

'More to Handwriting' Advice for Schools



Handwriting - More Than Meets the Eye

Handwriting is a very complex perceptual-motor skill and children are expected to have mastered these skills by the time they are 8 years old. Writing takes up a significant proportion of a child's school day and therefore there is much importance placed on the mastery of this skill from an early age.

There are clear developmental stages of handwriting but some children may not reach these stages when expected for a variety of underlying reasons. In order to be able to write, a child needs to have the underlying skills required e.g. good fine motor skills, good postural stability. There is a lot more to handwriting than meets the eye and can involve complex systems which are required to work efficiently e.g. the neuromuscular and sensory motor systems. It also requires good cognitive functioning, effective visual perceptual skills and psychosocial functioning.

Well developed fine motor skills are the foundation skills in order for a child/young person to produce legible and fluent handwriting.

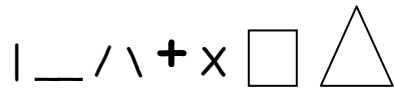
This resource pack aims to:

- Outline the developmental stages of handwriting
- Outline developmental stages of pencil grip
- Highlight common difficulties children/young people have with handwriting
- Offer possible explanations for these difficulties
- Offer practical strategies to help the child/young person overcome/compensate for these difficulties

The Developmental Stages of Handwriting

Pre-Writing Shapes

A child is not ready to write until they are able to draw the first 8 figures of the VMI (Chu, 2007). These pre-writing shapes include:



You would expect that a child of 5 years can form these pre-writing shapes and that they are starting to be able to write their name, although not always too clearly.

Letters

- Recall of all 26 letters of the alphabet is normally expected in children aged 4- 5 years
- Letter reversals are common for children between the ages of 4- 6 years
- A child of 5- 6 years will then go on to be able to copy the sequence of all the 26 letters from a model
- By the age of 6 years, the child should be demonstrating that they can keep their letters on the line
- Cursive/joined up writing will start to be developed from around the age of 8 years
- By the age of 15 years, it is expected that they will be writing at 'adult' speed and that their writing is fluid and legible
- In terms of handedness, there are 2 stages:
 - 3- 5 years = hand preference
 - 5-7 years = hand dominance

- Up until the age of 7 years, you may occasionally see hand swapping during activities including handwriting

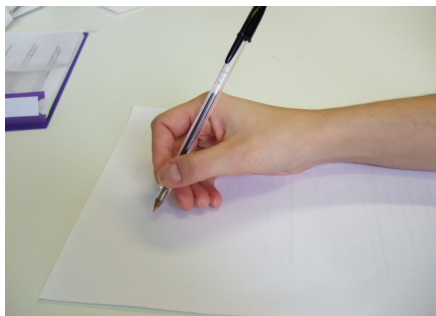
The Developmental Stages of Pencil Grasp

It is important a child/young person's pencil grasp is developed as their grasp can affect their control efficiency, flow and speed of writing. If a child/young person develops an incorrect hand grasp it may affect the quality, precision, accuracy, endurance, flow and legibility of their writing.

The best pencil grasp is a Dynamic Tripod Grasp as this grasp helps promote fluent and correct letter formation. However, other grasps are functional as long as the fingers are able to move and the pencil strokes are fluid and well controlled. It is important to understand the developmental stages of how a child/young person develops their pencil grasp. Pencil grasp goes hand in hand with the development of a child/young person's fine motor skills.

