





Digital magazine for pediatric occupational and physical therapists.

# **Issue 73 - July 2015**

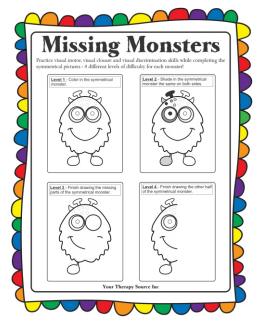








# **New and Sale Products**



#### Missing Monsters

By: Your Therapy Source Inc

Summary: Download of 4 levels of difficulty of 10 different symmetrical monsters to complete

Product Details:

Packet: 42 pages Language: English

LIST PRICE: \$3.99 SALE PRICE UNTIL 7/31/15: \$1.99

# Find out more at <u>www.YourTherapySource.com/missingmonsters</u>





Therapy Planner 2015-2016 By: Your Therapy Source, Inc

Summary: Download of materials to create a Therapy Planner for the 2015-2016 school year to help you stay organized. LIST PRICE: \$4.99 SALE PRICE UNTIL 7/31/15: \$2.99

Find out more at <u>www.YourTherapySource.com/therapyplanner</u>

#### Heart Rate, Motor Skills and Children with Autism

*Physiology & Behavior* published research on 20 children – 10 with autism spectrum disorder (ASD) and 10 control subjects to determine how the heart rate adjusts during different physical tests.

Each participant was evaluated using the Eurofit Physical Fitness Test Battery with constant heart rate monitoring. In addition, their parents completed the Vineland Adaptive Behavior Scales.



The results indicated the following:

1. both groups show the same trend of heart rate increase (during exercise and also during the maximum effort).

2. children with ASD presented a significant lower heart rate compared to the control population.

3. children with ASD showed lower results than controls on plate tapping test, vertical and broad jump tests and the sit up test on the Eurofit Physical Fitness Test Battery.

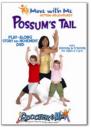
- 4. Children with ASD and higher number of falls on the Flamingo balance test
- 5. children with ASD had lower force on the handgrip test

The researchers concluded that the significant heart rate decrease of the ASD group during physical test could be due to an alteration of the cardiac response. Also, their results concur with previous studies indicating that children with ASD exhibit a lack of motor abilities such as balance and executive functions.

Reference: Marion Pace and Véronique-Aurélie Bricout. Low heart rate response of children with autism spectrum disorders in comparison to controls during physical exercise. Physiology & Behavior. Volume 141, 15 March 2015, Pages 63–68

Possum's Tail – Ride magic scooter out to the swamp and explore with little Possum, who wants to find her balance, even though she was born without a tail! Climb across a canyon, hang upside down in a tree, hide from hungry alligator, and like Possum, find your determination.

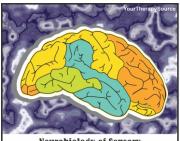
Possum's Tail video encourages: balance and fitness strength and flexibility alignment and concentration self control and self regulation.



FIND OUT MORE at http://yourtherapysource.com/movewithmepossum.html

### **Neurobiology of Sensory Overresponsivity in Children with Autism**

JAMA Psychiatry published research on the neurobiological basis of sensory overresponsivity (an extreme negative reaction to sensory stimuli) in youth with autism. Since more than half of youth with autism spectrum disorders (ASDs) have sensory overresponsivity (SOR) the researchers wanted to use functional magnetic resonance imaging to investigate the differences in brain responses, habituation, and connectivity during exposure to mildly aversive sensory stimuli in 19 youth with ASDs and SOR compared with youth with ASDs without SOR and compared with typically developing control subjects. Overresponsivity in Children with Autism The mean age in both groups was 14 years and the majority in both groups (16 of 19 each) were male.



**Neurobiology of Sensory** 

The results indicated the following:

1. compared with neurotypical control participants, participants with ASDs displayed stronger activation in primary sensory cortices and the amygdala. This activity was positively correlated with SOR symptoms after controlling for anxiety.

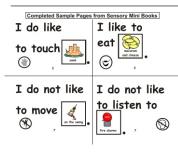
2. participants with ASD with SOR subgroup had decreased neural habituation to stimuli in sensory cortices and the amygdala compared with groups without SOR.

3. Youth with ASD without SOR showed a pattern of amygdala downregulation, with negative connectivity between the amygdala and orbitofrontal cortex.

