



*Demonstration Project on In-school and Early Years
Therapy Support*

Fine Motor Skills and Handwriting

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Rialtas na hÉireann
Government of Ireland

Outline of Session

- Definition and importance of fine motor skills
- Underlying factors for fine motor development
 - Postural control, core and shoulder stability, hand finger strength, pincer grasp, in-hand manipulation
- Strategies and activities to promote fine motor development
- Tips for handwriting
- Tips for scissor skills
- Tips for assistive technology



What the research says...

Approximately 15-25%
school-age children
experience difficulty with
handwriting

*(Barnett 2006; Graham et al.
2008)*

Academic failure as well as
lowered self-esteem can
result from problems
associated with poor
handwriting

(Feder & Majnemer 2007)

Decreased legibility and
quality of handwriting can
affect a teacher's perceptions
of written content and of the
students academic
knowledge, which may result
in lower grades

(Cahill 2009)



Gross to Fine Motor Development

- ▶ Large muscles develop in the neck, trunk, arms and legs before the small muscles in the fingers, hands, wrists and eyes develop.
- ▶ Children generally learn to walk before they can write or scribble.



What do these activities have in common?



Importance of Fine Motor Skills

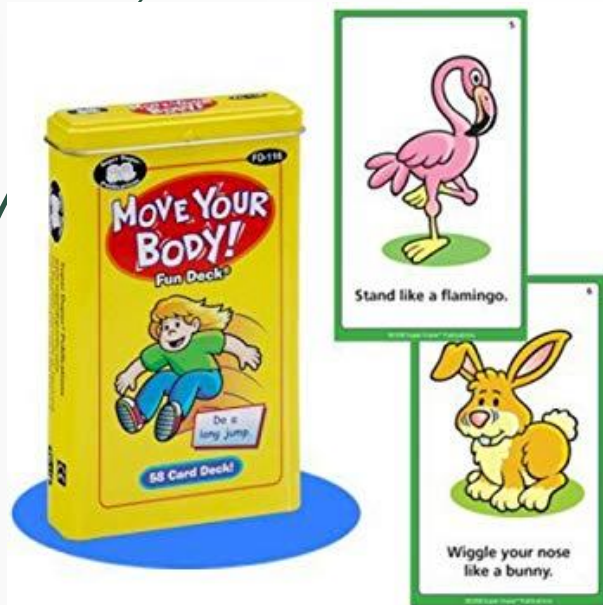
The ability to control and coordinate the small muscles in the hand for precise movements.

- Essential for performing everyday skills as well academic skills.
- Facilitate independence, e.g. dressing, feeding, toileting.
- Difficulties can lead to frustration, avoidance of activities, decreased self esteem, difficulty with school and play tasks.



Core Stability

- ▶ The ability of the muscles of the trunk and lower back to hold the body upright against the resistance of gravity.
- ▶ Can lead to poor posture which affects fine motor skills.



Crab Walk
gross motor challenge
for kids



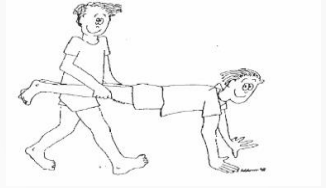
THEINSPIREDTREEHOUSE.COM

How to help:

- Bridges
- Animal walks
- Fun deck cards
- PE activities
- Yoga activities
- Push-ups
- Sit-ups



Arm and Shoulder Stability



- ▶ Children need to have stability at the trunk and shoulder so that they can use their hands effectively.

What to look for:

- *Keeps elbows tucked*
- *Shoulders raised when writing or using scissors*
- *Rests elbow on chair when raising arm*
- *Supports raised arm with other hand*
- *Trouble with large movements on the blackboard*
- *Moves their paper during writing / drawing tasks instead of their arm*
- *Complains their arm hurts or it gets tired*

How to help:

- *Large Motor Games*
 - *Push-pull activities, throwing/catching*
- *Weight-bearing Activities*
 - *Chair push ups, wall push ups, lying on tummy on the floor when doing activities*
 - *Wheelbarrow walks*
 - *Crab walks, crab football*
 - *Animal walks*
- *Work on vertical surfaces*
- *Arm spirals*



Hand and Finger Strength



- Required for everyday activities such as doing up buttons and zips, climbing monkey bars, using scissors or cutlery.
- Helps to develop the stamina and endurance to complete activities such as writing a full page.

