

# Fine Motor Development and Writing



October 24, 2014

Marc Landry OT

[www.marclandry.ca](http://www.marclandry.ca)  
[marclandryot@gmail.com](mailto:marclandryot@gmail.com)



## Agenda

- Make it Fun!
- General Development
- Fine Motor Development
- Development of Grasps & Strokes
- Problems & Solutions
- Fine Motor: Red Flags
- Prerequisites to writing
- Printing-General Teaching Principles
- Cutting



# Make it FUN!! PLAY is RESEARCH!

- ✓ With children, play is the way we to promote development and independence in learning and doing.
- ✓ Natural Engagement builds sub-cortical skills
- ✓ Wider Brain Activation

Major Areas: fine motor manipulation, posture, strength, visual-motor, paper/pencil, organization and attention, self care, and sensory-motor, self regulation



read The Scarfe Papers at [www.marclandry.ca/Marcs\\_Sensory\\_Oasis/Play%21.html](http://www.marclandry.ca/Marcs_Sensory_Oasis/Play%21.html)

## General Development

top to bottom or "cephalo-caudal"  
midline to periphery or "proximal-distal"

Trunk ⇨ Shoulder ⇨ Elbow ⇨ Wrist ⇨ Hand



# Fine Motor Development

Whole Palm Grasp → Refined Finger Pinch



Lateral "Power" Side  
ulnar or pinkie side → Medial "Precision" Side  
radial or thumb side

# Types of Pinches

Lateral



Three-Point



Two-Point

web space may be closed



Tip-to-Tip

open web space

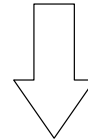


# Fine Motor Development

## Bilateral Coordination

### 1. Hands Perform Same Action

(symmetry)



### 2. Hands Coordinate in "Do and Assist"

(asymmetry)



## Build Foundation Skills First

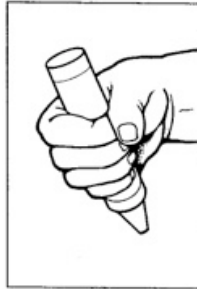
A child is ready for printing when he/she is able to:

1. balance without the use of hands,
2. engage in constructive play,
3. understand up, down, start, stop, big, little, and follow simple spatial directions in 3-D,
4. sit and work for a few minutes at a time,
5. draw and colour beyond scribbling, and
6. hold a pencil in a writing position.



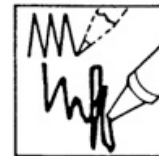
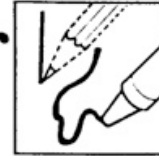
## Development of Grasps & Strokes

1 - 1 ½ years



Fisted Grasp

- Imitating scribbles & strokes
- Spontaneous scribbling
- Whole arm moves as a unit
- Flexed wrist



## Development of Grasps & Strokes

2-3 years

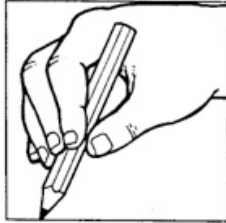


Digital grasp

- Copying | — ○
- Utensil stabilized in palm and moves toward index finger
- Hand and forearm move as a unit
- More refined movement from elbow
- Wrist less rigid

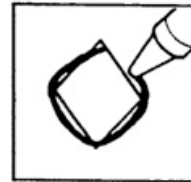
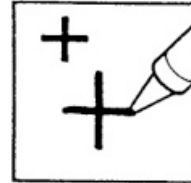
## Development of Grasps & Strokes

3 ½ - 4 years



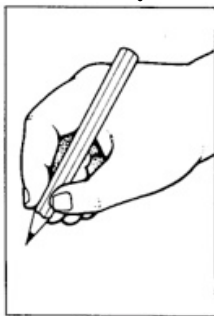
Emerging tripod grasp

- Copying cross
- Tracing diamond with rounded corners
- Movement coming from wrist
- Hand functions as a separate unit from the forearm/mobile wrist
- "Web space" between thumb and index opens up



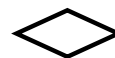
## Development of Grasps & Strokes

4 ½ - 6 years



Tripod grasp

- Copying square, triangle, diamond
- Child begins to separate finger movements from hand/wrist movements
- Wrist moves into raised angle (extension) for increased stability  
(writing on slantboard or easel strengthens this)
- More controlled directional changes
- Thumb controls movement





# Problems and Solutions in Fine Motor Development

Experience

Behaviour

Visual Regard / Attention

Posture

Bilateral Hand Skills

Grasp/Dominance

Hand/Finger Dexterity

Eye-Hand Coordination/Visual-Motor Control



## Experience

Daily experience is what allows us to develop. Our abilities and skills are affected by experience or lack of experience.

