitive feature of the sticker) and moving only her eye, not her head.

Repeat for the other eye.

Give the student the stick and sticker and have her repeat the activity for each eye moving the sticker herself.

As stamina and accuracy builds, add diagonal and circle movements for student to track. Keep all movements within about a 12 inches square area about 12 inches in front of the student's eyes.

Modification when extra support needed: Put a soft beanbag chair against wall. Student should sit on the floor up against the beanbag so the beanbag grounds and somewhat surrounds and holds her. Have student sit with legs open at a 45 degree angle and legs stretched out so they lay across your legs to help her stay calm

and know where she is in space. Have student hold a stuffed animal in her lap, if needed. It is imperative for the student not to have any balance interference during these exercises.
If the student cannot track without moving her head, try the activity with student laying down with head on soft pillow that will cradle head, reducing head mobility.
As needed, guide the student's hand as she moves the sticker for herself in order to help control speed and distance.

Coaching: If student moves head when tracking, coach her to "use only your eyes. Let your head be still." "Let your eyes do all the work."
Visual activities can be very taxing for students who struggle in this area. Follow the activity with palming or do palming (See

Relaxation and Calming activities) part way through as needed to help relax the eyes and refresh the student.
Purpose: Increase eye movement control. Reading requires good eye movement control as the student looks at words and moves the eye smoothly from word to word and line to line.

Activity 4: Look and Chase

Patch one eye. Hold sticker on a stick 12 inches away from the student's nose.

Student looks at sticker for a count of 5 seconds. Relax 5 seconds. Repeat 3 times.

Repeat for the other eye.

Repeat for both eyes together.

Following the fixation activities, slowly move the sticker from side to side and up and down for 5 seconds using both eyes to track. Relax 5 seconds. Repeat 3 times.

Coaching: Student should be sitting against the wall supported by bean bag or in a chair with feet flat and back against the chair so that there are no balance issues during this activity.
Purpose: Increase visual stamina and fixation and tracking with eyes together.

Activity 5: Flashlight and Colored Lenses

Patch one eye.

Using small pieces of colored, transparent plastic (lens), let student choose a color. Hold penlight behind lens about 12 inches from student's nose at midline. Click light on and off.

Say, "Look at my light." Aim for student to look at light for a count of 3.

Repeat with other eye and then with both eyes together.

Repeat activity positioning lens further in or out from student's nose. (Each position is a separate fixation. This is not a pursuit activity).

Coaching: Student should be sitting against the wall supported by bean bag or in a chair with feet flat and back against the chair so that there are no balance issues during this activity.

Purpose: Increase fixation. Fixation is a critical skill for learning. Poor ability to fixate will cause distractibility and may cause student to feel like words are moving on page when reading.

Activity 6: Curlers on a Stick

Patch one eye.

Clinician will hold a stick (skewer) 12 inches away from the uncovered eye. Start at midline of eye, and then proceed to the left and right of the eye.

Tell student to take one hair curler using the hand that is on the same side as the un-patched eye.

Tell her to place the curler on the skewer.

Once the skewer is filled to the top, have student take off the curlers one-by-one and put them back into their proper place (i.e. a bucket or container).

Repeat for the other eye.

Repeat with both eyes together, using dominant hand only for curlers.

Coaching: Student should be sitting in a chair with back tall and feet flat on floor to ground her.
Make sure the student is looking at the curler. Sample coaching/questions to build awareness: "What is your eye looking at?" Where are your eyes looking?" "Make your eye look right at the curler." "Look at the green curler and pick it up."

Purpose: Increase eye-hand coordination and eye movement control.

Activity #7 Curlers and Marbles

Patch one eye.

Have student seated (no balance interference) with feet grounded to the floor.

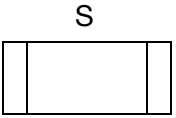
Make two lines on the table, centering the student (S) between the two lines. Space the lines wide as in the figure below.

