

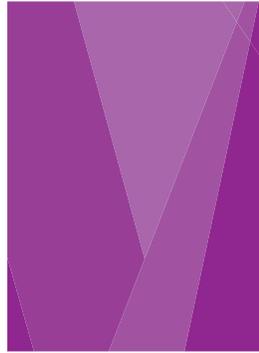
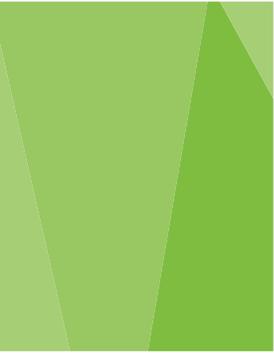


Department of
Education
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CIPL PROFESSIONAL LEARNING SERIES:

Teaching *Cursive Writing*



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Thank You

We would like to thank Steve Graham, Ph.D. and Virginia W. Berninger, Ph.D. for their incredible generosity in sharing their research on handwriting and advising us on some of the specific content of this guide.

Our gratitude is offered to
Anna Commitante, Senior Executive Director of OCIPL,
and Esther Friedman, Ph.D., Executive Director of Literacy and AIS,
for their continued support and counsel.

This handbook is a tool that schools may use to support cursive writing instruction. It presents suggested routines, structures, and strategies based on research, providing strong practice options for schools. This resource does not represent DOE policy or contractual obligations. Principals, other supervisors, and teachers may utilize this guide at their discretion. The New York City Department of Education reserves the right to make changes and updates to this guide at any point in time.

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Overview of Current Research

Why Teach Handwriting?

In 2016, Tanya Santangelo, Ph.D. and Steve Graham, Ph.D. conducted a meta-analysis of 80 research studies to compile data addressing three fundamental questions around handwriting instruction:

- Does explicit handwriting instruction lead to improved legibility and fluency?
- Does explicit handwriting instruction lead to improved writing skills? and
- Do explicit activities to improve motor skills enhance handwriting?

They found that explicit handwriting instruction showed statistically significant results in greater legibility (effect size of 0.59)¹ and fluency (effect size of 0.63). Students who received instruction in handwriting demonstrated significant gains in legibility and in the rate at which they could produce writing.

The research also demonstrated that explicit handwriting instruction produced statistically significant gains in writing skills: quality (effect size of 0.84) and length (effect size of 1.33). When students have full agency with handwriting, they can devote cognitive resources to other writing processes such as planning, content generation, and sentence construction. They are also less likely to forget ideas held in working memory as they convert them to text.

Finally, they reviewed the research to determine whether motor instruction (with no explicit handwriting instruction) had an impact on handwriting. They found a positive effect size of 0.18 on legibility, which is not statistically significant, and no positive effect on fluency. This may be explained by Abbot and Berninger's assertion that handwriting is "fundamentally a linguistic act—producing alphabet symbols on the motor channel" (1993). This finding may help address a common assumption that handwriting will naturally improve over the years as students' motor skills develop.

Why Teach Cursive Writing?

Several researchers have found a connection between cursive writing and performance in accurate spelling. Motor memory is a component of word knowledge. Research has indicated that developing spelling memory may be easier when words are written in a continuous flow in cursive than when words are printed in physically separated letters (*Hanna, Hodges, & Hanna, 1971; Longcamp et al., 2008*).

Fourth grade students who had a full year of cursive instruction in third grade showed improvement in speed of writing production (*Alstad, et al., 2015*). The connecting strokes of cursive help link letters in word units and can speed up word production resulting in faster composing. Being able to produce written text quickly facilitates note taking during lectures, hastens the return to reading when students pause to annotate as they read, and lessens the likelihood that students forget words and ideas held in working memory as they write.

A study of early adolescents found that students who were expected to consistently write in cursive, thus ensuring continued practice, increased the speed with which they wrote significantly from one year to the next. Conversely, students who were not expected to write in cursive did not make the same gains in speed and legibility (*Zachry et al., 2016*).

¹ Effect size is a calculation that reveals how effective a particular action was with the students who were studied. An effect size of 0.3 or higher is considered noteworthy. An effect size of 0.6 or higher is striking.

Should schools teach print, cursive, or both?

