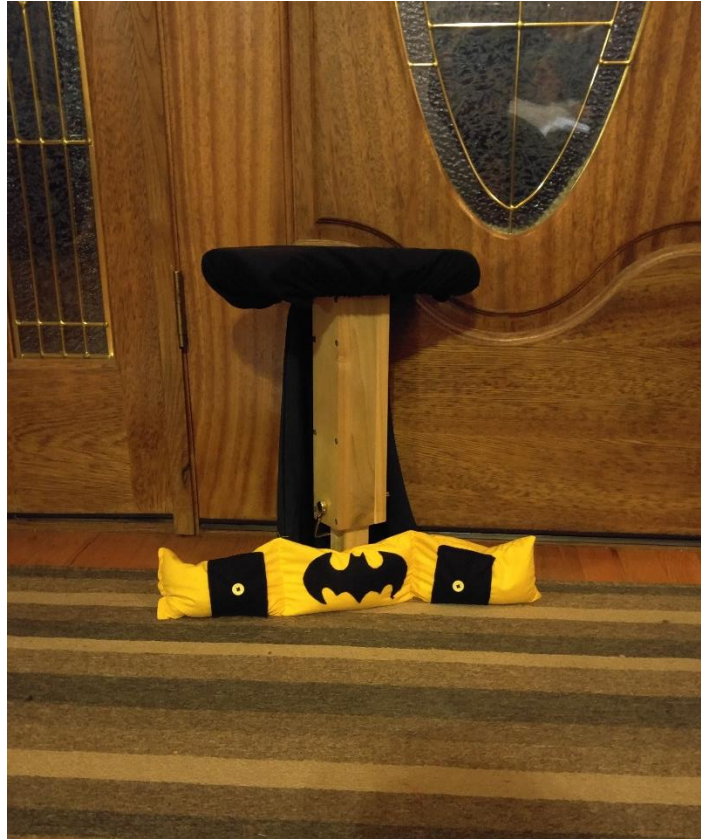


Superhero T-Stool with Weighted Lap Accessories



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Occupational Therapy Makes a Difference

Description and Purpose:

The superhero t-stool is designed produce vestibular (movement) input while a pediatric client needs to be in a seated position. In addition to providing vestibular input, the stool also requires activation of core muscles to balance and remain upright while seated on the stool. For a child who seeks vestibular input, the stool can help to increase the child's ability to focus, pay attention, and remain seated while in the classroom.

The superhero t-stool also includes changeable covers that can help customize the stool for the pediatric client based on the superhero that he or she may prefer. Each superhero design that was created has a removable seat cover, a detachable cape, and weighted lap accessory that corresponds to the superhero. The weight accessories can be used for proprioceptive (deep pressure) input for pediatric clients who need the sensory input.

How to Use:

The t-stool is designed to be used in an educational environment to increase attention and focus in vestibular seekers. The stool should be used by the client whenever sitting is required. The height of the stool should be adjusted so that the client's knees are at a 90-degree angle when seated. The t-stool can be adjusted to 12" by removing the middle leg from the t-stool. This will also make it easier for smaller children to balance as the base of support will be wider.

The stool also includes weighted lap accessories that can be used in addition to the t-stool to provide calming proprioceptive input to proprioceptive seekers. The weighted lap accessories should be used for no more than 15 minutes at a time to prevent them from losing their calming effect.

Each t-stool also has three interchange covers that can be used to customize the stool for the client. The cover has detachable capes that can be removed should the OT deem that they are a distraction to the client.

Step-by-Step Instructions:

T-Stool

Materials:

- 1 – 2” x 2” x 2’ Piece of Finished Lumber
- 1 – 2½” x ¾” x 2’ Piece of Finished Lumber
- 1 – 1½” x ¾” x 2’ Piece of Finished Lumber
- 1 – 1’ x 6” x ¾” Piece of Finished Lumber (this is the seat piece)
- 1 – 1¼” Rubber Chair Stopper
- 16 – 1½” Wood Screws
- 2 – 3” Wood Screws
- 1 – 13” x 7” Piece of ½” Thick Foam
- Industrial Strength Spray Adhesive (for Foam), Gorilla Super Glue
- 1 – 5/16” x 3½” Square Lock Pin

Tools:

- Table Saw
- Wood Lathe
- Cordless Drill
- 1/8” Drill Bit
- 5/16” Drill Bit
- Philips Head Drill Bit
- 3/8” Counter Sink Bit
- Tape Measure
- C-Clamp

T- Stool

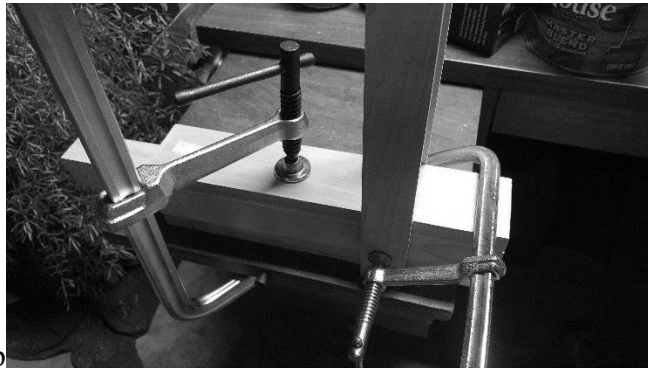
Step 1: Using the tape measure, mark the 2” x 2” piece of wood and at 14”. Then measure the 2½” wide and 1½” wide boards and mark at 12”. Also, measure a piece of wood to fit the dimensions of the seat.

Step 2: Using the table saw, saw the wood based on the marks created above.

Step 3: Place the 2" X 2" board in the middle, and build a box around the 2" x 2" board using the 2½" wide and 1½" wide board. (See Pictures below)



Step 4: Using the c-clamps, secure the outside boards together to make sure that they don't move when they are screwed together. (See picture below)



Step 5: On the 2½" wide board drill pilot holes using the 1/8" drill bit and counter sink holes using the 3/8" counter sink bit. Use the picture below as guide for placement of the holes.



* Note: The screw placement pattern that I used above is at the following measurements starting at the top of the stool: ½", 2½", 7¼", and 11½".

Step 6: After making the pilot and counter sink holes, screw the boards together using the 1½” wood screws and the cordless drill.

Step 7: Using the tape measure, center the leg onto the seat. The 2½” wide board should be facing the sides of the seat, and the 1½” wide boards should be facing the front of the seat. To center my board my measurements were 4½” from each side, and 1¾” from the front and back of the board.

Step 8: At approximately 4¾” from both sides of the seat and 3” from the front of the seat, make two pilot and counter sink holes for screws that will attach the seat. (The holes should be in the middle of the 2½” wide boards.)

Step 9: Using the 3” wood screws, screw the seat onto the leg where the pilot holes are drilled.

* Note: Steps 10 and 11 do not have to be performed if you do not want a rubber chair tip on the stool.

Step 10: Remove the 2” x 2” board, and use the wood lathe to turn down the end to 1¼”.

Step 11: Place the rubber chair tip onto the stool.

Step 12: Make a mark 1” up from the bottom in the middle of the 2½” wide board on both sides of the leg.

Step 13: Drill a pilot hole where you made the marks using the 1/8” drill bit.

Step 14: Then, drill the holes in the wood using the 5/16” drill bit.

Step 15: Now, place the 2” x 2” inside of the leg, and adjust the leg to make the stool 14”.

Sticking a pencil in the hole that has already been drilled, mark where the hole should be drilled in the 2”x2” should be.

Step 16: Repeat the directions in step 13 to mark where the hole should be for the stool to be at 16”.

Step 17: Drill a pilot hole using the 1/8” inch drill bit where the marks are located.

Step 18: Then drill a hole using the 5/16” drill bit.

Step 19: Insert the square lock pin to adjust stool to the appropriate height.

Step 20: Spray the top of the seat with spray adhesive, and attach the piece of ½” thick foam immediately.

Step 21: Apply a 6” piece of Velcro, hook side, to the underside of the stool using gorilla super glue. This is so the cape can attach to the back of the stool.