Place one curler in front of the student. Instruct the student that she will put one marble inside the curler, and then drag it across the table to the line on the same side as the unpatched eye. Student should use the hand on the same side as the un-patched eye.

Repeat 3 times, each time moving the curler an inch further from the midline (no more than 3 inches total) and towards the patched eye side so that the student has to reach across the midline to put the marble in the curler and then drag it across the midline.

Repeat with other eye and hand.

Repeat with both eyes unpatched using dominant hand only. Place curler on the midline and drag to either side as directed.



Coaching: Make sure the student's eye is working independently from the head. Head should not move.

Purpose: Increase eye-hand coordination and ability to work across the midline.

Activity 8: Fast Tracking

Student sits straight and tall and looks directly at you.

Hold your pointer fingers about 12 inches from student's face about 30 degrees out to the side.

Tell student that you will wiggle one finger and you want him to look at your finger quickly without moving his head. When you say, "OK," student can look back at your nose.

Do this 10 times varying which finger you wiggle. If the student is consistently missing the target on one side, do more of the 10 trials with the finger on the opposite side.

Purpose: Increase ability to locate and move eyes quickly and fluidly to a given point without wandering or overshooting or undershooting the target. This skill is needed to scan and to find the next line when reading.

Activity 9: Slow Tracking

Student sits straight and tall and looks directly at you.

Place your index finger at eye level and to the left of the child's head.

Mini-Assessment: Tell the student to turn her eyes (not head) and follow your finger as you move it slowly to the right as far as the eye can follow. This should take 6 seconds. Reverse the direction.

If the student had trouble following your finger **to the right or trouble on both sides**, do the activity below starting on the left and moving right. If the student had trouble **following your finger to the left**, do the activity on the right and moving left.

Activity: Hold your pointer finger 12" from the student's face and as far to the left (or right) as the student can see without moving her head. Have the student follow your finger all the way to the other side with her eyes.

Have her close her eyes and move your finger back to the original position. Ask the student to open her eyes and locate your finger without moving her head.

Repeat on the same side 10 times. (This activity will be done on one side only based on results of the mini-assessment above).

Purpose: Increase eye movement control and visual field (the distance that person can see with their peripheral vision while looking straight ahead). Students who are very rigid or anxious may have a very narrow visual field.
Increase ability to move eyes smoothly across the midline. Difficulty tracking across the midline can affect reading and writing.

Activity 10: Lazy 8s

Stand erect in a relaxed posture with both eyes open. Hold dominant arm out straight and point. Make a large lazy 8 (infinity sign) with dominant hand/arm starting at the midline and going up to the left. The two sides of the lazy 8 eight should be the same size basic size and shape. The student should follow his finger with his eyes and bend his knees as he "draws" the bottom curve of the figure. Do 5 complete 8s.

Repeat with the opposite hand.

Repeat with both hands together.

Purpose: This activity helps with crossing the midline, hemispheric integration, and vision development – all critical skills for reading and learning.

Activity 11: Lazy 8s for Eyes

Stand erect in a relaxed posture with both eyes open. Hold thumb up centered in front of eyes about 12" away. Make five Lazy 8s starting in the center and moving up to the left. Keep eyes on the thumbnail. Make the Lazy 8 large enough to fill the visual field, but only the eyes should be moving; not the head.

Repeat with the other hand.

Repeat with both hands together.

Purpose: This activity helps with balance, centering, eye-hand coordination, and visual development. This is a good warm-up activity for writing.

Activity 12: Neurological Impress Reading (10 minutes daily 5 days / week)

The clinician or parent sits across from the student.

The clinician/parent points to each word with finger above the word, and the student points below the word.

Read slowly together. The clinician/parent should set the pace. It is okay if the student says the word after the clinician/parent but she must say the word correctly. Tap twice at each punctuation mark.

