

Warrington Hospital

Department of Orthoptics

Affix patient demographic label here

Orthoptic Specific Learning Difficulties Clinic

Information for Teachers and Parents

Appendices:

1. Visual Discrimination Information and Strategies
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Visual Discrimination

Visual discrimination is the ability of the child to be aware of the exact characteristics and distinctive features of forms including shape, orientation, size, and colour. It gives us the ability to notice subtle differences and to identify if something does or does not belong.

In reading, this skill helps children distinguish between similarly spelled words, such as was/saw, then/when, on/one, or run/ran. Visual discrimination problems may result in a person confusing words with similar beginnings or endings and even entire words.

Visual discrimination is the most commonly used skill and develops at a very early age. Unfortunately, sometimes this skill isn't as polished as it could be. When there is a deficit in this area, "b" and "d" look very alike, circles and ovals are both round, the subtle difference in length is really hard to notice unless it's pointed out.

When someone with a visual discrimination deficit is reading passages, there are often gaps of whole words or lines. There are also times when random words are inserted that aren't written in the text they are reading. When someone is unable to discriminate what line they are reading or hold their place very well, it's very hard to absorb what they are reading let alone understand it and truly learn from it.

As visual discrimination also refers to a child's ability to differentiate between objects and forms, this skill is important for identifying and exchanging money, and matching and sorting objects.

A deficit in this area may contribute to problems in dressing (i.e., matching shoes or socks), and matching two dimensional objects to three dimensional objects. Visual discrimination is a reading readiness skill that is taught a lot in preschool, so many children do best in this area if they've had a lot of practice.

Appendix 1B

Visual Discrimination Management Strategies

Visual discrimination is a skill that can be improved. Children who have a problem in this area will tend to avoid the puzzles and games necessary to develop good visual discrimination skills so lots of encouragement is needed.

Good games include:-

- **Odd One Out** – colour, shape, size then pictorial (apple, orange, banana, and cup).
- **Spot The Difference** – searching for visual similarities and differences between two pictures or words. See exercises.
- **Match The Detail** – matching a picture of a detail (such as a window) to the picture from which the detail comes (such as the house that has that window).
- **Snap** – matching a range of pictorial cards.

- **Dominoes** – matching picture to picture.
- **Matching silhouettes** – pictorial or shapes.
- **Different Word Circle** – Prepare a sheet consisting of sets of words. One word in each group will be different. The child is to circle the word that is different.

can can con can can can

big big pig big big big

was was was was was saw

see sea see see see see

sent sent sent cent sent sent

- **Letter Search** – Materials required; old magazines which may be cut, scissors, paper and paste. Designate a specific letter or number which the child is to find in the magazine. The child then needs to find this letter or number printed in as many different sizes and styles as possible. Each time they finds the character in a new size or style, they circle it or cut it out and paste it on his paper. Accuracy in selecting the correct letter or number should be checked.
- **Free word searches:** www.word-search-world.griddler.co.uk
- **Balloon the Punctuation** - Give child a piece of newspaper. Designate a particular punctuation mark. With a crayon or marker pen the child is to draw a balloon around each designated punctuation mark.
Example: Draw a balloon around each question mark you find on the newspaper.
- **Find the Letter** - Write a word on paper and have the child find all the words in their story book that begin with the

same letter as the designated word. As a variation, the child might look for all the words that end with the same letter as the designated word.

- **Scoring the News** - Give the child a page or part of a newspaper. With magic marker or crayon have them do one of the following:

Circle all letters s or other designated letter.

Circle a designated word such as the.

Circle the first word in every sentence.

Circle the last word in every sentence.

Circle all of the double letters in various words: e.g. spoon

- **Egg Carton Sort** - Give the child an assortment of objects, e.g. buttons, beads, screws and have him sort them into different egg-carton sections, according to size, colour and shape. The difficulty of the activity can be varied by changing the number of objects to be sorted and the degree of similarity between them.
- **Good websites:** www.eyecanlearn.com
www.thekidzpage.com/learning.

