Orthoptic Specific Learning Difficulties Clinic
Information for Teachers

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Visual Discrimination Information

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 is not as polished as it could be. When there is a deficit in this area characters such as ‘b’ and ‘d’ look very alike, circles and ovals are both round and the subtle difference in length is really hard to notice unless it is pointed out.

When someone with a visual discrimination deficit is reading a paragraph/block of text there are often gaps of whole words or lines. There are also times when random words are inserted that are not 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 is 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 have had a lot of practice.
A child with a visual discrimination difficulty may have problems with:

- Matching tasks, e.g. numbers, letters, shapes, symbols, words.

- Recognising differences between shapes, size, colour, letters, words and objects.

- Recognising letters and numbers.

- Reversals or inversions when writing numbers and letters.

- Poor or odd punctuation.

- Capital letters used inappropriately.

- Being inattentive or disorganised.
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
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• **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 'e' 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
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 text or board; replicating information on worksheets and tests (because they must frequently review the text); reading and 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, that is identifying familiar surroundings such as a neighbourhood or school and successfully navigating one’s way.
Visual Memory Difficulties, Management Strategies

Children learn through play and having fun. One skill which 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. They 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 replica of the text to be reproduced (e.g. replica 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 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 they won't be able to remember what they have taken in.

Encourage your child to verbalise what they have seen. They will be using different aspects of their memory to help themselves. For example remembering routes around school may be easier if they have a verbal description in their 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 will find include "Find the Suspect", a game that 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.scolastic.com/ispy/memory
www.happy-neurone.com/games/play
www.toytheatre.com/puzzles (Egyptian memory games section)

Games at Home
There are 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 older children/teenagers.
What's Missing? Place several objects on a tray. Have your child look at the items for a few minutes and then ask them to cover their eyes. Take one or two objects from the tray away. Now see whether they can identify what is missing. Another way to play the game is to place the objects in a line, then switch two of them round. Now see whether they can tell which items are out of order. A variation on the game is to add an object to the tray, and see whether the child knows which item is there now that was not 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 them to repeat what happened in the story. This exercise not only develops memory skills, but also will encourage your child 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 whole 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 their 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.
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.
- Space between people in a line.
- Arrangement of items in a locker or a desk.
- Layout of a letter.
- Order of letters in a word and of words in a sentence.
- Ordering of events in a timetable for a day or a week.
- Length of an hour.
- Pauses in a stream of language marked by punctuation.
- Division of 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 ‘b’ is not ‘d’, ‘g’, or ‘p’; ‘2’ is not ‘S’; ‘3’ is not ‘E’.

Many parents and educators considered letter reversals after the age of 7 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 letters; have difficulties spacing letters and words; 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 nesting dolls (Matryoshka doll).
- 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 their back to you. In the centre of their back, between the shoulders, 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. Ask the child to identify each place the letter has an error (you can do this on paper and the child can identify the errors and correct them).
- Use graph paper to help with spacing of letters or maths problems.
- Using paper with raised lines can help with finding the space of letters or margins.
- 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 they have difficulty remembering top to bottom direction for forming letters.
- Use a ‘glue’ raised line on the margins of a cutting task to help the child ‘feel’ where to cut.
- Use visual cues (e.g. coloured dot) to indicate place on a map chart, or puzzle.
- Draw arrows to help with directions or maps.
• Wear something on one arm or hand to indicate direction (e.g. on a driving test I wore rings on my right hand and repeatedly said “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.

• Hand tennis: begin with large soft ball to decrease fear and increase chances of success.

• General ball games: catching straight ahead, then to the side, high and low. Throw over wire into a goal, net or basket.

• “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, Meccano, Stickle Bricks, nuts and bolts.

• 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 water or sand (for example) and pouring it from one container to another, guessing about quantities, stopping when the container is full.
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 was upside down, sideways, inverted). A deficit in this area would make reading difficult as the child may 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 board, 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.
- Leading to difficulty recognizing errors.
- Confusion between ‘p, q and g’, ‘a and o’, ‘b and d’.
- Difficulties making a transition from printed letters to cursive letters
- Problems assuming the size of objects regardless of their distance.
- Difficulties looking at things from an angle.
- Difficulties understanding volumetric concepts such as mass, amount and quantity.
- Problems recognizing things that should be familiar when environmental conditions change.
- Difficulty constructing Lego/K'nex from the instructions.
- Struggling to recognise that a picture is the same as a real object.
- Having problems in categorising and classifying objects, shapes and materials.
- Struggling to recognise everyday objects when put in unusual positions or is a different size.
- Mislaying items and being unable to find them (as they cannot instantly recognise them).
- Problems transferring from printed to cursive handwriting.
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, for example “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 ensure that the hand out the child working off is placed at the same angle as the sheet of paper they are writing on.
- 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 shape 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 and 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.
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.