RIGHT HANDED PENCIL GRASPS

DYNAMIC TRIPOD GRASP



OTHER FUNCTIONAL PENCIL GRASPS



Thumb wrap over index finger



Tripod grip with very flexed and clear pressure through the index finger

LEFT HANDED PENCIL GRASPS

DYNAMIC TRIPOD GRASP



The following identifies the stages of how a child's pencil grasp should potentially develop:

- 1 $\frac{1}{2}$ years - Palmar-Supinate Grasp - the arm moves as a whole unit and finger movements are not isolated at this point. (Picture)
- 2-3 years - Digital- Pronate Grasp - instead of the whole arm moving, the movements are becoming more refined although still rely on forearm moving as a unit. (picture)
- 3 $\frac{1}{2}$ - 4 Years - Static Tripod Posture - The hand is now starting to control the movements rather than the arm or forearm. Still not using isolated finger movements
- 4 $\frac{1}{2}$ - 6 years - Dynamic Tripod Posture/Grasp - The thumb and fore finger are now producing isolated finger movements. A combination of thumb, finger and wrist movements allow the child/young person to control the pencil and place the right amount of pressure through the pencil.
- After 7-8 years of age, if the child has developed an inefficient hand grasp, it is unlikely they will be able to change their pencil grasp. It is only a problem at this stage if it is not a functional grasp for them and causing obvious handwriting difficulties.

Poor Postural Stability and Balance

Difficulties to Look Out for... When they are writing

- Places lots of pressure through their pencil on to the paper
- May place light pressure through their pencil
- Moves their whole hand/arm to write
- Collapses/props self on table whilst writing.
- Tires quickly and easily during writing activities
- Slower than peers when writing
- Slouching/ Struggles to sit upright
- Leans towards writing arms
- Feet hooked around chair legs
- Looks like has weak muscles/floppy

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- Struggles to keep still and sit still
- Poor fine motor skills generally
- Possible poor concentration and attention as struggling to try and sit still
- Stop/Start when writing letters/words/sentences

Difficulties to Look Out for... With their Written Work

- Heavy pressure - may go through paper causing imprints when the page is turned over, may break pencil leads easily etc
- Light pressure - very faint, not easy to see on the page, light pencil strokes
- Letter sizing may be inconsistent
- Poor spacing between letters and words
- Not adhering letters/words to the line
- Ascenders and descenders may not always be visible

Strategies that can Help...

- Complete the exercises identified on the 'Postural Stability' exercise programme or complete the BEAM programme
- Could trial a pencil grip e.g. 'the pencil grip' (www.specialdirect.com) as may help to reduce the pressure being placed through the pencil. Triangular pencil grips are not as effective for these difficulties
- Try the use of an angle board or lever arch file to correct sitting and wrist posture and support their arm. This will also help reduce the pressure they place through their pencil
- Use a mouse mat underneath their paper - if they're using too much pressure then the pen/pencil will go through the paper
- Use mechanical pencils trying not to break the lead when writing
- Rest forearms on the table during writing activities
- Try and ensure that the position of their paper is correct - taping tape onto desk for correct position. If left handed slope the top of the paper to the right 30 degrees, if right handed slope the top of the paper to the left 30 degrees

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- Make sure their feet are flat on the floor and can reach the floor when they are sitting, if not, try a different chair or put something under their feet to raise them
- Trial the use of a move 'n' sit cushion to help challenge their sitting position
- Make sure their chair is the right height for the table at elbow height when sitting and arms are bent
- Use a book stand if it is easier for them to copy work from that and it encourages them to sit more upright

Poor Upper Limb Strength and Hand Strength

Difficulties to Look Out for... When they are writing

- Poor pencil grip that is not functional
- Stops writing for breaks frequently/tires easily
- Shakes out their writing hand frequently during writing tasks
- Grasps their pencil tightly which may cause their knuckles/fingers to turn white
- Holding their pencil high up the shaft
- Very flexed finger joints, especially the index finger
- Moves their whole hand/arm to write and to control the pencil
- Slow writing speed
- Drops pen/pencil frequently
- Fixes arm into their upper trunk
- One shoulder raised when writing
- Reduced hand movements
- More than 3 fingers on the shaft of the pencil
- Hooked wrist and/or tension in wrist
- Little finger side of the hand is not resting on the table

Difficulties to Look Out for... With their Written Work

- Poor letter formation
- Letters not placed on the line correctly due to poor pencil control
- Pressure too light - very feint, not easy to see on the page, light pencil strokes
- Heavy pressure - may go through paper causing imprints when the page is turned over, may break pencil leads easily etc
- Letters are formed from the wrong starting position
- Letter sizing may be inconsistent
- Letters are sharp in turning
- Letters have an incomplete curve
- Inconsistency in joining letters up

Strategies that can Help...

