**General Education Leadership Network**

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# Essential Practices in Early Math & Literacy

This compilation of the Essential Practices was developed by the Early Mathematics Task Force and the Early Literacy Task Force, subcommittees of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts.

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**Literacy Essentials**

**DISCIPLINARY LITERACY**
Literacy learning for all

# Table of Contents

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**E**ducation
**L**eadership
**N**etwork

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## Essential School-Wide and Center-Wide Practices in Literacy and Mathematics, Prekindergarten and Elementary Grades

*A document of the Michigan General Education Leadership Network (GELN)*

This document is intended to be read in concert with Essential Instructional Practices in Early Mathematics: Prekindergarten to Grade 3; Early Literacy: Prekindergarten, Early Literacy Grades K to 3, Literacy Grades 4 to 5, Coaching Practices for Elementary Literacy, and other forthcoming documents from the Early Literacy and Early Mathematics Task Forces. The systems and practices outlined here provide school-level and program-level support for effective classroom instruction in prekindergarten and elementary literacy and mathematics.



# ORGANIZATIONAL PRACTICES

## Purpose

The purpose of this document is to increase Michigan's capacity to improve children's literacy and mathematics learning by identifying systematic and effective practices that can be implemented at the organizational level in educational and care settings that serve young children. To meet the needs of all young learners, organizational practices must support literacy and mathematics development in ways that systematically impact learning throughout elementary schools, early childhood learning centers, and other learning environments and programs.[1]

Each of the ten recommended school-level or center-level systems and practices should occur in all Michigan prekindergarten and elementary school learning environments. These essential practices should be viewed, as in practice guides in medicine, as presenting a minimum 'standard of care' for Michigan's children and educators.

The practices listed can be used in a variety of educational settings for young children. The document does not specify any particular programs or policies but focuses on research-supported practices that can apply to a number of programs and settings. As the local systems and practices occur at the building or center level, it is the responsibility of the school, center, or program leadership to ensure that these systems and practices are implemented consistently and are regularly enhanced through strategic planning.

# Our Values

Our values fundamentally shape our design of, and practice within, educational systems. Interpretation and implementation of the Essential School-Wide and Center-Wide Practices in Literacy and Mathematics, Prekindergarten and Elementary Grades should be shaped by the following research-supported values:

- We value a sustained, collaborative, and systemic approach to improving teaching and learning, with the acknowledgement that meaningful change takes time, requires ongoing inquiry and revision, and is never done.

- We value equity and inclusion for all children, families, and educators, with the recognition that schools and centers must resist and dismantle institutional practices that have historically marginalized some individuals and communities.

- We value children's and educators' social identities like age, race, ethnicity, gender, language, socio-economic status, and geographic context (e.g., urban, rural, suburban).

- We value caring learning environments where children, families, and educators have trusting relationships with one another and feel supported to learn and take risks.

- We value strategic, research-supported development of educators' practices, knowledge, and identities because powerful learning for children requires powerful learning for educators.

## 1. The _leadership team_ is composed of instructional leaders committed to continuous improvements in literacy and mathematics with ongoing attention to data.

Under the guidance of the lead administrator, the school or program leadership team:

- includes members with considerable, current, and collective expertise in literacy, mathematics, instructional improvement, systems change, and early childhood education;

- promotes the implementation of evidence-based, high-quality literacy and mathematics curriculum, instructional practices, resources, and assessments aligned across the learning environment;[2]

- develops a vision, mission, set of goals, and educational philosophy that guide school climate, children's learning, and educator learning and that are shared school-wide and aligned across all ages and grade levels, including Pre-K, and across all professional roles for the purpose of continuous improvement;[3]

- engages in ongoing learning about high-quality instruction, educator learning, equity oriented continuous improvement, and systems leadership;[4]

- maintains a comprehensive system for assessing children's strengths and needs that focuses on multiple points of data (e.g., formative, summative, family input, student voice) and keeps the best interests of children paramount in assessment, knowing the primary purpose is to promote equity by improving teaching and learning;[5]

- makes decisions based on deep understanding of community, school and district goals, strengths, and needs using iterative strategies such as Plan, Do, Study, Act cycles;[6]

- ensures a collaborative problem-solving approach that may include administrators, teachers, instructional coaches, parents, aides, reading and mathematics specialists, library media specialists, special educators, and others as needed;[7] and

- distributes leadership throughout the organization for the purposes of drawing on multiple perspectives, working collectively for improvement, and building leadership capacity among all staff.[8]

## 2. The _organizational climate_ reflects a collective sense of responsibility for all children, a focus on developing child independence and competence, and support for the learning of all children and adults.

All adults—administrators, teachers, specialists, aides, and support staff—throughout the organization:

- share and act upon a sense of collective responsibility for the literacy and mathematics growth and overall well-being of every child that is grounded in the shared belief that every child can and will be successful and that draws upon assets from children's families, communities, cultures, and identities;[9]

- ensure that the entire learning environment is physically safe and emotionally supportive, such that all children feel a sense of belonging, and there are positive educator-child-family, child-child, and educator-educator relationships throughout the building;[10]

- support the development of children's independence, competence, self-efficacy, and identity in reading, writing, and mathematics through practices such as helping children identify and build on their academic strengths, providing specific feedback to help children grow, and modeling the thoughts and practices of successful readers, writers, and mathematicians;[11]

- promote authentic engagement and rigor among culturally and linguistically diverse students by building culturally sustaining and responsive learning environments;[12] and

- share professional trust, collective efficacy, and a sense of agency and voice in shaping the organization.[13]

## 3. The _learning environment_ reflects a strong commitment to literacy and mathematics.[14]

Throughout the learning environment, there is evidence that:

- literacy is a priority, such that:

  - print experiences are meaningful with consideration of the amount, type, and use;[15]

  - children and teachers are actively engaged with the school library, media center, and library media specialist;[16]

  - guest readers and volunteers (e.g., parents, college students, community members) are recruited and trained to support literacy in an ongoing manner;[17]

  - events and activities generate excitement around books and other texts, for example through the announcement of the publication of the latest book in a series or posting of book reviews throughout the school; and

- mathematics is a priority, such that:

  - children's developing and varied mathematical ideas are central to instruction and fostered through collective learning;[18]

  - learning environments are designed to foster mathematical experimentation, practice, and play, including access to mathematical tools and manipulatives;[19]

  - educator professional learning emphasizes an ongoing focus on supporting rich mathematical

  discussion and problem-solving and fostering positive mathematical identities;[20]

  - goals for and celebrations of learning emphasize reasoning and problem solving and are not limited to performance on standardized assessments;[21]

- literacy and mathematics are integrated and occur throughout the day including during science and social studies learning;[22]

- children regularly use literacy and mathematics concepts by reading, writing, speaking, and listening for multiple purposes, and student products are made prominently visible;[23]

- books, learning materials, student tasks, and classroom decor reflect diversity across cultures, ethnic and racial groups, geographic locations, genders, and social roles;[24]

- school staff aim to foster intrinsic motivation to learn, such that:

  - in literacy, there is only temporary and sparing, if any, use of non-reading related prizes such as stickers, coupons, or toys, and avoiding using reading and writing as "punishment."[25]

  - in mathematics, there is emphasis on the relevant, real-world use of mathematical concepts and problem-solving and avoidance of mathematical activities that can lead to anxiety[26]

## 4. Ongoing _professional learning_ opportunities reflect research on learning and effective literacy and mathematics instruction.

School, center, and program leaders prioritize educator learning[27] and ensure that professional learning opportunities are:

- intentional in terms of content, such that learning opportunities are:

  - ☐ responsive and data informed so that they meet the needs and best interests of educators and their students[28];

  - ☐ focused on development of educators' understanding of content, instructional practices, context, and student learning, motivation, and engagement[29];

  - ☐ integrating learning about content instruction with learning about culturally responsive, asset-based, and equity-oriented instructional practice[30];

  - ☐ aligned with the research-supported, developmentally appropriate practices outlined in the Essential Instructional Practices for Literacy and Mathematics;

  - ☐ focused on the "why" as well as the "how" of effective whole-class and small group instructional practices;

- intentional in terms of context, such that learning opportunities are:

  - ☐ collaborative in nature, involving colleagues working together in ways that foster trust, vulnerability, curiosity, experimentation, and critical reflection[31];

  - ☐ inclusive of multiple roles, such as: school leaders, teachers, specialists, paraprofessionals, aides, and support staff;

  - ☐ part of coherent, ongoing, and sustained systems of educator learning supports that occur over extended periods of time[32]

- intentional in terms of design, such that learning opportunities are:

  - ☐ structured in ways that foster job-embedded, collaborative learning (e.g., study groups, collaborative inquiry, and problem solving)[33]

  - ☐ designed to include, and be followed by, opportunities for teachers to experiment with and observe effective practice and receive feedback from mentors, peers, coaches, and/or principal;[34]

  - ☐ based in an understanding of the educator knowledge, skills, and identities reflected in the Essential Instructional Practices for Literacy and Mathematics;[35]

  - ☐ inclusive of modeling and instructional coaching with colleagues who demonstrate effective practices with children and provide opportunities for teachers to reflect on their knowledge, practice, and goals in an ongoing and continuous manner[36]

## 5. There is a system for determining the allocation of _literacy and mathematics support_ in addition to high-quality classroom instruction with multiple layers of support available to children, building on existing skills.

School, center, and program leaders ensure that:

- instruction and additional supports are implemented across learning environments in addition to, not instead of, core instruction, and are coherent and consistent with the Essential Instructional Practices for Literacy and Mathematics;[37]

- supports are differentiated to the individual child's specific profile of strengths and needs;[38]

- highly trained educators are those teaching the children needing the most support;[39]

- teachers are supported to design needs-based instruction by using and analyzing multiple, varied, systematic, formative assessments and observation as appropriate in an ongoing basis to:

  - ☐ identify individual child needs early and accurately;

  - ☐ tailor whole group, small group, and one-on-one instruction;

  - ☐ measure progress regularly; and

  - ☐ move students fluidly among layered supports as their needs change in order to avoid ability grouping that is long-term and static in nature; and[40]

- formal and informal assessment practices disrupt historical patterns of marginalization with respect to race, ethnicity, gender, ability, socio-economic status, language, etc.[41].