What to look for:

- *Fatigues easily when completing a piece of writing.*
- *Difficulty opening packets and bottles.*
- *Difficulty holding their pencil/ scissors correctly.*
- *Shaking or rubbing hands, especially during writing/ cutting activities.*

How to help:

- Playdough/ Theraputty
- Lego or other construction activities
- Pop bubble wrap
- Rolling marbles up/down/across a wall or table with index, middle and thumb pads
- Clothes peg/ tweezers/ tongs activities
- Using stencils when drawing



Hand Dominance

- The ability to use a preferred hand for activities that require fine movements with accuracy and power.

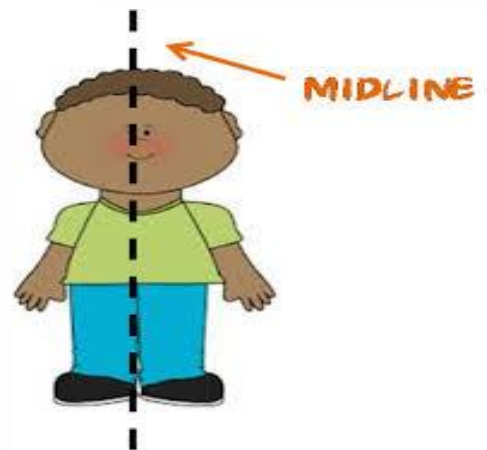
How to help:

- *Observe closely!*
- *Look at which hand they favour to hold their pencil or spoon*
- *Make sure to offer items at the child's midline*
- *Sometimes children switch hands during tasks and it is important to consider midline crossing difficulties*



Midline Crossing and Bilateral Integration

- ▶ **Bilateral integration** is the ability to use the two sides of the body at the same time in a controlled and organised manner. These skills are necessary for handwriting and using scissors.
- ▶ **The midline** is an imaginary line drawn down the middle of our body. Movements across the body should be smooth and spontaneous. Children need to be able to use their arms and legs and eyes across their body (midline) e.g. to write across the page, read or use cutlery.



Pincer Grip/ In-Hand Manipulation

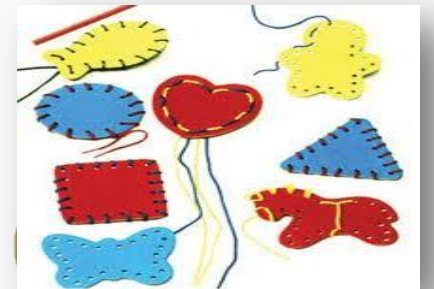
- ▶ The ability to grasp small objects with the thumb and index finger, and move objects within the hands effectively.
- ▶ This is an important part of fine motor development.

What to look for:

- *May use both hands for activities that would usually require only one*
- *Unnecessarily stabilising an object against their body or an external support to get the job done*
- *Whole hand movements when writing or drawing*
- *Difficulty picking up very small items or holding pencil*
- *It is a pre-writing skill and necessary for holding and manipulating a pencil*

How to help:

- *Clothes Pegs/ Tongs/ Tweezer games*
- *Pinching playdough/ Theraputty*
- *Pick up coins to post in a money box – pick up few coins at a time*
- *Threading small beads*
- *Tearing and scrunching paper – try thicker paper to increase the challenge*
- *Flip double sided crayons*
- *Ask child to walk up and down pencil*



'P' Checks – Preparing to write



'P' Check - Posture

- ▶ A good seated position helps the child to be stable, to concentrate and to use their hands effectively.

What to look for:

- *Is the child slumped over the desk?*
- *Is the child leaning to one side or sitting awkwardly?*

At the table:

- *Feet flat on the floor*
- *Hips/knees at 90°*
- *Table height, about 2 inches above the level of the elbows*