*You may notice:*

- Lack of interest in environment
- Easily overstimulated
- Seeks isolation/avoids others
- Chooses passive activities
- Poorly defined "mushy" muscles, especially hands
- Complicated medical conditions
- Poor social/family history
- Documentation of neglect/abuse/deprivation

*You may try:*

- Gradually more stimulating environments
- A withdrawn child might watch other children at play from a gradually decreasing distance.
- Providing deep and firm pressure during play
- Encourage free exploration with hands. Try to vary objects, textures, temperatures, roughness, density.
- Increase touch gradually to include different textures.
- Gradually increase other sensory factors as well, i.e. light, color, sound, etc.

# Behaviour - Sensory/Self Regulation



You may notice:

- Very excitable
- Can't sit still
- Hears everything in the room
- Lack of attention to detail



You may try:

- Explore sensory play
- Use calming factors: low voice, slow movements, organize environment, decrease distractions
- Relaxing music
- Dim lights
- Place hands firmly on shoulders with pressure
- Muscle relaxation, deep breathing
- Read a book in a bean bag chair
- Lean forward on desk with palms on table and bear weight through arms.
- Press palms together
- Place palms over child's and press firmly
- Have child outline plan
- Analyze what is distracting and how to decrease its influence
- model and reinforce sharing

# Visual Regard / Attention

You may notice:

- Looks around room while working
- Hears everything in the room
- Coordinated but poor quality work
- Lack of attention to detail

You may try:

- Look at all the suggestions under "behaviour"
- Add sandpaper or rough masonite under colouring
- Engage in deep pressure/proprioception before fine motor (wheelbarrel walking, hand squeezes, chair sit ups)
- Try shaving cream drawing or play doh before fine motor
- Use bean or rice bins, water and sand play before fine motor
- Brainstorm ways to increase sensory feedback to hands
- Do hand shakes, hand clapping
- Place fine motor work on slant board or easel when possible. (Also supports wrist extension.)
- Have child face away from action
- Use colouring masks made with card stock.



# Posture

You might see:	You might try:
Feet don't touch the floor	<ul style="list-style-type: none"> <li>• telephone books</li> <li>• a footstool</li> </ul>
Leans too close to the desk, hunched shoulders, slumped in chair	<ul style="list-style-type: none"> <li>• stretches</li> <li>• sloped desk top</li> <li>• use a slant board</li> </ul>
Holding onto edge of seat with non-writing hand.	<ul style="list-style-type: none"> <li>• encourage two hands on the table when writing, stickers or numbers on the hands can act as reminders.</li> </ul>
Chair too far from the desk	<ul style="list-style-type: none"> <li>• chair attached to desk</li> <li>• stickers or tape on the floor to indicate where the chair should be</li> <li>• move work from edge of table</li> </ul>



Heel contact with the floor allows for weight shifting as the hand moves across the paper.

Good Pelvis and trunk stability is necessary for hand coordination and grasp to develop.

## Bilateral Hand Skills

### You might see:

- unilateral work
- midline problems
- switching hands

### You might try:

- Transfer objects from hand to hand.
- Catch and/or bounce a ball with both hands, or rolling it between people.
- Batting a ball, holding the bat with both hands. You can use a batting tee, or you can hang a ball from the ceiling or a tree. Use a regular ball/bat, 'wiffle ball', or 'Nerf' type.
- Cut play dough with a butter knife, then use child scissors.
- Cut flattened straws, cardboard or oaktag strips. Try using large nail clippers, then use child scissors.
- Cut a straight line across a 2" wide paper strip, holding the paper in one hand, cutting with the other.
- Cut out various shapes, where both hands work together in cutting. Glue the shapes on paper to create a picture or design.
- Build a tower etc. with blocks, alternating use of right and left hands.
- Separate or put together 'pop beads'.
- String beads. You can use a regular shoe lace, or wrap tape around the end of a lace or piece of string to provide a long stiff tip to fit through beads. Or try plastic lace (gimp) from Tandy or Michaels.
- Lace shoes or cards with designs/pictures outlined with punched holes. The child can punch the holes, too, using a punch, push pin, or nail.
- Start a work board where the child can practice nailing into soft wood.
- Play construction games (Legos, Lincoln logs, etc.). Cut and paste activities are also good.
- Play with water or sand. Use scoops or cups to fill containers and pour or build.
- Play floor hockey or street hockey. Try it with a ball and plastic bats or brooms.
- Play 'Simon says' or learn and perform a clapping pattern. Let the child lead too!
- Play 'hot potato'.
- Have the child mix batter while using the other hand to turn the bowl.
- Use a rolling pin.
- Perform jumping jacks and similar coordinated movements.

