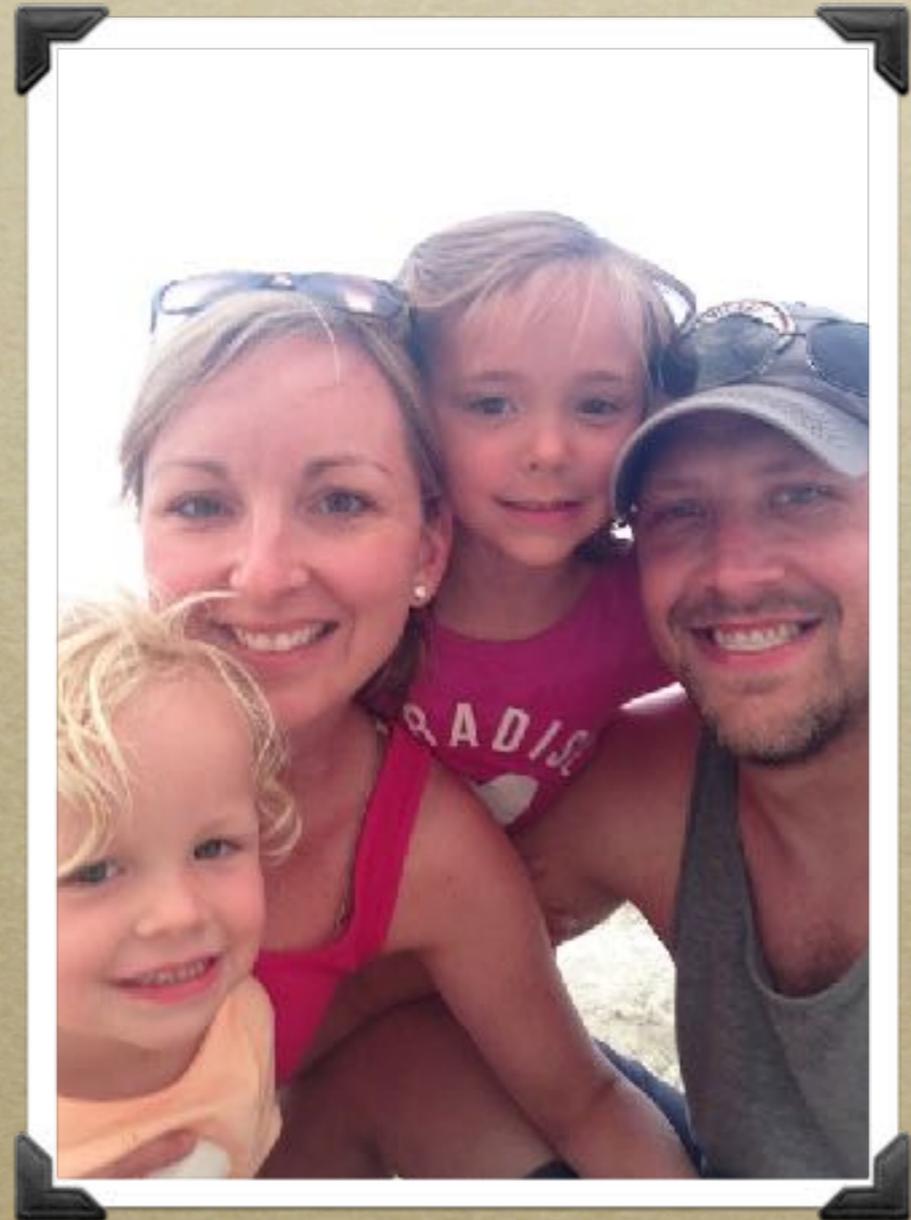


Fine Motor Development For Preschool Aged Children

Hinsdale School District 181
Nicole Jack M.S., OTR/L

Nikki Jack, M.S., OTR/L

- I attended Rush University for my Master's Degree in Science of Occupational Therapy. I hold a speciality certification in Sensory Integration.
- I worked in a private practice clinic setting for 6 years treating a children 0-18 with a variety of diagnosis.
- My clinic focus was on Neuro-Developmental Therapy (NDT), Sensory Processing, and Motor Development.
- I joined the Hinsdale Consolidated School District 181 in 2011 to gain experience in a school setting and I haven't left!
- I have a husband, who is also an occupational therapist, and two daughters who are in pre-school and first grade!