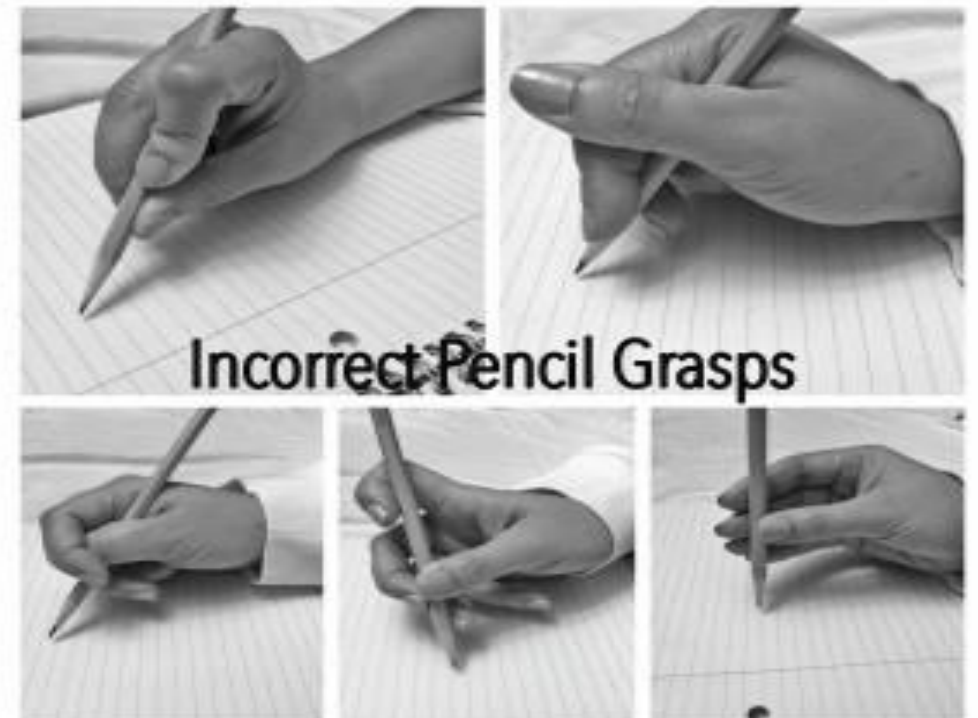
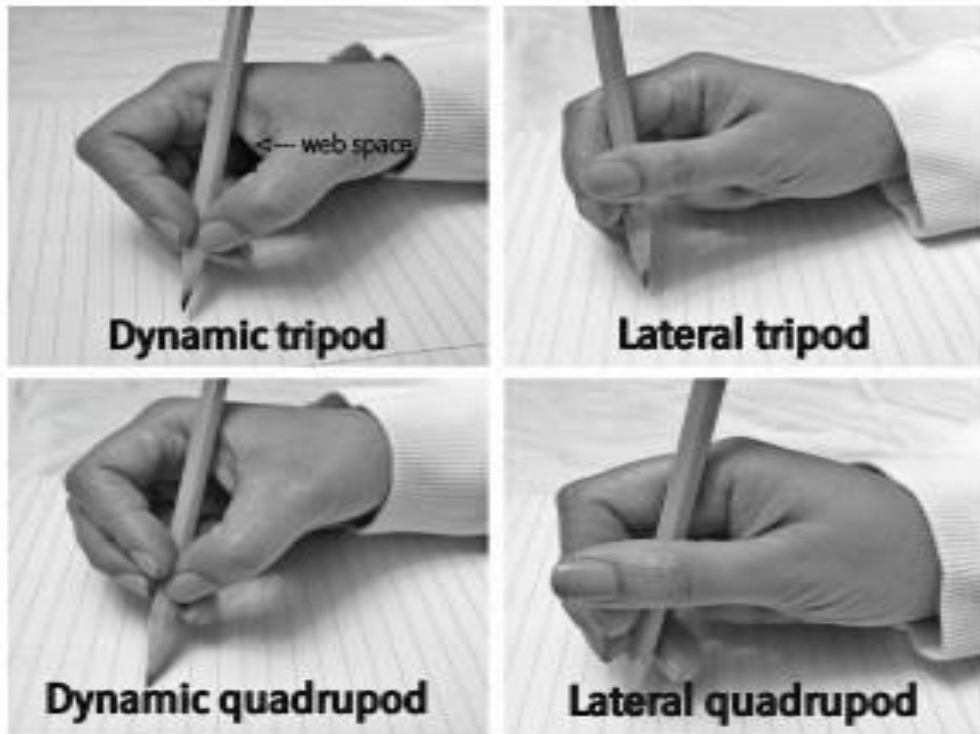
On the floor:

- *Cross legged sitting more stable than long sitting or side sitting*
- *Back supported against a wall may be better*



'P' Check - Pencil Grasp

- ▶ Development of pencil grasp begins before junior infants and continues to 1st/2nd class.
- ▶ The most effective pencil grasp allows the fingers to move without moving the wrist or whole arm.
- ▶ Incorrect pencil grip leads to muscular tension, fatigue or unnecessary stress on our joints. This can make handwriting more difficult.