## Hand Dominance

- Having a dominant hand allows one side to develop greater precision and speed while the other side builds more strength and stability.
- Dominance usually established by 12 months, but may emerge later.
- Child usually starts activity with dominant hand when working at midline.
- Child is usually faster on dominant side.
- Child often has more mature or more precise grasp in dominant hand.
- Once you know dominance, discourage hand switching. Use "Sensory Breaks" instead.

## GRASP

Children should be encouraged to manually explore all aspects of their environment. The development of manipulative grasps can be enhanced through a variety of activities involving reaching with the arms, grasping with the fingers, and manipulating in/between hands. It is important for children to develop their skills in terms of general manipulation and with tools. Coloring and drawing are great activities for kids in terms of grasps necessary for writing. Drawing in the sand, snow, or mud are great, as is drawing with sidewalk chalk, or on an easel with paints. **Small pieces of crayon actually encourage a strong and neat fingertip pinch.**

<b>You might see:</b>	<b>You might try:</b>
Lack of accuracy	<ul style="list-style-type: none"><li>• rest forearms on table for stability</li><li>• lean forward increasing weight through forearms</li><li>• be sure materials are not too close or too far away</li></ul>
Poor isolation of fingers	<ul style="list-style-type: none"><li>• hold items in space to encourage fingertip grasp</li><li>• stand items up on end, stick in putty</li></ul>
Awkward reach and manipulation accompanied by poor posture	<ul style="list-style-type: none"><li>• try alternative postures: prone, standing, kneeling</li></ul>
Poor wrist stability	<ul style="list-style-type: none"><li>• wrist support, splint, try a different arm/forearm posture</li></ul>
Generally weak grasp patterns	<ul style="list-style-type: none"><li>• provide ample opportunities for manual play, including fun and developmentally appropriate activities (see Building Readiness)</li></ul>

## Hand/Finger Dexterity

### You may see:

- Larger, less refined movements
  - Immature or awkward movements
  - Fidgeting
  - Dropping
  - Increased frustration with building and copying tasks
  - Difficult with smaller more refined movement
  - Child can't color well between lines
  - Child cannot copy shapes or pictures
- Teach colouring in small circles. Model all directions as well as turning paper.
- Colour with small bits of crayons. Use wikki-stix or raised glue borders to encourage targeting
- Save money! Use a bank or decorate a coffee can with a small slot in the plastic cover. Open to count every now and then, then see who can insert the coins fastest. Line up the coins on a table and have the child flip them to all heads or all tails. Challenge the child to pick them all up in one hand, one at a time, holding them in the palm without dropping any.
- Practice turning a wind up toy. Try the large 'key' then the small 'knob' types.
- Play with finger puppets. Have the child wear different puppets on different fingers of the dominant hand and make the puppets interact.
- Modify the above by using a dab of different color paint on each fingertip. Have the child make certain colors meet, do circles, play 'Simon says' etc. Or repeat tapping sequences with those fingers. Or name a color and have the child extend only that finger and wiggle it.
- Operate a squirt bottle or water pistol.
- Practice spelling the alphabet in sign language. The library has books which contain the alphabet...learn together to form a code!
- Use modeling clay, silly putty, play-dough, etc. Use cookie cutters to make objects or shapes. Roll it out, poke holes in it with fingers, pinch it, pull it, twist it, etc. Roll it into a snake, then use it to form shapes, letters, pictures, etc. Hide small objects/coins in a ball of it and have the child find it.
- Roll putty or dough into small balls, using one hand, to make beads.
- Practice having the child hold 3-5 paper cups in one hand, using a finger in each cup. Start out empty, then half full, then full. Have a race with filled cups!
- Use small stamps and stamp pads to create patterns, cards, pictures, etc.
- Tear small pieces of tissue paper, then roll each piece into a ball using thumb and index finger. Make a picture and glue the little balls in place for 3-D art.
- Turn over checkers, cards, or coins, without sliding them to the edge of the table.

