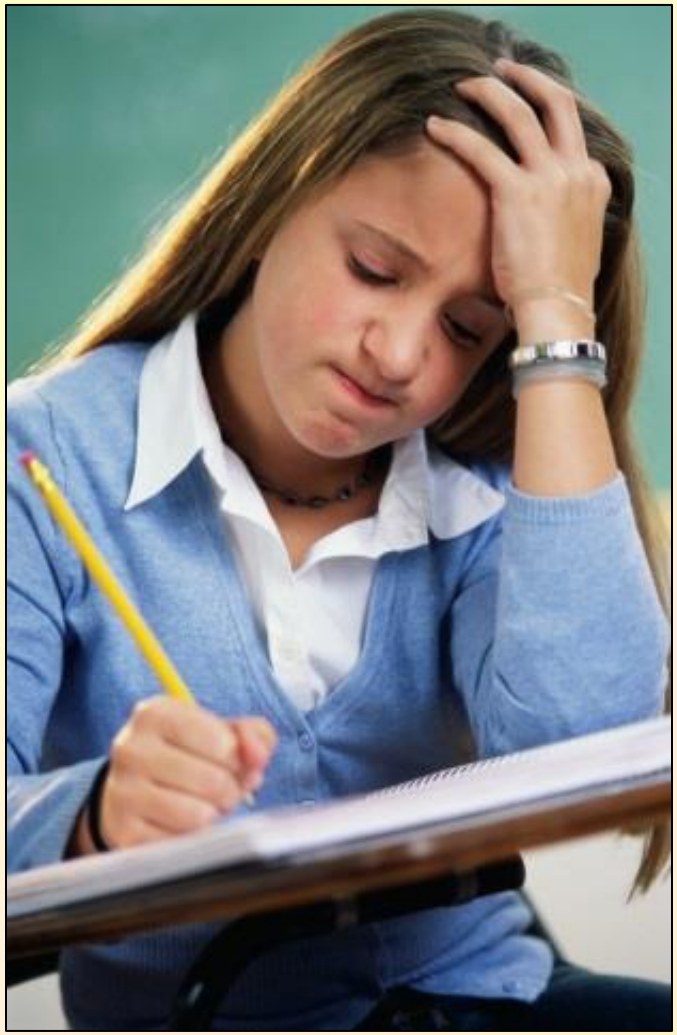
DYSGRAPHIA

By Maria Sargent

www.neuro-teach.com

What is Dysgraphia?

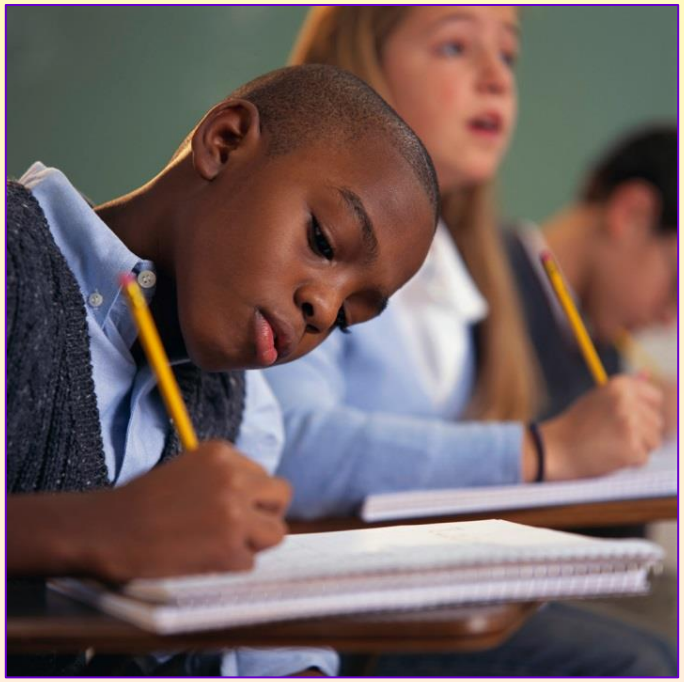


Dysgraphia is a processing disorder that affects a student's ability to put thoughts into writing.

Signs of Dysgraphia

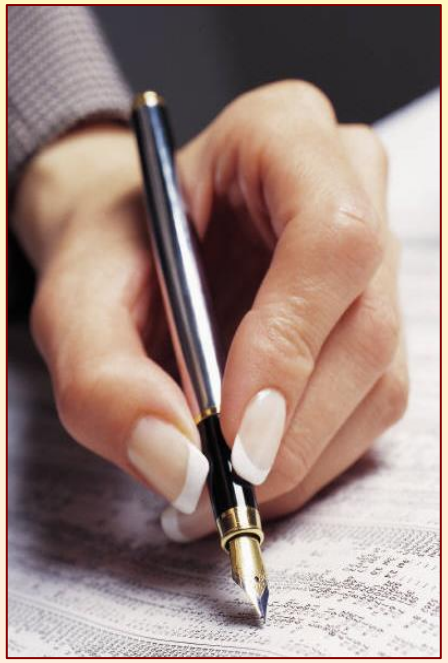
1. Sloppy and/or illegible handwriting
2. Slow or fast writing speed
3. Changing from print to cursive and back again
4. Unusual pencil grip
5. Poor spelling (may not even be phonetic)
6. Oral answers higher than written
7. Fatigue or hand pain
8. Avoiding writing (and possibly fine motor tasks)

Surprising Thing About Dysgraphia



1. **Only handwriting may be affected**
2. **Other fine motor skills may be excellent**
3. **Often seen in students with high cognitive skills**

