Guidance and Supplemental Materials for Handwriting Development

Guidance for Kindergarten-Grade 5

November 2024

Department of Education & Workforce

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Overview

To address the instruction of manuscript and cursive writing in Ohio's schools, the Ohio Legislature passed House Bill 58, which became effective on July 1, 2019 and codified into Ohio law. ORC 3301.0726 required the Ohio Department of Education to provide information on the development of handwriting and include supplemental instructional materials in the English Language Arts Model Curriculum. The legislation also states:

> *The department shall include supplemental instructional materials on the development of handwriting as a universal skill in the English language arts model curriculum under division (B) of section 3301.079 of the Revised Code for grades kindergarten through five. The instructional materials shall be designed to enable students to print letters and words legibly by grade three and create readable documents using legible cursive handwriting by the end of grade five. The instructional materials shall be included in the model curriculum not later than the first day of July that next succeeds the effective date of this amendment and, thereafter, shall periodically be updated.*

This document provides guidance for manuscript and cursive writing instruction from kindergarten through grade 5 in support of Ohio's Learning Standards in English Language Arts. This guide does not advocate the use of any specific commercial program.

State Funding

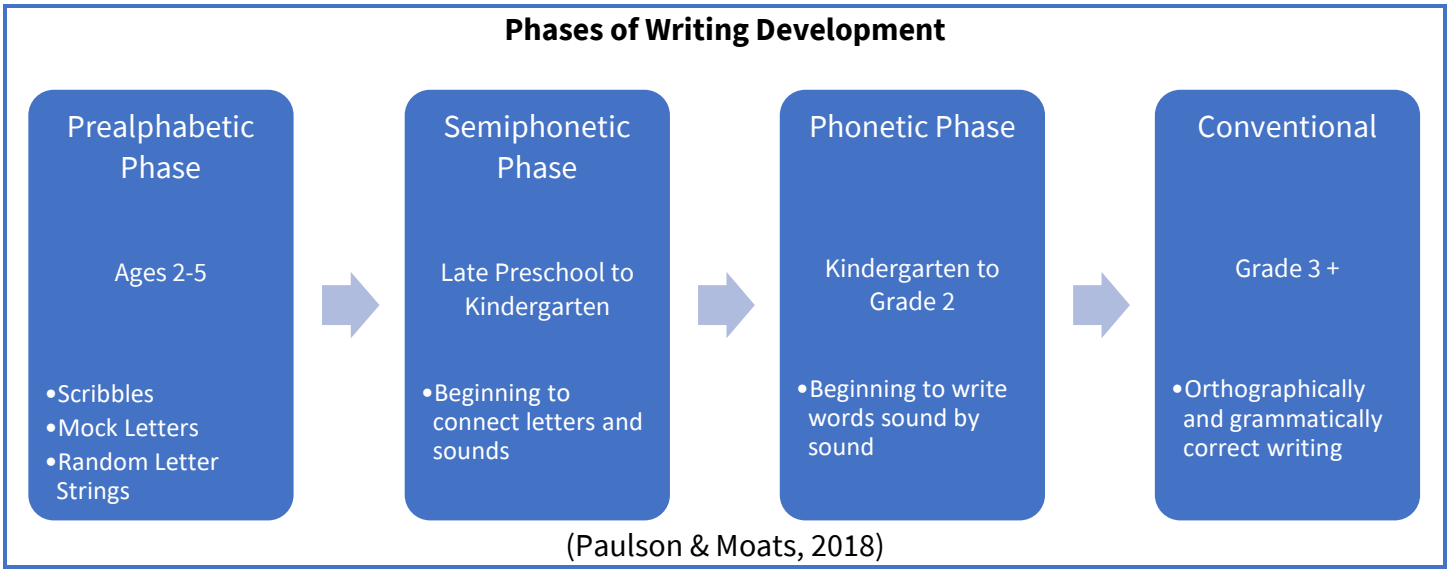
Districts may use state Disadvantaged Pupil Impact Aid funds to fulfil the requirements described in this document. Under Ohio law, reading improvement and intervention, professional development in reading instruction for teachers of students in grades K-3, and academic interventions for students in grades 6-12 are allowable uses of Disadvantaged Pupil Impact Aid funds. For questions, please contact the Office of Whole Child Supports at wellnessandsuccess@education.ohio.gov.