Functional Pencil Grasp

Teach the tripod grip in the following manner: Place the pencil on the desk with the lead pointing towards your body.

Pinch the pencil close to the tip with the tip of the thumb and index fingers

Flip the pencil over to rest in the space between your thumb and index finger

Tuck the middle finger under the pencil

Pinch Flip Tuck

How to help with pencil pressure:

- Look at the pencil grasp
- Writing on a vertical surface
- Use a wider pencil or softer pencil (eg 4B)
- Vibrating pen
- Writing on carbon paper, tissue, towel, sandpaper, foam mouse mat or foil
- Roll playdough around the pencil to give feedback of how tightly the pen is being held



Practice fine motor and strengthening activities

Try using a thick pencil/marker/crayon

Try very short pencils, chalks, crayons. (1" size)



Leave about 2cm between the finger tips and pencil point. Mark the child's pencil.

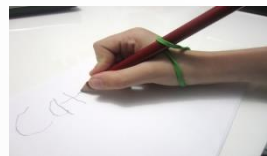
Plastic Grips



Sloped/vertical work surface



Adult sized pencils can be difficult for children to control. Use a shorter pencil.



'P' Check - Paper



For a left-hander the top right corner of the page is angled down to the right.



For a right-hander the top left corner of the page is angled down to the left.



'P' Check - Pressure

➤ Light Pressure Indicators

- Faint, shaky handwriting
- Fingers are often more extended at the joints and higher up the pencil

➤ Heavy Pressure Indicators

- Marks that go through to the next page
- White knuckles
- Hand fatigues

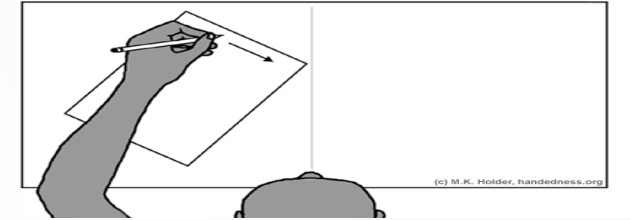
How to help :

- Use carbon paper underneath layers of writing paper
- Use a mechanical pencil that will break under heavy pressure
- Write on top of a mouse pad
- Using a pencil, shade in a picture using light, medium and dark grey. Discuss how different amounts of pressure alter the shade.
- Try some warm up actions before handwriting task



Left Handedness

- Difficulty seeing their handwriting since the hand covers their writing.
- Writing in a less natural direction from left to right across the midline.



How to help:

- *Avoid sitting a left handed child on the right side of a right handed child*
- *Position the paper to the left of the midline*
- *Tilt the paper clockwise so that the edge of the page is parallel to the child's forearm– use masking tape to mark the position on the desk*
- *Encourage the child to steady the paper with their right hand in the middle or towards the right edge of the paper*
- *The left forearm should remain parallel with the sides of the paper*
- *Hold the pencil slightly higher up on the pencil to allow more seeing room*