Superhero Seat Covers, Capes, and Weighted Accessories

Materials:

- 1 yard red material
- ½ yard navy blue material
- ½ yard neon green material
- 1 ½ yard black material
- 1 foot yellow material
- ½ foot quality black felt
- 2 – ½ inch yellow buttons
- ½ yard dark grey material
- ½ yard light grey material
- 6 inches brown material
- Polyester Classic Fiber Filling
- 2 decorative bronze/silver buttons
- 3 feet of ¼ inch elastic
- Velcro
- All-purpose thread to match material
- 10-pound bag of rice

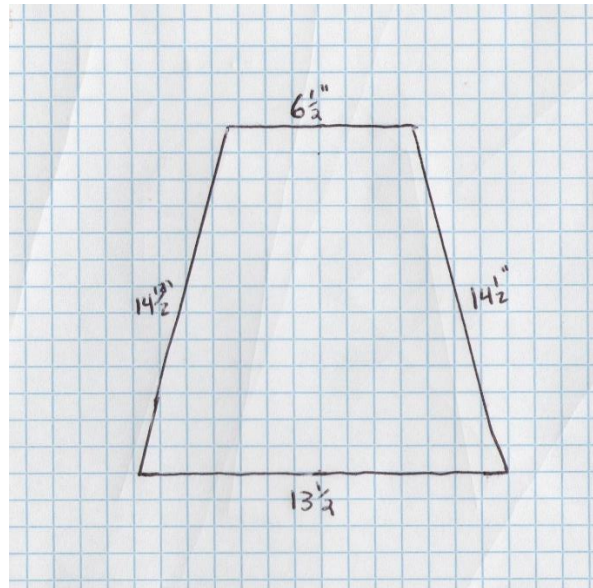
Tools:

- Sewing Machine
- Fabric Scissors
- Straight Pens
- Food Scale

Superman and Batman Cape:

Step 1: Buy the supplies listed above.

Step 2: Using the black and red material, cut out two pieces of fabric for each color (total of four pieces) using the pattern below. Leave about one inch on the outside of the pattern.



*Note: For the pattern above, each square on the grid is equal to one inch. The same will apply for all other patterns in manual.

Step 3: Place two of the same colors of fabric together with the good side of the fabric facing each other, and pin the pattern to the fabric.

Step 4: Using the sewing machine, sew the two pieces of fabric together leaving one side open.

Step 5: After sewing, turn the two pieces of fabric so the good side of the fabric is facing outward.

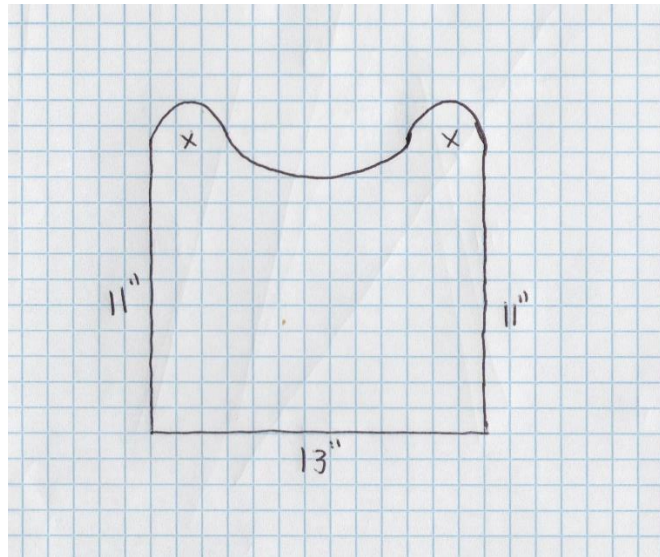
Step 6: Sew the open side shut using the sewing machine.

Step 7: Sew a 6" piece of Velcro, loop side, to the top of the cape.

Step 8: Repeat steps 3 through 7 for the other cape.

Thor's Cape:

Step 1: Using the black and red material, cut out one piece of fabric of each color (2 pieces total) using the pattern below. Leave about one inch on the outside of the pattern.



Step 2: Place the two pieces of fabric together with the good side of the fabric facing each other, and pin the pattern to the fabric.

Step 3: Using the sewing machine, sew the two pieces of fabric together leaving one side open.

Step 4: After sewing, turn the two pieces of fabric so the good side of the fabric is facing outward.