The Importance of Teaching Handwriting

There are several reasons the teaching of handwriting is important. The following outline some of the impact handwriting has for learning.

1. Handwriting is a skill used for writing across the content areas.
2. Slow and laborious handwriting places a demand on the mental resources needed for higher-level writing tasks.
3. Teaching students letter formation and building handwriting fluency reduces cognitive load and allows for more attention to content, details, and expression through writing.
4. Learning how to form letters facilitates knowledge about the letters themselves (letter name, letter sound) and creates the networks in the brain necessary for skilled reading (James, 2017).
5. Handwriting is an essential foundational skill that influences reading, writing, language use, and critical thinking (Saperstein, 2012).
6. Students who receive handwriting instruction tend to produce longer and better compositions (Limpo et al., 2020).

7. The motor sequence in handwriting activates the regions of the brain associated with thinking, short term memory, and language (Slope, 2010).
8. Explicit and systematic handwriting instruction develops the regions of the brain that will impact students' reading and cognitive processes.
9. Poor and/or slow handwriting can interfere with writing: it has a negative impact on the reader, creates a mismatch between ideas generation and recording, imposes heavy demands on working memory, and turns writing into a painful experience. *(*Limpo and Graham, 2020*)*
10. Writing is a form of communication. Not having adequate instruction in handwriting can ultimately impact the quality of writing for students with dyslexia. Explicit and systematic instruction in handwriting, alongside strong spelling instruction and other writing strategies, such as morphemic analysis, sentence combining, and self-regulated strategy development (SRSD), can improve the quality of writing for students with dyslexia. (Hebert et al., 2018).



(Paulson & Moats, 2018)

Why Teach Handwriting in a Digital World?

While digital tools such as keyboarding, speech-to-text, even texting, are common at work, home, and school, many written products in these same environments are also still handwritten. However, handwriting is an important skill to learn, specifically when taught using direct and explicit instruction. **Daily direct and explicit instruction of handwriting, whether manuscript or cursive, supports visual letter identification and letter formation, which also supports better reading and spelling** (Berninger, 2012). When automaticity of letter formation and handwriting fluency is developed, the cognitive load for these skills decreases and allows the writer to focus mental energy on text generation, rather than transcription. Additionally, since writing is communication to be read, learning handwriting supports students' ability to read handwriting from others, as not all written communication will be typed, such as notes from teachers or collaborative activities with peers.

Handwriting can be taught through both manuscript and cursive. While there is often question of which to use, manuscript or cursive, there is no research for teaching one over the other, but rather that you could choose one style or both (Berninger, 2012). Often manuscript is taught first as students are building letter identification with the connected skill of letter formation, and this often matches the print students will see

in books or print materials within a classroom. Cursive, however, is often helpful for handwriting fluency, and spelling, with the attention on connected strokes, all moving in the same direction (Moats & Tolman, 2019).

Debate continues well into the 21st century on whether keyboarding or handwriting is more important in this digital age. However, rather than this debate, an intent to teach both may be most helpful for today's students, as "we do not live in a handwriting world, and we do not live in a digital world. We live in a hybrid world." (Zubrzycki, 2012).

How Handwriting Helps Students Who Struggle

Handwriting can be helpful for all students, but especially for students who have dyslexia. Students who have difficulties with reading may also struggle with a range of writing skills from forming letters with a pencil to editing compositions. Students with dyslexia or other reading difficulties need explicit instruction in handwriting as part of instruction and intervention. Reading and writing are connected, so building skills in one domain can impact the other.