Useful apps

- Find objects
- Find the doodle
- Find the object
- Spot the number
- Hidden object game
- Word search
- Spot the difference

Appendix 2A

Visual Memory Information

Visual Memory is the ability to remember for immediate recall the characteristics of a given object or form. This skill helps children remember what they read and see by adequately processing information through their short-term memory, from where it is filtered out into the long-term memory.

Children with poor visual memory may struggle with comprehension. They often sub vocalize, or softly whisper to themselves as they read in order to help compensate auditorily. Functionally, a visual-memory deficit may make reproducing figures (letters, numbers, shapes or symbols) from memory very difficult and may cause the child to mix lower and uppercase letters.

Deficits also influence copying from a text or whiteboard, replicating information on worksheets and tests, (because they must frequently review the text), reading comprehending, dialling a phone number, remembering sight words, transferring learned words from one medium to another, remembering what was read, reproducing figures from memory and remembering the orientation of numbers or letters. They may have difficulty remembering what a word looks like or fail to recognize the same word on another page. Subsequent storage of visual information in the long-term memory is also important for performance areas including finding your way around – identifying familiar surroundings

such as a neighbourhood or school and successfully navigating one's way.

Appendix 2B

Visual Memory Difficulties, Management Strategies

Children learn through play and having fun. One skill that can be developed that is useful throughout life is knowing how to use one's memory. Children tend to remember things that are novel, fun and meaningful. Make meaningful memories with your child by playing memory games with him/her. He/she will be having fun and learning at the same time, which is a formula for success in improving memory skills.

When copying from the board: The child would tend to copy only one letter or number at a time from the board, and would benefit from a visual model of the text to be reproduced (e.g., model placed on desk or on sheet above on the page that child has to copy from, alphabet strip on desk, mini word-wall on desk, etc.

- Number each line written to provide an extra visual clue as to where he is.
- Write each line on the board in a different colour.
- A student may copy more easily from a book or white board closer to him, than the teacher's board.
- The teacher will need to provide a photocopy of notes in case all the information required is not copied down in time.
- Ensure positioning in the class is at its optimum.

- Ensure the child is concentrating and attending, otherwise he won't be able to remember what he has taken in.

Encourage your child to verbalise what he has seen. He will be using different aspects of his memory to help himself. For example remembering routes around school may be easier if he has a verbal description in his head e.g. turn left at the hall, walk on until the first blue door and turn right.

Memory Games: Parents and teachers have long used memory match games as tools to help children improve their memory and thinking abilities. They are also useful in teaching social skills and sportsmanship. With advancements in electronics and the use of the Internet, many of these games have come a long way.

Websites: **TheKidzPage.com** is a website that features several free memory match games for children. Some of the games you'll find there include "Find the Suspect," a game in which you pick out which suspect's face is blacked out in the line-up by choosing from the faces at the bottom. "Jelly Bean Match-Up" is a different twist on the average memory match style of game. Instead of matching cards with images, you click on coloured eggs to crack them open and reveal a specific colour of jelly bean. "Sequence Memory" is a game that requires you to not only remember images but the sequence in which they were presented.

www.thekidzpage.com/learning

www.scholastic.com/ispay/memory

www.happy-neurone.com/games/play

www.toytheatre.com/puzzles (Egyptian memory games section)

Games at Home: There are also many memory match games available at toy shops that you can play at home. "Memory" is the classic memory match game played with a deck of cards containing different images. You turn all the cards upside down and turn them over one at a time, trying to make matches. Uno is another card game but aimed at the older child/teenager.

What's Missing? Place several items on a tray. Have your child look at the items for a few minutes, then ask him/her to cover their eyes. Take one or two of the objects away, and see whether they can identify what is missing. Another way to play the game is to place the items in a line, and to switch two of the items. See whether they can tell which items are out of order. A variation on the game is to add an item to the tray, and to see whether the child knows what object is there now that wasn't there before.

Narration: Tell your child a short story. It can be something traditional, such as the story of the three little pigs or a story you make up yourself. Ask him/her to repeat what happened in the story. This exercise not only develops memory skills, but also will encourage him/her to listen carefully and to put the story into their own words. This is good practice for learning reading comprehension.