Coaching: You are the guide. Read at a slightly slower than normal pace so that the student looks at every word. The student must stay at your pace. Do not let the student get ahead or push the pace. Even though you are reading slowly, read fluently and with expression.

Tapping twice at punctuation helps the student to notice the punctuation and gives him a chance to continually refocus if he tends to get disoriented or distracted while reading.

About Neurological Impress Reading: There are neurological connections between the eyes, ears, mouth, and finger. Neurological Impress Reading activates these connections to help improve word recognition, reading vocabulary, and fluency. Confidence in reading is built because the technique reduces the pressure or stress of trying to read a word. This technique also improves sense of timing, impulse control, sequencing, reading comprehension, and auditory and visual synchrony. If the eye gets ahead of what the reader is saying (out of sync), he may substitute words such as “kitty” for “cat” because he is not looking at the word he is saying.

When choosing a book, find subjects student is interested in. Start with books that are slightly below the student’s reading level.

The book should rest at about a 30-45 degree angle in front of the student. A two-inch or larger notebook can be used to lay the book on to provide an inclined work surface.

Once started, this activity may be continued for the duration of CLS training if the student experiences reading challenges.
This is an excellent tool for parents to use with their students to help support their reading and comprehension in homework.

Marsden Ball
Purpose: The Marsden Ball activities help individuals develop integration of thinking, fine motor control, eye-hand coordination, central and peripheral vision, visual thinking, visual memory, visual tracking, and visual-motor planning.

Activity 13: Marsden Ball 1

Hang the ball from string so it is at chest level.

Hit the ball five times with the right hand, then five times with the left hand, then five times alternating hands.

Hit the ball in the same sequence but look out beyond the ball and use peripheral vision to see the ball.

Hit the ball with different parts of the body such as the elbows, the shoulders, the knees, etc.

Count or say the alphabet while hitting the ball with alternate hands.

Play "Simon Says." For example, "Simon says, 'Hit the ball with your right hand three times and then touch your head once.'" Make up sequences hitting the ball and touching parts of the body.

Activity 14: Marsden Ball 2

Motor Planning: Put a square piece of cardboard under the ball.

Stand on one side of the ball. Begin to swing the ball from side to side. The person walks through the ball and touches her foot on the square without letting the ball hit her. Try this walking forward or backward through the ball. Repeat 3-5 times.

Swing the ball in a circle and let the person walk through the ball without getting hit. Repeat 3-5 times.

Play catch with the student with the Marsden Ball or hit the ball back and forth.

Activity 15: Marsden Ball 3

Write a sentence on a board or an easel. Use a sentence that has some of the student's spelling words or a sentence like, "The quick brown fox jumps over the lazy dog."

Hit the ball, alternating the hands, while reading the sentence one letter at a time, with a silent hit on the blank spaces between the words. Read the sentence forwards then backwards.

After this becomes easy, start substituting colors, animals, clapping, or numbers for individual letters. Make different substitutions like, "Every time you see the letter T, say elephant."

Have the student turn around and "read" the sentence without looking at it, still hitting the ball with alternating hands.

Do the above activities but give the student specific patterns to follow when hitting, such as 3 hits with the right hand followed by two hits with the left.

Activity 16: Marsden Ball 4

Hit the Marsden Ball with alternating hands while performing activities from *Cognitive Flexibility Cards*

Brock String

Purpose: To encourage visual control and coordination between the eyes. This exercise should be done with effortlessness in mind. Concentration will improve as the student becomes more efficient at performing the exercise.

Basic Procedure: Hold one end of the string slightly below student's eye level or tie one end of the string to a doorknob. Student holds the other end between thumb and forefinger just below the level of his nose. Spread the beads out, with the first one about 12 inches in front of the nose, and each consecutive bead 12 inches from the next one.

The student may be seated or standing.

Time: Build up to doing each activity for 3-5 minutes.

Activity 17: Brock String 1

Have the student look at the first bead, and see the string crossing right at the hole in the bead, with two strings in front, and two strings in back.