The Mature Adult Grasp

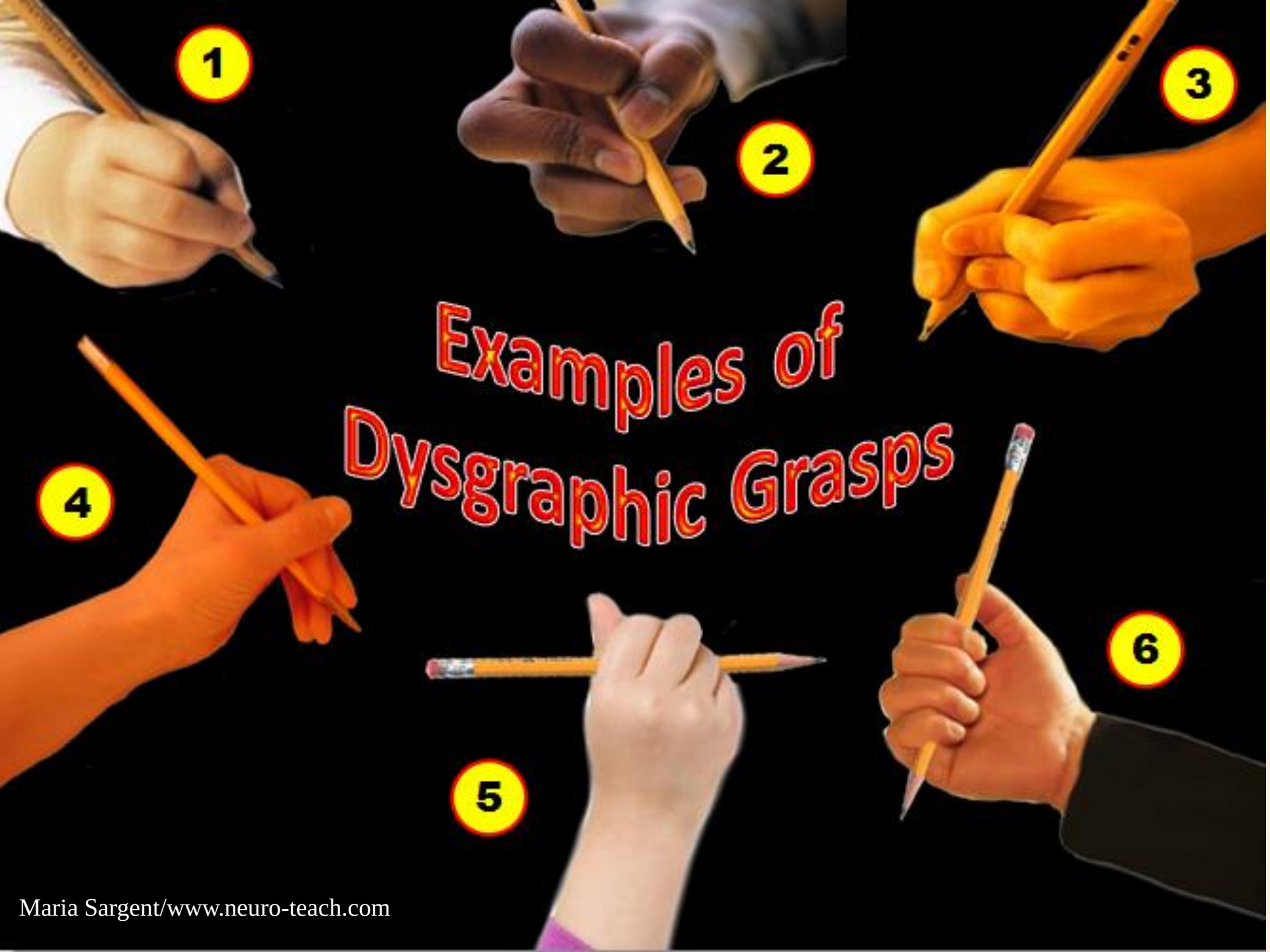


- Thumb on top
- Index finger on side
- All other fingers supporting against paper
- Top thumb & finger are centered; hand is relaxed

The Biggest Mistake Teachers Make

- Motor control develops from shoulder → fingers; mature grasp uses the fingertips
- Children with Dysgraphia bring their grip back into the palm or wrist to gain control
- …But pencil grips force them to use their fingertips
- Only use grips for typically developing students!

Abnormal grips are a SIGN of a problem not the CAUSE of the problems…



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Formal Diagnosis

- **Physicians, occupational therapist, school psychologist and teachers may all be involved in assessment**

- **Assessment may include:**
  - ___writing process
  - ___finger-tapping speed
  - ___hand strength
  - ___wrist flexibility
  - ___tremor detection
  - ___pencil grip
  - ___body posture
  - ___handedness
  - ___behaviors (i.e. fatigue, task avoidance, pain)
  - ___eye-hand coordination and related skills
  - ___visual perception and other skills

The Three Types of Dysgraphia

Form of Dysgraphia	Source of Problem	Ability to Write Spontaneous Material	Ability to Copy Material	Ability to Spell	Other Fine Motor
Dyslexic Dysgraphia	Neurological Processing Disruption	Poor	OK	Poor	OK
Motor Dysgraphia	Motor Processing Disruption	Poor	Poor	OK	Poor
Spatial Dysgraphia	Visual-Spatial Processing Disruption	Poor	OK	OK	Varies

General Classroom Strategies to Support Writing Skills

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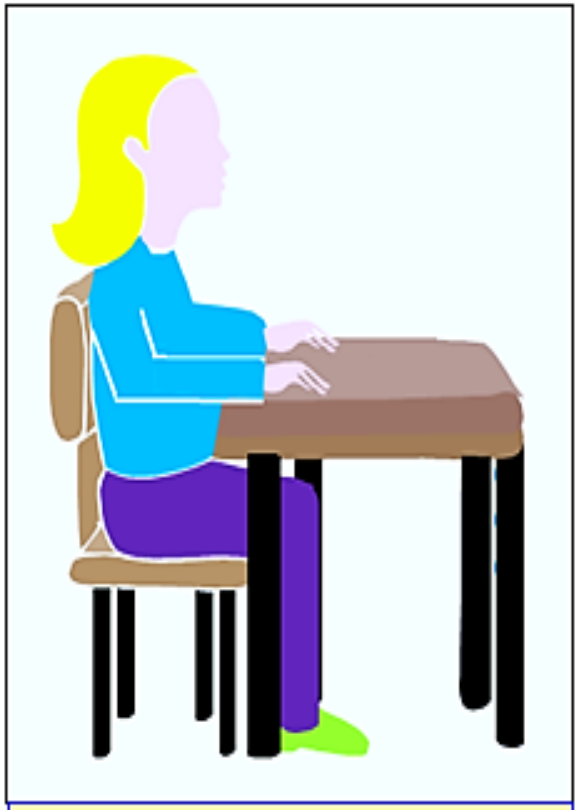
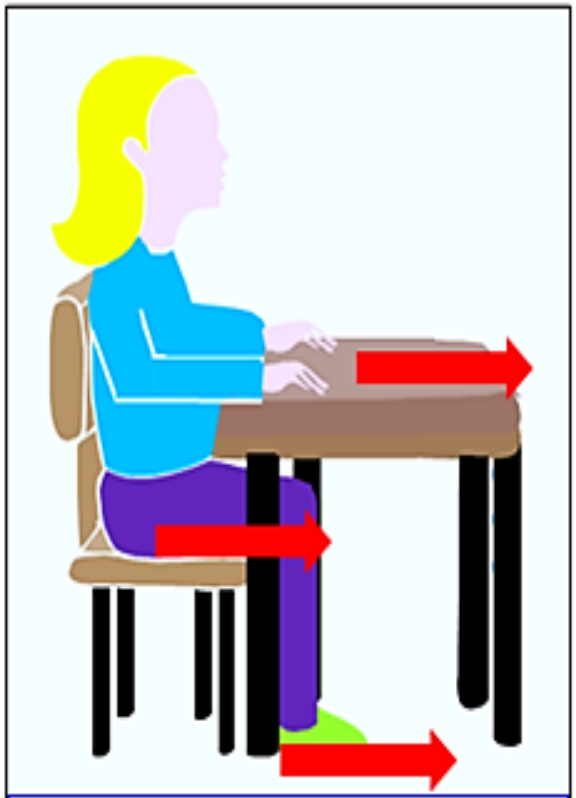
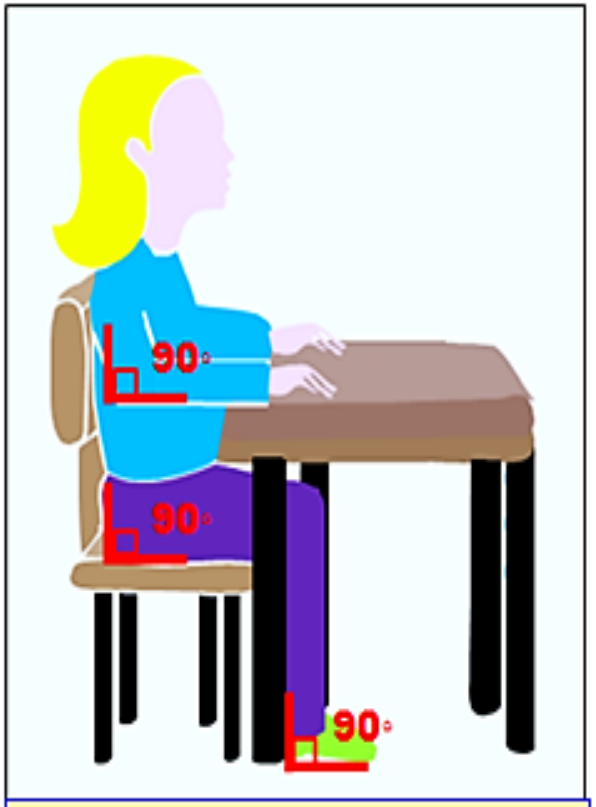
1. Proper Posture



Make sure student is in a good position...