I See an Island: Family Education suggests this fun game for the entire family to sharpen memory skills as well as creativity. Begin by saying, "I see an island, and on it is...." Fill in one

detail, such as "blue birds" or "a banana tree." The second person repeats what you said and adds his own observation about the island. Play goes from person to person until someone forgets what another player said. Change the game each time by "seeing" a zoo or a park.

Snap

Uno

Useful apps

Search for:

- Brain kids Game memory
- Visual memory
- Memory games
- Memory matches
- Memory pattern
- Match up
- Matching games

Appendix 3A

Visual Spatial Relationship Information

Visual spatial relationship is the ability to locate objects in our three dimensional world using sight. These skills allow an individual to develop spatial concepts, such as right and left, front and back, and up and down as they relate to our body and to objects in space.

Examples of spatial relationships are the location of your seat in the classroom, the space between people in a line, the

arrangement of items in a locker or a desk, and the layout of a letter. It is also the order of letters in a word and of words in a sentence. It is the ordering of events in a timetable for a day or a week; it is the length of an hour; it is the pauses in a stream of language marked by punctuation; and it is dividing 25 by 5. Spatial relations include qualities like size, distance, volume, order, and time.

Another spatial feature that builds meaning is shape. The shape of each symbol in written language is meaningful. Each letter and number has a specific shape and often a specific direction in space. For example a "b" is not a "d," "g," or a "p." A "2" is not an "S." A "3" is not an "E."

Many parents and educators considered letter reversals after age seven to be a symptom of dyslexia. While this can be true, another common cause of reversals in older children is a lack of visual spatial development: consistently knowing left from right, either in relationship to their own bodies or in the world around them. Children with poor visual processing may not have developed adequate skills in visual perception and spatial orientation, such as laterality and directionality.

Spatial understanding is important for achievement in many areas, including mathematics, spelling, punctuation and capitalization, mapping, understanding time, drawing, copying, ordering, changing point of view, and handwriting.

A visual spatial deficit may contribute to poor athletic performance, difficulties with rhythmic activities, lack of coordination and balance and clumsiness, losing their place on

a page; difficulty finding what is being looked for, attending to a task, remembering left and right, maths computations if more than one digit is involved; and forgetting where to start reading. In written work the child may reverse his letters, have difficulties spacing letters and words, he may have difficulty in forming letters of the correct heights and making them sit correctly on the line. Drawing diagonal lines may also be difficult.

Appendix 3B

Visual Spatial Relationship Management Strategies

- Place plastic letters into a bag, and have the child identify the letter by “feel”.
- Feeling objects of different sizes or lengths and placing them inside other objects, e.g. Russian sequencing dolls.
- Letter on my Back - This is a tactile intervention for the child who has difficulty with reversals of letters or numbers. Have the child stand with his back to you. In the centre of his back, between the shoulders, print or write with your finger a specific letter or number which that child frequently reverses. The child will feel the shape of the letter, then go to the paper and write it

- Write a series of numbers or letters that have been made incorrectly in several places, and ask the child to identify each place the letter has an error (you can do this on a paper and the child can identify the errors and correct them).
- Use graph paper to help with spacing of letters or math problems.
- Use visual cues of coloured lines on margins or a sticker can be used to mark the beginning or end of the line. Use colour as a cue, e.g. outlining lines on paper with colours (green for top, red for bottom line) if he/she has difficulty remembering the top to bottom direction for forming letters.
- Use visual cues (e.g., coloured dot) to indicate place on a map or chart, or puzzle.
- Draw directional arrows to help with directions or maps.
- Wear something on one arm or hand to indicate direction (e.g., when I did my driving test I wore lots of rings on my right hand and kept saying “ring-right” to remind myself).