Maintain the X at each bead for two breaths. Then proceed on to the next bead, attempting to get the same pattern.

When the student is able to get the X at each bead, begin to rhythmically shift from bead to bead, calling out the color of the bead at each shift. Go towards the doorknob and back.

Note: Be sure to hold the string taut and check with the student about what he sees or feels.

X through bead: Eyes are working together and looking at the same place.
X before bead: Tendency to cross eyes and hold book too close. Causes visual fatigue and blurred distance vision.
X behind bead: Tend to hold reading material too far away.
One string fades out or less clear: One eye not working efficiently or is shut down. If one of the strings disappears, that is called suppression. Blink and breathe, and see if the suppression goes away.

Activity 18: Brock String 2

Try looking 2 inches in front of the closest bead try to see the "X" in front of the bead.

Repeat seeing the in "X" in front of the middle and finally in front of the far bead.

Once this is done easily, look 2 inches beyond the first bead (this is called soft focus) to get the "X" past the bead. Then repeat getting the "X" behind the second and third beads respectively.

Increase the speed of shifting.

Activity 19: Brock String 3

Have the student look 2 inches in front of the first bead. Slowly bring the bead closer to the student's nose. The student should see both the X and the bead moving closer.

Activity 20: Brock String 4

Skip from bead to bead randomly, instead of in order, as called out by clinician. Add more beads, (up to five), to increase precision of control.

Skip from bead to bead randomly, with the student calling out the color as he shifts. Use up to 5 beads.

Activity 21: Brock String 5

Give each bead a name.

Shift from bead to bead, calling out the names as you shift.

Stand on balance board while doing the activity.

Add rhythm by using a metronome. Set at 120 beats per minute, calling out and shifting beads on every other beat

Activity 22: Brock String 6

Push the beads away to the end of the doorknob.

Look at the doorknob so you see a V.

Begin to follow the intersection of the strings towards you by crossing your eyes until you see an X and the X is moving closer to you.

Stop the X at about 12 inches from your nose. Then move the X back out so it eventually returns to the V.

Coaching: Have student how his eyes are working together and the difference in his flexibility. Feel the muscles working. Watch for any suppression if one of the strings disappears. As the muscles become more flexible, the blur should disappear.
Purpose: This exercise will help the student learn to focus both eyes together.

Activity 23: Brock String 7

While looking at the first bead, the student calls out the color of the next bead she observes in the periphery; then shifts; then calls next; then shifts.

Note: This activity requires a great deal of control!

Tab 19
Graphomotor Skills Development

Graphomotor Skills Development

About Graphomotor (Handwriting) Skills: Handwriting is a complex perceptual motor skill. It involves the following skills, any of which can cause graphomotor problems if not fully developed:

Visual-Perceptual Skills – the ability to visually discriminate between written symbols – i.e. letters and numbers – and judge whether or not they are correct. These challenges are seen in reading and writing problems involving letter reversals and confusion with visually similar letters and words.

Orthographic Coding – the ability to hold a mental image of the printed word in memory; to store and retrieve letters, words, and word patterns. Students who have poor orthographic coding may forget how to form letters in the middle of a writing task. They often trace over letters, have false starts as they write, and may form letters in different ways.

Motor Planning and Execution – the ability to plan, organize, and carry out movements in the right order. Students with dyspraxia, or poor motor planning and execution, have poor motor coordination and inefficient pencil grip. They may complain that their hand hurts when they write.

Kinesthetic Feedback – feedback from the body and movement that helps the student adjust and match their (mental) motor plan with the execution. Students with impaired kinesthetic feedback may grip the pencil too tightly or press too hard in order to get more kinesthetic input from their hand. They may prefer mechanical pencils and scratchy pens because they cause more friction on the paper and therefore more feedback. They may get their eyes very close to the

page in order to guide their hand through visual versus kinesthetic feedback. This causes them to have to write much more slowly.