Are arms, legs and feet flat and pointing forward?

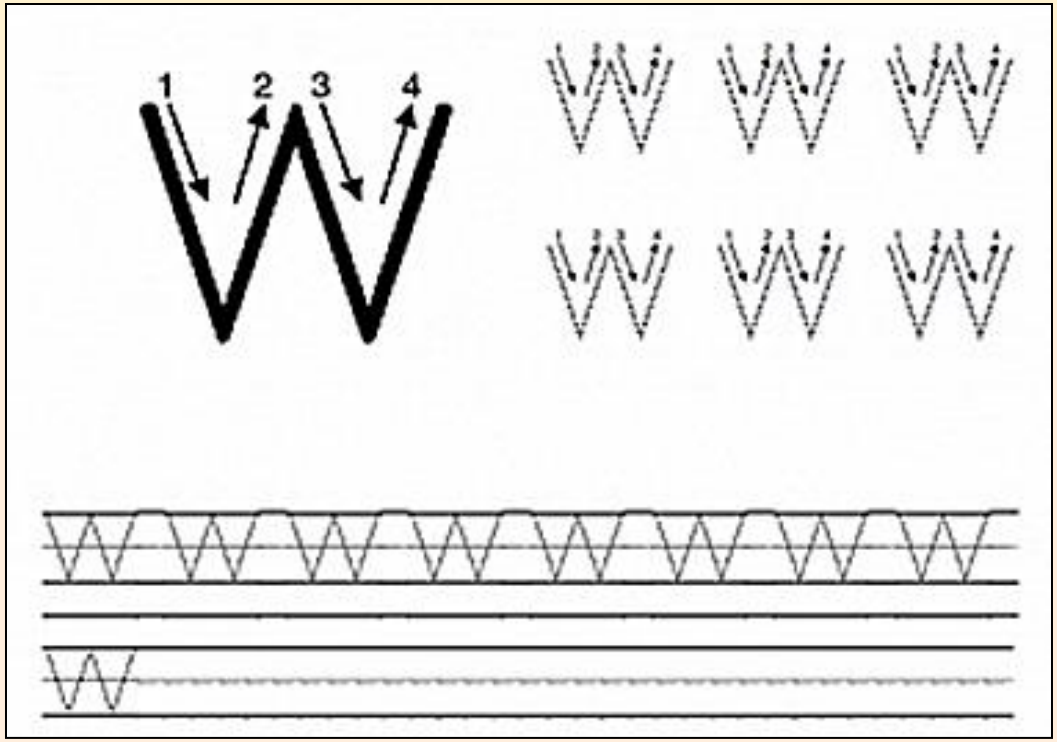


Are elbows, bottom and ankles forming square angles?

2. Differentiate Writing Instruction

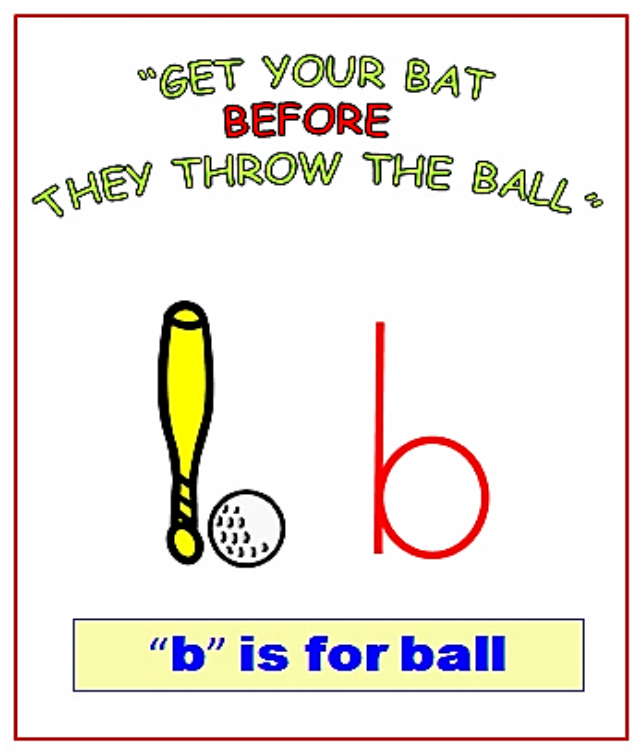
Visual Learners

- Use the typical writing curriculum.
  - Model basic strokes
  - Will learn with practice



Auditory Learners

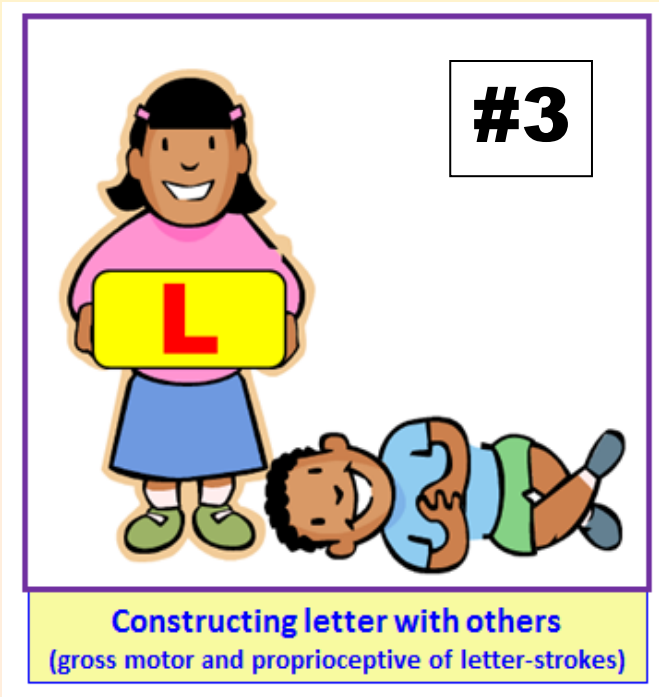
- Focus on the verbal sequence.
- Use rhymes or chants that teaches letter formation
- Use novel and humorous ways to hold the concept in mind!