Occupational Therapy in the Schools

- Support students in their occupation of learning
- Modify and adapt their learning environment
- Provide strategies to increase independence in the school
- Assist in functional self-help skills, fine motor skills, and sensory processing
- Occupational Therapy is considered a related service

What Does Fine Motor Mean?

- Using refined movement of small muscles in the hand, fingers, and thumb
- Developing fine motor skills allows one to perform activities such as writing, drawing, buttoning, and activities for self-care

Fine Motor Skill Development

- Strength develops proximally to distally (from trunk-out to the extremities). A strong base of support is established during development allowing improved control and strength of extremities
- A child develops control of their extremities by using the whole arm as a unit first and then slowly dissociating their shoulder, elbow, wrist, and fingers
- Isolation of hand movement comes next, a child is able to first rake fingers, then develops a pincer grasp, lastly dissociation of fingers
- Fine motor activities that are done birth-5 are laying foundations for cutting, handwriting and other tool use for kindergarten
- IT IS IMPORTANT TO REMEMBER TO LET THE CHILD'S SKILL DEVELOPMENT OCCUR NATURALLY. RUSHING A CHILD'S FINE MOTOR AND VISUAL MOTOR DEVELOPMENT CAN CAUSE MORE HARM THAN GOOD RESULTING IN MALADAPTIVE PENCIL GRASPS AND POOR ARM/HAND MOVEMENT PATTERNS FOR WRITING. THIS CAN LEAD TO FRUSTRATION AND DIFFICULTY AS CHALLENGES INCREASE.

Fine Motor Developmental Milestones

Birth-1 year

<i>Motor Skill</i>	<i>Average Age Achieved</i>
<i>Grasp and hold rattle for 30 seconds</i>	<i>2 months</i>
<i>Bring hands to midline in supine</i>	<i>1-3 months</i>
<i>Lying on back, extends hand to rattle/object</i>	<i>3 months</i>
<i>Keeps hands open 50% of time</i>	<i>3 months</i>
<i>Pulls string to obtain toy</i>	<i>5 months</i>
<i>Uses raking grasp to obtain small objects</i>	<i>5 months</i>
<i>Transfers object from one hand to another</i>	<i>7 months</i>
<i>Demonstrates good index finger isolation</i>	<i>8 months</i>
<i>Removes peg from pegboard</i>	<i>8 months</i>
<i>Claps hands with cues</i>	<i>9 months</i>
<i>Uses pincer grasp for small objects</i>	<i>9 months</i>
<i>Voluntarily releases objects</i>	<i>10 months</i>
<i>Removes Socks</i>	<i>12 months</i>

Fine Motor Developmental Milestones

1 Years Old

<i>Motor Skill</i>	<i>Average Age Achieved</i>
<i>Scribbles</i>	<i>14 months</i>
<i>Builds tower of 5 blocks</i>	<i>19 months</i>
<i>Turns pages of a book</i>	<i>20 months</i>
<i>Inserts 3/3 shapes correctly in a puzzle</i>	<i>20 months</i>

2 years Old

<i>Motor Skill</i>	<i>Average Age Achieved</i>
<i>Imitates vertical strokes</i>	<i>24 months</i>
<i>Snips with scissors</i>	<i>26 months</i>
<i>Strings two beads</i>	<i>28 months</i>

Fine Motor Developmental Milestones

3 Years Old

- Blocks

- Stacks 8 blocks
- Stacks 9+ (3.5yr.)
- Builds 3 block train (2.9 yr.) and bridge

- Drawing/Writing

- Writing grasp emerging
- Imitates and copies a circle
- Imitates and copies vertical and horizontal lines
- Imitates a cross (3.6yrs.)
- Traces a line (3.6 yrs.)
- Draws picture meaningful to child
- Draws face
- Colors with emerging regard to lines