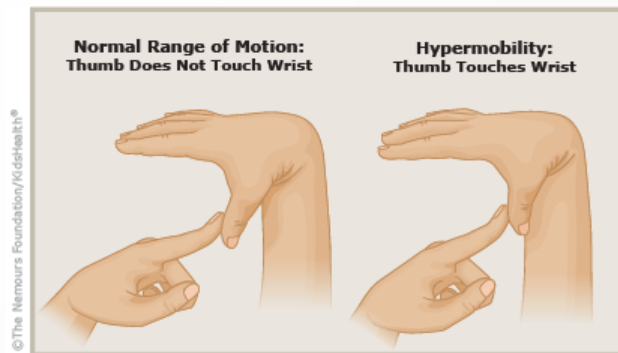


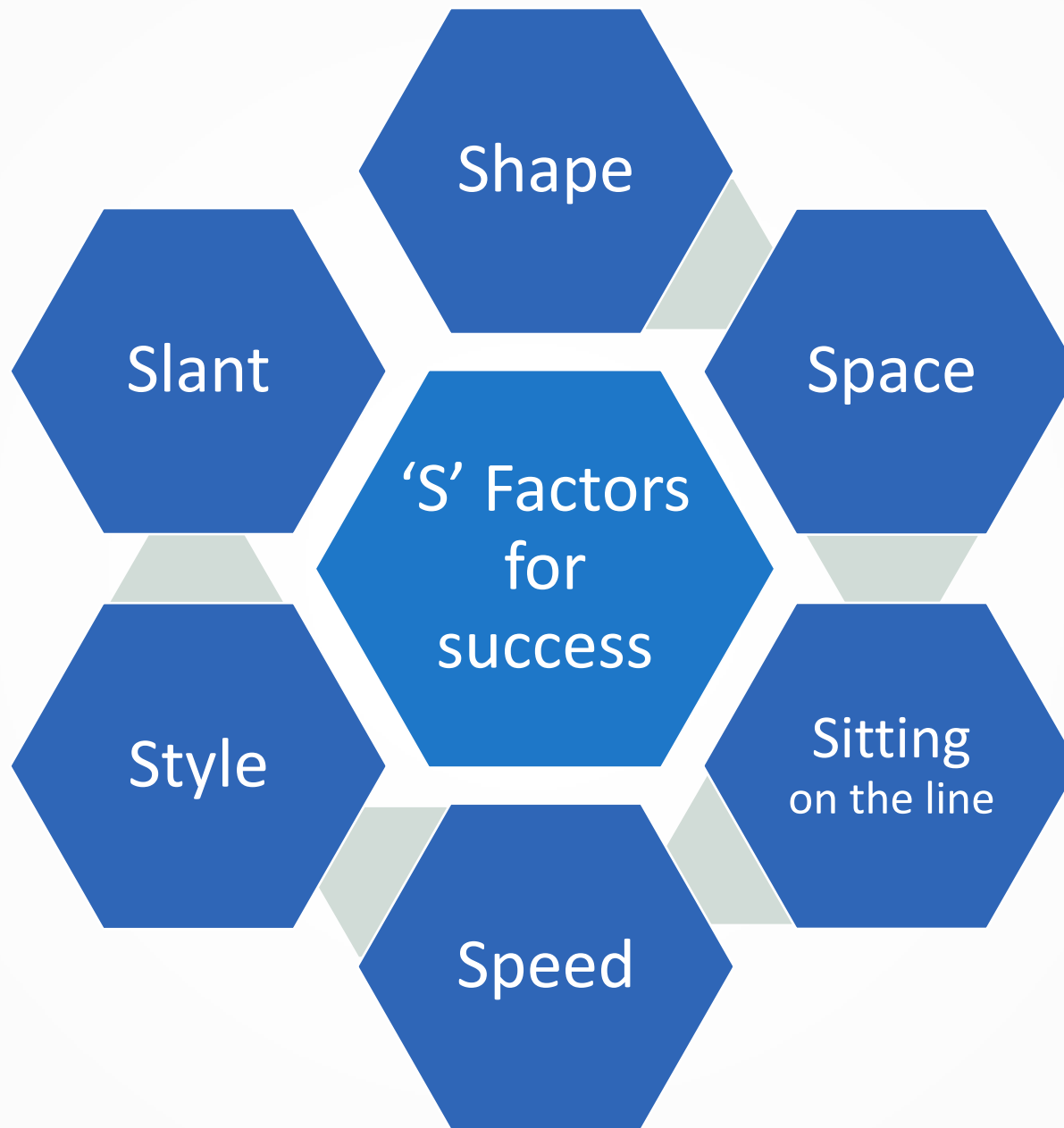
Hypermobility

- Joints that can extend beyond a normal range of movement.
- Due to connective tissue around the joint being stretchier than usual.
- Affects how a child grasps and controls small objects or tools and can lead to fatigue/pain.
- Most ballet dancers and gymnasts have a degree of joint hypermobility - which means that you can be hypermobile, strong, active and fit.