## 6. Organizational systems assess and respond to *individual needs* that may impact learning and development.

School, center, or program systems and leaders ensure that:

- any potential learning, physical, visual, regulatory, mental health, and social-emotional needs that require specific conditions and supports are identified;[42]

- assessments, interventions, and initiatives align with family and community values, culture, and history and attend to student strengths, assets, and funds of knowledge;[43]

- every adult has access to research-supported strategies and tools to support culturally responsive, whole-child development for each child, including, for example, strategies for improving socio-emotional skills such as emotional understanding and techniques for helping children develop executive function skills such as planning;[44]

- children receive coordinated, intensive supports and services that include continued collaboration among teachers, interventionists, family, and others whose expertise is relevant (e.g., special education teacher, school psychologist, school nurse, social worker);[45] and

- all adults intentionally work to:
  - ☐ identify systems and conditions that may hinder or support learning for each child;
  - ☐ modify learning environments to recognize and respond to children's individual, developmental, and cultural needs;
  - ☐ foster collaborative relationships with professional colleagues and children's families; and
  - ☐ assess whether school-wide patterns in learning and/ or behavior warrant adopting strategies or programs and, if so, implement ones that are caring, student-centered, and equity-oriented and that have been shown to positively impact both academic and socio-emotional learning.[46]

## 7. Adequate, high-quality *instructional resources* are well maintained and utilized in ways that align with the Essential Instructional Practices for Literacy and Mathematics.

Leaders and systems within the school, center, or program ensure that:

- teachers are provided with resources, including technological and curricular resources, that support research-supported instruction in all components of literacy and mathematics instruction and that provide continuity across ages and grade levels;

- teachers have professional learning opportunities and support for effective use of available technologies, materials, and resources;[47]

- each child has access to cognitively demanding mathematical tasks and materials that include diverse problem contexts, engage children in learning mathematics through play and experimentation, provide space for a range of mathematical problem solving, and foster growth along coherent learning progressions;[48]

- each child has access to many informational and literature texts in the classroom and school, with culturally diverse characters and themes, that they want to read and that they can read independently or with the support of others;[49] and

- well-stocked school libraries and/or media centers, with library media specialists, offer a large collection of digital books, print books, and other reading materials for reading independently and with the support of others to immerse and instruct children in varied media, genres of texts, and accessible information.[50]

## 8. A consistent _family collaboration_ strategy includes specific attention to literacy and mathematics development.

Members of the learning organization collaborate with families to:

- prioritize learning about families and the language, literacy, and mathematics practices in which they engage to inform instruction, drawing from families' daily routines that build on culturally developed knowledge and skills accumulated in the home (e.g., inviting families to share texts they read and write and mathematical problems they encounter as part of their lives at home or at work);[51]

- provide regular opportunities for families to be in schools and centers and for educators to be in community spaces;

- enable families and educators to build a network of social relationships to support children's language, literacy, and mathematics development (e.g., connect families with community organizations and with each other to celebrate and support learning);[52]

- foster familial and community partnerships in the education of children and the work of the learning environment through equitable collaboration and reciprocal relationships;[53]

- engage families to build leadership and gather feedback to guide future collaboration and promote positive experiences for each child; and[54]

- examine how families can utilize research-supported strategies to foster literacy and mathematics development at home (see _Essential Instructional Practices for Literacy and Mathematics_).[55]

## 9. A _summer learning_ initiative fosters continued engagement with literacy and mathematics.[56]

To support summer reading and mathematics learning, the school, center, or program:

- facilitates opportunities for every child to read books and access texts during the summer through strategies, including;

  - providing books that are of high interest to children and within the likely range of reading levels within each class;[57]

  - connecting children to summer reading programs offered through school and public libraries;

  - providing instruction at the end of the school year to re-emphasize reading comprehension strategies and orient children to summer reading by encouraging use of effective strategies while reading at home;[58] and

  - collaborating with families to support reading at home, such as by encouraging family members to listen to their child read aloud, discuss books with their child, and provide feedback on their child's reading.[59]

- facilitates opportunities for children to engage with mathematics during the summer through strategies including:

  - providing access to games and other activities that families can do together;[60] and

  - collaborating with families to learn about strategies for supporting relevant and joyful mathematical talk, play, and problem solving within home and community contexts.[61]

- facilitates access to a free, voluntary, high-quality instructional summer program for children that includes five to six weeks of programming, research-supported and small-group learning, highly qualified teachers, a positive learning environment, and meaningful partnerships with families.[62]

## 10. A network of _connections in the community_ provides authentic purposes and audiences for children's work and helps facilitate use of quality out-of-school programming.

Connections beyond the school, center, or program walls provide:

- organization-wide and classroom-level networking with local businesses, cultural centers, and community organizations to:

  □ tap into available funds of knowledge[63],

  □ support development of children's content knowledge and identities, and

  □ facilitate opportunities for children to read, write, and do mathematics for purposes and audiences beyond school assignments;[64]

- access to opportunities for individualized support that aligns with _Essential Instructional Practices for Literacy and Mathematics_, for example through one-on one tutoring;[65] and

- opportunities for children to develop literacy and mathematics outside of the school hours, including through engaging out-of-school time library, community, and school programs in the summer and after school.[66]

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## Process for Development and Review

This document was developed by the Early Mathematics Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. The Task Force included representatives from the following organizations:

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|---|---|
| Early Childhood Administrators' Network, MAISA | Michigan Elementary and Middle School Principals Association |
| English Language Arts Leadership Network, MAISA | Michigan's Integrated Behavior and Learning Support Initiative |
| General Education Leadership Network, MAISA | Michigan Mathematics and Science Leaders Network Michigan State |
| Grand Valley State University | Michigan Reading Association |
| Kalamazoo Public Schools | Michigan State University |
| Michigan Association for Computer Users in Learning | Michigan Virtual University |
| Mathematics Leadership Team | MiSTEM Network |
| Michigan Assessment Consortium | Reading NOW Network |
| Michigan Association of Mathematics Teacher Educators | REMC Association of Michigan |
| Michigan Association of Superintendents & Administrators | Southwest Michigan Reading Council |
| Michigan Association of Supervisors of Special Education | Technology Readiness Infrastructure Grant |
| Michigan Council of Teachers of Mathematics | University of Michigan |
| Michigan Department of Education | University of Washington |

Feedback on drafts of the document was elicited from other stakeholders, resulting in a number of revisions to the document.

## Essential School-Wide and Center-Wide Practices in Literacy and Mathematics, Prekindergarten and Elementary Grades

**Literacyessentials.org**  #MichiganLiteracy

**MathEssentials.org**  #MiMathEssentials

**General Education Leadership Network**

*a MAISA Collaborative*

## Essential School-Wide Practices in Disciplinary Literacy: Grades 6 to 12

This document was developed by the 6-12 **Disciplinary Literacy Task Force**, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts.

# INTRODUCTION TO THE SCHOOL-WIDE
# 6-12 DISCIPLINARY LITERACY ORGANIZATIONAL PRACTICES

Disciplinary literacy refers to the specialized literacy practices of a particular disciplinary domain or area (e.g. mathematics, history, biology). These practices include the ways that scholars identify, evaluate, use, and produce the wide range of texts and information or data sources typical of their particular discipline, including the specialized reading, writing, and communication practices used to analyze, produce, and share information.

*This document is intended to be read in concert with the* **Essential Practices for Disciplinary Literacy Instruction in the Secondary Classroom: Grades 6 to 12.** For more information, visit www.LiteracyEssentials.org.

To reference this document: Michigan Association of Intermediate School Administrators General Education Leadership Network Disciplinary Literacy Task Force (2020) Essential School-Wide Practices In Disciplinary Literacy: Grades 6 to 12. Lansing, MI: Authors

## Purpose

The purpose of this document is to increase Michigan's capacity to improve adolescents' literacy by identifying effective practices that can be implemented at the organizational level in secondary schools. To meet the needs of all learners, organizational practices must support literacy development in ways that systematically impact learning throughout schools. Each of the eight recommended school-wide practices should occur in all Michigan middle and high school learning environments. These Essential School-Wide Practices in Disciplinary Literacy: Grades 6 to 12 should be viewed, as in practice guides in medicine, as presenting a minimum 'standard of care' for Michigan's students ; where all efforts, structures, resources and people involved in creating effective learning environments for students share a clear, common vision for equitable learning and development, and this vision is clearly communicated, understood, and used to drive this work. As rigorous as this resource is, it is not a checklist of activities, a guide to implementation science or change theory, nor is it a how-to on team development. The processes leaders use to enact the Essential Practices will lead to continuous improvement that supports disciplinary literacy.

The Essential School-Wide Practices in 6-12 Disciplinary Literacy can be used in a variety of secondary settings. The document does not specify any particular programs or policies but focuses on research-based practices that can apply to a number of programs and settings. At the organizational level it is the responsibility of the school leadership to ensure that these practices are implemented consistently and are regularly enhanced through a continuous improvement process.

## 1. The school forms a *leadership team* composed of instructional leaders with a shared commitment to continuous improvement in disciplinary literacy and ongoing attention to data.

**With the guidance and support of the lead administrator, the school or program leadership team:**

- includes members with considerable and current expertise and/or leadership roles (e.g., department chairs, media specialist, school librarian, reading specialist) in literacy within all disciplines (social studies, mathematics, science, English language arts, career readiness, performing and technical arts, etc.);

- promotes the implementation of intentional and standards-aligned instruction in disciplinary literacy (See *Essential Practices for Disciplinary Instruction in the Secondary Classroom: Grades 6 to 12*);

- develops or aligns current vision, mission, set of goals, and educational philosophy that guides the school climate and students' learning and that are shared among all roles and subject areas to support continuous improvement;

- maintains a comprehensive system (e.g., formative, summative, family input, student voice) that focuses on equitable whole student learning and adolescent development, and uses that information to inform students' education;

- focuses on multiple points of data and evidence and keeps the best interests of students paramount in assessment, knowing the primary purpose of both data usage and assessment is to improve teaching and learning;

- ensures a collaborative problem-solving approach that may include administrators, teacher leaders, teachers, parents, aides, instructional specialists, library media specialists, special educators, students, and others as needed;

- distributes leadership throughout the organization for the purpose of building leadership capacity among all staff;

- protects and supports time for collaborative teacher teams to learn, practice, and reflect on their skills related to disciplinary literacy instruction; and

- makes decisions based on deep understanding of community, school and district goals, strengths, and needs.