- Scissors

- Snips paper (2.6 yrs.)
- Cuts 6 inch paper in half (3 yrs.)
- Cuts 6 inch paper on a line, within 1/2" (3.6 yrs.)
- Pronated cutting grasp

- Puzzles

- Completes 9-12 piece inset puzzle
- Completes 6-8 piece interlocking puzzle

- Functional/Self-care

- Zips connected zipper/unzips
- Puts on coat
- Puts on shoes
- Buttons large buttons (3.6 yrs)
- Unbuttons large buttons
- Puts on socks
- Puts hands through holes in front opening shirt (3.3 yr)
- Puts on pullover shirt (3.6yrs.)
- Eats with fork/spoon no spillage
- Holds fork fistled
- Holds fork with standard position (3.8yrs)

Fine Motor Developmental Milestones

4 Years Old

- Blocks

- Stacks 10-11 blocks (4.1-4.5 yrs.)

- Builds 4 block rocket

- Builds 6 block stairs and pyramid (4.5 yrs.)

- Drawing/Writing

- Static trip grasp (hand moves as one unit)

- Copies a cross

- Traces diamond (4 yr.)

- Copies a X (4 yr.)

- Imitates a square (4 yr.)

- Copies a square (4.6 yrs.)

- Copies diagonal lines (4.4 yrs.)

- Traces linear letters

- Draws a 8 part person

- Scissors

- Cuts a 2" triangle within 1/4" of line

- Cuts a 6" square within 1/4" of line (4.6yr)

- Cuts a 6" circle within 1/4" of the line (4.6-5yr)

- Proper grasp on scissors

- Puzzles

- Completes a 6-12 piece puzzle

- Functional/Self-Care

- Puts shoes on correct feet

- Puts socks on correctly

- Knows front/back of clothing

- Puts pants on

- Laces

- Zips front (coat/pants)

- Buckles/unbuckles

- Remove shirt

Fine Motor Developmental Milestones

5 Years Old

- Blocks

- Stacks 12+ blocks

- Builds a 6 block mountain or bridge

- Builds airplane (5.5 yr.)

- Drawing/Writing

- Prints first name upper case (5 yrs.)

- Prints first name in upper and lower case (5.6 yr.)

- Dynamic tripod or quadrupod grasp (5-6 yrs.)

- Colors within 1" area (5.6 yrs.)

- Writes 1-20 (5.7 yrs.)

- Copies a triangle (5.3 yrs.)

- Draws a person with 10 body parts

- Imitates a diamond

- Scissors

- Cuts basic shapes (circle, square, triangle)

- Cuts simple art projects

- Proper cutting grasp

- Puzzles

- Complete complex puzzles

- Functional/Self-Care

- Dresses independently

- Ties a knot

- Zips in back

- Buttons 1" buttons

- Buttons small buttons (6 yr.)

What Atypical Development Looks Like

- Atypical development is seen when behaviors fall outside of the normal or the expected range of development. It is important to consider if skills are simply slow at emerging or if they are in fact different in quality, form, or function.
- Examples of Atypical Development in the Classroom:
 - Poor/inefficient grasp patterns
 - Difficulty with activities of daily living: putting shoes on and off, unzipping a coat or backpack, clothing management, holding/using utensils for eating, or managing snacks
 - Poor classroom tool use: difficulty manipulating scissors, crayons, markers, soap dispensers, blocks, paint brushes, puzzles, or glue sticks