- Peg board patterns, beginning with simple shapes and progress to complex patterns involving many colours and diagonal lines. Talk about each peg in relation to the next, i.e. the red is above the blue and to the right of the yellow.
- “Simon Says” and “follow the leader”.
- Games on the wall, i.e. darts, put the tail on the donkey / put the nose on the man.
- 3D construction toys e.g. Lego, mecano, stickle bricks, nuts and bolts.
- Board games such as Draughts and Chess
- Jigsaw puzzles: begin with simple puzzles and just remove one or two pieces, and ask child to replace. Move on to removing more pieces. Move on to the child doing the jigsaw puzzle completely.
- Filling containers with, e.g. water or sand and pouring from one container to another, guessing about quantities, stopping when the container is full, etc.

Useful apps

- Flow free

- Tetrus
- Size matters
- Parking Jam
- Help out-blocks game
- Tangram
- Lazors

Appendix 4A

Visual Form Constancy Information

Visual Form Constancy is the ability to recognize objects as they change size, shape, or orientation. It is the ability to mentally manipulate forms and visualize the resulting outcomes. This skill helps children distinguish differences in size, shape, and orientation. (i.e., if a form were upside down, sideways, inverted, etc.). A deficit in this area would make reading difficult as the child might not recognize familiar letters when presented in different styles of print (fonts, size, or colour).

Visual form constancy is critical for reading and copying from the blackboard, a book or hand-out with a different font or style of writing

Difficulties with visual form constancy would result in children being slower to master the alphabet in upper and lower case; lead to difficulty recognizing errors; cause confusion between “p, q and g”, “a and o”, “b and d”; making a transition from printed letters to cursive letters; assuming the size of objects

regardless of their distance; looking at things from an angle; understanding volumetric concepts such as mass, amount and quantity; and recognizing things that should be familiar when environmental conditions change. Children may also have difficulty making Lego / K'nex from the instructions, recognising that a picture is the same as a real object, categorising and classifying objects, shapes and materials, recognising everyday objects when put in unusual positions or are a different size, mislaying items and being unable to find them (as they cannot instantly recognise them) and transferring from printed to cursive handwriting.

Appendix 4B

Visual Form Constancy Management Strategies

- Try to use the same font or style of letter on hand-outs as the child is used to in school. (Like the “a” here is not like “a”).
- Give the child what is to be copied on a paper lying flat on their desk, rather than the board, or copy from another child’s paper.
- When learning a letter form, have the child work in the same plane as it is being taught (they will need a vertical board if that’s what you’re using).
- Teach them to tilt their head if they have trouble visualizing something at a certain angle.

- Touch, feel and talk about 3D objects when their size or orientation may alter E.g. a saucepan Compare and contrast the size and shape of objects.
- Copy 3D patterns and shapes. E.g. brick designs or origami Make 3D models from 2D diagrams E.g. Lego, K'nex, Meccano
- Colour in 3D drawing and models
- Match 3D objects for size, shape, volume, density from boards varying the presentation
- Make junk models / model making
- Work with solid objects to identify their properties and compare them to pictures of the object
- Use visual cue cards to identify objects seen from different angles such as above, underneath, behind etc
- Select a shape from a sorting box and place it at a distance in the room. The child must find the same shape from the box
- From a box of mixed sized balls, roll one across the floor. The child has to select the same sized ball from the box

- Write the same word in many styles, colours and prints together with other words. The child should underline the same word in its different forms
- Outline jigsaws enable a child to see how individual parts fit together to make a whole
- Go through magazines and try to pick out certain objects viewed from different angles, a scrap book could be prepared.

Useful apps

- Spot the shapes
- Cuzzle: colour puzzle
- Shape findings
- Tangram
- Tap the new circle

Appendix 5A

Visual Sequential Memory Information

Visual sequential memory is the ability to remember forms or characters in the correct order. This skill is particularly important in spelling. Letter omissions, additions, and/or transpositions within words are common for children who struggle with this skill.

They often subvocalize (whisper or talk aloud) as they write. Recognizing and remembering patterns may also be a problem.

Functionally, this skill would influence a child's ability to sequence letters in words (spell) or in maths problems, remember the alphabet in sequence, copy from one place to another (e.g., from board to book, from one side of the paper to the other), retrieve words when out of order, and remember order of events after reading (which affects reading comprehension).