## 2. The *organizational climate* reflects a collective sense of responsibility for all students and a focus on developing independence and competence in a safe disciplinary literacy learning environment.

**All adults—administrators, teachers, specialists, and support staff—throughout the organization:**

- share and act upon a sense of responsibility for the academic growth and overall well being of every student that is grounded in the shared belief that every student can and will be successful, leveraging assets from their location, demographics, identities, or program funding;

- ensure that the entire learning environment is emotionally and physically safe, such that there are positive adult-family-student relationships and positive peer relationships;

- support the development of students' identities and self-efficacy by engaging them in such practices as planning for, observing and regulating, and monitoring their literacy growth in each discipline;

- help all students develop perceptions of competence and agency in disciplinary literacy through such practices as helping students identify and build on their academic strengths, providing specific feedback to help students grow, and modeling the thoughts and practices in each discipline; and

- promote authentic engagement and rigor among culturally and linguistically diverse students by building culturally sustaining and responsive learning environments.

## 3. The *learning environment* reflects a strong commitment to disciplinary literacy.

**Throughout the learning environment, there is evidence of the following indicators:**

- disciplinary literacy is a priority and is integrated into daily learning across all content areas (See *Essential Practices for Disciplinary Instruction in the Secondary Classroom: Grades 6 to 12*);

- students and teachers are actively engaged with the school library, media center, and library media specialists, technology specialists and tools, and teachers across multiple disciplines;

- students regularly read, write, speak, listen, and critically view to enhance learning within the disciplines, and their work is made prominently visible (See *Essential Practices for Disciplinary Instruction in the Secondary Classroom: Grades 6 to 12*);

- books, online texts, databases, and tools reflect diversity across cultures, ethnic groups, geographic locations, genders, and social roles, providing an entryway into concepts, themes, and/or investigations of compelling issues authentic to the disciplines and of varying complexity, structure, and genre;

- volunteers (e.g., parents, college students, community members) are recruited and prepared to support disciplinary literacy in an ongoing manner;

- opportunities for student voice and advocacy (e.g. student council, goal-setting, Restorative Circles, focus groups);

- class and school environments and instructional practices foster adolescent motivation, engagement, and belonging; and

- families and school staff work in authentic partnerships to develop and advance a shared definition of student success in disciplinary literacy.

## 4. Ongoing *professional learning* opportunities reflect research on adult learning and effective disciplinary literacy instruction.

**School leaders ensure that professional learning opportunities are:**

- data- and evidence-informed so that they meet the needs and best interests of teaching staff and their students;

- focused on the "why" as well as the "how" of effective problem-based instructional practices for each respective discipline;

- followed with opportunities for teachers to observe effective practice and to be observed and receive feedback from grade-level and disciplinary peers, mentors and coaches, and literacy consultants;

- driven by the understanding that teacher expertise is a strong predictor of student success;

- collaborative in nature, involving colleagues working together (e.g., study groups, collaborative inquiry, and problem solving) and inclusive of other classroom and school staff and leaders;

- focused on research-based instructional practices that foster meta-awareness within and across academics and cultural domains (See *Essential Practices for Disciplinary Instruction in the Secondary Classroom: Grades 6 to 12*);

- based in an understanding of knowledge and skills to be learned (See *Essential Practices for Disciplinary Instruction in the Secondary Classroom: Grades 6 to 12*);

- informed by current research on motivation and engagement to support students' learning;

- inclusive of modeling with colleagues who demonstrate effective practices with students; and provide opportunities for teachers to reflect on their knowledge, practice, and goals in an ongoing and continuous manner.

- aligned to district and school continuous improvement goals; and

- informed by evidence-based practices in adult learning theory (e.g. active engagement, modeling and practice, discipline-specific, collaborative, reflective, job-embedded and sustained).

**5.** There is a system for implementing the allocation of ***academic support*** equitably in addition to high-quality classroom instruction with multiple supports available to students, building on existing disciplinary literacy skills.

**School leaders ensure that:**

- instruction and additional supports are implemented across learning environments, including the home, and are coherent and consistent with instruction received elsewhere in the school day and occur in addition to, not instead of, core instruction (e.g. extended learning time and tutoring);

- supports are differentiated to the individual student's specific profile of strengths and needs;

- highly effective educators are those teaching the students needing the most support;

- teachers are supported in using and reflecting on analyses of multiple, internal assessments (e.g., formative tools and feedback) and observation as an on-going basis to: identify individual student strengths and needs early and accurately; tailor instruction; and measure progress regularly; and

- students are provided regular opportunities to provide feedback and input into their learning experiences in school.

**6.** Organizational systems assess and respond to ***individual student needs*** that may impede disciplinary literacy development.

**School leaders ensure that:**

- any potential student learning, physical, visual, regulatory, and social-emotional needs that require specific conditions and supports are identified;

- current student support initiatives align with the organization structure; community, regional, and state priorities; family and community values, culture, and history; and other interventions and initiatives;

- every adult has access to research-informed strategies (e.g healing-centered, trauma-informed classroom practices) and tools to address each student's demonstrated needs, including, for example, strategies for improving socio-emotional skills such as emotional understanding and techniques for helping students develop executive functioning skills such as planning, reflecting, and goal-setting;

- students receive coordinated, intensive supports and services as needed, which are identified through continued collaboration among teachers, interventionists, family, and others whose expertise is relevant (e.g., special education teacher, school psychologist, school nurse, social worker); and all adults intentionally work to:

  ○ identify conditions that may impede disciplinary literacy learning;

  ○ modify learning environments to increase engagement and positive behavior;

  ○ draw on relationships with professional colleagues and students' families for continued guidance and support;

  ○ assess which school-wide behavior patterns warrant adopting school-wide strategies or programs, and then implement strategies shown to foster positive interactions that are restorative, empathetic, and student-centered (e.g. Restorative Practices), with particular attention to strategies or programs that have been shown to have positive impacts on disciplinary literacy development;

  ○ use data effectively to identify student strengths, assets, and funds of knowledge, and leverage these to address student needs in achieving disciplinary literacy; and

  ○ provide and resource student support services, including physical and mental health services (e.g. Community Schools models).

## 7. High-quality *instructional resources* are well maintained, available, and effectively utilized.

**Leaders ensure that:**

- teachers have consistent access to resources, including technological and curricular resources, that support research-informed instruction in all components of disciplinary literacy instruction and that provide continuity across content areas;

- teachers have professional learning and support for effective use of available technologies, materials, and resources;

- each student has diverse texts and abundant resources to support learning;

- well-stocked school and classroom libraries and/or media centers, with library media specialists, offer a large collection of digital books, print books, accessible information, and varied media for reading independently and with others; and

- the school engages in pro-active community-building activities that promote positive relationships across roles and lines of difference (families, partners, local business owners, neighbors, artists, healers, and others).

## 8. An intentional community networking strategy *is implemented* to support disciplinary literacy practices and identities.

**Members of the learning organization connect beyond the school and engage with families to:**

- prioritize learning about families and their language and literacy practices to inform instruction, drawing from families' daily routines, cultural knowledge, and skills accumulated in the home;

- provide regular opportunities for families to build a network of social relationships to support language and disciplinary literacy development (e.g., connect families with community organizations and with each other in order to celebrate and support disciplinary literacy);

- foster familial and community partnerships in the education of students;

- partner with local businesses and other organizations that facilitate opportunities for students to read, write, speak, listen, and view for purposes and audiences beyond school assignments;

- provide opportunities for individualized learning (e.g. one-on-one tutoring);

- develop opportunities for students to apply disciplinary literacy outside of the school hours, including through engaging in out-of-school time, library, community, citizen engagement, and school programs in the summer; and

- promote college and career readiness experiences.

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## Process for Development and Review

This document was developed by the 6-12 Disciplinary Literacy Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. The Task Force included representatives from the following organizations, although their participation does not necessarily indicate endorsement by the organization they represent:

GELN Early Literacy Task Force

MAISA ELA ISD Leadership Group

MAISA Mathematics Leadership Team

MAISA General Education Leadership Network

Michigan Department of Education

Michigan Mathematics and Science Leadership Network

Michigan State University

MiSTEM Network

Salem State University

University of Michigan

**Essential School-Wide Practices in Disciplinary Literacy:** Grades 6 to 12

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*a MAISA Collaborative*

# INSTRUCTIONAL PRACTICES

## Essential Instructional Practices in Early Mathematics: Prekindergarten to Grade 5

This document was developed by the Early Mathematics Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts.

## What do you value as a teacher of Prekindergarten to Grade 5 children?

Perhaps you value children's play — a child's unstructured, personally motivated engagement in an activity for joy. Or perhaps you value children's curiosity — a child's desire to understand how something works. Our values fundamentally shape our interactions with young children, as well as our expectations of their learning. Five core values, grounded in evidence from research, supported the development of the *Essential Instructional Practices in Early Mathematics: Prekindergarten to Grade 5.* These Essentials seek to promote high-quality, equitable teaching and learning for children in the discipline of mathematics. By sharing these core values, we pull back the curtain so all can understand the backdrop against which the Essentials take center stage.

## Our Values

1. **We value** children seeing themselves as mathematics knowers, doers, and contributors to the field, using mathematics to engage with their world.

2. **We value** children's differences and the various social categories and identities they hold, including age, race, ethnicity, cultural background, linguistic background, gender, (dis)ability, socio-economic status, and geographic context.

3. **We value** mathematics as a broad, creative, and collaborative discipline for sense making and problem solving.

4. **We value** learning mathematics in a variety of ways — both socially and cognitively.

5. **We value** mathematics teaching that focuses on connection, care, and authentic relationships.