The researchers determined that "youth with ASD and SOR show sensorilimbic hyperresponsivity to mildly aversive tactile and auditory stimuli, particularly to multiple modalities presented simultaneously, and show that this hyperresponsivity is due to failure to habituate". The subset of youth with ASD without SOR were able to regulate their responses through prefrontal downregulation of amygdala activity. The researchers recommend that intervention should include minimizing exposure to multiple sensory modalities and building coping strategies for regulating emotional response to stimuli.

You can read the entire full text article here http://archpsyc.jamanetwork.com/article.aspx?articleid=2301162

Reference: Green SA, Hernandez L, Tottenham N, Krasileva K, Bookheimer SY, Dapretto M. Neurobiology of Sensory Overresponsivity in Youth With Autism Spectrum Disorders. JAMA Psychiatry. Published online June 10, 2015. doi:10.1001/jamapsychiatry.2015.0737.



Mini Sensory Books - This electronic book includes 7 sensory mini books, 7 sensory charts, 7 sensory four square strips and over 100 picture word cards. The mini book titles include: TOUCH, MOVE, ATTENTION, CALMING DOWN, EAT, SMELL and LISTEN.

Find out more at http://yourtherapysource.com/minisensory.html

## 10 Reasons Why Children Should Do Yoga



Here are 10 reasons why children should do yoga:

1. Yoga increases physical activity. It is recommended that children participate in at least 60 minutes of physical activity every day. Yoga is an excellent choice since it can be performed indoors or outdoors and in small spaces.

2. Yoga teaches children to relax. Children's schedules are super busy – school, extra curricular activities, sports, etc. Today's children need to reduce stress with relaxation techniques.

3. Yoga is for all children. Yoga can be modified to be completed by all children including those with physical disabilities making yoga a great choice for an inclusion activity.

4. Yoga helps children to control their emotions. Deep breathing exercises can help children to reduce anxiety and calm down in stressful situations.

5. Yoga helps with self regulation skills. Children learn how to respond to and control their body.

6. Yoga improves muscle strength and flexibility. Growing up today in this sedentary, technology filled world takes a toll on an individual's body. Children will need to work hard to maintain a healthy body. When children maintain good flexibility and muscle strength they can prevent injuries during sporting activities.

7. Yoga can help to improve attention span and focus. Children need to concentrate during yoga poses which in turn can help them to increase their attention span and focus.

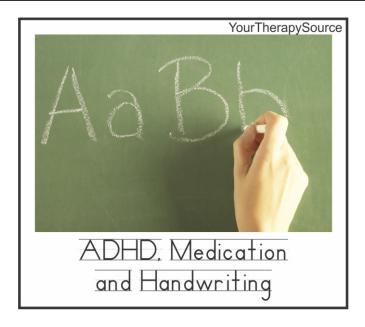
8. Yoga helps children develop balance and coordination skills. Coordinating the movements of yoga poses combined with balance skills on one foot, knees or upside down can be challenging.

9. Yoga improves posture. Children spend so much time sitting at their school desks, leaning over a keyboard or hunched over a cell phone. Yoga poses can help to improve spinal alignment and posture.

10. Yoga help children develop listening skills. Children have to listen to the directions how to move their body including right and left directionality.

Check out all of our resources for Yoga for Kids at http://yourtherapysource.com/yoga.html

## **ADHD Medication and Handwriting**



*Journal of Attention Disorders* published research on 49 children newly diagnosed with ADHD to determine how motor and attention skills influence handwriting performance. The children were evaluated for handwriting performance before and after 3 months of stimulant use.

The results indicated the following:

1. handwriting legibility and speed improved significantly at follow-up evaluation after the 3 months of stimulant use

2. most of the children with legibility difficulties at baseline continued to demonstrate difficulties when evaluated 3 months after initiation of medication.

3. change in handwriting legibility was best determined by improvements in visual-motor integration skills

4. the change in speed did not appear to be consistently related to a single factor.

The researchers concluded that medication alone is not sufficient to help with handwriting difficulties in children with ADHD.

Reference: Marie Brossard-Racine, Michael Shevell, Laurie Snider, Stacey Ageranioti Bélanger, Marilyse Julien, and Annette Majnemer. Persistent Handwriting Difficulties in Children With ADHD After Treatment With Stimulant Medication. Journal of Attention Disorders July 2015 19: 620-629, first published on November 15, 2012 doi:10.1177/1087054712461936

Check out all of our handwriting resources at http://yourtherapysource.com/handwriting.html

#### Working Memory, Fine Motor Skills and Early Numeracy in Cerebral Palsy

*Child Neuropsychology* published research exploring the relationship between working memory, non-verbal intelligence, linguistic skills, counting, fine motor skills and early numeracy in 56, six year old children with cerebral palsy. Each child was evaluated for early numeracy performance, working memory, non-verbal intelligence, sentence understanding and fine motor skills. In addition, basic counting performance was assessed.