Dyslexia can impact writing through deficits in phonological processing, causing difficulty with decoding processes when reading and encoding processes when writing (Hebert et. al., 2018.) These difficulties in encoding can lead to dysfluencies in handwriting, which can slow down the writer and overwhelm cognitive load (Berninger et al., 2008). In addition, students with dyslexia often struggle with writing due to related difficulties in transcription skills, executive functioning, text generation, and working memory (Berninger & Amtmann, 2003).

For students who struggle, handwriting instruction, specifically working toward handwriting fluency when in connection with evidence based and systematic spelling instruction, can allow for cognitive load to be lightened to put cognitive energy toward text generation and organization of writing.

Reading, Writing, and Handwriting are Connected

The goal of writing is to communicate and express ones' thoughts. Forming letters by hand lights up the reading and writing networks of the brain. Developing handwriting fluency enables students to focus attention on the writing process, arrangement of sentences, sentence elaboration, text structure, and word choice (Sedita, 2023). Integrating handwriting instruction enhances the skills of writing, spelling, and reading in individuals.

Putting our thoughts into writing is a high-level language task that relies on automaticity and integration of many skills and brain systems. In school, these skills combine when asked to complete a task, such as responding to a given prompt. A text, sometimes multiple, is read by a student, who then must comprehend the message of the text, as well as analyze how this text can be used to provide evidence to answer the question at hand. Automaticity, through reading fluency (accuracy and rate), is used to decode the text. Then, while holding what was just read in working memory, the student must monitor for comprehension, and then think about how this text can be used to answer the question. Next comes the writing process, where students must generate a response to the question, use transcription skills of spelling and handwriting to physically transfer ideas to paper. Additionally, they must use executive functioning skills of organization and working memory to self-monitor for sequencing of response,

grammar, clarity, text structure, and to make sure that what they wrote appropriately answered the given prompt. If any of these skills needed to complete a written product is missing or a challenge, the impact can put strain on the entire writing process.

Instruction in Handwriting

Improving Student Literacy Outcomes

Systematic instruction in handwriting is essential to support students in achieving better legibility, enhanced writing speed, and fluency. By following an intentional sequence, students can develop the necessary skills to write proficiently. All grades K-12 have the language anchor standard in Ohio's Learning Standards in English language arts of "1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking." Handwriting appears here specifically for manuscript for Kindergarten and grade 1 under conventions of standard English:

- L.K.1 a. Print many upper- and lowercase letters.
- L.1.1 a. Print all upper- and lowercase letters.

With increased handwriting proficiency, students are better able to perform the hierarchy of skills required in all subjects more effectively. For example, fluent handwriting allows writers to keep up with the pace of language in their heads and get their thoughts on to the paper (Graham et al., 2019). When students master the mechanics of handwriting, they can concentrate on higher-level thinking and communication skills needed for success in school and life.

Simple View of Writing & The Writing Rope

SIMPLE VIEW OF WRITING

The Simple View of Writing (Berninger & Amtmann, 2003) is a model that illustrates the complex components of writing, showing that transcriptions skills, text generation, executive functioning, and working memory are required for successful writing. Transcription skills include both handwriting (or typing) and spelling. Text generation is the formulation of ideas in written expression, which also includes demonstrating knowledge of the topic, use of appropriate vocabulary, and grammar (Moats & Tolman, 2019). Executive function and working memory are also important components of writing. Executive function impacts writing with setting goals, planning and organization, and self-monitoring of written work, while working memory impacts the student's ability to hold processes, while also accessing working memory resources to complete the given writing task (Hebert et. al., 2018).