We encourage you to read the instructional practices through the lens of these values. **See p.11 for details about each core value.**

# Purpose

This document is a tool intended to support educators across Michigan as we work to enhance the ways in which children learn to use, understand, and do mathematics using a strengths-based approach. The long-term goal is that these *Essential Instructional Practices in Early Mathematics: Prekindergarten to Grade 5* will prompt shifts in systems, learning, teaching, and assessment so that each and every child develops strong early mathematical understanding, skills, and dispositions. Toward this end, this document includes a small set of research-supported instructional practices that are consistent with and built upon recommendations from the National Council of Teachers of Mathematics (NCTM), National Association for the Education of Young Children (NAEYC), and National Research Council (NRC). Just as Carpenter et al. (2017) assert, it is time that a reframing of mathematics teaching and learning takes place that "goes beyond debates about telling versus not telling, discovery versus direct instruction, play-based versus structured" (p. 5). We hope this document will serve as a guidepost to shift educators away from such debates and toward a focus on working together and with families to enhance the ways in which we support, recognize, and use children's mathematical thinking and the varied ways in which children express their thoughts.

The instructional practices outlined in this document should be used as the focus of continuous improvement efforts, inclusive of professional learning and systemic supports, designed to enhance and sustain productive, joyful learning environments for children and educators. Research suggests that these eight practices have significant potential to positively affect children's learning of mathematics and the development of their mathematical identities. We believe that use of these practices will set our state on a path to make a measurable positive difference in mathematics achievement in Michigan, as well as contribute to the development of high-quality STEM experiences, as recommended by the MiSTEM Advisory Council reports.

The eight Essential Instructional Practices are strategic, supported by evidence from research and practice, and interconnected in many ways. Taken together, these practices are stronger than any single practice. Still, as research evolves, it may become necessary to add to or alter the instructional practices recommended herein. Given the crucial nature of these practices and the relationships among them, they should occur regularly during instructional time, and should be focused on during mathematics instruction periods and throughout the day during more "organic" mathematical opportunities. Mindfulness of naturally emerging opportunities as children interact is an essential piece in helping children see mathematics as part of their world.

We have organized the document as follows:

- Essential Instructional Practices 1 through 3 focus on the overall design of the learning environment and general ways of interacting within the learning environment.

- Essential Instructional Practice 4 focuses on the formative assessment process, a practice that should be intentionally and continually embedded throughout learning.

- Essential Instructional Practices 5 through 7 focus on the types of mathematical tasks, as well as routines for using these tasks to support deep and meaningful learning of mathematics.

- Essential Instructional Practice 8 highlights productive and purposeful ways of engaging children's families/caregivers as partners in the learning process.

The practices listed can be used within a variety of overall approaches to mathematics instruction and many different structures of the day — the document does not specify one particular instructional program or textbook series. Instead, this document promotes an instructional stance focused on a relentless curiosity to make sense of what children know and then uses children's thinking and their ways of making sense as building blocks for future learning. In doing so, educators work to meet children where they are by providing appropriate contexts and learning activities. Understanding this, it is critical to recognize that the inherent design of a mathematical task (i.e., how it appears in an instructional resource) has implications for children's learning. In particular, tasks that are designed at higher levels of cognitive demand are more likely to be used with children in ways supportive of learning mathematics, rather than just encouraging students to produce answers (Stein and Lane, 1996). As such, selection of instructional resources is a critical piece

**Photo:**
Finding joy in mathematics (above).

to building a system that supports and enables teachers as they work with children in ways consistent with the practices outlined in this document.

These practices do not exist in a vacuum. Educators' effective use of these practices will be significantly enhanced by a deep understanding of:

- early mathematics content;
- the ways in which children make sense of mathematics; and
- systemic inequities commonly reproduced in schools and classrooms.

"Mathematical ideas that are suitable for preschool and the early grades reveal a surprising intricacy and complexity when they are examined in depth" (NRC, 2009, p. 21). Many educators, particularly those supporting children in early childhood and elementary settings, have not been given adequate opportunities to learn about the intricacies and complexities of early mathematics. With this in mind, we recommend that as educators engage in professional learning focused on these instructional practices, they also engage with mathematics — particularly early number and geometry concepts, two fundamental areas of early mathematics (NRC, 2009; IES, 2013). In addition, opportunities to learn to recognize and remediate systemic inequities have the potential to influence educators' efforts to support children as they learn mathematics.

Our goal is that these practices become habits of mind for educators. As learners (both children and adults) engage with these practices, learners may find that their perceptions of themselves mathematically — their mathematical identities — vary as they persevere to become increasingly competent and confident in their understanding of and ability to use mathematics. This document and the additional tools and resources to grow out of this initial work will support each of us to deepen and extend the ways in which we see mathematics and see ourselves within the context of mathematics.

In closing, it is important to read this document in relation to the Early Childhood Standards of Quality for Birth to Kindergarten and the Michigan K-12 Standards for Mathematics (Kindergarten through Grade 5).



# Essential 1

## Design learning environments to **encourage mathematical play and tinkering.**

a. Provide activities and tasks that encourage children to experiment with and explore mathematical ideas. These tasks should encourage:
   - choice;
   - creativity; and
   - social engagement.

b. Provide access to a variety of materials (e.g., blocks, art supplies, counters, bundles and sticks, pattern blocks, Cuisenaire rods, measuring tools, games, puzzles, coding and robotics tools) to prompt exploration of mathematical ideas.

c. Flexibly use space to enable collaborative areas, as well as quiet thinking areas.

d. Look for and highlight mathematical ideas in children's play to help them describe and make sense of mathematics as part of their cultural and social worlds.

e. Incorporate objects and pictures to promote spatial reasoning, measurement, and quantity, and to intentionally use mathematically accurate language when describing these things.

f. Incorporate (e.g., display) diverse representations of people (e.g., race, gender, culture, age) doing a variety of mathematical work.

g. Encourage physical movement as children work to make sense of mathematical ideas (e.g., use of hand motions to signify the meaning of words such as more or less, travel along a number line when considering increasing and decreasing quantities, etc.).

h. Allow children choices in how they position their bodies, such as sitting, standing, or lying down, as they engage with mathematical ideas.

i. Explore the relationship of mathematics with other domains by intentionally infusing mathematics in other content (e.g., social studies, music, technology, dance, science, literacy, dramatic play, block play, art, etc.)



**Photos:**
Encouraging play and tinkering in the math classroom (above).
Children playing with fraction circles (below).
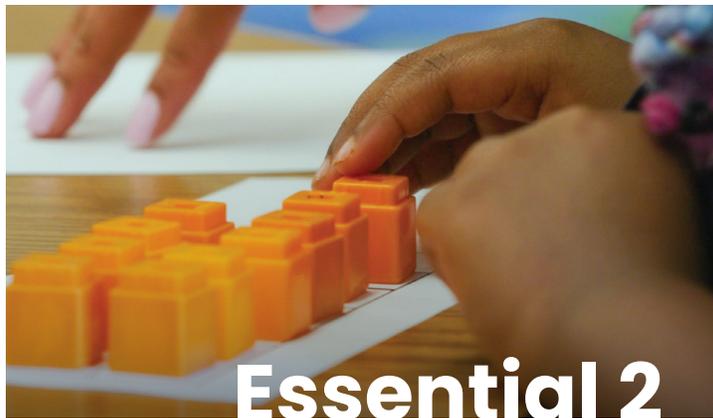
# Essential 2

**Establish and monitor norms (i.e., ways of being in a learning environment) with children to develop a classroom culture and climate that promotes positive, robust mathematics identities.**

a. Provide children with opportunities to see themselves as mathematicians (i.e., people who can use, do, and understand mathematics).

b. Focus on growth, support productive struggle, and encourage children's internal desire to learn, as opposed to external measures of achievement or rewards.

c. Develop an awareness of how mathematics is expressed in the children's communities, as well as in different communities.

d. Ask and explore mathematical questions relevant to their world (e.g.,"Which professions are represented in the books in our learning environment? How often is each profession represented?").

e. Use children's cultural and personal background experiences (e.g., ethnic, racial, religious, extra-curricular, etc.) while exploring mathematical ideas. For example:

   i. books with relevance to children's lives and culture(s); and

   ii. objects and pictures from a child's real-life experience, such as items from nature, common things seen in the child's community, etc.

f. Explore how mathematicians from diverse communities have played a role in the development of mathematical knowledge. For example:

   i. incorporate children's books (or use other means) to highlight stories of people who have used and contributed to mathematics.

g. Solicit differences in mathematical thinking and personal experiences and strategically leverage these as resources in learning (e.g., when working in groups, preparing the learning environment, offering examples or explanations).

h. Value partial and potentially incorrect understanding of mathematical concepts and procedures as tools for highlighting productive thinking, including opportunities to scaffold learning.

i. Be mindful of and interrupt instructional experiences that potentially lead to undue stress and/or frustration for children when working to learn mathematics (e.g. timed tests, around-the-world).

j. Incorporate needs-based instruction, inclusive of flexible group structures; in doing so, avoid ability grouping that is long term and static in nature, as well as hierarchical language (e.g., "high kids/low kids"), as these practices can perpetuate low expectations and undermine future learning opportunities.

**Photos:**
Helping students make sense of story problems (above).
Small group playing with pattern blocks (right).

# Essential 3

## Ensure **equitable participation** of children in mathematics.

a. Monitor children's talk and intervene to create space for each child to express ideas by helping some children pause when needed, while encouraging others to contribute, particularly in relation to historical patterns of marginalization.

b. Use strategies to promote wide participation (e.g., turn-and-talks, fingerplays, clapping or stomping rhythmic patterns, hand signals, soliciting multiple answers and/or strategies).

c. Use a variety of participation structures (e.g., small groups, independent work, whole group) and representational contexts (e.g., graphs and diagrams, various ways of articulating numbers — verbal, quantity, symbolic, empty number lines, etc.) to support language development and create diverse opportunities for building and showing competence.

d. Use sentence stems to support children's engagement in mathematical discussions (e.g., "I agree/disagree because…"; "That solution is like/unlike mine because …"; "My answer is different because…"; "We could try…"; "Why did you…?"; "What if…?").

e. Model listening and communication using mathematical language (e.g., specialized vocabulary and terms) and support children in moving among more and less sophisticated mathematical language as they are developing ideas.

f. Recognize and value children's primary languages, developing proficiency in English, integrated use of multiple languages (i.e., translanguaging), and mode of communication (e.g., aided and/or unaided augmentative and alternative communication [AAC]) including the use of devices, gestures, images, and/or objects while learning.

g. Allow and support children in making choices about mathematical tools and numbers as they work to solve problems. For example, children may use:
   i. dot dice as opposed to those labeled with written symbols;
   ii. numbers within one hundred rather than numbers within twenty; and
   iii. visual representations such as manipulatives (e.g., pattern blocks or Cuisenaire rods) or drawings.

h. Distribute materials to support equitable engagement in group work using strategies such as:
   i. ensuring all children have access to task directions;
   ii. providing enough materials so all children can engage with the task; and
   iii. at times, strategically limiting materials (e.g., only giving some information to each child in a group) so that group members need to rely on one another while working.

i. For group work, choose group-worthy tasks that require multiple mathematical abilities and the full engagement of multiple children.

j. Structure group work to enable children with different levels of understanding or at different developmental levels to work together, with teacher support as needed.