**APP STORE - Dexteria, Bugs & Buttons, Crayola Apps**

## Eye-Hand Coordination or Visual-Motor Control

### You may see:

- Larger, less refined movements
- Fidgeting
- Increased frustration with building and copying tasks
- Difficult with smaller more refined movement
- Immature or awkward movements
- Dropping
- Child can't color well between lines
- Child cannot copy shapes or pictures

### You might try:

- Play bean bag games and practice tossing from right to left hands.
- Use 'hidden pictures', mazes, dot-to-dots, "what's wrong with this picture". Many childrens' activity books contain these activities with motivating themes.
- Construct a design with blocks, pegs, etc. Have the child copy the same design.
- Copy a design on 'Lite brite'.
- Play card games or matching games.
- Video games are good for control, finger speed, and directionality.
- Sort cards or small objects, beads, nuts and bolts, etc.
- Play 'flashlight tag'. Using 2 or more flashlights (1 per person), have the child follow the beam of light .
- move objects in or out of a container. This can be helpful in cleaning, cooking, sorting buttons, hardware, etc.
- Stack blocks, rings, containers, etc.
- Place pegs in a pegboard, free form or to copy a design.
- Screwing nuts onto stationary bolts.
- Dialing a telephone (with supervision).
- Use erector sets and other toys you build with.
- Lacing cards, or lacing string through holes punched in cardboard.
- Bounce and catch a ball. Start with a larger ball and work smaller. At first, have the child bounce the ball in front of him/herself and catch with 2 hands. Go to 1 hand catching or bouncing the ball between 2 or more people.
- Try balloon games. Play volleyball, catch, 'keep away' or 'don't let it hit the ground'. Try a tiny bit of flour inside
- Have an egg and spoon race.
- Tie a magnet to a piece of string and fish for small objects on a plate, on the floor, etc.
- Play a 'nesting' game to fit graded measuring cups or spoons inside one another.

**APP STORE - Balloon Darts, PictureD2D, My First Maze**

## Readiness for Writing - More Visual-Motor

The following activities are intended to build pre-writing skills. These involve fine motor control, eye-hand coordination, and spatial perceptual skills as well, but are geared more to develop the grasp, concepts, and patterns used in writing.

- Trace designs with pencil/marker.
- Copy designs with pencil/marker.
- Working left to right on large piece of paper, create a flowing design (waves, zig-zag) and have the child try to trace along the path.
- Do **rainbow writing**. Draw a word, letter, shape or picture. Have the child trace it with one color, then another, then another, etc. This is a great way to help a child remember a shape, letter, word, or name.
- Finger paint.
- Form shapes, letters, and numbers, using a stick in the sand, mud, etc. Also try sidewalk chalk.
- Use a paintbrush with plain water to paint a design on the road, sidewalk, brick wall, or the house.
- Use your fingers to make shapes, letters, and numbers on a surface covered with shaving cream, pudding, finger paint, sand or mud.
- Use a wand with a streamer or ribbon at the end to form shapes etc. in the air.
- Coloring is great. Some books are very easy and some are very hard.
- Again, dot-to dots, mazes, etc. are great.
- Use beans, rice, acorns, seeds, etc. to draw and fill in a picture, using glue.
- Magna Doodle or Etch-A-Sketch are good pre-writing fun.
- Practice using stencils. There are the kind you trace on the outside and easier ones that you trace along the inside of a cut out.
- Paint, color, draw on paper taped to a wall or on an easel. Good for arm/shoulder/trunk strength.
- Paint a design on a piece of wood or a rock.

**APP STORE - Drawing for Kids, How To Draw**

## RECIPES FOR FUN!

### PLAY-DOUGH

Mix 3 cups water and food coloring in a bowl. In a separate bowl, mix 3 cups flour, 1.5 cups salt, and 2 tablespoons cream of tartar. To this mix, add 6 tablespoons of oil or crisco. Now mix the contents of the 2 bowls together. Cook over medium heat until mixture reaches the consistency of mashed potatoes. Let cool and knead with hands. Store in airtight bag or container. Will keep longer if refrigerated after use.

### TEXTURED FINGERPAINTS

Add rice or sand to fingerpaints or thick paint to provide extra texture and tactile input. Or mix 1 cup laundry starch, one cup cold water, and 3 cups of soap flakes.

### BAKER'S CLAY

4 cups flour      1.5 cups water      1 cup salt  
Mix and knead ingredients. If it's too stiff, add more water. Shape into whatever you want. Bake in 300 degree oven 1 hour or until hard. When cold, paint and decorate. To preserve, spray with shellac. To keep unused dough moist, store in plastic bag or airtight container.