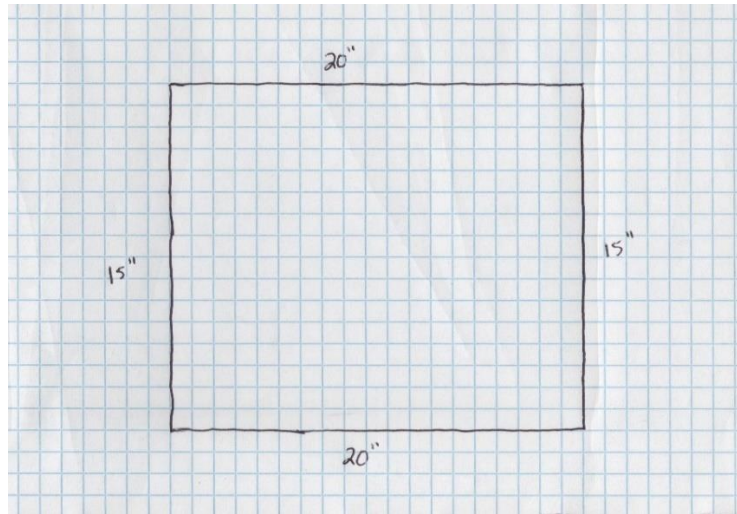
Step 5: Sew the open side shut using the sewing machine.

Step 6: Sew two – 2 ½” pieces of Velcro, loop side, to the back of the cape. These should be located behind the X's on the pattern.

Step 7: Sew the decorative buttons onto the cape where the X's are on the pattern.

Seat Covers:

Step 1: Using the black, navy blue, and dark grey material, cut out one piece of fabric of each color (3 pieces total) using the pattern below. Leave about one inch on the outside of the pattern.



Step 2: Create a $\frac{1}{2}$ seam to run the elastic cord through by folding the edges of the fabric over and pinning into place.

Step 3: Using the sewing machine, sew the seam. Leave one corner open so that the elastic can be threaded through after sewing the seam.

Step 4: Attach the end of the elastic to a large safety pin, and thread the elastic through the seam.

Step 5: After threading the elastic, pull elastic tight and safety pin the elastic together.

Step 6: Place cover on stool and adjust elastic to ensure proper fit.

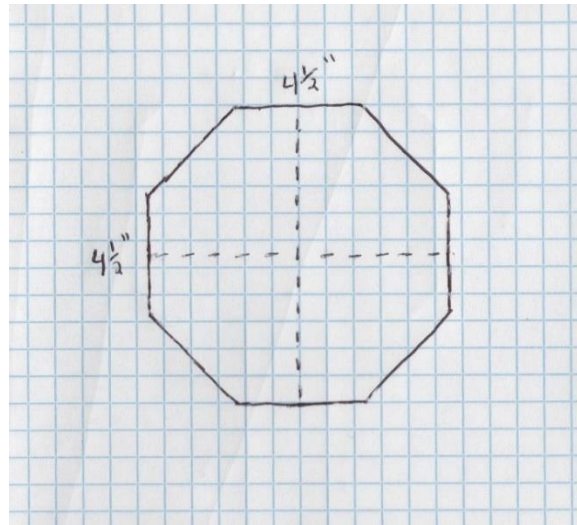
Step 7: Using a needle and thread, sew the ends of the elastic to the fabric.

Step 8: Sew the open corner of the seat cover shut. You can either hand sew this, or use the sewing machine.

Weighted Kryptonite:

Step 1: Using the neon green material, cut out two pieces of fabric using the pattern below.

Leave about one inch on the outside of the pattern.



Step 2: Place the two pieces of fabric together with the good side of the fabric facing each other, and pin the pattern to the fabric.

Step 3: Using the sewing machine, sew the two pieces of fabric together leaving one side open where the dotted line intersects.

Step 4: After sewing, turn the two pieces of fabric so the good side of the fabric is facing outward.

Step 5: After turning the fabric, sew a line up the middle of the bag following the dotted line that intersects with the opening in the bag.

Step 6: Measure out $\frac{3}{4}$ pound of rice, and fill one side of the seam. Repeat for other side. Then using the straight pens, seal the rice off in preparation of sewing the next seam.

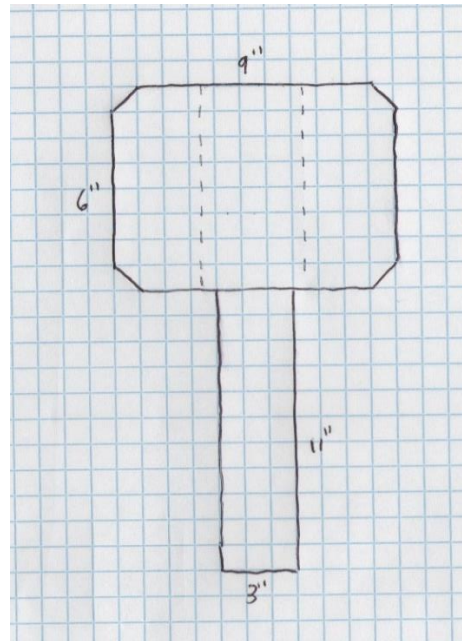
Step 7: Sew the remaining dotted line to create pockets for the rice that was just poured into the bag.