2. Differentiate Writing Instruction

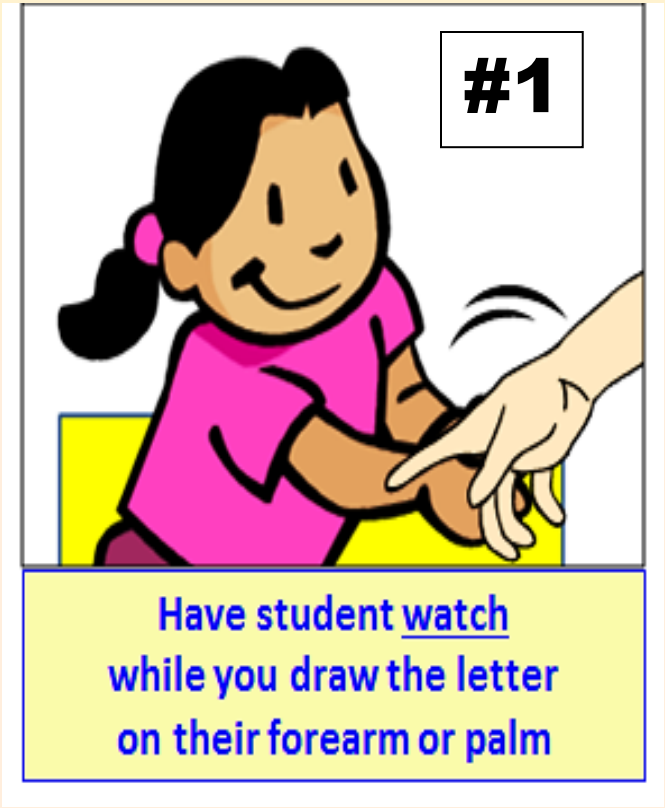
Kinesthetic Learners

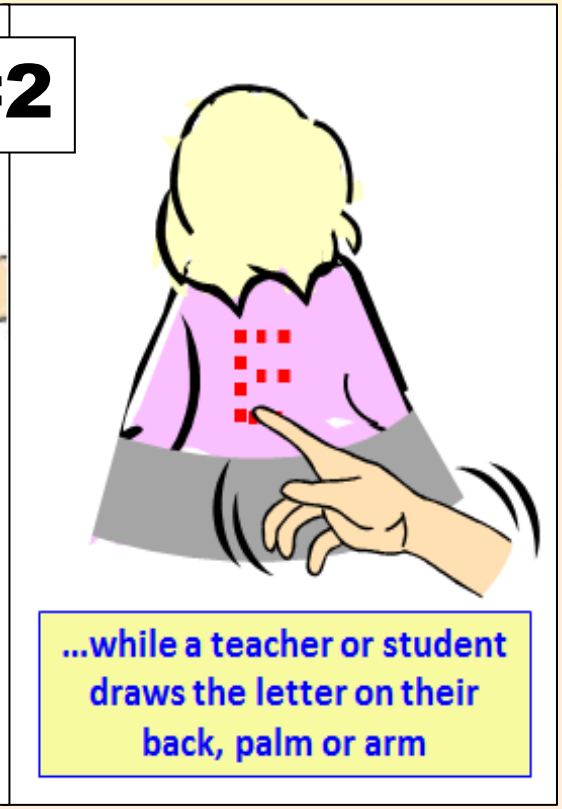
- Use motor skills
- Develop "body-memory" of letter formation



Sensory Learners

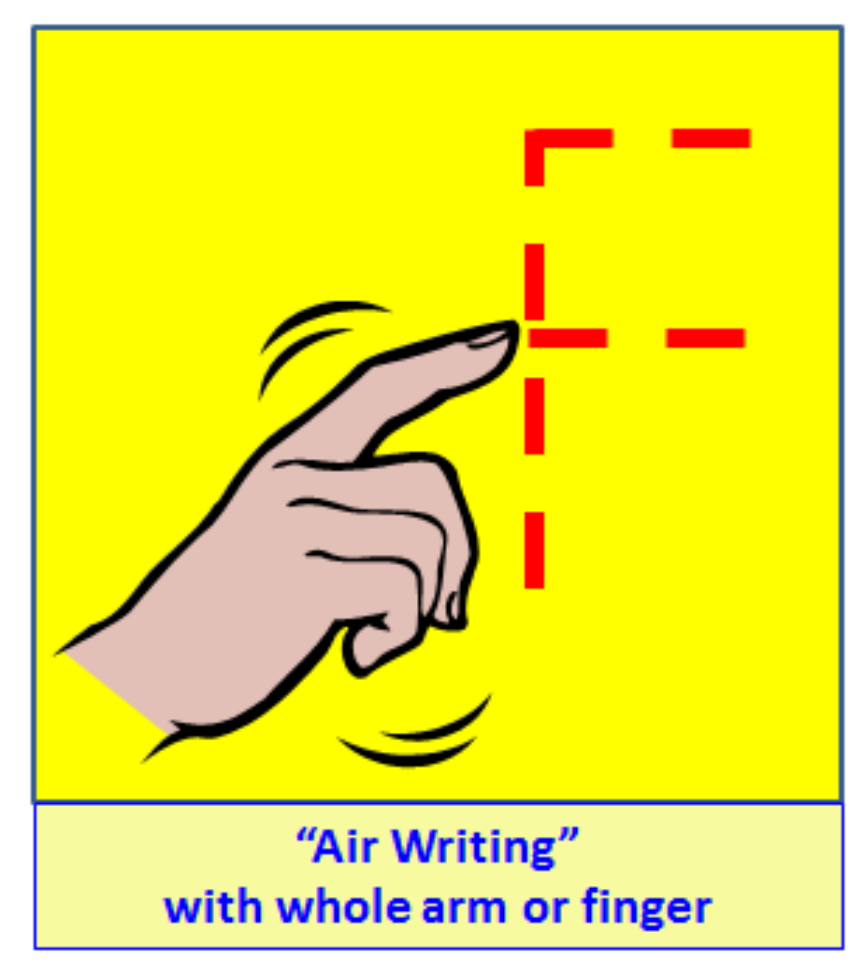
- Use sensory skills
- Develop "sensation-memory" of letter formation





3. Provide "Non-Writing" Opportunities to Write

- Write answers on desk or carpet when peer is answering
  - Use Air-Writing



Strategies for Students with Dysgraphia

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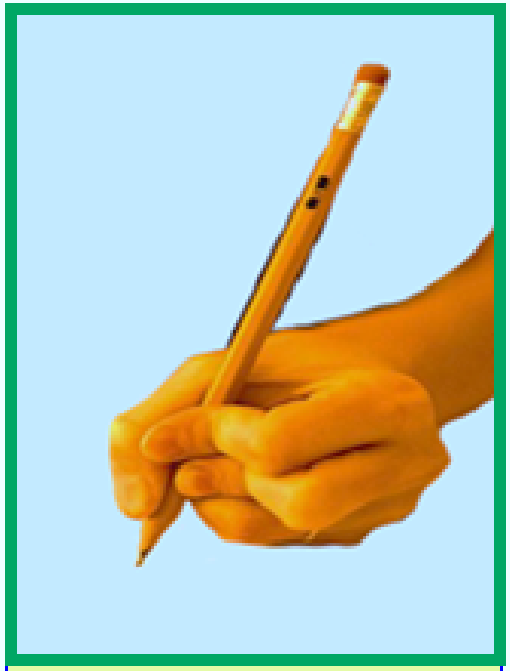
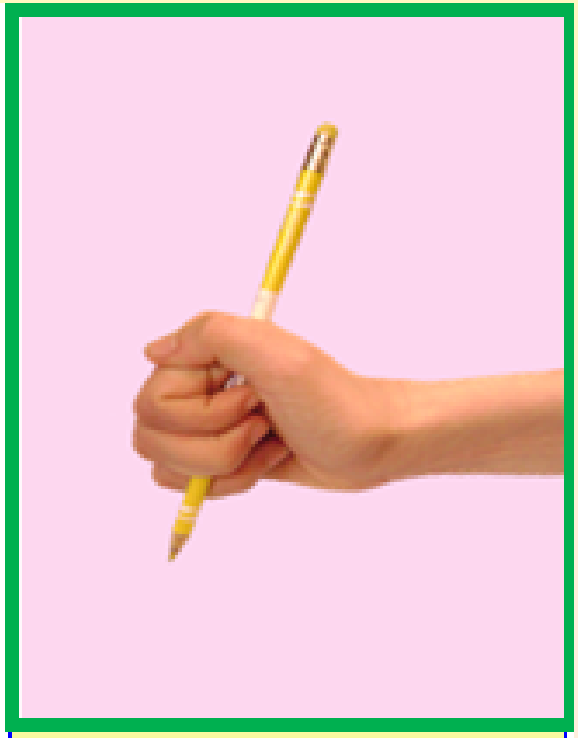
1. “Move” Writing Back into the Hand or Wrist