Inefficient/Immature Grasp Patterns

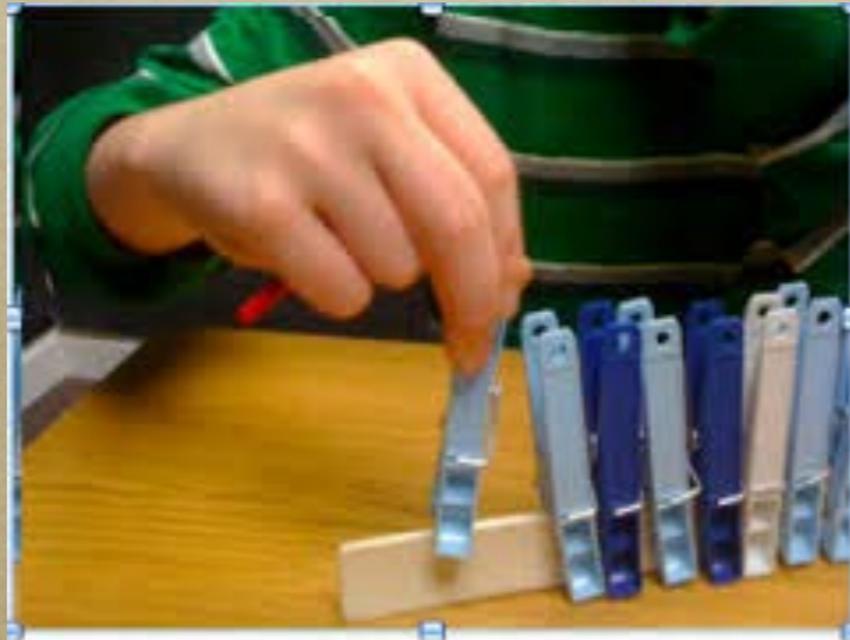


Functional Grasp Patterns



Proper grasp is important for good pencil control. Without a good grasp, a child will fatigue quickly and develop inefficient writing patterns.

Hand Separation



Disassociation of the hand is an important skill for the manipulation of tools such as scissors or pencils

Activities to Facilitate Proper Pencil Grasp

- Provide slanted/upright writing surfaces (i.e. easel) to facilitate functional grasp
- Encourage writing and coloring activities while lying on stomach or propped on forearms to inhibit arm movement and encourage finger use. This also offers an opportunity to build proximal stability.
- Use small pieces of chalk, crayon, pencils (1-2 inches long). This will encourage the child to hold the tool with their fingertips
- Mark the writing tool with tape or an elastic band to remind child where to place fingers



Activities to Facilitate Proper Pencil Grasp

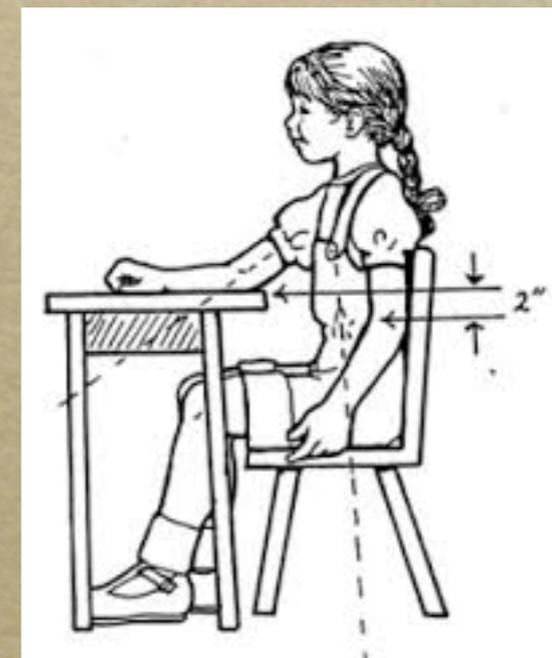
Develop strength and dexterity in the fingers with these activities:

- Squeezing, pinching, poking, and rolling activities in play-doh, clay, or putty
- Use eye droppers or turkey baster
- Pop bubbles in packing material
- Sort and string beads
- Use clothespins/chip clips to clip on objects
- Use sponges (think squeeze/pinch/wring)
- Squirt bottles
- Lacing activities
- Light bright or push pegs
- Buttoning, snapping, nuts/bolts
- Peeling stickers



Positioning for Fine Motor Success

- Seating position is important to provide the stability necessary for fine motor performance, the child should be seated upright with feet supported on ground or stool, elbows and forearms resting on table
- Ideal writing position: 90 degrees at hips, knees and elbows
- If student doesn't have good base of control, they will have difficulty with fine motor skills