**Photos:**
Story problems - independent work (above).
Cuisenaire rods (right).

# Essential 4

**Engage in formative assessment as a process** — in an ongoing and planned-for manner, continuously assess children's mathematical thinking through observation and discussion to inform the next learning and teaching steps.

a. Use standards and previous evidence of children's understanding to select daily mathematics activities that offer opportunities to notice children's informal and formal ways of speaking about, representing, and doing mathematics.

b. Look for and recognize different ways in which individual children demonstrate mathematical competence, including use of gestures, talk, representations, etc.

c. Pose purposeful questions in order to elicit evidence of children's thinking in various participation structures (e.g., individuals, pairs, and small and large groups).

d. Support children in reflecting upon and communicating their own learning within and outside of the classroom.

e. Use children's current levels of understanding to provide timely, productive feedback and advance learning.

f. Work from children's identified strengths as the starting points for new mathematical learning and selection of appropriate learning tasks.

g. Make instructional decisions guided by children's current levels of understanding and by evidence-based learning trajectories/progressions (LT/P) to help children develop more sophisticated solution strategies over time.

h. Ensure that classroom-level assessment practices disrupt historical patterns of marginalization with respect to age, race, ethnicity, cultural background, linguistic background, gender, (dis)ability, socio-economic status, and geographic context.

**Photo:**
Implementing a cognitively demanding task.

# Essential 5

Intentionally **select and implement cognitively demanding mathematical tasks** from instructional resources.

Cognitively demanding tasks are designed (as they appear in a resource or as planned by teacher[s]) to:

- hold high expectations for every child, leading to deep learning, by developing mathematical ideas and relationships;
- engage children in mathematical reasoning, sense making, and problem solving both individually and collaboratively;
- allow multiple entry points, suggesting children work in a variety of mathematically productive ways; and
- typically relate and be relevant to children's lived experiences.

a. Establish goals focused on helping children develop mathematical understandings as opposed to simply answer getting.

b. Launch the task in a manner that ensures access to every child by:

    i. clarifying task expectations;

    ii. encouraging children to draw on their own lived experiences, as well as be resources for one another; and

    iii. building children's knowledge of the context when a situation is unfamiliar to their lived experiences.

c. Encourage and support children's perseverance in problem solving in language-rich environments. For example:

    i. ask open-ended questions;

    ii. ask focused questions, informed by children's thinking as opposed to how the teacher might typically solve the problem, to guide children through their problem-solving processes;

    iii. ask children to discuss mathematical structure and make connections among mathematical ideas and relationships; and

    iv. prompt peer-to-peer mathematical talk (e.g., "Say in your own words what your friend just shared.").

d. Make children's thinking visible around strategies and ideas, positioning each child as a valuable contributor. For example:

    i. strategically select and sequence children's thinking and representations for use with the whole class;

    ii. invite children to share artifacts from play and/or outside of school; and

    iii. recognize various ways in which strategies and ideas may be shared (e.g., through movement, talk, images, symbols, and children's stories).

e. Support children in making connections among strategies and representations. For example:

    i. link work on an empty number line to a more formally notated computation strategy;

    ii. represent a written number story using objects or pictures;

    iii. create an array or area model for a multiplication number sentence (using whole numbers and/or fractions) and write a story context that fits this representation.

**Photos:**
Engaging students in inquiry based tasks geometry (above). Selecting and implementing a cognitively demanding task sorting shapes (right).

# Essential 6

**Engage children regularly in brief (5–15 minute) interactive number sense routines** focused on developing mental strategies for seeing quantity and working flexibly with numbers.

Brief interactive number sense routines typically include the following steps:

- the teacher poses a visual, verbal, and/or written mathematical prompt (e.g., "How many dots did you see?," "How might you solve 32 x 5 using a mental strategy?"
- children think individually;
- supported by the teacher, children share thinking, including non-fully formed ideas;
- the teacher notates and/or verbalizes the children's strategies; and
- the learning community discusses the thoughts that emerged and works to draw conclusions (e.g., "How do you know that doubling one factor and halving the other works? Does it always work?" and "Is this always an efficient strategy?").
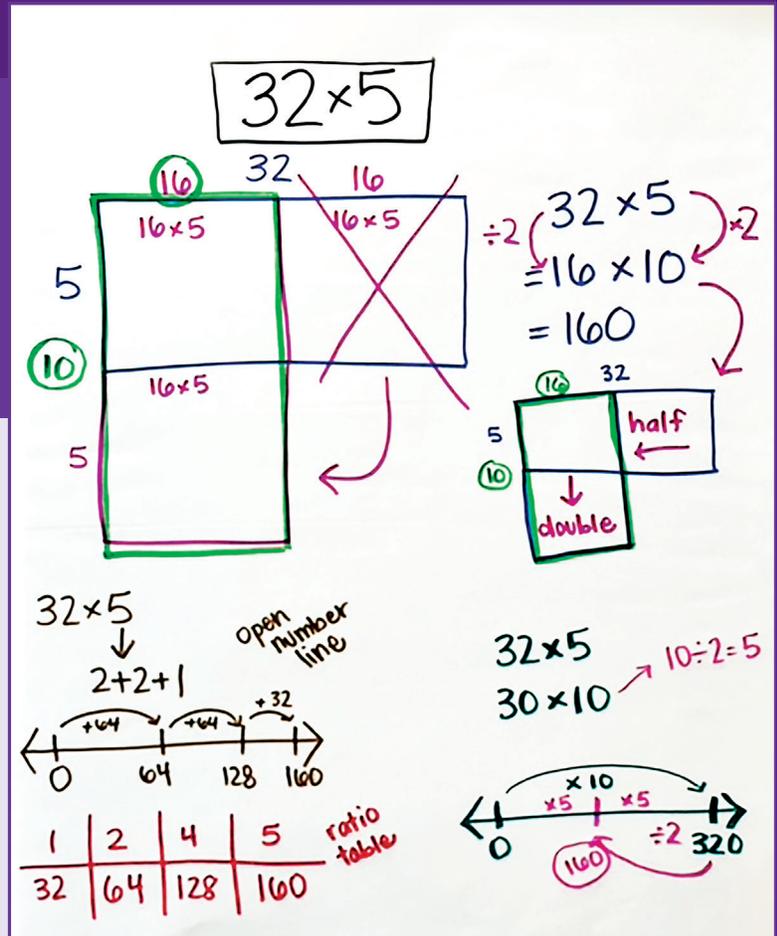


**Photo:** Number sense routines.

**Note:** The example questions included in the description of typical number sense routines to the left were based on the student thinking shown in the photo above.

a. Use accessible prompts to engage children in conversations around purposefully crafted computation and/or quantitative reasoning problems to be solved mentally.

b. Encourage children to develop their own strategies, working toward solution strategies that make sense to them.

c. Elicit children's thinking by asking them to share and explain their solution strategies, discuss the strategies of others, and make connections among multiple strategies.

d. Support children in paraphrasing one another's thinking to foster communication and language development.

e. Notate children's strategies, as they collectively reason about numbers, to make ideas accessible to others and to encourage movement toward increasingly flexible and sophisticated mental strategies.

f. Emphasize sense making and de-emphasize speed.

g. Promote joy and curiosity by inviting children to share their mathematical ideas; strategically explore these ideas with excitement even though some may not yet be fully formed or correct.

# Essential 7

**Engage children regularly in _making sense of and solving story-based problems_, both those that are planned for and those that come up organically throughout the day.**

a. Select problems grounded in accessible and relevant contexts to children by:

   i. using child-generated stories to create mathematical problems;

   ii. enabling children to make mathematical connections using examples from their community or home environment;

   iii. empowering children to connect mathematical concepts, such as more than, less than, same as, equal to, and fair shares with issues of fairness in their everyday lives; and

   iv. building children's knowledge of context when a situation is unfamiliar to their lived experiences, to help gain access to the mathematics.

b. Provide children access to and support them in making sense of a variety of real-world problems (inclusive of whole numbers, fractions, and/or decimals as appropriate) using _varied structures_* (e.g., "We have two crayons at our table. How many more do we need for all five of us to have a crayon?"; "You have two crayons and I have three crayons — how many do we have altogether?"; "Each batch of cookies calls for 3/4 cup of butter. How many batches of cookies can I make if I have 3 cups of butter?").

*Note: Additional examples of varied problem structures include, but are not limited to: total unknown, addend unknown, change unknown, unknown product, and number of groups unknown --see Tables 1 and 2, p. 88 and 89, of the Michigan K-12 Standards for Mathematics for additional contextualized examples.)

c. Observe and identify children's solution strategies (i.e., thinking and processes children use while engaging in mathematical work, not just how they represent their thinking) and use these observations to inform the selection of future problems. Strategies might include the use of:

   i. direct modeling;

   ii. counting;

   iii. derived facts;

   iv. children's invented strategies and/or algorithms; and standard algorithms.

**Photo:**
Number sense routines.

**Photo:**
Family drawing with chalk on the sidewalk in Kalamazoo.

# Essential 8

## Learn from and support families in promoting children's mathematical thinking.

a. Enact practices to make all children and families feel welcome in mathematics classrooms (e.g., respond sensitively to questions and concerns, recognize the demands homework places on family time and relationships, write and talk about mathematics in accessible ways).

b. Learn about family activities, hobbies, and cultural practices that may relate to mathematics and incorporate these activities into the classroom community daily or during special events.

c. Engage families and children in positive mathematics experiences (e.g., family nights at school that include mathematics games or activities, field trips that explore mathematical ideas, etc.).

d. Be sensitive to families' language practices in all communications and suggestions for out-of-school activities.

e. Provide ideas for out-of-school mathematical experiences, such as providing games or other resources that can be used in fun and engaging ways.

f. Engage families to gather feedback on school mathematics experiences to guide future interactions and to promote positive experiences for each child.

g. Communicate frequently with families, using an asset-based approach, to celebrate successes and identify strategies to achieve future goals.