Visual-Motor Coordination – eye-hand coordination, the ability to control hand movement guided by vision. Handwriting is fine-tuned by kinesthetic feedback, but visual feedback provides gross monitoring that helps students to be aware of margins, lines, and the edge of the paper when writing.

Graphomotor Challenges: Difficulty with handwriting is often overlooked as being a ***real*** problem and is poorly understood. Students with graphomotor problems are seen as lazy or unmotivated or oppositional because they resist doing work that requires writing. They are often accused of writing neatly when they "want to" because they may be able to do so if they write slowly enough. However, writing at a reasonable pace is not an option for them, causing homework to take hours and often making it impossible for them to keep up with the demands of the class.

Graphomotor Skills Development Includes:

- Reflex integration for reflexes that directly impact handwriting and written expression
- Release exercises that help the student release tension and loosen up the muscles and joints needed for writing
- Alphabet 8s to integrate the movements needed to form letters and increase ability to cross the visual midline without confusion
- The Graphomotor Fluency Sequence to increase automaticity and fluency with writing letters
- WriteBrain® to increase integration, impulse control, attention, and writing fluency.

Starting Point: Will vary based on student need and protocol. Students with dyspraxia and dysgraphia should start at Activity 1 and do all of the graphomotor activities.

Most students with learning challenges will benefit from all of the graphomotor activities, but all students should do WriteBrain at minimum.

Even though the activities are numbered, it is suggested that when appropriate for the student, activities be introduced and developed from multiple areas at one time. Activities within each area should be introduced in order.

Writing Reflex Integration

Activity 1: Lion Face

Student opens his mouth wide and sticks out his tongue.

He holds his hands up, spreading his fingers out wide and breathes out, "Hah!"

Purpose: Integrate the Babkin Palmomental Reflex. This reflex is instrumental in preparing a newborn for nursing, eating, speech, and the hand-to-mouth movements that allow babies to explore their world by putting objects in their mouth. Hand-to-mouth movements lead to development of speech and gross and fine motor skills. When this reflex is retained, it can cause difficulties with handwriting.

Completion: When reflex tests negative (integrated).

Activity 2: Babkin Yawn

Student makes a "C" with his thumb and pointer finger of one hand.

Put the thumb on the top of the other hand near the joint between the first finger and thumb and the pointer finger on the pad under the thumb.

Squeeze with moderate pressure and open mouth wide and yawn.

Hold the yawn for 7 seconds. Repeat 4 times.

Switch hands and repeat.

Purpose: Integrate the Babkin Palmomental Reflex.

Completion: When reflex tests negative (integrated).

Activity 3: Finger Tapping

Student taps thumb to pointer finger, middle finger, ring finger, then pinkie in that order 5 times. Reverse the order and tap the sequence 5 times.

Do with both hands together; then each hand separately.

Purpose: Integrate the Hands-Grasping Reflex. When this reflex is retained, there may be challenges with manual dexterity, affecting writing and eating with utensils. Handwriting may be difficult, as well as expressing thoughts on paper, as too much energy is going into the physical writing process.

Completion: When student can execute automatically and easily.

Activity 4: Press and Pull

Student presses palms together (praying hands position) with moderate pressure. Elbows should be up and pointing out to sides. Hold for 8 seconds.

With elbows still out, link fingers together with right knuckles facing out and left knuckles facing in and pull with moderate force for 8 seconds.

Repeat. Have left knuckles facing out when fingers link to pull.

Repeat 2 more times, switching back to right, then left knuckles facing out on pull.

Purpose: Integrate the Hands-Grasping Reflex.

Completion: When reflex tests negative.

Writing Release Exercises

Activity 5: Joint Rotation

Student rotates hands at the wrists 5 times.

Rotate arms at elbows 5 times.

Roll shoulders forward 5 times and backwards 5 times.

Purpose: Support Hands-Grasping Reflex; arm differentiation; and activation, stress release, and flexibility for writing.