“Mature Adult” grip gives control all the way through the fingertips



“Immature Adult” grip (2-3 fingers on top) moves control back into the top of the fingers



Various forms of Dysgraphic grips move control back into the wrist

1. “Move” Writing Back into the Hand or Wrist

- **So purposely develop this form of grip and see how it works!**

Place the pencil between the first two fingers ....

...and then close hand over pencil at height comfortable to the student

2. Retrieve Memory PRIOR to writing

Air Writing

- Write answer in gross motor prior to fine motor

Retrieve memory by writing
in the air or on leg, palm or desk.

Auditory Retrieval

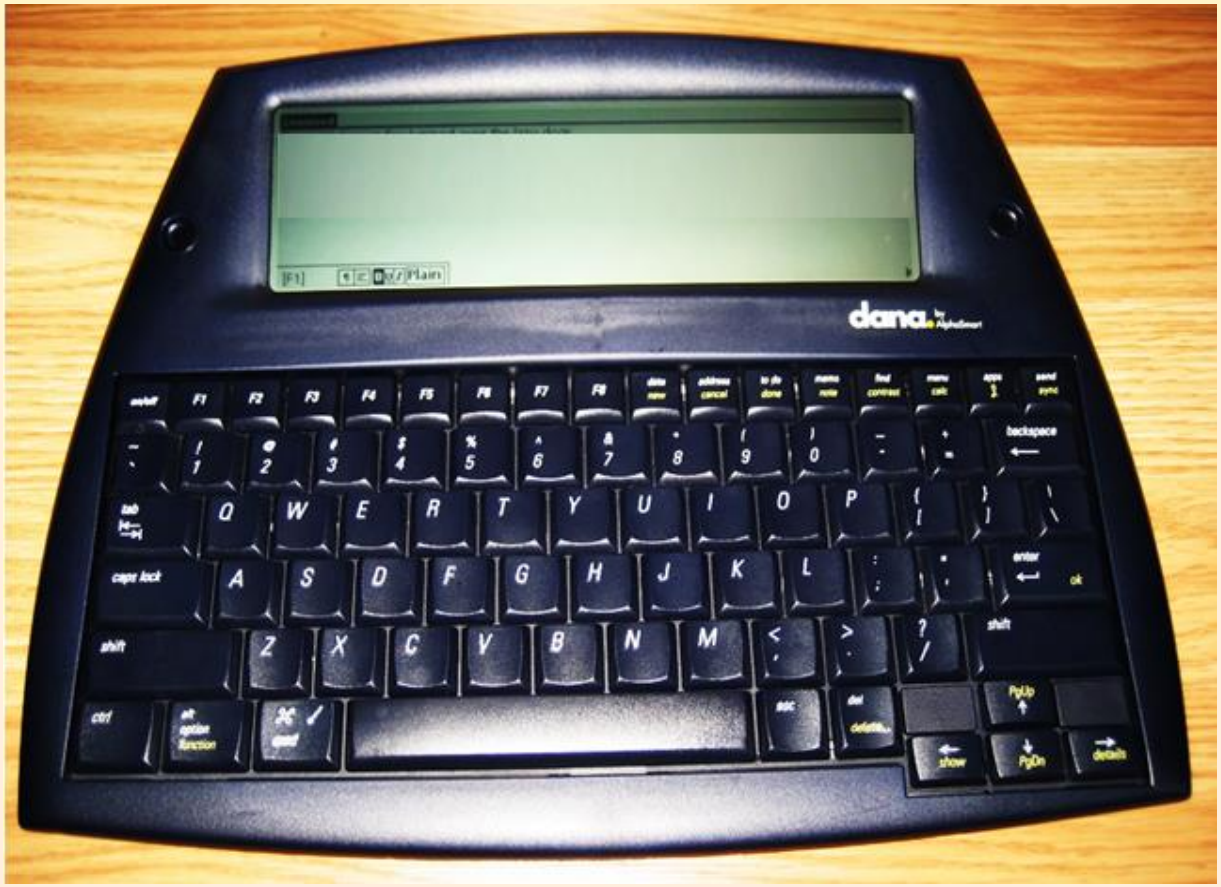
- Say answer to self before writing
- May have to practice this with tape recorder
- Younger children must be taught to whisper to self ☺

Visual Retrieval

- Think and visualize writing answer before writing
- Less successful than air writing and auditory recall

3. Find Alternative Ways to “Write”

- Use Alpha-Smart
- Use iPads, tablet computers, Clickers for Smart Boards, etc.



4. Think About Demands

- How long does written answer really need to be?
- Can this student really write cursive?
- What is careless and sloppy work for this student?
- Would enlarging answer boxes, lines for answers, etc. help?
- Have I asked what level of pain they are feeling?
- Do all teachers involved understand Dysgraphia?
- What is the level of spelling/punctuation I can require from this student?

Interventions & Therapies for Young Students

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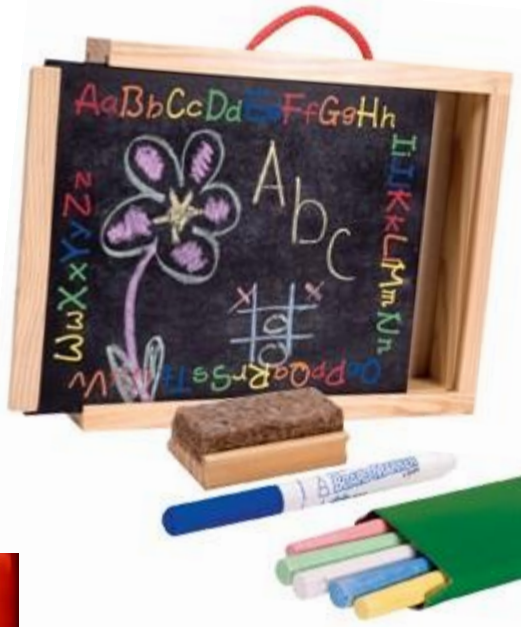
Remember to develop Whole-Hand strength….

...before intensely working on Finger Strength

Use everyday toys that enhance fine motor skills..