- Complete 'Upper Limb' exercise programmes
- Use 'Handwriting Warm Up' exercises before any writing activities
- Trial different styles of pencil grips to help promote tripod grasp e.g. 'stubbi grip' & 'the pencil grip' available from www.specialdirect.com
- Try using an angle board or lever arch file to correct sitting and wrist posture and support their arm. This will also help reduce the pressure they place through their pencil.
- Hand strengthening exercises e.g. Squeeze a soft sponge ball in the palm of your hand, pinching Play Dough/Theraputty with thumb, index and middle finger, hide small objects in the play dough, put an elastic band around the fingers and thumb and open and close fingers to stretch the band, practise touching the pads of each finger to the thumb of the same hand, scrunch paper to make a collage or flick into a goal (finger soccer!)
- Encourage activities to promote pincer grip (thumb and index finger) e.g. using tweezers, threading, jigsaw puzzles, opening/closing clothes pegs etc
- Light wrist weights - helps to stabilise their hand and also provide feedback so as to prevent them pressing hard on to the pencil.
- Use theraputty or plasticine to help with hand strength
- If pressure is too light, use vibrating pens, wax crayons, use a softer pencil (2B instead of HB) and use hand strengthening exercises

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- Physical cues e.g. tap their shoulder if it is raised when they are writing
- Weighted pens/pencils
- Experiment with height of work surface to provide increased shoulder stability
- Writing on vertical plane - rest forearm on wall when writing/drawing
- Place small object/blue tack underneath little finger and wedding finger when writing to reduce the number of fingers placed on to the pencil.



Poor Pencil Grip and Fine Motor Skills

Difficulties to Look Out for... When they are writing

- Poor pencil grip that is not functional
- Stops writing for breaks frequently/tires easily
- Shakes out their writing hand frequently during writing tasks
- Grasps their pencil tightly which may cause their knuckles/fingers to turn white
- Holding their pencil high up the shaft
- Flexed finger joints, especially the index finger
- Moves their whole hand/arm to write and to control the pencil
- Slow writing speed
- Drops pencil frequently
- Finds it hard to generally manipulate the pencil

Difficulties to Look Out for... With their Written Work

- Inconsistent sizing of letters/words
- Letters have an incomplete curve
- Letters have sharp in turning
- Joins up letters in wrong direction
- Inconsistency in joining up letters
- Pressure too light - very faint, not easy to see on the page, light pencil strokes
- Heavy pressure - may go through paper causing imprints when the page is turned over, may break pencil leads easily etc

Strategies that can Help...

- Fine Motor Skill Activities e.g. using lego, pick up stick game, jenga, pencil mazes, peg board activities, pictionary/hangman, collages, threading/sewing, origami/paper folding

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- Encourage activities to promote pincer grip (thumb and index finger) e.g. using tweezers, threading, jigsaw puzzles, opening/closing clothes pegs etc
- Hand strengthening exercises e.g. Squeeze a soft sponge ball in the palm of your hand, pinching Play Dough/Theraputty with thumb, index and middle finger, hide small objects in the play dough, put an elastic band around the fingers and thumb and open and close fingers to stretch the band, practise touching the pads of each finger to the thumb of the same hand, scrunch paper to make a collage or flick into a goal (finger soccer!)
- Trial different styles of pencil grips to help promote tripod grasp e.g. 'stubbi grip' & 'the pencil grip' available from www.specialdirect.com
- Use 'Handwriting Warm Up' exercises before any writing activities
- Try using an angle board or lever arch file to correct sitting and wrist posture and support their arm. This will also help reduce the pressure they place through their pencil
- Try using heavier weighted pencils
- Put mouse mat underneath their work - if pressing too hard they will go through



Poor Bilateral Skills

Difficulties to Look Out for... When they are writing

- Inconsistent use of one dominant hand
- Non-writing hand inactive
- Won't use the inactive hand to stabilise paper
- Tends to move their whole body when they cross the middle of their body
- Sit more on the edge of their seat

Difficulties to Look Out for... With their Written Work

- Struggles to form diagonal strokes e.g. pre-writing shapes / \ and a triangle and letters such as k, v, w, s and z
- Possible difficulties with organising their work on the paper

Strategies that can Help...