Activities to Improve and Develop Scissor Skills

- Use tongs, tweezers, or strawberry hullers to pick up small objects and put in container
- Use water guns and squirt bottles
- Tear paper, crumple paper and glue onto something
- Eye droppers and turkey basters, use with paint, water or air
- Use hand or finger puppets
- Water play with squeeze type containers (i.e. empty ketchup bottles)
- Use clothespins and clip to rim of container
- Glue sandpaper to both sides of a line to help control direction of scissors
- Draw a maze on paper and glue pipe cleaners or yarn along maze to make an obstacle course
- Glue a small toy on scissors and cue child to move toy toward a picture or sticker



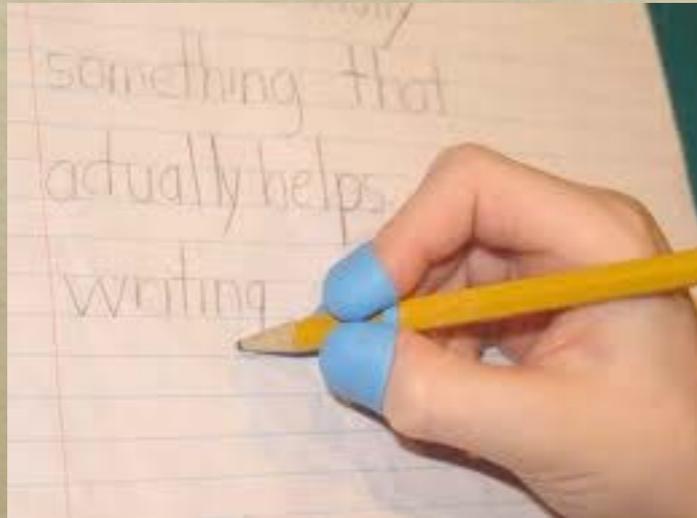
Activities to Encourage Bilateral Coordination

Bilateral coordination is necessary for most fine motor skills, as well as activities of daily living. For example, one hand holds and moves scissors while the other holds paper or one hand writes/colors while the other holds the paper still.

- *Take apart toys (legos, pop beads, duplos)*
- *Rolling play-doh between hands or with a rolling pin*
- *Stringing beads*
- *Tearing paper*
- *Tracing objects*
- *Clapping, action songs*
- *Wheel-barrow walking*
- *Throwing and catching a large ball*



Things that help, when help is needed....



Writing Claw

Hold an object in palm



Lightbulb Grip

Loop Scissors



Standard Grip

Spring loaded scissors

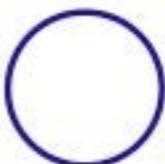


Pre-Writing Skills

- Handwriting cannot be an expectation if these pre-writing skills are not mastered first

PRE-WRITING SHAPES 

Children should be able to form these 9 pre-writing strokes before asking them to write.

				
2 years	2½ years	3 years	3½-4 years	
				
4 years	4½ years	4½ years	4 years 11 months	5 years 3 months

Children who can adequately draw the oblique cross can copy a significantly higher number of letters than little ones who cannot.

Age appropriate activities for 3 year old

- This is where a child's grasp is developing. Manipulative tasks will help to strengthen and develop their grasp.
- Focus on play with small manipulatives such as beads, tweezers, tongs, and blocks, rather than paper/pencil tasks.
- When coloring, use appropriate sized crayons/markers/chalk. For example, broken crayons, skinny markers, or broken chalk.
- Scissor skills are emerging at this age. The only expectation of a 3 year old at this point is snipping.