The results indicated the following:

1. working memory and fine motor skills were significantly related to the early numeracy performance of the children.

2. counting was a mediating variable (a variable that explains a relation or provides a causal link between other variables) between working memory and early numeracy

The researchers concluded that working memory for early



Working Memory, Fine Motor Skills and Early Numeracy in Cerebral Palsy

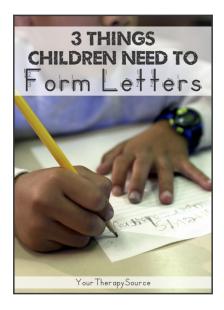
numeracy performance in children with cerebral palsy is important and warrants further research into intervention programs aimed for working memory training.

Reference: Van Rooijen M, Verhoeven L, Steenbergen B. Working memory and fine motor skills predict early numeracy performance of children with cerebral palsy. Child Neuropsychol. 2015 Jun 12:1-13. [Epub ahead of print]



Working Memory Exercises – find out more at http://www.YourTherapySource.com/workingmemory

## **3 Things Children Need to Form Letters**



The development of handwriting is a complex task that requires motor skills, cognitive skills and neuromotor skills. It is not always easy to identify exactly what piece of the "puzzle" is missing if a child is having difficulties with handwriting. To start, keep in mind that children need the following skills to form letters correctly:

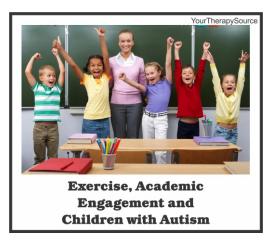
1. a complete visual representation of the letter – Can the child accurately identify the letters that you are practicing? Provide children with letter cards or alphabet charts for proper letter formation. Check out Classroom Wall Cards and Alphabet Strips at http://yourtherapysource.com/wallcards.html

2. recognition of the line segments that form the letter – Can the child recognize horizontal, vertical and curved lines? This skill requires cognitive skills, visual memory and visual spatial skills. Practice pre-writing skills such as Black and White Lines for Pre-writing Practice at http://yourtherapysource.com/freeblackwhiteprewriting.html, Lines, Lines and More Lines at http://yourtherapysource.com/lines.html or Fading Lines and Shapes at http://yourtherapysource.com/fadinglinesshapes.html.

3. the ability to reproduce the sequence and direction of the line segments to form the letters – When it comes to the act of handwriting can the child coordinate all the cognitive and motor skills needed to form letters? Practice the proper formation of all the letters with Fading Alphabet at http://yourtherapysource.com/fadingalphabet.html. Provide visual representation of how the letters are formed with a Handwriting Station such as http://www.yourtherapysource.com/hwstation.html.

Reference: Schickedanz JA (1999)Much More than the ABCs: The Early Stages of Reading and Writing.Washington, DC: National Association for the Education of Young Children.

## Exercise, Academic Engagement and Children with Autism



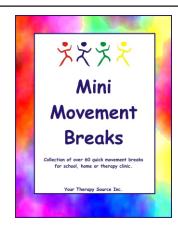
*Pediatric Physical Therapy* published research exploring whether participation in aerobic exercise before classroom activities improves academic engagement and reduces stereotypic behaviors in 4 classrooms of 24 children (ages 3-6 years old) with autism spectrum disorder. Methods: This study consisted of a treatment condition of 15 minutes of aerobic exercise followed by a classroom task and a control condition of just a classroom task. During the classroom task, data was collected on the number of stereotypic behaviors, percentage of ontask behavior, and correct/incorrect responses.

Statistical analysis indicated the following results:

- 1. statistically significant improvements were found in correct responses following exercise
- 2. no significant differences were found for on-task behavior or stereotypic behaviors.

The authors concluded that aerobic exercise prior to classroom activities may improve academic responding in young children with autism spectrum disorder.

Reference: Oriel, Kathryn N. et. al. The Effects of Aerobic Exercise on Academic Engagement in Young Children With Autism Spectrum Disorder. Pediatric Physical Therapy. 23(2):187-193, Summer 2011.



<u>Mini Movement Breaks</u> is a collection of over 60 quick movement breaks that require no equipment. Get kids moving with these quick and simple activity ideas! Find out more at http://yourtherapysource.com/minimove.html

## **Sensory Integration, Social Participation and Autism**



The *American Journal of Occupational Therapy* published research from clinical records of 89 children with autism spectrum disorder (ASD) ages 4-11 years old . The research examined whether sensory integration (SI) and praxis patterns of the children were related to social participation.