In her article, “Strengthening the Mind’s Eye,” Virginia Berninger discusses the benefits of teaching both cursive and print. “Controversy continues over whether one format of writing is better than the other [print vs. cursive]. Beginning writers can learn either format; developing writers show individual differences in which they prefer; and both formats might contribute to writing development, but in different ways. For example printing, which has a manuscript format most like that in books or on monitors, might show the most transfer to reading, but cursive might train executive functions for self-regulation of the writing process. Also, students need to be able to read others’ writing which might be in printed, cursive, or mixed formats. Evidence supports teaching both formats of handwriting and then letting each student choose which works best for him or her” (*Berninger, 2012*).

Are print or cursive still relevant in the digital age?

This is a question that can be quite compelling in a time when there is so much emphasis on the use of computers. We wonder whether the time spent in handwriting instruction is time that could be better spent in keyboarding instruction from the start. In fact, there is a real advantage to handwriting instruction, especially in the elementary grades. “Evidence reveals an advantage for handwriting using pen and paper over keyboarding for students in grades 2 to 6 for amount written, rate of word writing, and number of ideas expressed. Handwriting by pen requires writing with a single hand, which activates the opposite side of the brain. Keyboarding requires bimanual letter production and communication to and between both sides of the brain. Because the fibers that support communication across both sides of the brain don’t fully mature until adolescence, there might be an advantage for writing by a single hand early in writing development but not after adolescence.

It’s not a surprise, then, that the advantage of keyboarding emerges for writers in grades 7 and 8, when neural paths are more likely developed for communication across the two sides of the brain. However, research also shows that generally handwriting is used during the school day and computers are used for homework, suggesting that the role of practice might explain these results. Also, younger children might benefit from explicit keyboarding instruction during the school day. Keep in mind that many other computer tools now exist besides keyboards for producing written language.

Despite advances in computer technology, research supports the argument that today’s students still need instruction in handwriting for two primary reasons. First, learning to form letters by hand improves perception of letters and contributes to better reading and spelling. Second, automatic letter writing promotes better composing—both amount written and quality of writing” (*Berninger, 2012*).

In 2014, Pam A. Mueller and Daniel M. Oppenheimer, published findings from three studies to support the relevance of handwriting on taking notes. They sampled students who took notes using a laptop and a set of students that handwrote notes. Their study revealed that students who handwrote their notes outperformed those who used a laptop on analytical questions. The notes written by students who typed were often transcripts of the information presented. In this case, typing transcripts hindered students’ ability to critically think about the topic while writing. Handwriting prompted students to summarize and categorize in the moment and transferred later to increased ability to perform on analytical questions.

Popular Methods for Cursive Instruction

Modern History

Spencerian Script – From the mid-1800s through the early 1900s, Spencerian Script was the standard penmanship method taught in schools throughout the United States. It is an oval-based style that could be written quickly and legibly. It is characterized by stylistic flourishes and is written primarily through manipulations of finger movements. Prior to its development, professional penmen had a relatively standardized style of cursive, but other professionals used a variety of styles that became associated with various professions, social classes, and gender, as men and women were expected to use different flourishes. An abolitionist named Platt Rogers Spencer created Spencerian Script to democratize penmanship by creating a universal handwriting script. Though rarely taught in contemporary classrooms, nearly everyone has some familiarity with this style as it is used for the Coca-Cola logo.

Spencerian Script

Palmer Method – Introduced in the late 1800s by Austin Norman Palmer, the Palmer Method became the primary penmanship method taught in U.S. schools through the mid-1900s. The Palmer Method focused on “muscular motion,” placing more emphasis on using the arm muscles to produce the writing than on finger movement. It simplified some of the more complicated flourishes of Spencerian Script to create a writing style that could be written with a speed that could rival text production using a manual typewriter. The style is characterized by the loops and curls adorning many of the capital letters.

Palmer Method

Contemporary Methods

Zaner-Bloser Method – Though originally developed around the same time as the Palmer Method, the Zaner-Bloser Method did not become highly popular in U.S. schools until the mid-1900s. It was originally developed by Charles Zaner and Elmer Bloser and specifically created for elementary grade children. It remains one of the primary methods of handwriting instruction in use today; however, it is the modified Zaner-Bloser Simple that is most frequently in use. This method includes two forms of handwriting—manuscript (block print) and cursive. The manuscript style is characterized by block letters written straight up and down, with many of the letters using multiple strokes. The cursive style of Zaner-Bloser is also a simplification of Spencerian Script. The cursive style uses slanted writing with continuous strokes. In the original script, many of the cursive letters were quite different from their manuscript counterparts; however, in the modernized Zaner-Bloser Simple, there is much higher similarity between the two scripts. The manuscript and cursive styles are taught in sequence, with manuscript taught first to beginning writers, and cursive being introduced in middle elementary grades.