### PAPIER MACHE

2 bowls                      cloth  
warm water              flour  
old newspapers              mint oil

Papier mache pulp is easy to make and fun to use. First, tear up the newspaper into small pieces, about 1 inch. (You can tear the paper into strips and have the kid(s) tear it into 'confetti' bits.) Put all the paper bits in a large bowl and soak in warm water for at least an hour. Then, empty water and put paper in a cloth. Close the corners and squeeze out as much water as you can. Put the 'pulp' in the bowl. In the other bowl, add 2 large spoons of flour with enough water to make a paste (like slightly thin oatmeal). A few drops of oil helps to keep your work from cracking when dry. Mix the paste and the pulp together and you're ready to go. The pulp can be handled and molded like clay to make animals, buildings, trees, people, etc. You can use a form such as a balloon, bag, etc. to make larger items like masks or pinatas and other large projects.

# Fine Motor Red Flags

- Avoidance of fine motor tasks
- Delayed emergence of hand dominance
- Not crossing midline
- Ignoring one hand (bilateral hand use)
- Lack of progression with grasps
- Excessive problems in any of the above areas



## Posture Preparation

Here's a warm up that's great for posture and a positive attitude.



Push palms



Pull hands



Hug yourself tightly



Reach high, one hand, then other  
Reach - make circles in the air



Pull up on chair



\* Stack your blocks

\* BLOCKS  
HEAD  
SHOULDERS  
HIPS  
KNEES  
FEET



Assume an outrageous posture



Stack your blocks again!

\*Thanks to Jacque Schraasma,OTR for ideal

# Getting Ready To Write

## Writing Instruments

Thick vs. Thin shaft

use thin when it does not regress grasp

Long vs. Short shaft

use short when fisting is rigid

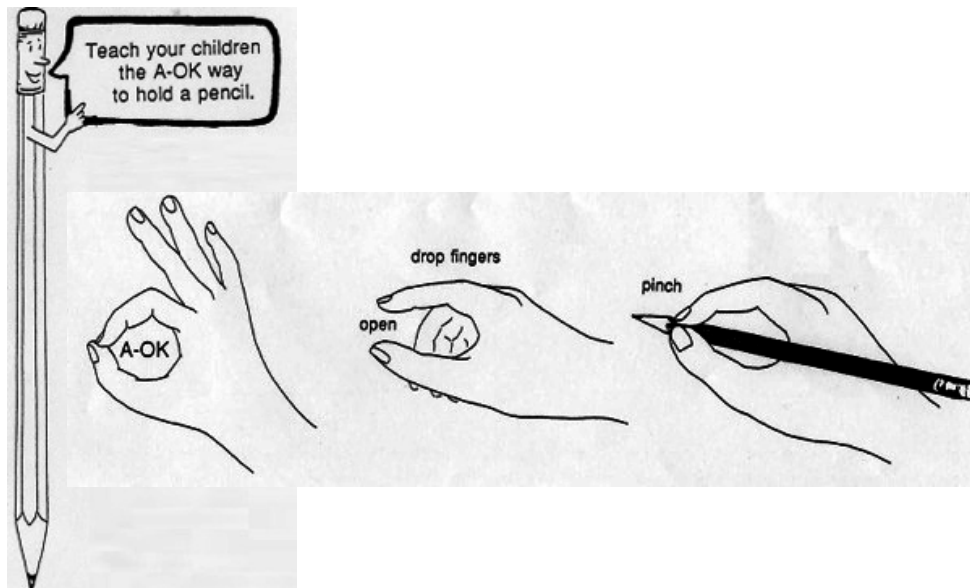


Mechanical Pencils, Markers, Crayon bits, etc.



# Getting Ready To Write

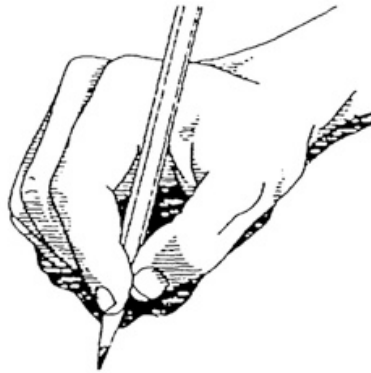
Teach your children the A-OK way to hold a pencil.