- Provide visual cue or verbal reminder for child to steady the paper with their inactive hand
- Do activities that promote the use of two hands together and that help the child cross their midline
- Fine Motor Skill Activities e.g. using lego, pick up stick game, jenga, pencil mazes, peg board activities, pictionary/hangman, collages, threading/sewing, origami/paper folding
- Complete the exercises identified on the 'Postural Stability' exercise programme or complete the BEAM programme. Their

reluctance to cross their midline maybe due to reduced postural stability also.

- Angle their paper correctly
- Practice doing diagonal lines
- Use a sensory approach to handwriting - refer to the 'Multi-Sensory Approach to handwriting programme



Poor Visual Perceptual Skills and Control of Eye Movements

Difficulties to Look Out for... When they are writing

- Needs to look at the blackboard a lot when copying
- Loses their place easily
- Works too slowly
- Can't scan their work easily
- Reduced stamina for extended periods of writing
- Rubs their eyes a lot
- May complain of headaches
- Find it hard to identify lots of words/pictures

Difficulties to Look Out for... With their Written Work

- Frequent letter reversals
- Letters are incomplete in their formation
- They confuse capital letters and lower case letters
- Joins up letters using the wrong direction
- Letters not placed on the line correctly
- Letters or words are missed out when copying
- Letters are jumbled up
- Can't organise their work on the page

Strategies that can Help... When Writing

- Visual breaks to reduce fatigue
- Alternate board activities with less visually demanding tasks

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- Circle/highlight relevant information only
- Reduce visual distractions in the classroom
- Try using a window tracker - made out of card, cut a rectangle out of the middle to produce a 'window'. This is then moved across the work they are copying from so they don't lose their place and have so much to see
- Provide paper copies when copying from the board
- Use computers if necessary
- Use an angle board to reduce the distance their eyes need to travel when copying from the board
- Place them in front of board to minimise distraction and to also reduce having to turn their body all the time to copy things
- If copying from a model, either on the board or from a work sheet, then write every fifth word in red and use this word as a clue for checking the number of words copied.
- Use reference strip of letters above work to refer to- whole alphabet or only the letters they frequently get wrong
- Use lolly stick after each word to help with correct spacing
- If they are missing letters or words out when they are copying from the board, try placing a hard copy of the work beside them to copy from

...Written Work...

- Teach children 'magic c' letters e.g. a, c, d, g, o and q
- Use verbal prompts to help remember letter formation such as for a- 'magic c, up like a helicopter, slide down bump!'
- Use pictograms to help differentiate between letters such as 'b' and 'd' by using a diagram of a bed e.g. close fists, thumbs up and touch knuckles together

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- Give guidance when writing with coloured arrows indication directional cues
- For those children/young people who persistently form their letters in the wrong direction, get them to rub the letters out in the right direction. This technique can be done using a chalk board also.
- Start with hand over hand going over a letter then use a green dot to indicate start and red indicating the end
- Place sand paper underneath worksheets when doing letter formation - give sensory feedback
- Ask child to highlight over/under spaced words
- Ask child to highlight within and/or between words
- If they are confusing upper and lower case letters ensure that they can actually write capitals and small letters correctly
- Teach lower case letters separately
- Encourage self-evaluation of their work e.g. get them to think about their posture and/or their pencil grasp, think about their letter spacing, underline words that are written well or badly etc



Poor Attention and Concentration

Difficulties to Look Out for.... When they are writing

- Works too slowly
- Losing where they are in their work frequently
- Looks outside/away from teacher/window
- Can't follow verbal instructions easily
- Easily distracted by noise/visual distractions/smells
- Can't sit still easily
- Frequently getting up from their seat

Difficulties to Look Out for... With their Written Work

- Poor quality of work
- Words missing
- Sizing inconsistent
- Not adhering to line
- Spelling mistakes (silly)
- Poor organisation of work on the page
- Not forming letters properly

Strategies that can Help...