Manuscript simple

Cursive simple

D'Nealian Method – Introduced in the late 1970s by Donald Neal Thurber, the D'Nealian method has gained popularity in U.S. schools and offers both manuscript (in slanted print) and cursive writing. The manuscript letters are written on a slant with many of the letters having a small tail. The slanted manuscript letters were

created in this pattern to ease the transition to cursive writing. To create the continuous writing of cursive, strokes are added to the letters in the slanted manuscript form, thus the cursive and manuscript forms highly resemble one another. The manuscript and cursive styles are taught in sequence, with manuscript taught first to beginning writers, and cursive being introduced shortly thereafter.

D'Nealian Manuscript

D'Nealian Cursive

Other Methods – There are hundreds of individual handwriting methods and programs available. Many of these methods and programs offer their own particular scripts for both manuscript and cursive. However, most contemporary approaches trace their roots to Spencerian, Palmer, Zaner-Bloser, or D'Nealian.

Which method of manuscript and cursive is best to teach?

The research on the various scripts of handwriting does not provide a clear answer as to which is most effective (*Graham & Weintraub, 1996*). Some findings indicate that learning block style print first is most helpful to beginning writers as it more closely mirrors the scripts used in the printed books they are learning to read, and that a more stylized form of cursive can be introduced later. Other findings suggest that learning an italicized print first followed by a simplistic cursive style eases the transition between the two forms.

It should also be noted that in practice, educators do not always locate their instruction solely in one method. Many schools opt to teach block letter manuscript to beginning writers and then transition into any one of the various cursive scripts usually in 2nd or 3rd grade. Though each of the modern cursive scripts do have distinctions in letter formation, they are mutually intelligible. If students learn to read and write in one form of cursive, they will likely be able to easily read the other forms as well.

When selecting a method or combination of methods for instruction, schools generally choose a system that is implemented schoolwide so that there is continuity of instruction across all grades.

Sequencing Letter Instruction in Cursive

Although there is a growing contemporary movement advocating for teaching cursive writing to beginning writers as the initial form of handwriting, the majority of schools teach manuscript (print) to beginning writers and introduce script in the 2nd or 3rd grade. By the time cursive is introduced, students have full knowledge of all letters of the alphabet and are writing extended pieces of text. Cursive writing is introduced to facilitate writing more quickly by hand. As discussed earlier in this guide, there is some research that indicates that cursive writing may also support learning accurate spelling as well as aid in increasing the volume of writing. Because students already have knowledge of all the letters of the alphabet, the question then arises as to which order to teach the letters for cursive writing and whether to begin with the capital or lowercase forms. For the most part, the majority of published cursive writing instructional materials begin with teaching the lowercase letters first because they are used more frequently than capital letters.

Alphabetic Order

There are cursive writing instructional materials that present the letters in alphabetical order. Teachers can opt to teach the letters in alphabetical order; however, many teachers resequence the instruction using one of the methods explained below.

Resemblance to Print

Depending on the method of cursive being taught, some instructional guides begin with teaching the letters in cursive that most resemble their manuscript counterparts and ease their way toward cursive letters that are distinctly different from the manuscript formation. Some of these guides teach the lowercase and capital letters simultaneously, whereas others teach all of the lowercase letters first and then teach the capital letters.

Grouping Letters by Similar Formation Patterns

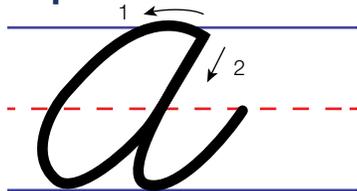
Cursive writing is produced using four basic stroke patterns:

- **downcurve**—a downward counterclockwise stroke,
- **overcurve**—an upward clockwise stroke,
- **undercurve**—an upward counterclockwise stroke, and
- **slant**—an angled line.