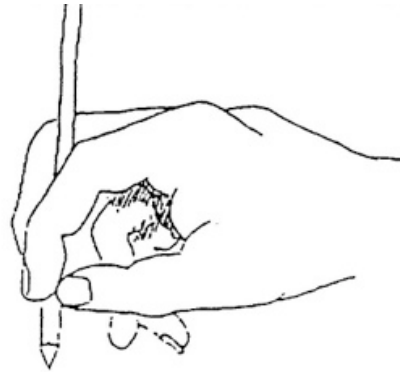
# Getting Ready To Write

## Grasp

### Efficient Grasps



Dynamic tripod



Architect's grasp

# Getting Ready To Write

## Grasp

### Inefficient Grasps



Thumb wrap



Supinate  
- wrist is hooked



Quadrupod  
- 4 fingers on pencil

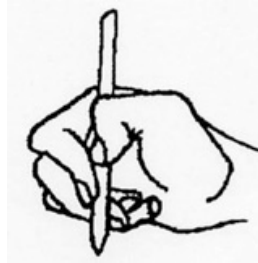
# Getting Ready To Write

## Grasp

### Uncomfortable Grasps



Modified tripod -  
long finger below index



Modified tripod -  
with closed web space

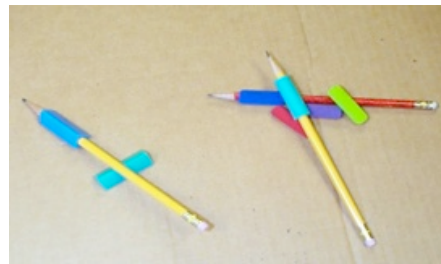
Fingers work against thumbs, joints bend back, hands tire

## Using Pencil Grips

Sometimes, a 'grip' is placed on a pencil to assist with correct grasp. This is generally a temporary measure to help the child learn. For some children, the added feel or visual prompt continues to promote a good grasp.

Some, like the foam sleeves (right) provide a soft visual cue and help when children hold the pencil too far up or down on the shaft of the pencil. They act as a visual target for finger placement, just as a piece of tape or rubber band would.

Others, like the blue triangle grip (above left) actually help to separate the fingers and thumb so they do not overlap each other and get in the way of smooth, effortless writing.

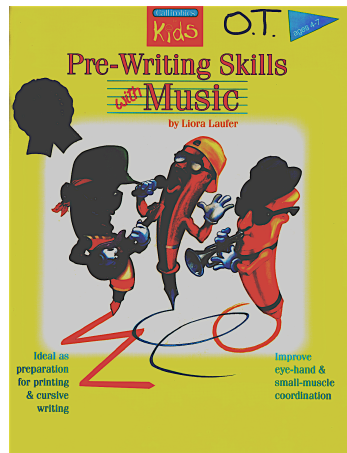


The best way to start is with the twist'n write pencil (above) which establishes a motor memory of a good grasp, and strengthens thumb.

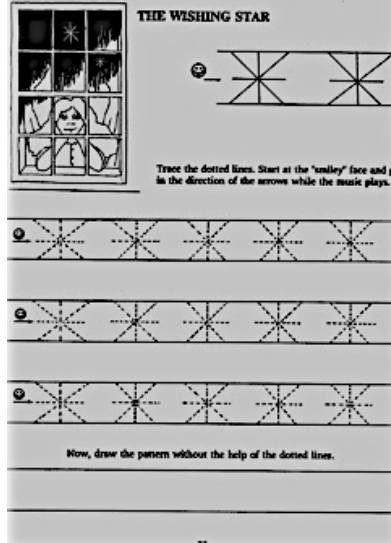


# Callirobics

## Pre-writing skills with Music



### EXERCISE # 5



[www.callirobics.com](http://www.callirobics.com)

# Getting Ready To Write

## Types of Paper

Unlined - no guide for letter placement, facilitates simple motor memory

Lined - challenges space and position

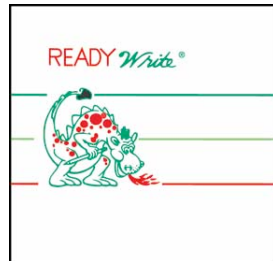
Interlined paper - dashes between lines of paper  
provides visual cue for letter alignment, look at different styles

Raised lined paper - provides tactile cue to keep letters on the  
baseline, also in different formats

# Getting Ready To Write

## Types of Paper

Coloured lined paper - provides visual cue of where to start and stop letters



PrintWrite® &

Ready Write® Paper -

<http://www.kurtzbros.com/index.jsp>

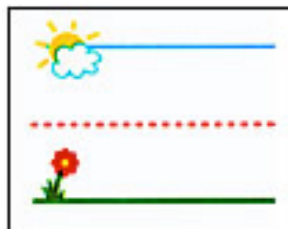
look under "paper"

# Getting Ready To Write

## Types of Paper

Smart Start Writing Paper & Raised Line-

<http://shoponline.pfot.com/writingclassroom-ss3.htm>



**For all types of paper, also consider:**

width between the lines of the page

boldness of the lines of the paper

# Getting Ready To Write

## Paper Position

Why slant the paper?