- Refer to 'Attention in the Classroom' advice sheet
- Sitting near the front of the class or in front of the white board can help reduce the distraction in their visual field

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- Allow them to sit beside you to help maintain attention
- A regular change of position can help them to maintain their attention e.g. Lying on tummy, sitting on the floor, sitting on a chair, kneeling.
- Use headphones/ear plugs if noises distract them, when appropriate
- Taking regular short breaks to walk around classroom, to carry out a chore such as handing out books or tidying away involving carrying objects to different places.
- Provide as many opportunities as possible for active work during the day e.g. instead of sitting to do Math have them do the problem on the board standing up.
- Provide 'heavy work' activities during the day especially prior to handwriting tasks or those which require long periods of sitting e.g. cleaning the board, handing out books, pushing tasks, moving furniture, and the activities on the attached sheet.
- Provide a 'sit-fit' cushion which allows them to have the sensation of movement in a more appropriate and less distracting way for the classroom environment
- Complete the exercises identified on the 'Postural Stability' exercise programme or complete the BEAM programme. Their difficulties with sitting still maybe due to reduced postural stability also.
- Provide a solid seat with armrests of the correct height
- Alternate board activities with less visually demanding tasks
- Circle/highlight relevant information only
- Reduce visual distractions in the classroom
- Try using a window tracker - made out of card, cut a rectangle out of the middle to produce a 'window'. This is then moved across the work they are copying from so they don't lose their place and have so much to see

- Provide paper copies when copying from the board
- Use computers if necessary
- Use an angle board to reduce the distance their eyes need to travel when copying from the board and to promote better posture



Poor Motor Planning

Difficulties to Look Out for... When they are writing

- Pre/writing skills are behind what you could expect given their verbal skills and their reading ability.
- Gets confused or muddled in their thoughts, their speech or actions
- Not able to initiate writing - but can come up with the ideas
- Looks awkward when writing
- Not able to hold pencil properly
- Not knowing how to angle their paper
- Not crossing midline or using their assisting hand to stabilise the paper
- Not able to isolate thumb and index finger movements

Difficulties to Look Out for... With their Written Work

- Written work is messy
- Poor letter formation
- Uses lower and upper case letters when writing
- Not adhering to the line
- Letter reversals
- Frequent misspelling of simple words

Strategies that can Help...

- Consider providing a chunky pencil or a triangle shaped pencil to help with finger positioning

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- Trial an angled writing board to help provide the arm and the hand with more stability. An empty lever arch file is a cheap alternative
- Teach the correct pencil grasp by doing the a-ok sign with your finger and thumb, pinching the pencil as it is lay on the desk with the lead pointing towards you and then flipping the pencil so it lands in the web space between your finger and thumb
- Use different media to teach letter formation such as sand, water paint
- Use vertical surfaces to give extra feedback for the direction of the movements required
- Prior to handwriting have the child do some warm ups including....pressing palms together, pulling each finger tip, press the palms on to the desk, chair push ups with hands flat on the seat pushing their body up
- Use visual cues such as stickers on the page for where to start
- Highlight lines to help them sit the letters on them
- Use graph paper in maths to help them lay out sum
- If using the whiteboard think about what you can print off to reduce what they have to write in regards to note taking
- Allow additional time for written tasks
- Consider the use of ICT equipment to reduce the need to produce long pieces of written work....quality not quantity and also think contents vs. the presentation. What are your priorities for that lesson?

(Some of the advice given for visual perception may also be of use)

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