How to help :

- Strengthening activities
- Thicker pencils/ pencil grips
- Adapted scissors
- Develop typing skills if necessary





Pre-Writing Shapes



- Developmentally we learn: vertical and horizontal lines, then circles and then diagonals.
- The pre-writing shapes include: | - O + □ / \ x Δ
- Need to master shapes before progressing to forming letters and numbers.
- Make **large** shapes, e.g. in the air, on a whiteboard, on the floor. It will then be easier to make the shapes smaller.

Use a Multisensory Approach

- *Use different paper (e.g. foil, sandpaper) and different tools (e.g. paint)*
- *Write in sand, shaving foam, finger paint*
- *Vibrating pen, write on the child's back or hand and guess the shape*
- *Follow the leader to form shapes*
- *Wet dry try technique*
- *Wikistix or pipecleaners*



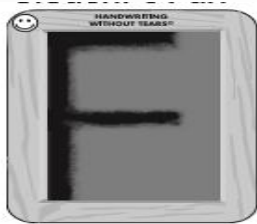
Wet Dry Try (Handwriting without Tears)

Teacher's Part



- Pre-mark students' slates with the letter
- Demonstrate correct letter formation

Student's Part



1. WET

- Wet little sponge cube
- Squeeze it out
- Trace the letter with the sponge
- Wet your finger and trace again

2. DRY

- Crumple a little paper towel
- Dry the letter a few times
- Gently blow for final drying

3. TRY

- Take a little piece of chalk
- Use it to write the letter



Letter Formations

- Letter that have exit flicks support joining. Entry strokes complicate the basic letter shapes
- Use a multi sensory approach: sand, paint, sandpaper, air-writing etc. before pencils
- Children often find it easier to learn letters when they are taught in groups of similar formation
 - The 'l' team: l, i, u, t, y, j
 - The 'c' team: c, a, d, g, q, o, e, s, f
 - The 'r' team: r, n, m, h, b, p
 - The 'zig-zag' team : z, x, v, w, y, k
- Use verbal rhymes
- Ensuring whole teaching team use the same approach and consistent language as most Junior Infants will generally not achieve automaticity in letter formation in first year, often takes two/three years



Ideas for Handwriting

Activities to improve poor spacing

- Drawing lines or circles between words
- Lolly sticks
- Encourage the child to say “space” or “nothing” as they write and make spaces
- Challenge the child to make a raisin or M&M space between each word
- Use a finger spacer



Activities to improve pencil control/ fluency

- Letter patterns
- Mazes
- Drawing a snail or tornado
- Tracing over lines
- “Write from the Start” Programme



Ideas for Handwriting

Letter sizing and writing on the line

- Practice writing within the lines on a large scale
- Use paper with a midline
- Use raised lined paper
- Highlight half the line horizontally
- Use colours - blue on the top for the sky, green in the middle for the grass and brown underneath for the earth/mud



Reversals

- For 1st/ 2nd class students who consistently reverse letters introduce cursive early to help correct this
- Encourage left and right awareness
- Work on one reversal at a time
- Use rhymes, words, stories to help the child remember the different letters
- Give a visual cue at the desk for commonly reversed letters



Letter Sizes and Places: The Hand Activity

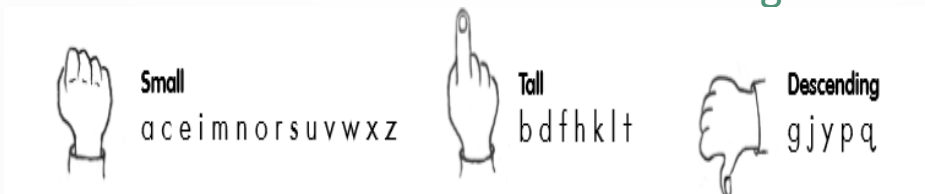
➤ Capital Letters:

- Make a flat hand for all capital letters



➤ Lowercase Letters:

- Make a fist for small letters (grass)
- Point the index finger up for tall letters (sky)
- Point the thumb down for descending letters (mud)



Directions:

- Write the letter
- Ask the child if the letter is small, tall, or descending
- Students make their hand show the answer
- Complete this with each letter in the word



Speed

Children need to understand that competent writers have two kinds of handwriting. One which is good quality and neat and used for formal purposes and the other a fast note taking handwriting which is used when time is of the essence.

Patterns repeating particular letters or basic shapes help to develop speed.