# Essential Instructional Practices for Early Mathematics:
# Values

**Value #1:** We value children seeing themselves as mathematics knowers, doers, and contributors to the field, using mathematics to engage with their world.

Children's mathematics learning requires their own personal sense making as they engage in, construct, and acquire understandings, skills, and competencies in various mathematical domains, such as number and shape. Also critically important to a child's mathematics learning is their identity development as a person who knows and does mathematics. Too often children engage in various mathematical activities but fail to see themselves as a mathematics knower and doer. So many children and adults readily state, "I'm not a math person." But the reality is that we are all math people because we all engage in mathematizing every day (counting, estimating, seeking patterns, and problem solving).

Identity development is fundamentally about creating positive and affirming relationships with mathematics and seeing oneself as competent. Developing a relationship with mathematics is in many ways like developing a friendship. Just as personal relationships unfold differently among individual children, each child develops their relationship with mathematics differently. In the end, a positive relationship is critical to engagement in the field of mathematics — whether during an activity in class today or sustaining interest and perseverance in mathematics for years to come. We know many children develop fragile relationships with mathematics, relationships which may begin to fracture when a child receives messages, often unintended, that make the child feel unable to do, unwelcome to participate in, and/ or unsupported to engage with mathematics. Avoiding challenging mathematical activities and tasks, however, does nothing to grow and strengthen that relationship. Rather, developing a positive, robust relationship — a productive disposition toward mathematics — involves consistently providing meaningful challenges and adequate support so children can grow and strengthen a positive, robust mathematics identity.

**Value #2:** We value children's differences and the various social categories and identities they hold, including age, race, ethnicity, cultural background, linguistic background, gender, (dis)ability, socio-economic status, and geographic context.

What images come to mind when you think of a scientist or a mathematician? For many, the images we have consist of common characteristics that paint a limiting picture of who participates in science and mathematics. Since 1957, in the draw-a-scientist-test (DAST), children irrespective of race, gender, and class have typically drawn images of a man with lab coat, glasses, and facial hair holding different scientific tools. Perhaps not surprisingly, the results are quite similar when asked to draw a mathematician. Decade after decade, these studies reveal that even young children hold stereotypical images of scientists and mathematicians. Seeing oneself as a mathematician can be daunting when one doesn't see "people like me" among the predominant images around them at school and in society.

The example above is centered on visible qualities, but social differences are not only perceived visually; changing what we picture with respect to who participates in science and mathematics is only part of embracing social differences as assets to learning and doing mathematics. In addition to such visible qualities, we must also recognize and embrace other social differences, such as the varied ways in which children communicate and interact as they learn mathematics.

Children bring a range of their own socio-cultural identifiers, or social markers, with them into their mathematics learning. Each of these markers holds different personal and societal histories. In learning and practicing mathematics, many markers of race, gender, and class have long been used formally and informally to enable access to only a few, while restricting

access to others. Children's competencies in learning mathematics are not and should not be determined by their social markers. Still, these social markers can influence each person's perception of what it means to know and do mathematics, as well as who can and should do mathematics. So that all children can see themselves as learners and doers of mathematics, we believe that embracing the differences that all children naturally carry with them can only bring assets and resources to enrich learning and the relationships that students grow with each other, with their teachers, and with mathematics. Both recognizing and valuing these social differences as we work to broaden the images of competent mathematics knowers and doers are critical to ensure that every child sees themselves among images both appealing and empowering.

## Value #3: We value mathematics as a broad, creative, and collaborative discipline for sense making and problem solving.

How do you remember your experiences in mathematics? Too often, mathematics has been experienced at school as a rigid discipline dependent on speed and computational correctness. Many people's lasting memories involve timed tests and frustration that resulted. Others' memories of school mathematics include a sense of safety and comfort that there was always a correct answer if a set of procedures was just applied systematically — although not necessarily with an understanding of why or how they worked. Speed and accuracy have a long history of being the defining characteristics of school mathematics. Regrettably, this has unnecessarily created a small number of children and adults who are positioned as smart/winners and a large number of children and adults who are positioned as not smart/losers in the "math game." Witness the widespread perception that only a few people are "math people" and most people simply are not — and this situation is often seen as not only fine, but expected.

While mathematics operates within the bounds of logic toward well-reasoned results, mathematics as a discipline is a dynamic field of study that invites broad, creative, argumentative, and collaborative thinking. Mathematics can help children make sense of their everyday world through numbers, patterns, shapes, and logical reasoning. Young children arrive at school already having developed some ideas on their own, particularly in regard to numbers and shapes. These everyday understandings

of mathematics can serve as the foundation for children to continue developing their mathematical intuitions, and to gradually build toward abstract concepts that may or may not directly connect to the physical world. Mathematics encourages children to ask "what if?" — to conjecture and then verify mathematical ideas. Learners' first and subsequent experiences with mathematics can be premised on inquiry, discovery, and connection making that are challenged and verified within a classroom community through discussion and play. We therefore value a view of mathematics that is broad and creative, and focuses on meaning making in a learning community.

## Value #4: We value learning mathematics in a variety of ways — both socially and cognitively.

Imagine a group of children at a playground. Children are playing and engaging with each other in a variety of ways. Some use the different play structures as designed, gliding down the slide, while others are intent on seeing what else is possible, climbing up the slide instead. Some children require support from their friends or an adult to climb up ladders or swing on the swings, whereas others navigate challenges on their own. A few children are watching the others until they're ready to join in, and still another group of children is exploring the play structure, tinkering in creative ways and following wherever their imaginations take them.

Learning mathematics similarly reflects this diversity in both cognitive and social processes. Children express their abilities, intelligences, needs, and interests through a variety of forms and modes of interaction. Mathematics learning can be embraced as a different kind of playground that also invites and encourages a wide variety of abilities and styles of interaction. Furthermore, just as no child's style or preference for play is better than another's, modes for mathematics learning are not placed along some quality hierarchy. In fact, as a child works to make sense of a mathematical idea or set of ideas, this child may move from one mode to another given the particulars of the context. As with social markers, these differences in participation and engagement preferences are valued resources that create a dynamic, mathematically rich, playful, and joyful experience for all with abundant action, sound, and feeling.

**Value #5:** We value mathematics teaching that focuses on connection, care, and authentic relationships.

Building relationships with children is critical to being able to use teaching practices that value and honor children as unique persons in their own right, not as empty vessels to be filled. Relationship-building teachers express curiosity in their children and take time to find out: Who is this young person? Why might they be thinking this way? How might we work together in the next steps for growth? Regrettably, all too often, the aims and objectives of even the best teaching practices become narrowed — intentionally or not — to focus on covering mathematical content and managing classroom behavior. When this occurs, it tends to keep children at arms length from mathematics and from each other, often minimizing the critical interpersonal dimensions of meaning making and compromising the learning that should last a lifetime. This narrowed focus may also prompt teachers to be more corrective than curious when considering the next instructional steps and when viewing children's work. We value and privilege teaching practices that place the physical and socio-emotional aspects of children's development in the foreground, focusing on the human connection, on the care of others along with self, and on the building of authentic positive relationships — while simultaneously developing mathematics content knowledge.

**Photo:**
Family drawing with chalk on the sidewalk in Kalamazoo.

# Concluding thoughts on teaching practices...

Teaching practices are more than tools for which we intentionally plan or may improvise their use in the moment; they have the power to communicate what it might look and sound like to know and do mathematics. Teaching practices have histories — what these practices have meant in the past for children and communities, as well as futures — what these practices hope to accomplish in the coming weeks, months, and years. Another way to think about teaching practices is to consider the cumulative effect of a practice over time and to professionally and personally reflect: How has the practice been used in the past? What sort of relationships did this practice create between a child and mathematics, or between children? If this practice is continued, what sort of relationships might this practice create between a child and mathematics or between children in the years to come? Given the power that teaching practices wield, care must be taken to privilege those practices that drive not just content-learning, but that also grow positive identities, equitable access, and quality relationships.

Clearly, teaching young children mathematics is complex. "Teaching is what teachers do, say, and think with learners, concerning content, in particular organizations and other environments, in time." (Cohen, Raudenbush, & Ball, 2003, p. 124). Doing it effectively requires navigating the interactions described above while attending to the physical, socio-emotional, and intellectual needs and interests for not only one child, but for several children simultaneously. In short, we value teaching practices that engage children as partners in learning meaningful and useful mathematics content, inclusive of mathematical practices, and that honor children as individual and unique persons.

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**mathessentials.org**

# Process for Development and Review

This document was developed by the Early Mathematics Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. The Task Force included representatives from the following organizations:

Alt+Shift

General Education Leadership Network of Intermediate School Districts in Michigan

Grand Valley State University

MAISA Early Childhood Administrators Network

MAISA Mathematics Network

Michigan Assessment Consortium

Michigan Association of Intermediate School Administrators

Michigan Association of Mathematics Teacher Educators

Michigan Association of Superintendents & Administrators

Michigan Council of Teachers of Mathematics

Michigan Department of Education

Michigan Mathematics and Science Leadership Network

Michigan State University

MiSTEM Network

University of Michigan

Feedback on drafts of the document was elicited from other stakeholders, resulting in a number of revisions to the document.

# Essential Instructional Practices in Early Mathematics:
## Prekindergarten to Grade 5

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**General Education Leadership Network**

*a MAISA Collaborative*

# Essential Instructional Practices in Language and Emergent Literacy: Birth to Age 3

This document was developed by the **Early Literacy Task Force** (ELTF), a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts.

# INSTRUCTIONAL PRACTICES

*This document is intended to be read in concert with the Essential Instructional Practices in Early and Elementary Literacy: Prekindergarten. There is important overlap and continuity in these and other "Essentials" documents.*

*For more information, visit www.literacyessentials.org*

To reference this document: Michigan Association of Intermediate School Administrators General Education Leadership Network Early Literacy Task Force (2018). Essential instructional practices in language and emergent literacy: Birth to age 3. Lansing, MI: Authors.