1. Enables hand to slide more freely along paper.
2. Enables the child to see what is being written.
3. Prevents smearing of writing.

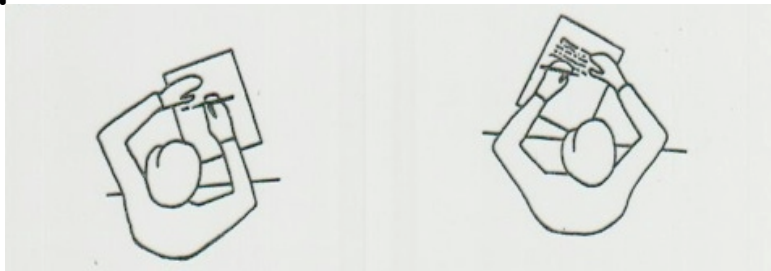
## Non-Writing Hand

What does it do?

1. It is not stuck in one place but moves freely to adjust the paper, moving it closer to the writing hand or out of the way.
2. It is flat but not still to promote relaxed writing.
3. It encourages good sitting posture.

# Getting Ready To Write

## Paper Position



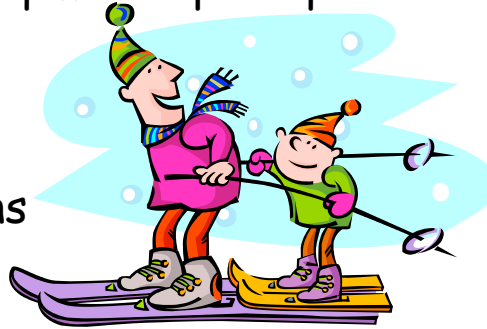
Right handed  
angle the paper 20-30° to the left  
right corner is higher up, left  
corner at midline

Left handed  
angle the paper 20-30° to the  
right, left corner is higher up, right  
corner at midline

\*\*\*The writing tool is held below the writing line and the wrist is in neutral alignment

# General Teaching Principles

- Larger to smaller
- Work according to developmental principles
- Consistency
- Group by formation
- Short, frequent sessions
- Multisensory approach



# Performance/ Output

(Motor Learning & Motor Memory)

- ✓ Gradually introduce the activity and add steps in graded sequences.
- ✓ Don't break an activity into too many steps.
- ✓ With daily practice, motor skills often become automatic.
- ✓ Once motor memory is established, speed and efficiency also improves. This is because conscious thought is no longer required to perform the movements within the task!

# Printing/ Written Output Really Writing!

If students demonstrate readiness, it makes more sense to teach  
lower case letters first