Application: Student can use Joint Rotation anytime he needs to loosen up arms and shoulders and release tension in preparation for writing.

Activity 6: Calf Stretch

Student instructions:

Lean on a desk or table in lunge position. Put your hands on the edge of the desk and keep your arms straight. Your front foot should be flat on the floor with your knee bent and your back leg straight and stretched. Your toes will be on the floor and your heel should be pressing down towards the floor.

Inhale through your nose and slowly straighten both legs, coming up on your toes on your back foot and leaning forward. Your hands are still holding the desk

Exhale through your mouth and slowly come back down into your lunge position. Press your back heel down and feel your calf muscle stretch

Do this 3 times, then switch legs and repeat.

Purpose: Release tension. Integrate receptive brain (back) with expressive brain (front) for oral and written expressive language.

Application: Student can use Calf Stretch anytime he needs to re-energize and refresh his thinking and to stimulate expressive language and writing.

Alphabet Eights

Activity 7: Alphabet 8s

On board or large piece of paper, draw a large, very round Lazy 8 (laying on its side like the infinity sign). Draw a line up the midline of the 8.
Using the dominant hand, the student will start in the middle of the 8 and trace it going up and to the left first. Student should put his non-dominant hand under the 8 at the midline.

Trace the 8 three times.

Student then writes each lowercase letter in printing superimposed on the correct side of the 8**.** Each letter should be as large as the circles of the 8. Student should say the letter name and letter sound as he writes it.

Write each letter one time, followed by tracing three full cycles of the 8 (starting in the middle and going up and to the left) before printing the next letter.

Continue for the entire alphabet.

Coaching: It may be helpful to have a written model of the alphabet for the student to check for letter formation. A chart with each letter printed on a lazy 8 would also be helpful for some students.

Letters drawn on the left circle of the lazy 8: a, c, d, e, f, g, o, q, s, u, y

Letters drawn on the right circle of the lazy 8: b, h, k, m, n, p, r, v, w, x, z (x and z are drawn inside the circle, but fill the space).

Be sure student is looking at his hand as he writes. He should follow the movement with his eyes, not his head.

Practice: Student should practice Alphabet 8s daily. This is a good home practice activity.

Graphomotor Fluency Sequence

Activity 8: Printing/Cursive Writing

Introduce one letter at a time. It is suggested that lowercase letters be introduced and mastered before introducing capital letters.

1. Have the client do LARGE Lazy Eights in the air and on the chalkboard with dominant hand, non-dominant hand, and both hands together.

2. Write the letter on the board using the large-sized chalk. Make the letter as large as possible. Say the name of the letter. Have the student trace the letter smoothly one or two times.

3. Instruct the student that you will say the letter sound and he will say the letter name every time before writing the letter.

4. With eyes closed, the student will write the letter on the chalkboard with his dominant hand three times. The letter should be as large as possible. The student will use the large-sized chalk. (If the student struggles with the formation, simultaneously write the letter on the student's back with your finger).

5. Repeat using the non-dominant hand.

6. Repeat using both hands together.

7. Tape a piece of large newsprint to the table. Write the letter on the paper with (fat) crayon. Make the letter as large as possible.

8. Turn on the metronome at the speed of 48. Have the student make the letter in the air to the rhythm of the metronome. Remember, you are still saying the sound and the student is saying the letter name (in beat) before writing.

9. Have the student trace the letter on the large paper to the beat of the metronome using a large crayon. Increase metronome speed to 58, then 68, as the student is ready. Continue with the metronome until the student is making the letter fluently.

10. Write the letter on the largest-size Handwriting Without Tears paper. Do a whole row of the new letter, with the clinician saying the sound and the student saying the letter before writing. Then have the student write all letters learned so far, with the clinician saying letter sound and student saying letter name then writing.