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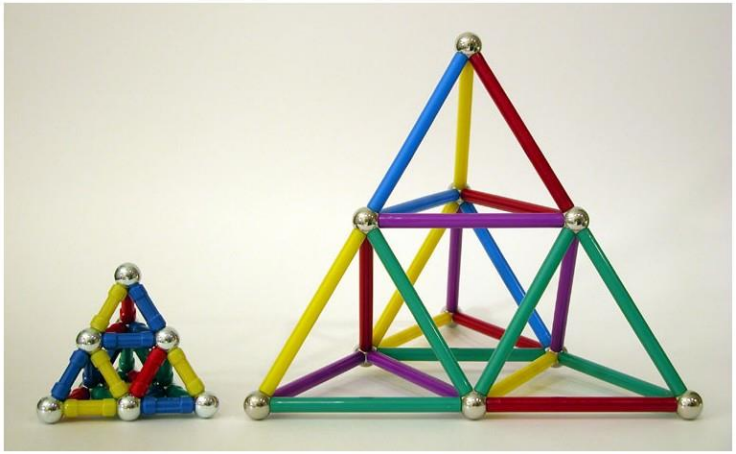
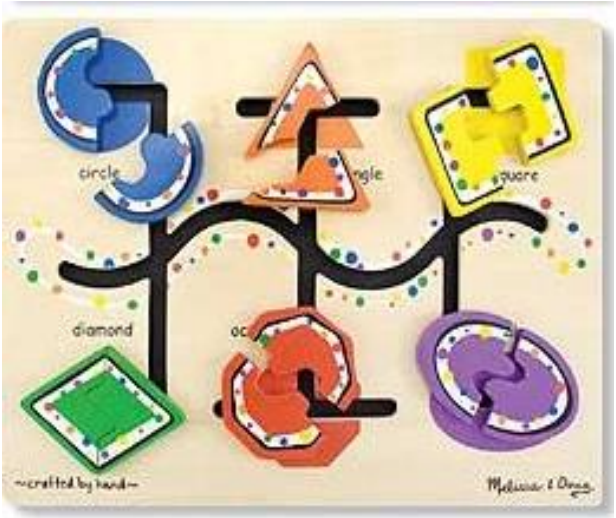
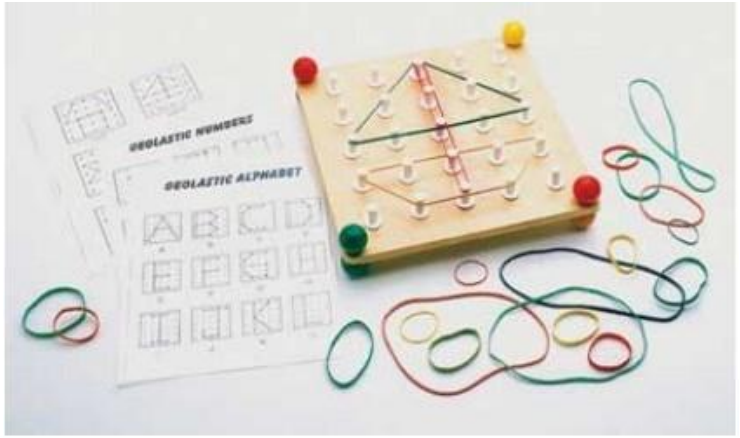
…and look for toys that will keep peers with advanced skills busy too!



Create interest however you can….



…by looking for items that engage the mind!



Interventions & Therapies for Older Students

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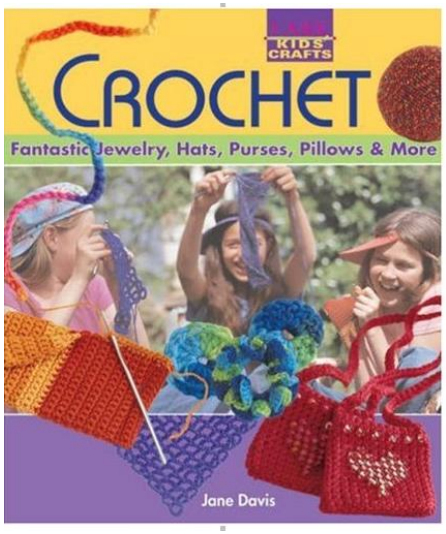
Fantastic ideas for older girls…

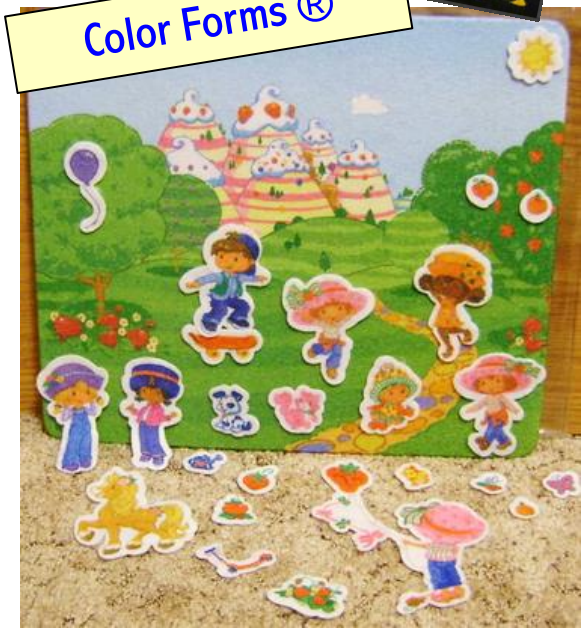


Look for vintage toys at garage sales and auction websites…

Color Forms ®

Micro Machines®

Polly Pockets ®



...and older boys

2	7	4	9
1		12	10
15	3	8	11
13	5	6	14

...and old-fashioned toys that are still being produced!

Model Car Klts

Flannel Boards

Paper Dolls

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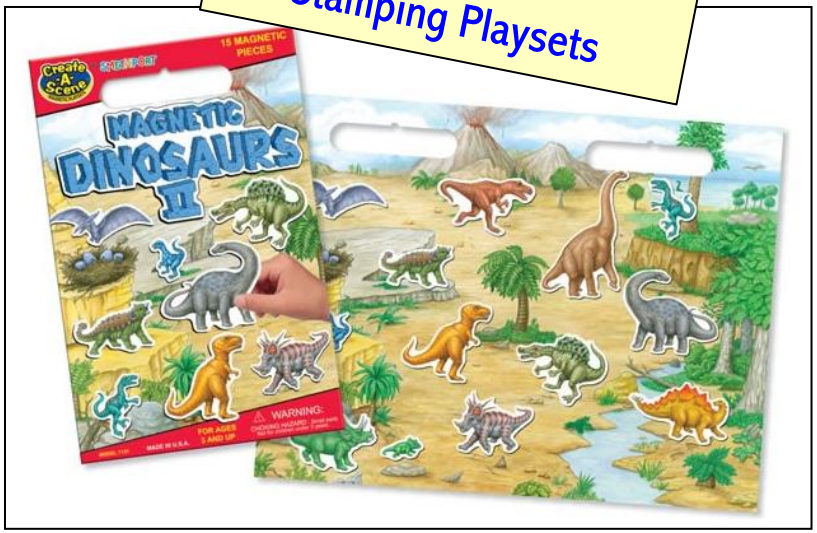
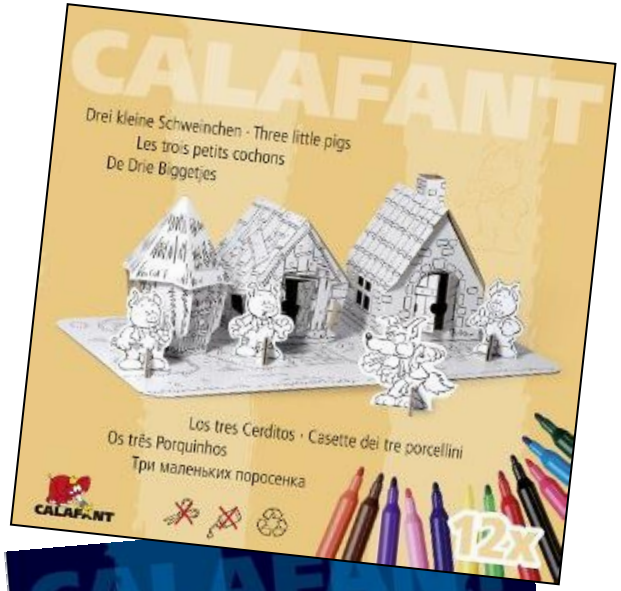
Look for new twists on classic toys…