Using SIPT standard scores, SPM standard and SPM Social Participation scores, SI and praxis patterns were analyzed.

The results indicated the following:

1. Children with ASD showed relative strengths in visual praxis.

2. Marked difficulties were evident in imitation praxis, vestibular bilateral integration, somatosensory perception, and sensory reactivity.

3. SPM Social Participation scores were inversely associated with areas of deficit on SIPT measures.

The researchers concluded that children with ASD characteristically display strengths in visuopraxis and difficulties with somatopraxis and vestibular functions, which appear to greatly affect social participation.

Reference: Susanne Smith Roley; Zoe Mailloux; L. Diane Parham; Roseann C. Schaaf; Christianne Joy Lane; Sharon Cermak. Sensory Integration and Praxis Patterns in Children With Autism. American Journal of Occupational Therapy, December 2014, Vol. 69, 6901220010p1-6901220010p8. doi:10.5014/ajot.2015.012476

25+ Bilateral Coordination Exercises By: Your Therapy Source

Summary: Download of 28 bilateral coordination exercise sheets including QR codes with links to video demonstration of exercises. Also includes hand out explaining bilateral coordination.

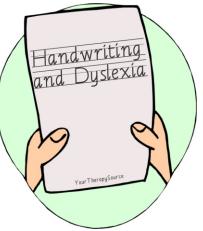


Find out more at http://www.yourtherapysource.com/bilateralcoordination.html

## Handwriting and Dyslexia

Human Movement Science published research demonstrating that deficits in the specific motor activity of handwriting are associated with developmental dyslexia. The subjects were evaluated for linguistic and writing performance and included children with developmental dyslexia, with and without handwriting problems (dysgraphia) and children with typical development. Using a digitized tablet, the quantitative kinematic variables of handwriting were collected.

The results indicated the following:



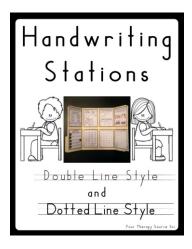
1. all children with developmental dyslexia wrote more slowly than those with typical development.

2. all children with developmental dyslexia varied more in the time taken to write the individual letters of a word and failed to comply with the principles of isochrony (velocity for tracing increases as a function of its size) and homothety (trajectory keeps its shape characteristics no matter whats its size).

3. correlations were found among reading, language measures and writing measures suggesting that the two abilities may be linked.

The researchers concluded that "the link between handwriting and reading/language deficits is mediated by rhythm, as both reading (which is grounded on language) and handwriting are ruled by principles of rhythmic organization".

Reference: Elena Pagliarini,Maria Teresa Guasti,Carlo Toneatto,Elisa Granocchio,Federica Riva,Daniela Sarti,Bruna Molteni,Natale Stucchi. Dyslexic children fail to comply with the rhythmic constraints of handwriting. Human Movement Science. Volume 42, August 2015, Pages 161–182. doi:10.1016/j.humov.2015.04.012



Handwriting Stations includes the materials to create a handwriting station on a tri-fold or in a folder. The station includes proper letter formation for capital and lower case letters, correct posture, pencil grip, warm up exercises, letter reversals tips and self check sheet. In addition, there are 27 worksheets for the alphabet and number practice (Handwriting with Tears® style and Zaner-Bloser® style).

This download is great for classroom use, therapy sessions or to send home with a student.

Find out more at http://yourtherapysource.com/hwstation.html.

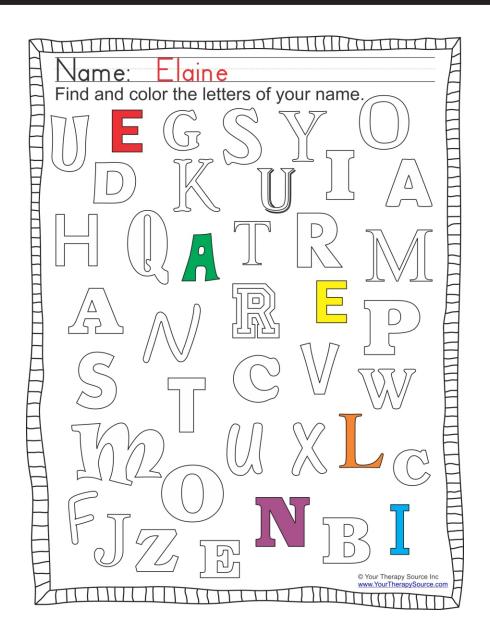
## **Paper Clip People**



Encourage fine motor skills, bilateral skills and separation of the hand with this super cute activity – Paper Clip People.