THE WRITING ROPE

The Writing Rope (Sedita, 2023) is an additional framework to use in thinking of the concepts involved in skilled writing. The Writing Rope is broken into five "strands" of the rope: critical thinking, syntax, text structure, writing craft, and transcription. In critical thinking, ideas are generated and then organized, and then are drafted and revised in a writing process. Syntax is the strand that covers grammar, punctuation, sentence elaboration, and syntactic awareness of word choice. Text structure dives into the types of writing structures (narrative, informational, opinion/argument), but also the structure of a paragraph. Organization in terms of sequence, transitions, and ways ideas can be organized for clarity of written expression also fall

in the text structure strand. The writing craft strand focuses on word choice, identifying the purpose and audience of the writing, as well as the use of literary devices, such as literary elements (e.g., plot, characters, setting, etc.) or literary techniques (for example, figurative language). Finally, in the transcription strand, much like in the Simple View of Writing, is the focus on spelling, handwriting and/or keyboarding (Sedita, 2023).

Grade Level Sequence

Below is a suggested handwriting sequence for teaching manuscript or print and cursive writing. It can be used to guide educators to sequentially develop students' handwriting skills to ensure legibility and writing proficiency.

Grade	Grade-Level Goals
Kindergarten	• Print capital and lowercase letters, correctly spacing the letters. • Leave spaces between words when printing.
Grade 1	• Print letters legibly. • Space letters, words, and sentences appropriately.
Grade 2	• Print letters legibly. • Space letters, words, and sentences appropriately.
Grade 3	• Use cursive to write capital and lowercase letters, spacing letters, words, and sentences appropriately.
Grades 4 and 5	• Write legibly in cursive, spacing letters, words, sentences, and paragraphs appropriately.
Grades 6-High School	• Prepare writing for publication that is legible using print, cursive, or digital tools; follows an appropriate format; and uses techniques such as the inclusion of graphics or electronic resources.

Instructional Practices to Build Handwriting Fluency

Instructional practices ought to serve as deliberate opportunities aimed at nurturing handwriting fluency. The practices listed below serve as guidance for educators, offering an effective approach to developing students' proficiency in handwriting fluency (Wolf & Berninger, 2018).

MOTOR SKILLS

- Explicitly teach grip using their dominant hand. A triangular grip is sufficient for most students.
- Consider using golf pencils as these shorter pencils for the fingers to correct the grip.
- Large muscle movements: Skywriting or tracing large letter forms.
- Fine motor movements: Writing on lined paper with a pencil.
- The student desk should be about two inches higher than the student's bent elbows.
- Proper posture is needed to get those coordinated muscle movements on lined paper.
- Teach students to stabilize their paper in a slanted direction using their non-dominant hand.

WRITING

- First, have the student **trace** a model after giving explicit instruction with verbal prompts on how to form a letter.
- Then, have the student **copy** letter from a model.

- Then, have the student **retrieve letter formation**. With all existing letters covered, students write the letter from memory, relying on their multi-sensory practice to help them remember how the letter is formed.
- Use #2 lead or softer. The right amount of pressure is required to get feedback from writing across the paper.

INITIAL PRACTICE

- Use direct, explicit language when teaching consistent strokes. For example, when teaching lowercase *b* say: start at the top line, go down, up to the mid-line, around.
- Warm-up strokes such as slants, straight lines, and circles are important to the writing process. Have students practice strokes prior to the letters they will form.
- Consider using tactile surfaces, such as sand trays or carpet squares, for students to practice their warm-ups.
- Integrate handwriting with your letter knowledge and sound-symbol sequence of instruction in the early grades.
- Students see the letter, name it, name the letter as they write it, and then sound it for spelling.
- Teach each unique letter formation in one consistent manner. Consider teaching letters with similar strokes together.

ONGOING PRACTICE

- Integrate writing time as a pre-writing routine and warm-up lessons for spelling.
- Have students self-check for accountability.
- Consider integrating fluency drills into your writing routine. For example, dictate sounds and students write the corresponding grapheme (/k/: c, k, ck), dictate words with the patterns and build up to sentences.
- Provide goal setting for motivation.
- Review letter formations in isolation, then in words, and finally in sentence writing.