Handwriting practice patterns consisting of repeating letters and shapes in blue ink on a white background. The patterns include: 'mm mm mm mm', 'cccc cccc ccc', 'uuuu uuuu uu uuu', 'wwww wwww wwww wwww', 'llll llll llll llll', 'nnnn nnnn nnnn nnnn', 'oooo ooooo ooooo ooooo', and 'llll llll llll llll'.



Set aside time to teach older children how to write quickly. Example activity:

- Ask children to copy a text from a book for a set time (5 minutes).
- Then ask them to count how many legible letter they have written.
- Repeat daily for a week or two, with each child trying to beat his own score.
- Aim is for at least 12 words per minute.



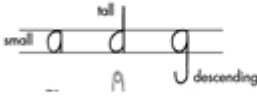




Student Handwriting Checklist

Tionscadal Léirithe um Théipe ar Scail agus Tacaíocht na Luathbhlianta
Demonstration Project on In-school and Early Years Therapy Support

Rialtas na hÉireann
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MY WRITING CHECKLIST

- I sit with my back straight and feet flat on the floor.

- My helping hand is holding the page.

- My letters are on the line.

- There is proper spacing between words.

- Can I read my handwriting?




Older Child: - Rating Scale

* Rating handwriting

	1 Excellent	2 Good	3 OK	4 Not so good	5 Poor
Shape /legibility					
Size					
Spacing					
Sitting on line					
Slant					
Speed					
Style					



Handwriting Checklist

Handwriting Observations & Tips



Child's Name: _____ D.O.B.: _____ Class: _____

Observation By: _____ Date of Observation: _____

Handwriting Component	Observations	Tips
Posture <ul style="list-style-type: none"> • Can s/he sit with good posture? • Is table and chair correct height? 		<ul style="list-style-type: none"> ▪ Check furniture size: consider exchanging furniture with another class to accommodate children who are taller or shorter than their peers ▪ Encourage good sitting posture <ul style="list-style-type: none"> ○ Feet flat on the floor and knees at 90° ○ Hips should be at the back of the chair ○ Ideally the table should be 4cm higher than the child's elbow ○ Give verbal prompts to correct posture
Paper Position <ul style="list-style-type: none"> • Can s/he see the pencil point when writing? 		<ul style="list-style-type: none"> ▪ Position the paper slightly to the right for right-handers ▪ Position the paper slightly to the left for left-handers ▪ Use masking tape to mark the angle where the paper slots ▪ Encourage the use of the non-writing hand to stabilise the paper
Pencil Grasp <ul style="list-style-type: none"> • Is there pain in the hand when writing? • Does s/he get tired when writing for a period? • Can s/he control and manipulate the pen? 		<ul style="list-style-type: none"> ▪ Address an inappropriate grasp in the early learning stages and later if it is causing discomfort or impacting speed ▪ Trial very short pencils, chinks, crayons ▪ Use verbal rhyme to pick up pencil: e.g. Flip, Nip, Tuck ▪ Mark pencil approximately 2cm from tip of pencil point (and slightly greater for left-handers). This will prompt finger position. ▪ Consider corrective action using adaptive grips. Trial several options to find the most appropriate.



Handwriting Tips Sheet

Pre-writing shapes/ Letter Formations



- Children need to be able to draw pre-writing shapes before they are able to form letters correctly. The pre-writing shapes include: - O + □ / \ x Δ.
- Children find it easier to learn letters in groups e.g. centre starters - C, O, Q, G.
- Students need to feel how letters are made. Practice forming letters in sand, paint, shaving foam, play dough, pipe cleaners. Use different kinds of paper and different tools e.g. paint brush, chalk, crayons.
- Wet, Dry, Try – Teacher writes the letter on chalkboard first; student erases by tracing the letter with a damp sponge; student traces again using a finger to “dry” the chalkboard; student writes with chalk over the imprint of the letter.
- Place a letter chart/strip in front of students to increase awareness.

Spatial Organisation

(spacing, sizing & writing on line)



- **Spacing**
- Help the child to be aware of spacing by playing “Writing Detective” where the child corrects a poorly spaced sentence or paragraph you have written.
- For right handed children, judging a space or drawing lines or circles between words prompts the child to learn spaces. Remember: You cannot use this for a left-handed child as it is too awkward to cross over.
- Have the child say the word “space” or “nothing” as they write word.
- **Sizing & writing on the line**
- Use “The Hand” activity from Handwriting without Tears”. See handout attached.
- Use double lined paper. Place colour in blue on the top to symbolise the sky, green in the middle to symbolise the grass and brown underneath to symbolise mud.