All cursive letters are formed using a combination of these strokes. Letters can be taught by grouping them according to similar stroke combinations. Depending on the instructional materials being used, these stroke combinations may have catchy, easy-to-remember names, but they are generally variations on circle-like, slanted lines, loops, and humps.

Best Practices in Cursive Instruction

Explicit Instruction



Students benefit from direct instruction on letter formation. Research indicates that providing students with a model of

the letter annotated with numbered arrows that show the sequence and direction of strokes, providing time for supported practice, and moving into practicing reproduction of the letter from memory produced the best handwriting performance (Berninger, 1997). It should be noted that one research study found that asking students to verbally describe the strokes as they write the letter actually proved counterproductive (Graham, 1983). It is likely that this method proved ineffective because learning the stroke sequence while simultaneously trying to metacognitively verbally narrate the sequence of strokes puts too high of a demand on working memory.

While considering direct instruction on letter formation, it is important to note that research has found that nearly all writers develop their own personal style over time. “This may involve using slightly more curved lines, eliminating clockwise movements, combining letters from different scripts, and eliminating or modifying some connecting strokes” (Graham & Weintraub, 1996). These modifications are most generally made to increase efficiency for the individual writer and can be seen as an indication of mastery of handwriting. Expecting students to produce cursive letters that exactly mirror the images of a particular script will likely be frustrating to both the teacher and the student.

Frequent Feedback

As students are independently practicing their letter formations, teachers can move throughout the room to provide coaching to individual students. Additionally, students can share their work with a partner and give feedback to one another on their letter formation.

Frequent Practice

Students in grades K–3 should receive handwriting instruction for 50 to 100 minutes per week (Graham & Weintraub, 1996). It is often recommended that this instruction be provided in short, daily sessions as opposed to longer, infrequent sessions. The work of Hermann Ebbinghaus, 19th-century psychologist credited with the first scientific study on memory and retention of studied facts, contends that “distributed practice” has far greater impact on the retention of information over time than that of a “massed practice” approach. This has been referred to by cognitive scientists as the “spacing effect” (Willingham, 2002). In essence, the best way to approach the instruction of handwriting is to invest a little bit at a time daily while providing ample opportunities for practice.

Best Practices for Instruction

- Provide models of letters annotated with arrows that show the sequence and direction of strokes.
- Provide coaching and feedback as students are practicing their letter production.
- Provide opportunities to practice reproducing the letters from memory.

(Berninger, 1997)

Practice, Practice, Practice

- Grades K–3: 10 to 20 minutes daily
- Grades 4 and Up: Periodic tune-ups for about 10 minutes once or twice a week.

(Graham & Weintraub, 1996)

(Berninger, 2012)

For students in grades four and above, Virginia Berninger recommends “periodic tune-ups to review legible and automatic letter formation and to teach strategies for self-monitoring of letter legibility for the various kinds of writing assignments students are given across the curriculum, which often involve integrating writing with reading or listening” (2012). These periodic tune-ups can be provided once or twice a week for about 10 minutes.

Developing a Continuum of Multi-Modal Handwriting Instruction for Grades PK–12: Handwriting and Keyboarding

On January 23, 2012, researchers and educators met in Washington D.C., for “Handwriting in the 21st Century? An Educational Summit.” They shared research from both classroom practice as well as neurological studies considering the effect of handwriting on cognitive development and related skill acquisition. Participants overwhelmingly agreed that success in the 21st century requires students to be fluent with both handwriting and keyboarding skills. Research reports and videos of presentations at this conference can be found at: <https://www.hw21summit.com/>

As a part of their work, they developed a set of recommended standards for written language production. These standards for grades K–8 were posted for public comment and, based on the feedback given, revised in 2014 to include standards for Pre-K. As of April 2016, seventeen states have either adopted a set of standards for written language production or have legislation pending. The suggested Pre-K–8 Written Language Production Standards can be found at: https://www.hw21summit.com/media/zb/hw21/Written-Language_ProductionStandards.pdf

In 2013, Virginia Berninger, one of the nation’s leading researchers on handwriting development and effective instructional practices for handwriting, submitted “Educating Students in the Computer Age to Be Multilingual by Hand.” In this follow-up to the findings presented at the summit, Dr. Berninger suggested the following K–12 continuum of instruction to prepare all students to be multi-modal with both handwriting and keyboarding:

PRE-KINDERGARTEN:

- Develop hand muscles (play with clay or dough)
- Develop fine motor skills (string beads, peg-boards, sort beads in egg cartons)
- Use writing instruments (fine-tip markers, pencils, pens) to complete mazes or connect the dots
- Write own name
- Name letters of the alphabet (in books or any written form)
- Form letters from patterns (dotted outline with directional arrows)

KINDERGARTEN:

- Name all lowercase and uppercase letters of the alphabet
- Print all lowercase and uppercase letters of the alphabet in manuscript—with benefit of teacher modeling, tracing, and copying from models
- Print all lowercase and uppercase letters of the alphabet in manuscript from memory
- Use dominant hand for handwriting with paper and pen/marker/pencil
- Use index finger on dominant hand when composing using an electronic tablet

FIRST GRADE:

- Print all lowercase and uppercase letters of the alphabet in manuscript from memory
- Capitalize first letter of sentences and names
- Self-generated composing during practice time for handwriting

SECOND GRADE:

- Print all lowercase and uppercase letters of the alphabet in manuscript from memory
- Capitalize first letter of sentences and names
- Self-generated composing during practice time for handwriting
- Focus on legibility and automaticity with letter production in manuscript

THIRD GRADE:

- Print all lowercase and uppercase letters of the alphabet in manuscript from memory
- Capitalize first letter of sentences and names
- Self-generated composing during practice time for handwriting
- Focus on legibility and automaticity with letter production in manuscript
- Teach lowercase and uppercase cursive with connecting strokes to link letters within words
- Write lowercase cursive letters alone and in words, focusing on legibility

FOURTH GRADE:

- Print all lowercase and uppercase letters of the alphabet in manuscript from memory
- Capitalize first letter of sentences and names
- Self-generated composing during practice time for handwriting
- Focus on legibility and automaticity with letter production in manuscript
- Teach lowercase and uppercase cursive with connecting strokes to link letters within words
- Write lowercase and uppercase cursive letters alone and in words, focusing on legibility

FIFTH TO EIGHTH GRADES:

- Continue expectations from 4th grade
- Introduce keyboard instruction
- Transition to touch-typing with eyes on text or screen, not on the keyboard

FIFTH TO TWELFTH GRADES:

- Purposeful choices about writing modes—choosing handwriting for note taking, graphic organizers, planning, drafting, etc. and choosing keyboarding for revision, generating multiple drafts
- Note taking and listening from lectures and audio texts using both handwriting (print or cursive) and keyboarding
- Note taking while reading using all modalities

(Berninger, 2013)

Tips on Pencil/Pen Grip

The proper writing grip can be the solution to fatigue and discomfort while writing. Therefore, it is important to teach students how to grasp a writing instrument. The most commonly taught pencil grip is the Dynamic Tripod grip. The tripod grip involves the thumb, index, and middle finger working together, functioning as a “tripod.” This “tripod”-like formation allows small, and coordinated movements while the ring and pinky fingers are flexed into the palm to establish stability. It is for this reason the Dynamic Tripod grip is said to have an advantage over other pencil grips. While there are variations in the ways which people grasp their pencil, it is recommended that students be taught the Dynamic Tripod grip (*Graham, 2009*).

The Dynamic Tripod Grip	
	<p>In the Dynamic Tripod grip the writing instrument rests on the middle finger while the index finger and thumb grip it. The three fingers act as a “tripod.”</p>

Illustrated by: Johanna Audiffred

Additional Variations of Effective Pencil Grips

The Dynamic Quadrupod	The Lateral Tripod	The Lateral Quadrupod
		
<p>The Dynamic Quadrupod grip is similar to the Dynamic Tripod grip. However, in this grip the pencil rests on the ring finger.</p>	<p>The Lateral Tripod grip is similar to the Dynamic Tripod. However, the thumb crosses over and braces the pencil on the side of the index finger.</p>	<p>The Lateral Quadrupod grip is similar to the Dynamic Quadrupod. However, the thumb crosses over and braces the pencil on the side of the index finger.</p>

Illustrated by: Johanna Audiffred

An additional component to teaching pencil grip, is the pressure applied to the tip of the writing instrument. This is important to consider because appropriate pressure can alleviate fatigue and discomfort when writing.