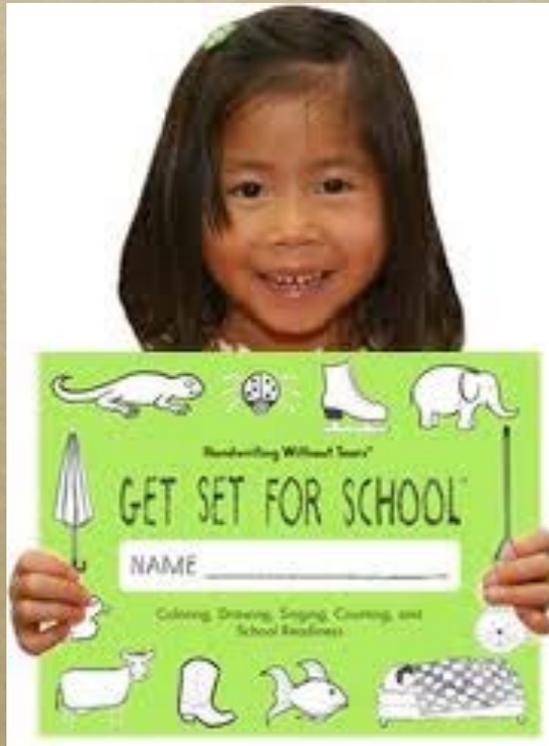


Age appropriate activities for 4-5 year olds

- Expectations for fine motor skills are increasing
- Correct pencil grasp is developing and should be encouraged
- Letter recognition and early letter formation is emerging
- Cutting paper in half, straight lines and curved lines is expected. Cutting simple shapes by age 5 is expected.
- Handedness is also emerging. Child should be using dominant hand for most activities. However, hand dominance is not fully developed until age 6/7.



Handwriting Without Tears



- *Get Set for School Preschool Program:*

This writing program is designed to teach writing in a developmental and multi-sensory sequence. The HWT program follows research that states children learn more effectively by actively doing, and by using their various senses. Focus is on fun and achievement to optimize children's learning.

- *Developmental Handwriting Sequence:*

- *Pre-strokes*
- *Shapes*
- *Capitals/Numbers*
- *Lowercase*



Handwriting in the pre-school setting should be fun without formal demands. Children should be encouraged to explore and learn through their senses.

Self-Care Skills are Developmental!

- Year 2:

- Lifts open cup to drink with minimal spilling
- Unwraps food
- Spears food with a fork
- Uses spoon with minimal spilling
- Takes shoes off
- Able to push arm through sleeve
- Pulls up/pushes down pants
- Removes pants/socks
- Assists with fasteners (pulls zipper up)

- Year 3:

- Removes all clothing
- Puts on Shoes
- Puts on Socks
- Puts on coat
- Unbuttons large button
- Wipes up spills
- Sets table with help

- Year 4:

- Puts clothes on
- Knows front/back of clothing
- Zips coat
- Puts shoes on the correct feet

- Year 5:

- Fixes snacks
- Dresses and accessorizes self
- Independent toiling
- Sets table
- Buttons
- Ties a knot



Fine Motor Readiness Skills For Kindergarten

- Identify and produce basic shapes (+, O, □, △)
- Draw a person and representational picture
- Identify upper and lower case letters
- Use correct and efficient pencil grasp for writing/drawing
- Stabilize paper with the non-writing hand
- Position writing paper appropriately
- Maintain sitting posture for writing/coloring/drawing
- Write their first name
- Copy their first and last name in lowercase combination with assistance

References

Beery, K & Buktencia, N. (1989). Developmental test of Visual Motor Integration. Cleveland: Modern Curriculum Press

Case-Smith, Jane (2001). Development of Hand Skills and Prewriting and Handwriting Skills. In Mosby (Ed.), Occupational Therapy for Children (pp. 289-325, 545-563). Columbus, Ohio.

Myers, C. (1992). Therapeutic Fine Motor Activities for Preschoolers. In J. Case-Smith and C. Pehoski (Eds.), Developmental of Hand Skills in the Child, Rockville, MD: American Occupational Therapy Association, Inc. 47-59

Pape, L., & Ryba, K. (2004). providing Occupational Therpay Services to Preschool Children. In AOTA Press (ed.), Practical Considerations for School Based Occupational Therpists (pp. 209-248). Bethesda, MD