Pencil Pressure



- Make sure the student knows about holding the pencil tightly and loosely. What does it feel like when squeezing a pen or pencil as tightly as possible, then with the fingers loosened?
- Writing on tissue paper/padded surface the child receives the feedback to lighten off on their pressure to ensure holes don’t form in the paper.
- Ghost writing – child writes a word as lightly as they can and then rubs it out. The other players need to guess where the word was on the page and what the word was. If the child exerts too much pressure it is very easy for the other players to see the indented word on the page therefore encouraging the child to lighten their pressure on the page.
- Use a mechanical lead pencil - it will break if pressed too hard.
- Put carbon paper beneath and check how many layers the writing shows through.



Handwriting Programmes

Handwriting Without Tears

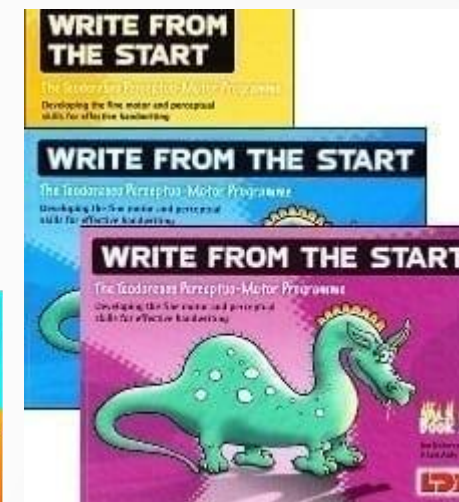
- Developmental sequence - capitals then lower case
- Based on 3 stages of learning- imitating, copying, independent writing
- Letters grouped in similar formation
- Multisensory approach

Write From The Start

- Developing fine motor and perceptual skills for handwriting

Speed Up

- For older children who have slow / laboured handwriting



Scissors Skills

- ▶ The correct scissor grasp is with the thumb and middle finger in the holes, the index finger on the outside to stabilise, and the ring and little fingers curled into the palm
- ▶ 'Thumbs up'

Developmental Sequence

- Controlled opening and closing of scissors
- Random snipping of a variety of materials
- Cutting along a short continuous line
- Stopping at a specific point
- Cutting out curved lines
- Cutting out simple geometric shapes with angles and corners
- Cutting out complex shapes



Rule #1 for great Scissor Skills:

"Both Thumbs Up for good cutting!"



Improving Scissors Skills

Pre-cutting activities

- ▶ Two thumbs up position (for the paper and the scissors), crocodile hand actions
- ▶ Using clothes pegs or tongs to pick up objects, move them from one place to another, & release them
- ▶ Tearing paper or cardboard – a collage picture can be made from small pieces of torn paper
- ▶ Scoop scissors

Adapting scissors activities

- ▶ Try different types of scissors
- ▶ Put mark on all scissors (e.g. nail polish) to show where thumb goes
- ▶ Practice cutting other materials e.g. play dough, straws
- ▶ What is being cut? Use thicker/smaller pieces of paper
- ▶ Simplify the task by drawing a simple square or circle around it to cut
- ▶ Make lines thicker and gradually narrow
- ▶ Use of stickers, dots or hole punches to cue turning corners



Touch Typing

- ❖ When learning touch-typing cover the students hands (scarf, tea towel) to ensure that they stay looking at the screen.
- ❖ Frequent, short sessions will work better than once off long sessions.
- ❖ A log sheet that monitors progress is important as a means of motivating the child and to ensure that if progress is not being made that the training approach is reviewed.
- ❖ Speed Building
 - ❖ Warm up with alphabet drills e.g. zaq1 xsw2 cde3 vfr4 bgt5 nhy6 miju7 ki8 lo9 p0
 - ❖ Practice pangrams that use all letters of the alphabet: e.g. The quick brown fox jumps over the lazy dog.
- ❖ How do you know a child is ready to type for school work?
 - ❖ Rule of Thumb: When you can copy type for 5 minutes, at 30 words per minute, with 90% accuracy on every row; or copy twice as fast as your creative writing speed.





**Thank you for
listening.**