TEXT

- Teach lowercase letters first because uppercase letters are used in only 2% of writing (Wolf & Berninger, 2018).
- Provide alphabet letter wall cards or strips displayed on desk and board for easy reference; this will support visual memory.
- There is no preferred scope and sequence for teaching letter formation; however, consider aligning instruction to the phonics scope and sequence. If the focus is on letter formation, group by their motor stroke family. For example, b, h, k, and l are grouped together because they all begin with a top to bottom stroke). Focus on stroke formation, including where to start the letters and how to form them (Hougen & Smartt, 2020).
- For cursive, lowercase letters begin at the baseline.
- If you are teaching slanted cursive, provide a left-handed or right-handed practicing materials with corresponding slant.

Observations to Guide Instruction and Intervention

Observing students writing can take place formally and informally. Consider the opportunities provided for writing across the day. The following are considerations as you observe student actions and behavior while writing. What is observed should guide decision making for handwriting instruction.

- How are they gripping the pencil? Do they use their thumb and pointer finger? Is it a relaxed or clenched grip? For early learners, observe who needs to change to a more functional grip or needs more support with hand strength.
- How is the paper positioned? For manuscript is the paper slanted slightly toward the dominant hand?
- Do they struggle with directionality and starting points? Do students know where to start letters (e.g., midline, top line) and the direction of the stroke (e.g., middle, pull down, up, over and down)?
- Is their accuracy and speed appropriate in their level of development? Is handwriting accuracy and speed a barrier to communicating thoughts on paper?
- What letters are difficult for students to form?
- Do these include clusters of letters? (e.g., “downstroke” letters i, r, m)
- Are the letters formed correctly, adhering to lines and spacing? Are they legible?
- Are groups of students making the same errors in letter formation?
- Do they need visual cues for letter formations, or can they write from memory? Are the prompts used to teach the letter formation internalized so the student can write the letters without additional prompts?
- Examine the writing environment? Is the writing surface the correct height? Are feet touching and planted on the floor? Is the desk area free of clutter to allow for correct paper position?

Handwriting Assessments

With any skill taught, assessment is important in determining where the student is in their progress of demonstrating understanding and independently applying the taught skill; handwriting is no exception. Standardized assessments often take place as either holistic or analytic. Holistic standardized handwriting assessments look at the broad picture of legibility, determining an overall score based on indicators such as letter formation, spacing, and general neatness of a written sample, whereas analytical standardized handwriting assessments score on a letter-by-letter basis on the same criteria. (Fitjar, Rønneberg, & Torrance, 2024). Curriculum-based measurements (CBMs) related to the instructional materials selected allow for more frequent progress monitoring of writing, not just handwriting, with scores often focused on Total Words Written (TWW), Correctly Spelled Words (CSW), and Correct Word Sequences (CWS) (Moats & Tolman, 2019). Additionally, curriculum-based rubrics and informal observational tools, which often score all aspects of writing per grade-level standards, can allow for teachers to review samples of in-class written work, typically with a section assessing for demonstrating conventions such as legibility of handwriting.

Conclusion

Effective handwriting instruction positively affects reading and writing skills in quality and quantity. Using a systematic handwriting approach in classrooms contributes to all students achieving optimal literacy growth.

Publisher Resources

In the spring of 2019, the Department of Education and Workforce submitted a Request for Information (RFI) from educational publishers regarding their handwriting curricula, materials and resources.

The following publishers responded to that request:

- Educational Publishing Service (EPS) School Specialty
- Evan Moor
- Learning Without Tears
- Lincoln Learning
- McRuffy Press
- Memoria Press
- Scott Foresman: D'Nealian
- Universal Handwriting
- Wonders- McGraw Hill
- Zaner-Bloser

The table on the next page includes information that was included in the materials forwarded to the Department of Education and Workforce. Lack of a checkmark is not an indication the published does not meet the criteria, simply, there was no evidence of that criteria in the submitted materials. This table is not evaluative, rather it exists to help districts identify what publishers have materials they may need for effective handwriting instruction.