The child would also tend to forget homework and forget steps that are shown in an activity. For example you may ask the child to make their bed, brush their teeth and fetch their socks and they will forget one or the other. Visual sequential memory is a more advanced version of visual memory.

Appendix 5B

Visual Sequential Memory Management Strategies

Use simple activities to develop your child's sequential memory, then progress to more challenging activities as their confidence and competence increases.

- "Simon" is one of the oldest electronic memory match games to challenge both children and adults. The object of the game is to repeat the sequence the game creates by lighting up specific coloured squares in the exact order as was presented. The game starts off easy but then gets more difficult as the sequences get quicker and more complex.

- Word Searches_Complete word search puzzles that require you to look for a series of letters.
- Flash Cards_An article published in the December 1984 "Early Childhood Education Journal" recommends using a flash card game to develop sequential memory skills in school-aged children. Use prepared flash cards or pieces of paper with pictures of familiar objects pasted on them, one object per page.
- Begin by showing the child three flash cards sequentially, allowing one second for viewing of each card, and ask the child to name the items in the order they were seen. As sequential memory improves, increase the number of cards for each "round" of the game.
- Repeat After Me. To build auditory sequential memory, play a game of "repeat after me." For preschool children, use one syllable words they easily recognize, beginning with two words, such as "cat" and "mouse." Ask the child to repeat the words in the same order that you said them. Increase the number of words repeated one at a time.
- Use clapping or stomping patterns games. Clap a specific sequence, such as "clap-clap-pause-clap," and ask the child to repeat it. As the child masters sequences of four beats, increase to longer sequences.
- Websites. **TheKidzPage.com** is a website that features several free memory match games for children. Some of

the games you'll find there include "Find the Suspect," a game in which you pick out which suspect's face is blacked out in the line-up by choosing from the faces at the bottom. "Jelly Bean Match-Up" is a different twist on the average memory match style of game. Instead of matching cards with images, you click on coloured eggs to crack them open and reveal a specific colour of jelly bean. "Sequence Memory" is a game that requires you to not only remember images but the sequence in which they were presented.

- **Learning Games for Kids.com** is another website with several fun memory match games for the children. Some of the free games there include "Ice Cream Madness," a colourful, animated game where you have to serve ice cream cones to your kitty friends. As the kitties line up, each one will request a certain sequence of ice cream flavours. You need to memorize the flavours ordered and serve them to the kitty in order. "Turtle View" is a game similar to the old game "Simon" except this one features several different coloured squares on the back of a turtle's shell. The coloured squares will light up and beep in a specific sequence that you must repeat correctly. "Sequence Memory" is a number game where you have to memorize the number sequence presented to you. You have three seconds to memorize the numbers and then enter them into the game correctly.

Useful apps

- Simon says memory game
- memory trainer
- Kids logic sequence
- Copycat
- Beat repeating sequence Simon
- Genius – memorise the sequence
- Remember the circles
- Do you remember the tiles?
- Remember flash
- Memory game (Fihox)
- Burger
- Memory games for adults

Appendix 6A

Visual Figure Ground Information

Visual figure-ground refers to the ability to locate and identify shapes and objects embedded in a busy visual environment, or the ability to attend to one activity without being distracted by other surrounding stimuli.

Children with a deficit in this area may have difficulty filtering out visual distractions such as colourful bulletin boards or movement in the room in order to attend to the task at hand. They may have difficulty sorting and organizing personal belongings (and may appear disorganized or careless). In dressing/showering, the location of the personal items required

for the task e.g. clothing in a drawer may be difficult to find. Finding food in a fridge may also be difficult. It may even involve difficulty checking traffic before crossing a busy road. Children with a problem in this area may lack visual search strategies which affects attention and focus. They may therefore have difficulty locating a friend on the playground or finding a specific item on a cluttered desk.

A child with a deficit in this area may have difficulty attending to a word on a printed page due to his/her inability to block out other words around it. They may over attend to details and miss the “big picture”, or they may overlook details and miss important information (e.g., word recognition, locating one object within a group, finding place on the page or skip pages and sections or they may not notice punctuation mistakes). They may find it difficult locating details in a picture or the relevant information to solve a problem from a crowded worksheet. They may have difficulty reading timetables, schedules, charts or graphs and finding specific place e.g. in text, maps or books.