Left-handed writers should grip the writing instrument between 1 and 1.5 inches from the point as a way to enable them to see what is being written, and to avoid smearing (*Holder, 2003*).

Tips on Posture While Writing

While seated at their desks, students should be encouraged to keep:

- **Feet** resting flat on the floor
- **Knees** at a 90 degree angle
- **Back** up straight, body slightly forward from the hips towards their desk, while being careful to not lean on their desk
- **Forearms** resting on the edge of the desk
- **Elbows** at a 90 degree angle towards the desktop
- **Non-dominant hand** anchoring paper and supporting body weight
- **Shoulders and neck** softened and relaxed

Paper Position for Cursive

Supporting a student with the positioning of the paper while handwriting is integral. In fact, it has been said that the secret to good penmanship may be in the position of the paper. The mastery of handwriting requires a series of smooth wrist, elbow, and shoulder movements. Slanted paper position allows the writer to use the hand, arm, and shoulder in an efficient manner. The position of the paper influences slant of the letters (*Graham, 2009*).



- **Right-handed student:**
The paper is held with the left hand, rotated counter clockwise at a 45 degree angle.



- **Left-handed student:**
The paper is held with the right hand, and slanted slightly clockwise.

Tips on Writing Instruments

Research indicates that young children prefer adult pencils, and that using a beginner's pencil can interfere with accuracy in letter production. The added weight of the larger pencil can be more difficult to manipulate. By the time a child enters third grade, he or she can produce more writing when using a ballpoint or felt-tip pen, as these glide along the paper more readily than a pencil (*Askov & Peck, 1980*).

Cursive Writing Programs and Resources Available in ShopDOE

Name	Available on ShopDOE	ISBN No.
Fundations	Wilson Cursive Handwriting Forward Slant Workbook Fundations	9781567783124
	Wilson Cursive Handwriting Backward Slant Workbook Fundations	9781567783131
	Wilson Cursive Handwriting Kit Not available on ShopDOE. However, can be purchased through "Sole Source Vendor"	
PAF: Preventing Academic Failure	PAF Handwriting Program for Cursive Right Hand	9780838851272
	PAF Handwriting Program for Cursive Left Hand Student Manual	9780838851296
Handwriting without Tears	Cursive Handwriting Student Workbook	9781934825648
	Cursive Handwriting, Grade 3	9781939814173
	Can-Do Cursive Workbook	9781891627743
Zaner-Bloser	ZB HANDWRITING 2016: Pupil Edition, Gr 2C <i>Transitional: Begins with print then integrates the cursive alphabet</i>	9781453117972
	ZB HANDWRITING 2016: Teacher Edition, Gr 2C	9781453118054
	ZB HANDWRITING 2016: Pupil Edition, Gr 3	9781453117989
	ZB HANDWRITING 2016: Teacher Edition, Gr 3	9781453118061
Benson Handwriting with Integrated Language Arts <i>These materials are offered in vertical and slant writing styles</i>	Benson Handwriting with Integrated Language Arts, <i>Transition (Vertical Manuscript/Cursive), Student Edition, Grade 2</i>	9780789178763
	Benson Handwriting with Integrated Language Arts, <i>Transition (Vertical Manuscript/Cursive), Teacher Edition, Grade 2</i>	9780789178770
	Benson Handwriting with Integrated Language Arts, <i>Transition (Slant Manuscript/Cursive), Student Edition, Grade 2</i>	9780789178862
	Benson Handwriting with Integrated Language Arts, <i>Transition (Slant Manuscript/Cursive), Teacher Edition, Grade 2</i>	9780789178879
	Benson Handwriting with Integrated Language Arts (Vertical/Cursive), Student Edition, Grade 3	9780789178787
	Benson Handwriting with Integrated Language Arts (Vertical/Cursive), Teacher Edition, Grade 3	9780789178794
	Benson Handwriting with Integrated Language Arts (Slant Manuscript/Cursive), Grade-Level Kit, Grade 3	9781615636938
	Benson Handwriting with Integrated Language Arts (Slant/Cursive), Teacher Edition, Grade 3	9780789180544
	Benson Handwriting with Integrated Language Arts Interactive Whiteboard Software , Slant Manuscript/Cursive	9781615638185
	Benson Handwriting with Integrated Language Arts Interactive Whiteboard Software , Vertical Manuscript/Cursive	9781615638178
	Benson Handwriting with Integrated Language Arts Font Software , Slant Manuscript/Cursive	9781615638192

Additional Resources and Tidbits

- **Tips for Creating a “Cursive Club”**

<http://therapyfunzone.net/blog/cursive-clubs-moving-handwriting-from-fine-motor-to-functional/>

- **National Handwriting Day, January 23rd**

<http://www.wikihow.com/Celebrate-National-Handwriting-Day>

- **Create Your Own Handwriting Worksheets**

Website offers free printable worksheets for print, D’Nealian and cursive writing styles.