Children with a difficulty in visual sequential memory will often sub vocalize (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). A child who cannot visually hold a pattern or sequence of letters may misread words e.g. ‘stop’ can be confused with ‘spot’ and ‘three’ with ‘there’. They may have difficulty with numbers in maths problems; difficulty remembering the alphabet in sequence; difficulty copying from one place to another (e.g., from board to book, from one side of the paper to the other); retrieving words when out of order, and remembering order of events after reading (which affects reading comprehension).

The child with a difficulty in visual sequential memory may 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 Management Strategies

Use simple activities to develop your child’s sequential memory, and 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.

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.
Prepare a worksheet of sentences using familiar reading or spelling vocabulary.

- Ask your child to rearrange letters into the correct spelling order e.g.
  *ym ath si cblak* (my hat is black)
  *ti si ocld tdoya* (it is cold today)
- Fill in the missing letters.
  With their right
  _ith t_eir _ight
  *w_th th_ir ri_ht*
  *wi_h the_r rig_t*
  _ _th th__r ri__t
  _ _t_ th___ r___t
- Circle the correct spelling.
  *spih ship sihp*
  *house heous hoeus*
  *fram fmar farm*
  *receive recieve receive*
- A group of children sit in a row. One person looks at everyone's position and leaves the room. Two children swap places. Who has moved?

**Websites:**
TheKidzPage.com is a website that features several free memory match games for children. Some of the games you will find include ‘**Find the Suspect**’, a game that 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 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.

Read more: www.livestrong.com/article/181788-activities-for-people-with-sequential-memory-problems/#ixzz1JTpECokN
Appendix 6A

Visual Figure Ground Information

Visual figure ground is the ability to distinguish an object from irrelevant background information. It 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 in:

- Filtering out visual distractions such as colourful bulletin boards or movement in the room in order to attend to the task at hand.
- Sorting and organizing personal belongings (they may appear disorganized or careless).
- Finding personal items required for dressing/showering e.g. they might find it difficult to locate clothing in a drawer.
- Finding food in a fridge.
- Checking traffic prior to crossing a busy road.
- Visual search strategies which affects attention and focus. They may, therefore, have problems locating a friend on the playground or finding a specific item on a cluttered desk.
- Attending to a word on a printed page due to their inability to block out other words around it.
- Over attending 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).
- Locating details in a picture or the relevant information to solve a problem from a crowded worksheet.
- Reading timetables, schedules, charts or graphs and finding specific place e.g. in text, maps or books.
- Copying from the board and possibly omit segments of words.
- Recognizing malformed letters and uneven spacing and will struggle 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 the child to keep their desktop clean and clear of distractions.
- Have them sitting towards the front, if necessary consider the position of the child’s desk in the classroom. At the front near the board will reduce distractions particularly from other children.
- Keep the classroom decorations simple.
- Use visual and tactile cues: use a red marker to outline colouring, maze, or cutting activities; use writing paper with coloured lines or raised-line paper.
- 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? etc.
- Jumble dressing up.
- Find 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’.
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.
- Use worksheets that are poorly photocopied.
- Copy something if they cannot see the complete presentation of what is to be copied.
- Complete partially drawn pictures.
- Spell; the child may leave out parts of words or even entire words.
- Complete dot-to-dot puzzles.
- Identify mistakes in written material.
- Perform mathematics.
- Solve puzzles.
- Read fluently 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 on 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 the student a ‘helpful hint’ about mistakes in order to give them a second chance to correct some of the errors, due to their 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.
- Build with construction toys. This is particularly useful if required to copy a two dimensional picture.
- 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 the 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).

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Patient information reference: pinfo 2013_10_10
Ratified: April 2014 Review date: April 2016

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www.whh.nhs.uk