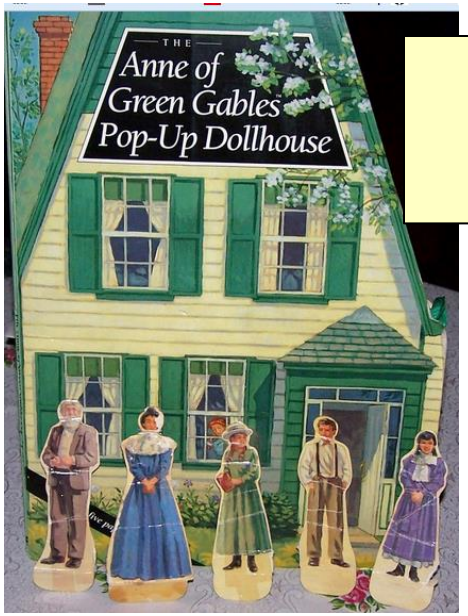
Foam Construction and Paper Airplanes

Magnet and Stamping Playsets



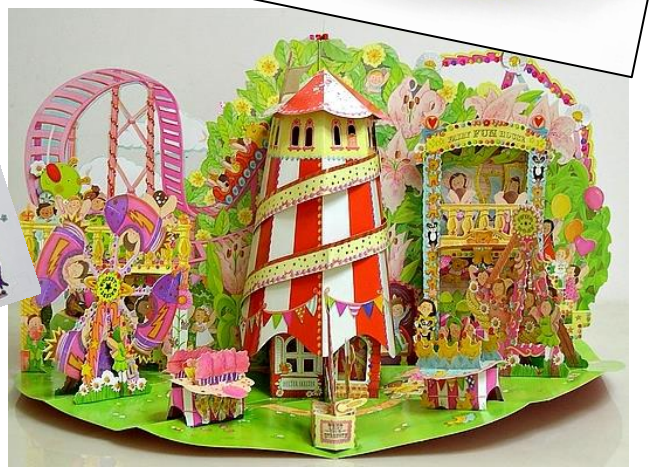
...and some very wonderful new products!





Paper-play books with figures
(i.e. *My Fairy* series, etc.)

Paper construction sets from other countries



Adapting Materials And Strategies for Struggling Students

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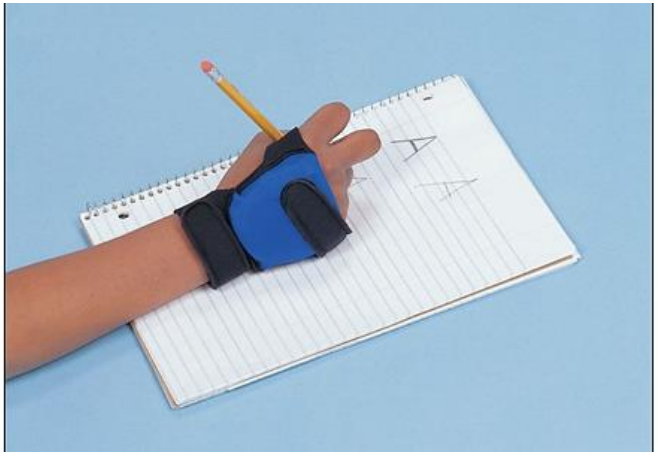
Adapted Scissors