They may have difficulty copying from the board and may omit segments of words. They may have difficulty recognizing malformed letters and uneven spacing and will have difficulty with hidden picture activities. A child with difficulties in this area may present as distractible and disorganised.

Visual Figure Ground Management strategies

- Minimize distracting elements in the classroom: use a clean board, especially if the child is expected to copy from the board;
- Help him/her keep the desktop clean and clear of distractions. Have him/her sitting towards the front if necessary; Consider position of the child's desk in the classroom. At the front near the backboard will reduce distractions particularly from other children on their desks.
- Keep the classroom decorations simple; and keep worksheets clean and free of clutter.
- Adapt activities: prepare worksheets with only one problem, work item or sentence per page; cut out a rectangle/reading window to present one word or problem at a time, or for writing activities, place a strip of blank paper or card under the line being written and teach student to move the paper down as lines are completed.
- Use larger or bold print when typing.
- Play games such as Bingo which require you to look for a specific form.

- Find hidden pictures in books such as 'Where's Wally'.
- Play 'I Spy'.
- Find objects in a cluttered room or in a cluttered picture.
- Looking at things whilst out walking - do you see the:
- White horse? Red flower? Coloured stone?
- Jumble dressing up. Finding clothes in a box.
- Cut out sections of text and ask the child to:-
 - Circle the same word in a text /word searches.
 - Find certain punctuation e.g. Full stop
 - Find words beginning with "t", ending with "ing" or containing "ou".

Useful apps

- Hidden object
- Spot the difference
- I spy games
- Escape the ghost town
- Cabin in the woods – hidden object
- Lost, hidden objects
- Can you escape

Visual Closure Information

Visual Closure is the ability to visualize a complete whole picture when given incomplete information or a partial picture. This skill helps children read and comprehend quickly; their eyes don't have to individually process every letter in every word for them to quickly recognize the word by sight.

This skill can also help children recognise inferences and predict outcomes. Children with poor visual closure may have difficulty completing a thought. They may also confuse similar objects or words, especially words with close beginning or endings. Visual closure reflects a child's ability to look at an incomplete shape, object or amount, and fill in the missing details in order to identify what it would be if it were complete. This skill requires abstract problem solving and can also cause difficulty with constructional activities e.g. Lego, Jigsaw's, Meccano.

Functionally, visual closure impacts a child's ability to write, to use worksheets that are poorly photocopied, copy something if he/she cannot see the complete presentation of what is to be copied, complete partially drawn pictures, spell, complete dot-to-dot puzzles, identify mistakes in written material, perform mathematics, and solve puzzles. The child may leave out parts of words or even entire words and the child will have problems with reading fluency with slow reading and slow word recognition.

Visual Closure Management Strategies

- Have a completed project placed near the child, as well as step-by-step instructions of how to complete a project.
- Arrange seat placement right in front of the board or overhead projector.
- Present cleanly photocopied worksheets and test forms.
- Give student a “helpful hint” about mistakes in order to give him/her a second chance to correct some of the errors, due to his/her difficulty recognizing errors in written material.
- Work with puzzles of any kind, especially jigsaw puzzles. Begin with simple ones and then increase the number of pieces or the type of puzzle.
- Building with construction toys e.g. Lego and mecano.
- Complete maze games of increasing difficulty.
- Play games such as Hangman or Noughts and Crosses.
- Cover up objects and slowly reveal a bit at a time. Ask child to guess before object is totally revealed. Start with familiar objects.

- Good websites for children with visual closure difficulties include: www.toytheatre.com/puzzles (bridge builder section).

Useful free apps

- Search the app centre/play/game centre for Jigsaw puzzles, maze puzzle games, kids mazes
- Tetris
- Fill the gap
- Crash the line
- Build it
- Lost words
- Tangram
- Fashion jigsaws girls games

DAR/c:forms/orthoptic/orthoptic appendices

Orthoptic Specific Learning Difficulties Clinic

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