Step 8: Again, measure out $\frac{3}{4}$ pound of rice, and fill one side of the seam. Repeat for the other side. Once again use the straight pens to seal the rice off in preparation of closing the kryptonite.

Step 9: Sew the open side of kryptonite shut to complete.

Weighted Mjölfnir (Thor's Hammer):

Step 1: Using the light grey material, cut out two pieces of fabric for the hammer using the pattern below. Using the brown material, cut out two pieces of fabric for the handle of the hammer using the pattern below. Leave about one inch on the outside of the pattern.



Step 2: Place the two brown pieces of fabric together with the good side of the fabric facing each other, and pin the pattern to the fabric.

Step 3: Using the sewing machine, sew the two pieces of brown fabric together leaving one side open.

Step 4: After sewing, turn the two pieces of fabric so the good side of the fabric is facing outward, and stuff using the filling, and sew shut.

Step 5: Place the two light grey pieces of fabric together with the good side of the fabric facing each other, and pin the pattern to the fabric.

Step 6: Using the sewing machine, sew the two pieces of brown fabric together leaving an open space where the hammer will go, and leaving one of the short sides open.

Step 7: After sewing, turn the two pieces of fabric so the good side of the fabric is showing.

Step 8: Insert the handle of the hammer into the place left open for it, and sew the opening shut.

Step 9: Measure out 1 pound of rice, and pour into the open side of the hammer. Then using the straight pens, seal the rice off in preparation of sewing the next seam.

Step 10: Sew a seam where the dotted line is on the pattern.

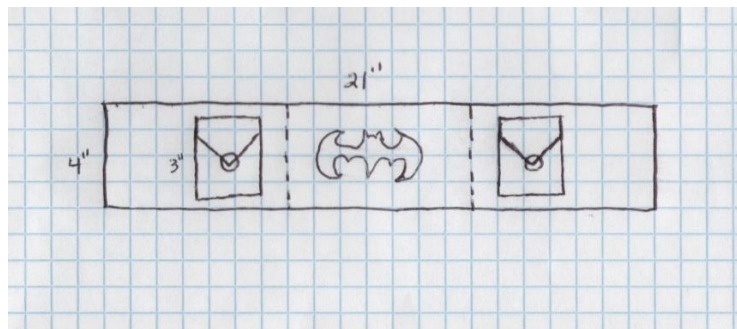
Step 11: Repeat steps 9 and 10 to fill and sew the next section of the hammer.

Step 12: Again, measure out one pound of rice, and pour into the open side of the hammer. Then using the straight pens, seal the rice off in preparation of sealing the hammer.

Step 13: Sew the final seam to seal the hammer.

Weighted Batman's Utility Belt:

Step 1: Using the pattern below, cut two pieces of yellow fabric using the pattern below. Leave about one inch on the outside of the pattern. Then, cut the two pockets, and the batman symbol out of felt. (I printed a batman symbol from the internet and used it as the pattern for the symbol.)



Step 2: Take one piece of the fabric and sew the batman symbol on. (I found that sewing this on by hand was easier.)

Step 3: Then sew the fake pockets onto the belt.

Step 4: Next, add the buttons onto the belt, where the circles are drawn on the pattern.

Step 5: Place the two yellow pieces of fabric together with the good side of the fabric and the side with the felt sewn on facing each other, and pin the pattern to the fabric.

Step 6: Using the sewing machine, sew the two pieces of yellow fabric together leaving one side open.

Step 7: After sewing, turn the two pieces of fabric so the good side of the fabric is showing

Step 8: Measure out 1 pound of rice, and pour into the open side of the belt. Then using the straight pens, seal the rice off in preparation of sewing the next seam.

Step 9: Sew a seam where the dotted line is on the pattern.

Step 10: Repeat steps 9 and 10 to fill and sew the next section of the belt.