WriteBrain

About WriteBrain: The ***WriteBrain*** program uses a series of handwriting-type activities and music recorded at 60 beats per minute to stimulate the brain for learning. (Sound Therapy mucis will be used for home practice sessions). This program helps students to develop fluency and stamina in their graphomotor (writing) skills, attention, and integration. It helps develop calm, focused readiness for learning.

Handwriting has a physiological and psychological link in the brain that impacts integration, attention, fluency, and learning. With a built-in capacity to regulate the emotional energy flow, this repetitive, multisensory stimulation impacts the emotional brain to reduce anxiety, increase motivation, and gain impulse control.

Fine motor skills, eye-hand coordination, and handwriting fluency are improved through the ***WriteBrain*** exercises.

Goal: Increase integration, impulse control, attention, and writing fluency.

Materials: ***WriteBrain*** handwriting patterns worksheets from either (Grade) Level K-2 or (Grade) Level 3-12 and ***WriteBrain*** CD.

Criteria for moving to next activity: Do each worksheet a minimum of 5 times between home and clinical sessions. Student should show increased ease, flow, and comfort with the handwriting pattern and should be able to write continuously for the full 3 minutes of the ***WriteBrain*** CD track.

Activity 9: WriteBrain

Do one activity (Level K-2) or one GAL *and* one ASL activity (Level 3-12) daily while listening. In sessions, the appropriate track on the *WriteBrain* CD will be used. Home practice with this activity can be done while students are listening to their prescribed sound therapy music.

Student should trace and then copy the pattern, stopping at the end of the music.

Student should sign his name and copy the affirmation at the bottom of the page if there is one.

Coaching: Work with student to use a correct and efficient pencil grip. Recognize that this will take patience and practice, as old habits are hard to change. Encourage student to keep the pencil on the page until the end of the line.

If the student is pressing too lightly or too hard, use a kinesthetic voice to relax their hand or make the writing darker.

Student does not need to finish the page. He should go as far as he can until the end of the music. Over time, an increase in the amount that he is able to complete with control will indicate an increase in comfort and flow with graphomotor skills.

If student is going too fast or too slowly, encourage him to go with the music. As the student entrains to the music, his writing will become more regulated.

Tab 20
Aerobics

Aerobic Exercises

Why are Aerobics Important? Research has shown that aerobic exercise is highly effective in decreasing hyperactivity and increasing memory, attention, concentration, mood, and thinking. The connection is increased blood flow and oxygen to the brain. Aerobic activity at least three or four times a week, but preferably everyday is not only an important part of Core Learning Skills training, but valuable to people of all ages for general health and well-being.

Childhood activities such as running, jumping, riding bikes, and jump rope are good aerobic activities. The following activities are both aerobic and integrating. These can be switched around to keep session fun and interesting.

Mental Challenge: It is important to be able to move and think at the same time. Try adding some form of mental exercise to the activities. This helps bring the activity itself to a more automatic level. Mental exercises can include practicing spelling words, math facts, having a conversation, Q and A for test study, etc.

Activity 1: Running in Place

Mark an X on the ground with a piece of tape.

Have the student run in place moving his arms and legs.

Start with a minute of running with a one-minute rest. Repeat several times.

Slowly increase the time one minute at a time. (Only increase the time when the student is able to run in place smoothly with arms and legs moving in good rhythm). Student should rest the same number of minutes as he ran.

Activity 2: Jumping

Mark an X on the ground or the center of a mini-trampoline with piece of tape.

Jump for 30 seconds on the X; then take a 30 second rest. Repeat several times.

Increase in increments of 30 seconds as the student is able.

Activity 3: Jumping Rope

Jump for one-minute with a one-minute rest.

Increase in increments of one minute at a time as the student is able.

Activity 4: Slalom

Stand with knees slightly bent and arms bent at elbows. Hold hands in loose fists as though holding ski poles.

Jump with feet going to the left and arms going to the right. Jump back and forth for one-minute with a one-minute rest. Repeat several times.