# Purpose

The purpose of this document is to increase Michigan's capacity to improve children's literacy by identifying a small set of research-supported literacy practices that should be a focus of professional development throughout the state. The focus of the document is on practices in individual interactions with children, rather than on center- or systems-level practices. The document focuses on infants and toddlers, as the first 3 years of life are when children learn the fastest and acquire the foundational skills that will support their development and learning for the rest of their lives. Improving language and literacy experiences in the infant and toddler years has the potential to improve "reading by third grade" outcomes. Early childhood programs can also help to address disparities in literacy achievement.

Research suggests that each of the ten practices in this document can have a positive impact on literacy development. We believe that the use of these practices in every care setting every day could make a measurable positive difference in the State's literacy achievement. They should be viewed, like practice guides in medicine, as a minimum "standard of care" for Michigan's children.

Language and emergent literacy skills develop rapidly during the first 3 years of life and are essential for later learning, along with other key skills for learning in the physical, social-emotional, and cognitive domains; this document focuses on practices to support language and literacy, though all domains of development are important. The main goal of emergent literacy during this time is to support language development, providing a foundation for literacy skills. From birth to age 3, language and literacy are one integrated domain. The core skills are understanding and using language and other forms of communication, and building vocabulary that reflects the child's understanding of the world. Some emergent literacy skills can also be encouraged directly, by exposing children to printed words, sharing reading experiences, and helping children become aware of sounds within words. When these experiences are fun and engaging, children develop a love of reading that will motivate them to learn to read. This document is written for early childhood practitioners who work with infants, toddlers, and their families (child care providers, early educators, home visitors, early interventionists), but the practices can be used by all adults who work with infants and toddlers and their families, in home-, community-, or early care and education (ECE)-settings. This document does not endorse any specific curriculum, but describes essential practices — specific ways of interacting with infants and toddlers — that should be infused throughout their learning experiences. Most of the practices should happen every day and be integrated into daily routines. Others should be less frequent because they focus on specific aspects of language, reading, and writing. This is not an all-inclusive list of every possible practice that supports language and emergent literacy, but instead, a description of the ones with the best evidence in the science of child development. Each recommended practice is based on current research, and may change when additional research provides more information on the best ways to support our youngest learners.

## 1. Create Safe, Secure, and Stimulating Environments

When infants and toddlers feel safe and secure, they can actively explore and focus on learning. When environments are stimulating, they support infants and toddlers to direct their own play, which provides adults with opportunities to engage in child-led conversations that support language development.

**Create calm, predictable environments that support children's sense of safety.**

- Care for children in small groups to reduce overstimulation.
- Use music and other sound intentionally, not as background noise.
- Create predictable but flexible routines (e.g., for sleep, eating, diapering/toileting, and play).
- Ensure children get enough sleep (infants: 13-14 hrs; toddlers: 10-13 hrs), including daytime naps.

**Form consistent, close relationships to support children's sense of security.**

- Care for infants and toddlers in primary caregiving groups, keeping the same caregivers/educators with children as long as possible.
- Interact affectionately and respond positively when children initiate physical or social contact.
- Respond quickly and calmly to children's physical and emotional needs, particularly distress.
- Communicate with adults and children in calm and consistent ways.

**Create stimulating environments that encourage children's self-directed play and exploration, and use children's play as opportunities to support their language.**

- Provide a variety of materials, including books, toys that promote eye-hand coordination (e.g., crayons, shape-sorters, blocks), role-playing toys (e.g., dolls, pretend food), music (e.g., rattles, drums), and art-making materials (e.g., paper, paint, markers, playdough).
- Reflect children's home cultures in music, decor, photos, and toys in early education and care settings.
- Place materials where crawlers and walkers can reach them on their own.
- Provide materials that can be used in more than one way; encourage children to choose their own toys and how they play with them.
- Use children's self-directed play as opportunities to label, describe, and explain what they play with and how they are playing.
- Plan enriching, playful experiences that intentionally and flexibly support development while building on children's interests.

## 2. Bring Attention to Print Concepts in Books and the Environment

Print concepts are understandings about how print works, and the functions it serves in our lives. Infants and toddlers learn about the many ways that print is used when we point out print concepts and printed words throughout the environment; creating a print-rich environment encourages adults to do this. Children learn print concepts about the mechanics of reading during book-sharing experiences.

### Show children how print works, using both verbal and nonverbal strategies.

- Encourage children to touch and hold books and turn pages; comment on their actions with the book.

- Point to the print as you read it.

- Ask toddlers about simple print concepts (e.g., "Show me where to read.").

- Ask toddlers simple questions about print (e.g., "This is a P. Your name starts with P! Can you find another P?").

- Make comments about print (e.g., "That says 'help.'") and discuss the features of letters (e.g., "That is a D. It makes a /d/ /d/ /d/ sound, like dog and diaper.").

### Show children that print has meaning and serves many purposes.

- Point to, read, and describe printed words in the environment, such as labels on shelves, packages, menus, and street signs, discussing purposes of the printed words (e.g., "That sign says 'blocks.' It tells us that this is where the blocks go on our shelves.").

- Show children that letters and words help readers understand what labels, menus, and signs say.

### Create a print-rich environment that is meaningful to children.

- Use children's names and photos to label their belongings, cubbies, art, and other materials.

- Label bins and shelves with both pictures and words.

- Include words and images that are meaningful to children or useful in daily life (e.g., nursery rhymes, inspirational messages, grocery lists, packaging labels, menus, daily schedule, reminders).

- (See also Essential #8 for providing materials for reading and writing that are always available).

### Use Developmentally Appropriate Literacy Experiences!

Avoid pushing children to read in this developmental period. There is no evidence that infants and toddlers can learn to read words conventionally, even when parents or educators use programs or materials attempting to teach infants or toddlers to read. Instead, there is evidence that having engaging and emotionally supportive book-sharing interactions with caregivers supports later reading development. Pressuring children to read can lead to bad reading habits and undermine their motivation to read. Instead, focus on creating fun learning experiences with books and print.

## 3. Share Books in Engaging Ways

Book-sharing fosters a love of reading when it is engaging and fun, and when children feel close to the adult reading. Book-sharing can be used to support comprehension and vocabulary when it is interactive, and when adults talk about the content of the book and link it to children's interests and experiences. Children who start sharing books with their caregivers before age 1 have better language and literacy skills later on.

### Read to children from birth, and read often, sharing a variety of books and other texts.

- Share different types of books and other texts (e.g., magazines, newspapers, websites) with infants and toddlers, including stories, information books (which provide factual knowledge), and poetry.

- Choose high-quality books to share with children, making sure that at least some of the books have rich vocabulary (many different words, some words that are not from everyday language), use full sentences (rather than just one word at a time), and have pictures related to the printed words.

- Choose books with stories and topics that are interesting and enjoyable for children, including topics related to their family and culture.

### Foster a love of reading by making book-sharing engaging and fun.

- Sit together with children, letting them sit on your lap or next to you while sharing books.

- Let infants and toddlers choose the books.

- Read the same books over and over again if children are interested in them – children love to predict what happens or appears next in their favorite books.

- Invite children to interact with the books by turning pages and pointing to pictures or words.

### Make book-sharing interactive to support understanding of concepts and vocabulary development.

- Use different voices, facial expressions, and gestures to engage children in the meaning of the contents in books, acting out the important parts of stories, and talking about new words or ideas.

- Comment on links between the ideas in the book to children's experiences and interests.

- Comment on words that are new to children as you read books, and explain their meaning using words that infants understand or toddlers already say.

- Reinforce new words from books by talking with toddlers about the book topic so they can practice the new words themselves. Repeat new words and provide explanations or examples.

- Use questions and prompts to help children learn and label concepts in the book.

### Low tech is best!

There is no substitute for adult-child interaction when it comes to language and emergent literacy. Limit television viewing and other screen time for children. If any, choose story-like, language-rich shows. Make television or tablet use interactive by watching with children and talking about what they see and hear.

## 4. Play With Sounds and Invite Children to Play With You

Infants are born paying attention to sounds of voices, and are attracted to higher-pitched and musical voices. Playing with sounds draws children's attention to the sounds in language and supports their skills for recognizing and working with the sounds of language (phonological awareness).

**Encourage and respond to all sounds, from first coos to words and sentences.**

- Imitate the sounds infants make, then expand on them with other vocalizations and words.

- Make eye contact and follow infants' facial expressions and eye gaze as you engage in sound play.

**Use infant-directed speech with young infants to get and keep their attention.**

- With infants less than 6 months old, use a higher pitched vocal tone, and stretch out the vowel sounds. Pause between phrases, and vary the pitch of your voice (e.g., "Hi baaaaby… See the biiiig bunny… She is soooo taaaall.").

- With infants less than 1 year old, use short phrases and repeat them several times.

**Draw children's attention to the sounds of words using their names, songs, poems, and books.**

- Sing songs with hand motions (which helps infants understand the meaning of the words) and let them "sing along" even before they can talk (e.g., Itsy Bitsy Spider; Sweet Potato Pie; I Can; or Wheels on the Bus). Draw children's attention to the sounds by clapping with the rhythm of a song.

- Share books, poems, and songs with rhymes (e.g., "Pat the cat sat on a mat.") or words that begin with the same sound (e.g., "Willy the whale likes wet water."). Play with the sounds in children's names. Talk about sounds in the words as you say them.

- Start by drawing children's attention to individual words (e.g., clap out the words in the sentence "The dog ran fast."). Next, draw attention to syllables (e.g., "Doorbell. That has two beats, doorbell. How many beats does pop-si-cle have?").

## 5. Enhance Two-Way Communication With Gestures

Gestures (hand and body motions used for communication) let preverbal children choose the topic of conversation and promote two-way communication between adults and young children, which encourages children's development of vocabulary. When toddlers combine two gestures, or combine gestures with words, this helps them learn to combine words and ideas into sentences.

**Use gestures along with words to promote two-way communication.**

- During play, use gestures to show what objects do (e.g., turn the plane propeller or make the frog hop).

- Use simple gestures while you sing so even preverbal children can learn to "sing along."