Step 11: Again, measure out one pound of rice, and pour into the open side of the belt. Then using the straight pens, seal the rice off in preparation of sealing the belt.

Step 12: Sew the final seam to seal the belt.

Activities:

Superhero Catch: One activity that can be performed using the t-stool is cath. While the client is seated on the t-stool, the client and OT can pass a ball back and forwards to each other. If two t-stools are available, two clients could pass the ball with each other.

Performance Component	How
Joint Mobility	The client must move the should, elbow, wrist and finger joints to throw and catch the ball.
Postural Control	The client must remain upright and use core muscles to balance while on the stool.
Muscle Strength/Endurance	Maintain an upright balance while seated on the stool requires that the client use their muscles for long periods of time.
Eye-Hand Coordination	To catch the ball, the client must be able to determine the speed at which the ball is thrown and then catch it with their hands.
Bilateral Integration	The client must use both hands at the same time to catch and throw the ball.
Concentration	The client must be able to concentrate on balancing and catching the ball.
Attention	The client must maintain attention to keep from being hit with the ball.
Vestibular	The client will receive vestibular input through moving on the t-stool.
Proprioception	The client will receive proprioceptive input through the work required to throw/catch the ball. Additional proprioceptive input may be given using the weighted lap accessories.
Social Interaction	If performed with other children, the activity could incorporate social interaction.
Motivation	By making the game fun, the child may be motivated to participate in therapy for a longer period.

Superhero Helper: This activity will require having a sensory obstacle course set up prior to the intervention session. In this activity, the superheroes will have lost their weight accessories, and the client will need to help return them to the superheroes by completing the obstacle course. They also will have to match the accessory and the superhero together at the end of the obstacle course.

Performance Component	How
Joint Mobility	Joint mobility will be needed at every joint in order to complete the actions needed to finish the obstacle course
Gross Motor Movement	These movements will be needed in order to navigate the obstacle course.
Muscle Strength/Endurance	In order to complete the obstacle course, the client will need to carry the weighted accessories. This will require both strength and endurance.
Bilateral Integration	The client will need to use both sides of their body to carry the accessories and to complete the tasks in the obstacle course
Proprioception	Proprioceptive input will be provided through carrying the weight accessories and by the heavy work required to complete the obstacle course.
Problem Solving	The client will have to problem solve to figure out which accessory goes to the correct superhero.
Following Directions	The client will need to follow directs in order to complete the obstacle course in the correct manor.
Confidence	Completing the obstacle course should boost the client's confidence
Frustration Tolerance	The obstacle course may be challenging for the client thus result in frustration.
Motivation	Knowing that the client is helping the "superheroes" may serve as motivation to complete the obstacle course.

Superhero Balloon Volley: For this activity, the client will be seated on the t-stool. The client and OT will perform a game of balloon toss. The client will be instructed to reach with both hands, in superman fashion, to reach to balloon and hit it back.

Performance Component	How
Joint Mobility	Shoulder, elbow, wrist, and hand mobility are all needed in order to reach and hit the balloon.
Coordination	The activity requires that the client be able to coordinate the upper and lower halves or his or her body in order to maintain balance while hitting the balloon.
Bilateral Integration	Using both hand at the same time to hit the balloon requires the use of bilateral integration.
Crossing Midline	The ability to cross midline is needed so the both hands can reach to one side and hit the balloon.
Social Interaction	If played with other children, social interaction can be achieved.
Attention/Concentration	Maintaining focus on the balloon in order to hit the balloon whenever it is volleyed.
Creativity	Creativity can be incorporated by having the client incorporate their own superhero moves into the game.
Vestibular	The client will receive vestibular input through moving on the t-stool while writing.
Proprioception	The client will receive proprioceptive input using the weighted lap accessories.
Depth Perception	This is required in order to figure out where the balloon is in order to calculate the appropriate time to swing.
Frustration Tolerance	Learning to balance on the stool while moving may be hard for some children, and this could be a source of frustration. In addition, possibly missing the balloon could frustrate some children.

Superhero Simon Says: For this activity, the client will be seated on the t-stool. The OT will sit directly across from the client and they will take turns being the leader for Simon Says. The OT and client will try to create “superhero moves” for each other to follow.