The Department of Education and Workforce is currently developing a new RFI for updated handwriting information. Information collected from this RFI will be published as an update to this list. We anticipate this information to be published in early 2025.

2019 Publisher Resources

Criteria → / Publisher ↓	Alignment to Handwriting Document		Flexibility of Delivery			Engagement			Rigor		Support Materials			
	Clear Objective	*Sufficient Coverage*	*Whole Class*	*Individual/Group*	*Range of Needs*	*Age-appropriate Material*	*Instructional Approach*	*Evidence of Diversity in Illustrative Materials*	*Appropriate Depth of Understanding*	*Clear Feedback*	*For Teachers*	*For Students*	*Enrichment/Materials or Suggestions*	*Intervention Materials or Suggestions*
EPS School Specialty		✓		✓	✓	✓	✓		✓	✓		✓		
Evan Moor				✓		✓						✓		
Learning Without Tears	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lincoln Learning	✓	✓	✓	✓		✓	✓				✓	✓		
McRuffy Press			✓	✓					✓			✓		
Memoria Press			✓	✓		✓			✓			✓	✓	✓
Scott Foresman: D'Nealian	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Universal Handwriting	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
Wonders- McGraw Hill	✓	✓	✓	✓		✓	✓		✓		✓			
Zaner-Bloser	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Definitions

Cognitive load: The level of mental energy needed to perform a task or skill. If cognitive load is decreased, tasks can be completed more efficiently, and mental energy can be used to complete skills or produce tasks of higher-levels of critical thinking. For example, if automaticity is reached in letter formation, cognitive load can be reduced to support handwriting fluency.

Dyslexia (ORC 3323.25): A specific learning disorder that is neurological in origin and that is characterized by unexpected difficulties with accurate or fluent word recognition and by poor spelling and decoding abilities not consistent with the person's intelligence, motivation, and sensory capabilities, which difficulties typically result from a deficit in the phonological component of language.

Executive function: Executive functioning skills have to do with self-regulation. They are the mental processes that enable us to plan, attend, and remember. Children who have difficulty with executive function often struggle with self-control, working memory, and flexible thinking.

Explicit instruction: A teacher directed and systematic instructional approach that includes specific components of delivery and design of instruction such as review of previous content, step by step, demonstrations, clear language, adequate range of examples, frequent student responses, monitoring of student progress, feedback to students and multiple opportunities for practice, both guided and independent. This practice includes distributed and cumulative practice and does not make assumptions that learners will acquire skills and knowledge on their own.

Handwriting fluency: The ability to write with appropriate speed, accuracy, and legibility.

Letter formation: The individual practice of forming each letter, which is impacted by the taught stroke routine, pencil grip, and paper position.

Science of reading (ORC 3313.6028(A)(1)): An interdisciplinary body of scientific evidence that:

(a) Informs how students learn to read and write proficiently;
(b) Explains why some students have difficulty with reading and writing;
(c) Indicates that all students benefit from explicit and systematic instruction in phonemic awareness, phonics, vocabulary, fluency, comprehension and writing to become effective readers;
(d) Does not rely on any model of teaching students to read based on meaning, structure and syntax, and visual cues, including a three-cueing approach.

Supplemental materials: A supplemental instructional material provides addition evidence-based literacy instruction and practice on a specific literacy skill (i.e., phonemic awareness, phonics, fluency, vocabulary, comprehension, writing) aligned to the science of reading and strategies for effective literacy instruction. A supplemental instructional material is used to enhance core curriculum and instructional materials during whole class or small group instruction, providing additional instructional materials and practice opportunities.

Systematic instruction: Organized through a planned sequence of instruction that follows the logical order of the language with important prerequisite skills taught before more advanced skills and care taken to not introduce skills in a way that is unintentionally confusing.

Working memory: The ability to hold pieces of information in memory for short periods of time, while also using this information applied to a task, manipulate information, and complete a task or process. For example, holding

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