**Lower Case Letters**  
(Grouped by formation)

l h b k t f  
i r n m p j u  
c a d g q s e o  
v w x y z

**Upper Case Letters**  
(Grouped by  
formation)

F E L H T I  
D P B R J U  
O Q C G S  
V W M N A K X Y Z

## The "Box & Dot" Worksheet

for practice after teaching

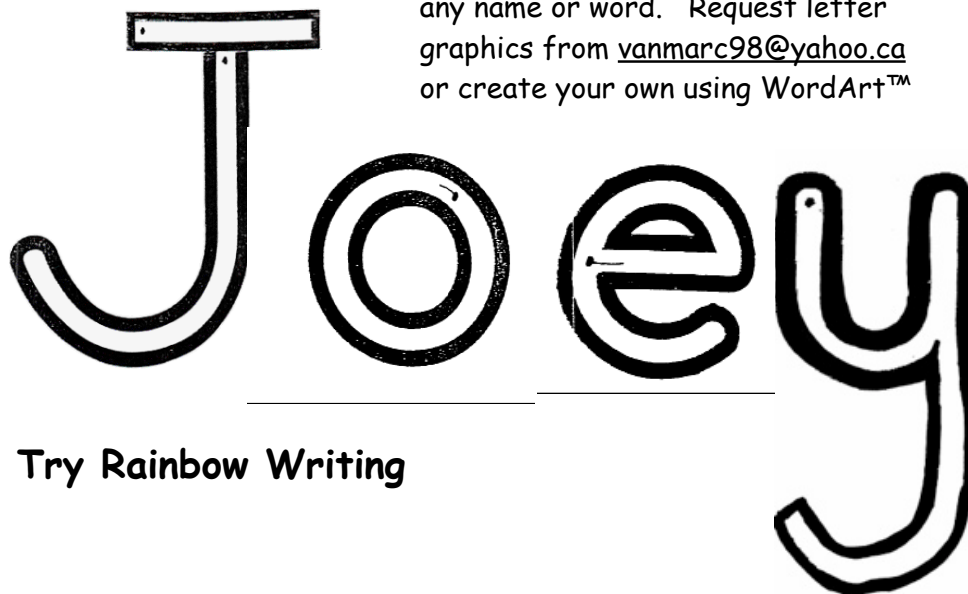
**Figure 1. Lower Case Printing, Box and Dot**

Student Name: \_\_\_\_\_ *START ON THE*  
Date: \_\_\_\_\_ *DOT.*

a b c d e f g  
h i j k l m n o p  
q r s t u v w x y z

# Letter and Name Paths

You can rearrange the letters to create any name or word. Request letter graphics from [vanmarc98@yahoo.ca](mailto:vanmarc98@yahoo.ca) or create your own using WordArt™



Try Rainbow Writing

# ITCHY'S ALPHABET



Related Apps:  
Little Writer  
Pocket Phonics  
i write words

# Cutting Skills

## Pre-requisite skills

1. Ability to open and close hand
2. Ability to use both hands together
3. Ability to isolate and/or combine the movements of the thumb, index and middle fingers
4. An awareness of how objects relate to one another
5. Ability coordinate arm, hand and eye movements



## Developmental Stages of Cutting

1. Shows interest in scissors
2. Holds scissors with fingers in correct holes
3. Opens and closes scissors in a controlled fashion
4. Holds paper with non-dominant hand
5. Makes snips or single cuts
6. Manipulates scissors in a controlled fashion One hand stable, one hand mobile
7. Coordinate lateral direction of scissors
8. Cuts forward in a straight line
9. Cuts simple geometric shapes
10. Cuts simple figures



### **Maped™ Koopy Scissors**

Special, self-opening scissors can be obtained for children with more difficulty.

With these scissors, the child only needs to squeeze the scissors shut.

The more difficult extension is assisted by springing action, which can be quickly turned off after ample practice. (Once the kid gets the pattern, turn off the spring, and the child may repeat the practiced motor pattern, strengthening it.)

# Cutting Issues

## **POSSIBLE PROBLEMS**

- Difficulty controlling direction of cutting
- Difficulty orienting paper
- Poor body position when cutting

## **POSSIBLE SOLUTIONS**

- Place stickers or coloured tape on paper
- Glue popsicle sticks parallel to each other on a sheet of stiff paper. Child cuts between the sticks.
- Hold paper while student cuts
- Hand over hand assistance
- Demonstrate and explain where to hold paper
- Verbal cues while student cuts
- Ensure appropriate size table and chair
- Some do better resting forearm or wrist on table.
- Others do better away from table, with elbows tucked close to body.
- Hold scissors perpendicular to floor.

# Resources

[www.Schoolspecialty.ca](http://www.Schoolspecialty.ca)

[www.flaghouse.ca](http://www.flaghouse.ca)

[www.fdm.ca](http://www.fdm.ca)

[www.therapro.com](http://www.therapro.com)

[www.pfot.com](http://www.pfot.com)

<http://collinseducationalsupplies.com/collinsedu/>

[www.rehabmart.com/category/Pediatric\\_Fine\\_Motor.htm](http://www.rehabmart.com/category/Pediatric_Fine_Motor.htm)

[www.pattersonmedical.com/](http://www.pattersonmedical.com/)

[www.pediatrictherapynetwork.org/catalog/distributors.cfm](http://www.pediatrictherapynetwork.org/catalog/distributors.cfm)

[www.superduperinc.com/](http://www.superduperinc.com/)

[www.wikkistix.com](http://www.wikkistix.com) (made with petroleum, can leave hard to remove residue on hands)

**Great West Wholesale Ltd** 1670 Pandora St, Vancouver 604-255-9588  
enter from alley between Franklin & Pandora (\$200 min purchase for non profits or groups)