<http://www.handwritingworksheets.com/>

- **Handedness Research Institute**

A website aimed at establishing scientific understanding around one’s dominant hand. In particular, the website offers guidance and support for teaching handwriting to left-handed students.

<http://handedness.org/action/leftwrite.html>

Works Cited

- Abbot, R. D., & Berninger, V. W. (1993). Structural equation modeling of relationships among developmental skills and writing skills in primary- and intermediate-grade writers. *Journal of Educational Psychology*, 85, 478–508.
- Alstad, Z., Sanders, E., Abbott, R. D., Barnett, A., Henderson, S., Connelly, V., & Berninger, V. (2015). Modes of alphabet letter production during middle childhood and adolescence: Inter-relationships with each other and other writing skills. *Journal of Writing Research*, 6(3), 199–231
- Askov, E. N., and Peck, M. (1982). Handwriting. *Encyclopedia of Educational Research*, 5th ed., H. E. Mitzel, J. H. Best, & W. Rabinowitz (Eds.). New York, NY: The Free Press.
- Berninger, V.W. (1997). Treatment of handwriting problems in beginning writers: Transfer from handwriting to composition. *Journal of Educational Psychology*. 89(4), 652–666.
- Berninger, V.W. (2012). Strengthening the mind's eye: The case for continued handwriting instruction in the 21st century. Principal. *National Association of Elementary School Principals*. May/June, 28–31.
- Berninger, V.W. (2013). Educating Students in the Computer Age to Be Multilingual by Hand. *National Association of State Boards of Education Commentaries*. 19(1) March. Retrieved from https://www.zaner-bloser.com/sites/default/files/public/Commentary_Multilingual_by_Hand.pdf
- Graham, S. (1983). The effects of self-instructional procedures on LD students' handwriting performance. *Learning Disability Quarterly*. 6, 231–234.
- Graham, S. & Weintraub, N. (1996). A review of handwriting research: Progress and prospects from 1980 to 1994. *Educational Psychology Review*, 8(1), 7–87.
- Graham, S. (2009). Want to improve children's writing? Don't neglect their handwriting. *American Educator*. Winter 2009–2010, 20–27, 40.
- Hanna, P.R., Hodges, R. E., & Hanna, J. S. (1971). *Spelling: Structure and strategies*. Boston, MA: Houghton Mifflin.
- Holder, M.K. (2003). Teaching left-handers how to write. *Handedness Research Institute Papers*. Retrieved from <http://handedness.org/action/leftwrite.html>
- Longcamp, M., Focard, C., Gilhodes, J. C., Anton, J. L., Roth, M., Nazarian, B., Velay, J. L. (2008). Learning through hand- or typewriting influences visual recognition of new graphic shapes: Behavioral and functional imaging evidence. *Journal of Cognitive Science*, 20, 802–815.
- Mueller, P.A. & Oppenheimer, D.M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological Science*, 25(1), 1159–1168.
- Santangelo, T. & Graham, S. (2016). A comprehensive meta-analysis of handwriting instruction. *Educational Psychology Review*. 28: 225. doi:10.1007/s10648-015-9335-1
- Willingham, D. (2002). Allocating student study time: "Massed" versus "distributed" practice. *American Educator*. Summer 2002. Retrieved from <http://www.aft.org/periodical/american-educator/summer-2002/ask-cognitive-scientist>
- Zachry, A. H., Doan, A. P., Lancaster, S. B., Simmons, B., Smith, C., & Wicker, J. N. (2016). A comparison of print and cursive handwriting in fifth and sixth grade students: A pilot study. *The Open Journal of Occupational Therapy*. 4.2. <http://dx.doi.org/10.15453/2168-6408.1207>