Activity 5: Jumping Jacks

Student stands straight with arms at his sides.

Do 20 jumping jacks (Jump up and simultaneously raise the arms to the side and over the head and spread the legs. Jump back to the original position).

Take a 15 second rest.

Do a total of 3 sets.

When the student has mastered this, try it with eyes closed.

Tab 21
References

References

Belgau, Frank and Belgau, Beverly. *Learning Breakthrough Program*. Port Angeles, WA: Balametrics, Inc. 1982, Revised 2001.

Berne, Samuel A., O.D., FCOVD. *Creating Your Personal Vision.* Santa Fe, NM: Color Stone Press, 2005.

Berne, Samuel A., O.D., FCOVD. *Without Ritalin A Natural Approach to ADD.* Santa Fe, NM: Color Stone Press, 2006.

Brandes, Bonnie. Quantum Reflex Integration QRI Reflex Integration Using Low Level Laser. USA: Bonnie Brandes, 2009.

Brandes, Bonnie. Symphony of Reflexes. USA: Quantum Reflex Integration, Inc. 2015.

Chamberlain, Janice, consultant. Smarts 4 U. 2014

Childre, Doc. Freeze Framer. Boulder Creek, CA: Planetary Publications, 1994.

Craft, Dianne. *Brain Integration Therapy Manual*, USA: Dianne Craft, 2010

Dennison, Paul, Ph.D and Dennison, Gail. Brain Gym® Teacher's Edition Revised. Ventura, CA: Edu-Kinesthetics, Inc., 1998.

Farmer, Jeannette. *Train the Brain to Pay Attention the Write Way.* Denver, CO: WriteBrain Press, 1995.

Goddard, Sally. *Reflexes, Learning, and Behavior, a Window into the Child's Mind.* Eugene, OR: Fernridge Press, 2002.

Gold, Svea. *If Kids Just Came with Instruction Sheets*. Eugene, OR: Fernridge Press, 1997.

Hannaford, Carla, Ph.D. *Smart Moves.* Salt Lake City, UT: Great River Books, 1995.

Le Roux, Tracey. www.ot-mom-learning-activities.com 2014

Masgutova, Svetlana, Ph.D. *Integration of Infant Dynamic and Postural Refelx Patterns - MNRI®.* USA: Svetlana Masgutova Educational Institute for Neurosensorimotor Reflex Integration, 1998-2010 www.reflexintegration.net

Melillo, Robert. *Disconnected Kids,* New York, NY: Penguin Group, 2009

Remick, Kristy Mitchell, Stroud, Carol, Bedes, Vicki. *Eyes on Track A Missing Link to Successful Learning,* J.F.'s Publishing, 2000

Ratey, John. M.D., *A User's Guide to the Brain: Perception, Attention, and the Four Theaters of the Brain.* NY: Random House, 2002.

Smith, Joan, Ph.D. *Learning Victories.* Sacramento, CA: Learning Time Products, Inc., 1998.

Schneider, Catherine Chemin. *Sensory Secrets How to Jump Start Learning in Children*, Siloam Springs, AK: Concerned Communications, 2001

Smith, Joan, Ph.D. *You Don't Have to Be Dyslexic.* Sacramento, CA: Learning Time Products, Inc., 1996.

Smith, Joan, Ph.D. Training Courses: Dyslexia Remediation Specialist Certification and EDU-Therapeutics Trainer Certification, 1999, 2002.

Steinbach, Ingo. *Samonas Sound Therapy*. Keelinghusen, Germany: Techau Verlog, 1997.

Sunbeck, Deborah. *The Complete Infinity Walk Book 1: The Physical Self.* The Leonardo Foundation Press, 2002.

Sutton, Albert, O.D. *Building a Visual Space World, Volumes 1 and 2.* Santa Ana, CA: Optometric Extension Program Foundation, 1985.

Voss, Angie. www.asensoylife.com