Performance Component	How
Following Directions	Completing the commands given by Simon.
Attention	The client will have to pay attention in order to complete the actions that are given by Simon.
Listening	The client will have to listen in order to know which commands that Simon gives and which commands are trick commands.
Creativity	Creating commands to give to the OT will require creativity
Vestibular	The client will receive vestibular input through moving on the t-stool while writing.
Proprioception	The client will receive proprioceptive input using the weighted lap accessories.
Muscle Strength/Endurance	This is needed to activate core muscle to maintain balance while performing the commands.
Crossing Midline	Following commands that require reaching across midline
Bilateral Integration	Following commands that require the use of both sides of the body.
Social Interaction	If played with other children, social interaction will be required to communicate between them
Joint Mobility	Shoulder, elbow, wrist, and hand mobility are all needed in order to follow the commands that are given by Simon.

T-Stool Soccer: The client and the OT will play a small game of passing a soccer ball back and forth while being seated on the t-stool. The players will score a point for every pass that they can make to each other.

Performance Components	How
Eye- Foot Coordination	In order to kick the ball, the eyes must be able to work with the feet.
Muscle Endurance/Strength	To maintain an upright posture muscle strength and endurance is needed.
Gross Motor Movements	These are needed in order to kick the ball at the OT.
Crossing Midline	If the client kicks the ball using the foot opposite to the side that the ball is on.
Confidence	Client could gain confidence in using the t-stool because of the increased balancing needed to kick the ball.
Attention	Attention is needed to continually kick the ball.
Concentration	This is needed to maintain focus on the ball while playing
Vestibular	The client will receive vestibular input through moving on the t-stool while writing.
Proprioception	The client will receive proprioceptive input using the weighted lap accessories.
Depth Perception	Being able to judge how far the ball is away from you.
Figure Ground	This is required to be able to see the ball on the ground.
Social Participation	If adapted to play with other children, the chance of social interaction increases.

Writing and Movement: For this activity, the client will be seated on the t-stool while practicing hand writing. This activity can be good for simulating whether the t-stool may be conducive for the classroom environment.

Performance Component	How
Joint Mobility	Writing requires small movements of the finger joints. In addition, the ankles, knees, and hip must be used to maintain balance while on the stool.
In-Hand Manipulation	Writing requires the manipulation of the pencil by the hand in order to adjust the pencil into an appropriate grasp.
Muscle Endurance/Strength	Core muscle strength is need to maintain an upright posture while on the t-stool.
Grasp Patterns	An efficient grasp is needed in order to hold the pencil for writing.
Concentration/Attention	For the vestibular or proprioceptive seek, using the t-stool can increase the client's ability to concentrate and pay attention while completing tasks.
Problem Solving	This could be incorporated by having the client perform a problem solving activity that requires writing.
Vestibular	The client will receive vestibular input through moving on the t-stool while writing.
Proprioception	The client will receive proprioceptive input using the weighted lap accessories.
Figure Ground	In order to write, the client must be able to distinguish the difference between the table and the paper.
Frustration Control	Not being able to balance may cause frustration in some individuals
Bilateral Integration	The client must be able to use both hands to write. One to hold the paper, and the other to write with the pencil.

“Going on a Bear Hunt”: While the client is sitting on the t-stool, the client and OT will perform the song “Going on a Bear Hunt.” The client and OT will perform the motions to the song while they are singing the song.

Performance Component	How
Joint Mobility	In order to perform the motions of the song, shoulder, elbow, wrist, and hand mobility is needed.
Muscle Strength/Endurance	This is needed in order for the client to maintain seated in an upright posture on the stool.
Bilateral Integration	Performing the movements of the song requires that both sides of the body move in sequence with each other.
Gross Motor Movement	Gross motor movements are required to perform the movements of the song; in addition, they are required to maintain balance on the t-stool.
Crossing Midline	Performing some of the motions in the song will require the client to cross midline.
Sequencing	This is required in order to remember the correct steps to take to get back home after encountering the bear.
Listening	This is required in order to know what movement to do based on what the lyrics are saying.
Following Direction	The client must be able to listen and follow the appropriate action based on what the leader is saying to do.
Creativity	Creativity can be incorporated through letting the client create their own motions to the song.
Vestibular	The client will receive vestibular input through moving on the t-stool while writing.
Proprioception	The client will receive proprioceptive input using the weighted lap accessories.
Social Participation	If the song is sung with other children than social participation could be incorporated.