Download the printable and see the directions at http://yourtherapysource.com/freepaperclippeople.html

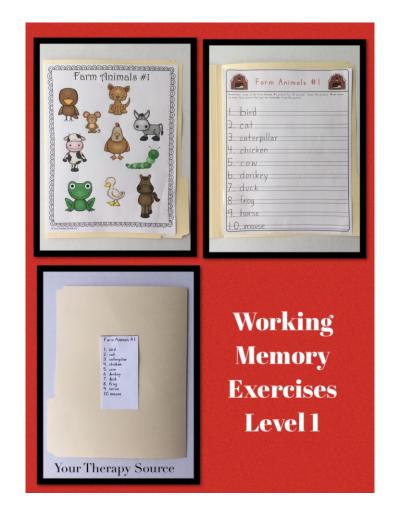
## **Find and Color Your Name**



Here is a simple activity to help children work on visual scanning, visual discrimination, letter identification and coloring skills. If the child can not color in the lines, you could use dot markers or colored stickers to identify the letters in the child's name.

You can download it at Your Therapy Source here http://yourtherapysource.com/freefindname.html

## **Working Memory Farm Animal Freebie**



Here is a freebie to practice working memory skills. This freebie is one of the Level 1 exercises.

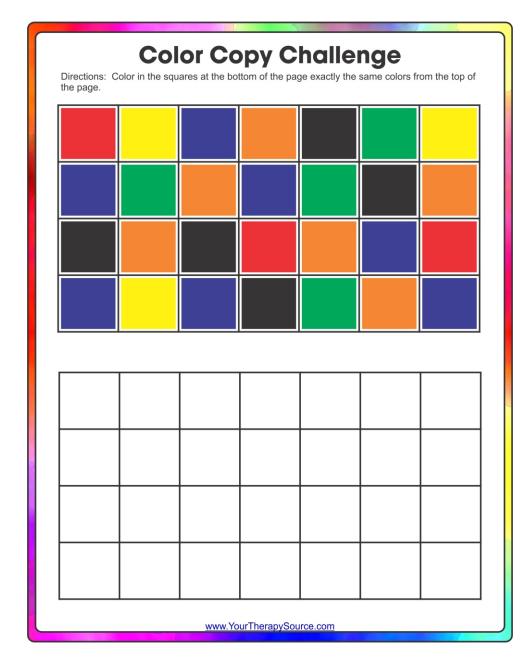
Working Memory Exercises encourage:

visual memory skills working memory skills handwriting practice executive function skills

You can download the activity at http://yourtherapysource.com/workingmemoryfreebie.html

You can find out more information about the Working Memory Exercises Level 1 and Level 2 at http://yourtherapysource.com/workingmemory.html

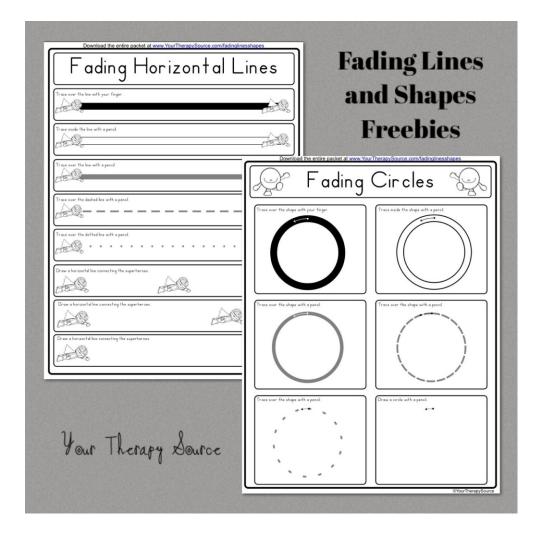
## **Color Copy Challenge**



Download this freebie to practice visual motor and visual spatial skills. Copy the colors exactly or use the black and white version. Player one colors in the top and player two copies the colors.

You can download it at http://yourtherapysource.com/freecolorchallenge.html

## **Fading Lines and Shapes Freebie**



Since the Fading Alphabet packet has sold so well, I decided to make a Fading Lines and Shapes packet for pre-writing and shape formation. Each worksheet gradually increases in visual motor difficulty with decreasing visual input for line and shape formation.

You can download some free sample pages at http://yourtherapysource.com/fadinglinesshapesfreebie

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- sensory motor activity ideas
- sensory processing resources
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