Examples of Adapted Pens

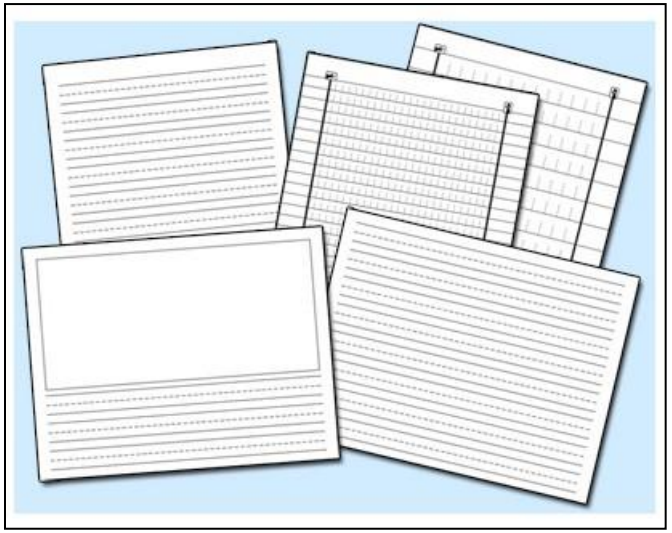
Grasp is totally flat…

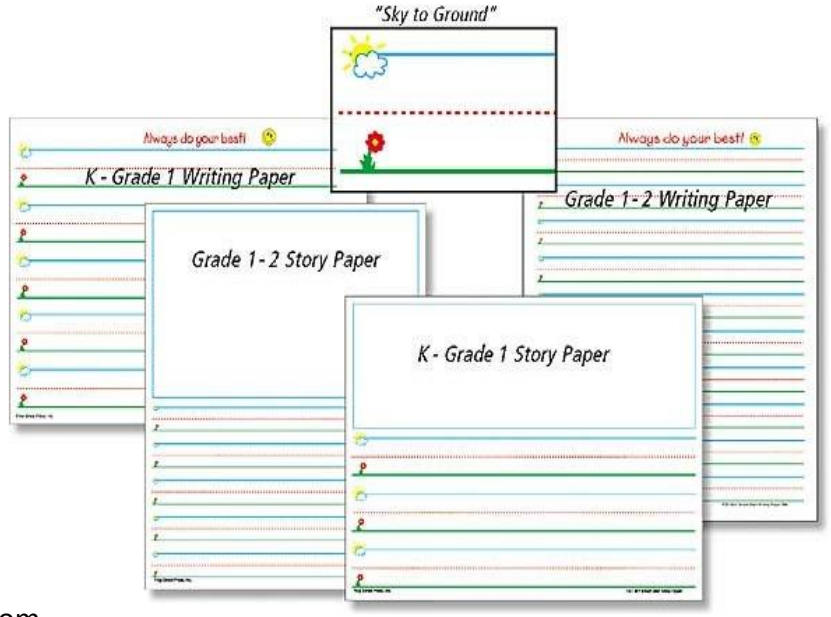
Weighted

Examples of Adapted Grips



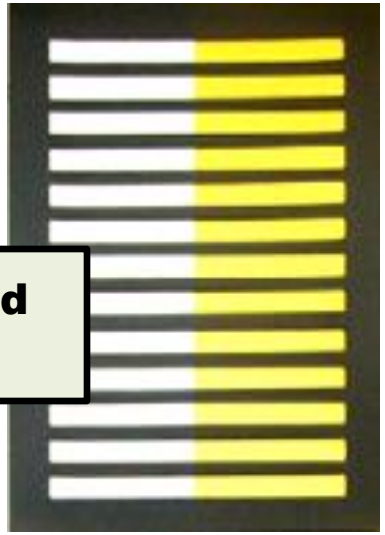
Adapted Papers





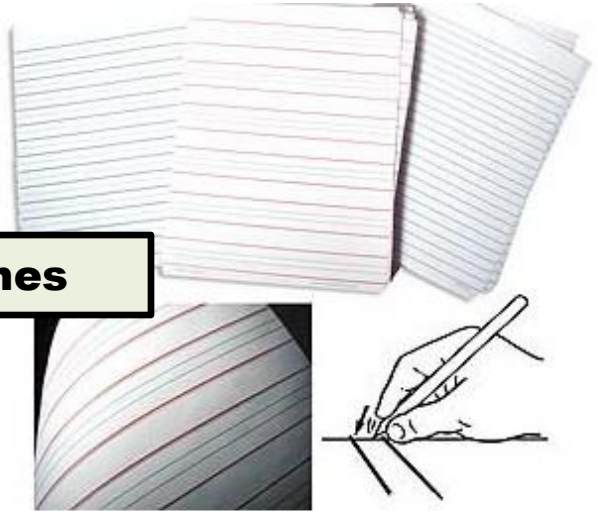
More Variations to Consider

Color-Coded Midline

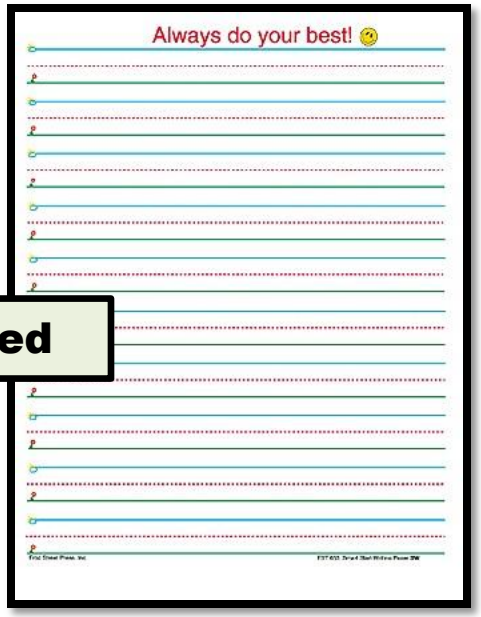


Adjustable Angles & Positions

Raised Lines



Color-Coded



Universal Items That Offer Flexibility

Universal Holders: Can vary weight level and grips

Adjustable Velcro Weights

Make your own! Consider using the following as grips…

Technology to Consider

General Software Programs to Consider

Word Prediction

Speeds up typing by predicting next word; also provides spelling assistance

(example: *Co-Writer*®)

Voice Recognition

Transfers speech to typed file; minimal voice-recognition training required

(*Dragon NaturallySpeaking*®, *Kurzweil 3000-Firefly*®,*Audio Notetaker*®)

iPad Applications

Transfers speech to typed file that can be transferred to computers

(example: *Evernote*® or *Dragon Dictation*®)

Math Software

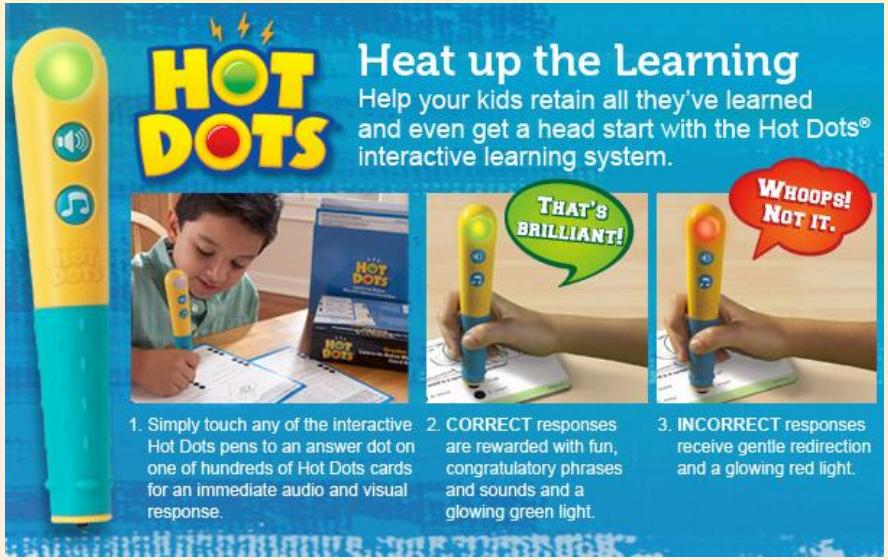
Can be more difficult to use; attempt to try out before purchasing

(example: *Math Pad*® and *Math Type*®--has advanced math versions)

Test-Taking Software Programs to Consider

Hot Dots®

- Stickers indicate correct answer (hot dot) and incorrect answers (cold dots)
  - Stickers can be placed on any worksheet or paper product
    - Students register correct answer with electronic pen



Transfers any written page to an electronic file for use on a computer
(examples: *WYNN Wizard® and Test Talker®)*

Amazing Up-and-Coming Technology

Brain-Controlled Wheelchair

www.emotiv.com

http://news.nationalgeographic.com/news/2009/07/090702-brain-controlled-wheelchair.html

Brain-Controlled Speech-to-Text

http://news.discovery.com/tech/brain-speech-thought.htm

http://www.youtube.com/watch?v=qQ7AJnVKc_g

-Search for IndendiX® (brain-controlled computer)

-Search for Intel's® "mind-reading" computer

Brain-Controlled Games

-Search for NeuroSky®, Emotiv®, Project Natal® and Mind Flex®

Resources

http://www.ncld.org/students-disabilities/assistive-technology-education/apps-students-ld-dysgraphia-writing-difficulties
(page with the newest applications for tablets and iPads)

http://www.ncld.org/types-learning-disabilities/dysgraphia/what-is-dysgraphia
(National Center for Learning Disabilities; resources on other disabilities too)

http://www.ldanatl.org/aboutld/parents/ld_basics/dysgraphia.asp
(Learning Disabilities Association of America; resources on other disabilities too)

http://www.ninds.nih.gov/disorders/dysgraphia/dysgraphia.htm
(National Institute of Neurological Disorders/Stroke; resources on other disabilities too)

http://www.interdys.org/FactSheets.htm
(The International Dyslexia Association; look for link to Dysgraphia)

http://www.dyslexiaa2z.com/learning_difficulties/dysgraphia/dysgraphia_software.html
(An example of the many resource pages constructed by groups and teachers)