- During book-sharing, point to pictures as you read or talk about them. Use hand gestures to act out key concepts in the book.

- During care routines (meals, sleep, diapering), model gestures for the main concepts (e.g., "eat," "drink," "sleep," and "diaper") so preverbal children can learn to communicate their needs.

- Always talk while you gesture so children learn to pair the words with the gestures.

**Encourage preverbal children to use gestures during book-sharing.**

- Invite children to point to things they recognize in books by asking simple questions (e.g., "Where's the bunny?" and "Can you find the mouse?").

- Invite children to point to what they are interested in by asking open-ended questions (e.g., "What do you see on this page?" and "Which ones do you like?").Then label and describe what they pointed to.

**Respond to children's gestures to promote language.**

- Use children's gestures as a cue for what to talk about. Translate their gestures into spoken words.

- Respond to children's gestures, and their gesture-word combinations, by repeating their message back and expanding on it.

## 6. Support Skills Across Developmental Domains That are Important for Writing

Writing is a multi-faceted activity about composing and communicating messages. It is supported by a set of skills including motor skills, understanding and using symbols, and creating messages for others. Early writing often looks like scribbles; this shows that children understand that writing has meaning and can communicate a message.

**Provide opportunities for children to practice the motor skills needed for writing.**

- Support fine-motor activities that build strength in small muscle groups in hands and fingers, such as working with playdough, finger painting, or picking up objects of different sizes, with hands then with tools.

- Provide a variety of age-appropriate materials to write, draw, and paint.

- Encourage all early forms of writing, including simple marks, scribbles, and drawing.

**Give children natural opportunities to write or compose messages, and talk to them about the meaning.**

- Talk about what they have drawn, marked, colored, or painted without evaluating it or assuming what it is. For preverbal children, comment on the composition (e.g., "I see that you used blue to make lines, and here is a red circle."). For verbal children, use open-ended prompts (e.g., "Tell me about your work," or "Can you tell me about this part?").

- Ask older toddlers what they have written when they are finished writing. Affirm their messages about the content, regardless of what their marks look like.

## 7. Converse With Children, Responding to Their Cues and Letting Them Choose the Topics

High-quality language interactions are central to supporting early language skills. Infants and toddlers need to hear a rich variety of language that is directly related to their attention and interests, and to be encouraged to communicate in all the ways they can — with facial expressions, hands and bodies, and voices. The same child-led, responsive interaction practices support both preverbal and verbal toddlers, but the practices can look a little different, depending on the child's age and communication skills.

### High-Quality Language Interactions With Infants and Toddlers

|  | Preverbal Children | Verbal Children |
|---|---|---|
| **Establish joint attention** | <ul><li>Get on the infant's level physically. Be close so the infant can see, hear, and touch you.</li><li>Watch infants closely to learn what they pay attention to — look to their eye gaze, facial expressions, body orientation, and actions.</li><li>Make eye contact so it is clear that you and the infant are paying attention to each other (dyadic joint attention).</li><li>Look at the things the infant is looking at or playing with so you and the infant are attending to the same thing (triadic joint attention).</li></ul> | <ul><li>Place yourself near the toddlers' activities, getting down at their eye level.</li><li>Watch and listen to toddlers to learn what they are doing or trying to do.</li><li>Look for opportunities to join the toddlers' activites without taking over.</li><li>Comment on what toddlers are doing to let them know you are paying attention; wait for an invitation to join their play.</li><li>Respond to toddlers' invitations to join their play or activity.</li></ul> |

## High-Quality Language Interactions With Infants and Toddlers

| | **Preverbal Children** | **Verbal Children** |
|---|---|---|
| **Talk to children about their interests** | ▪ Talk about things infants are doing and paying attention to (parallel talk).<br>▪ Narrate what you do as you do it (narrating/self-talk).<br>▪ Warn infants before changing what you are doing (anticipatory talk). | ▪ Talk about what toddlers do, see, and hear, and what they might think or feel.<br>▪ Let toddlers know ahead of time what you are going to do. Explain your reasons for doing what you do. |
| **Encourage children to choose the topic of conversation** | ▪ Invite and encourage infants to choose their own toys and activities.<br>▪ Comment on what infants choose to do. | ▪ Ask toddlers what they want to do.<br>▪ Support toddlers' activity choices.<br>▪ Comment on toddlers' choices. |
| **Use child-directed speech** | ▪ Use a calm, warm tone of voice.<br>▪ Use a musical tone of voice, with higher-pitched tones, to get young infants' attention.<br>▪ Use short, simple sentences.<br>▪ Repeat key words or phrases.<br>▪ Emphasize key words with exaggerated voice, face, and gestures. | ▪ Use a calm, warm, and normal tone of voice, and speak slowly and clearly.<br>▪ Use longer sentences with more complex, adult-like grammar.<br>▪ Use a variety of sentence types, including questions. |
| **Respond to children's communication cues** | ▪ Respond to infants' facial expressions, sounds (cooing, babbling), and body language (gestures, head turns, squirming).<br>▪ Interpret infants' interests, experiences, and intentions, and translate them into words.<br>▪ Listen and watch for infants' cues that they are done interacting (glancing or turning away, fussing, moving away). | ▪ Respond to toddlers' facial expressions, vocalizations, words, and body language.<br>▪ Interpret toddlers' interests, intentions, and internal states. Translate them into words and connect them to their context.<br>▪ Follow toddlers' leads when they end the interaction. |
| **Imitate and expand** | ▪ Repeat infants' vocalizations or words back to them. | ▪ Repeat toddlers' words and phrases, re-phrasing to use the words correctly (e.g., Toddler: "Me go." Adult: "You're saying you want to go?").<br>▪ Repeat toddlers' words and add another idea. (e.g., Toddler: "Me go." Adult: "You want to go? I want to go, too. Who should we take with us?"). |
| **Extend what children say** | ▪ Talk about what infants are doing, what they are seeing and hearing, and what they might want or be trying to do (sportscasting: out-loud play-by-play of infants' actions and experiences). | ▪ Talk about things connected to toddlers' interests and activities.<br>▪ Talk about things beyond the here and now (feelings and thoughts, events in the past or future, people not present). |
| **Keep the conversation going** | ▪ Encourage infants to vocalize again.<br>▪ Engage in face-to-face vocal turn-taking.<br>▪ Ask simple questions and wait for an answer.<br>▪ Respond to any cue from the infant and keep the exchange going. | ▪ Ask open-ended questions about what toddlers are doing.<br>▪ Use "I wonder" statements that invite toddlers to think about what is possible.<br>▪ Respond to all communication attempts and keep the conversation going. |

## 8. Provide Materials for Reading and Writing That are Always Available to Children

Infants and toddlers learn best when they pursue their own interests in ways that utilize and build on their own skills. Environments and routines should provide them with the freedom to explore books and use writing and drawing materials at their own pace and in their own ways.

**Provide children access to many different, high-quality books in all settings.**

- Place books within children's reach so they can access books any time.

- Make sure children have access to their favorite books and ones that reflect their home language, family, and culture.

- Simple books are just as effective as ones with expensive features such as lift flaps.

**Give children opportunities to write in whatever forms they can.**

- Provide children with a variety of writing materials and surfaces on which to write (e.g., crayons or markers on paper, chalk on chalkboard or sidewalk, sticks in sand).

- Provide toddlers with opportunities to write meaningfully (e.g., "signing" their name, writing a grocery list, or checking off items from a list).

### Low tech is best!

There is no evidence that technology supports language and literacy learning in the infant and toddler years, including electronic books and technology designed for education. The key to language development is active, back-and-forth communication between children and adults; limit the things that detract from these high-quality interactions.

- Limit children's access to electronic toys, tablets, phones, and media.

- Focus on books and writing materials, rather than electronic toys, games, and apps.

## 9. Monitor Language Development, Screen for Early Delays, and Refer Families to Services as Needed

Toddlerhood is when language delays first appear, and when early intervention is most effective. Delays in early language development may cause challenges in behavior regulation and social interactions; if not addressed, these delays lead to later difficulties in language and literacy.

**Screen and monitor children's hearing.**

- Ensure that infants' and toddlers' hearing is screened regularly.

- Monitor hearing for possible deficits that may be due to frequent ear infections.

**Screen and monitor children's social communication behaviors, understanding of language, and ability to talk.**

- Take families' concerns about their child's language seriously.

- Assess children's language and communication together with families.

- Make sure the person who screens the child's language is familiar to the child so the child is sufficiently comfortable and can show what they know.

- Use a validated screening tool to monitor children's abilities to understand language and to communicate with gestures and words.

**Screen multiple-language learners in culturally and developmentally appropriate ways.**

- Screen children in their primary home language.

- Screen and assess children learning two or more languages in both/all languages.

- Involve families in screening the child's language.

**When screening indicates a hearing deficit, or a risk of delay in development, refer families in Michigan to Early On for further evaluation:** www.1800earlyon.org

# 10. Work With Families to Promote Home Language and Literacy Environments That are Rich and Responsive

Infants' and toddlers' primary learning environment is their home, and their first and most consistent educators are the family members with whom they live. The home language and literacy environment has a strong and lasting effect on language skills, emergent literacy, and related social and academic skills.

**Create positive, goal-oriented relationships between families and educators.**

- Acknowledge families' roles in their child's development and learning. Ask for parent and family insights about their child's interests and needs.

- Take a strengths-based approach that recognizes that all families have the ability to support their child's development. Help to maximize those abilities.

- Refer families to services that can support their own health and well-being so they can be calm, attentive, and responsive to their infants and toddlers.

- Ask about and prioritize families' goals for their child's development and learning.

- Support families in their home language whenever possible.

**Work within families' home routines to support infants' and toddlers' language and emergent literacy.**

- Point out and encourage things families already do that support their children's language and literacy (e.g., talking about what interests their child, responding to child cues, and asking questions to keep the conversation going).

- Point out child behaviors that are communication cues, help families interpret these cues and respond in ways that support language development and emergent literacy. Show how families can explore and play with objects, talk, and use gestures during everyday routines with children.

- Help families identify ways to change their child's environment and routines to be calm, consistent, and stimulating (e.g., keep consistent meal and bedtime routines, maximize children's sleep, and reduce extra noise that may disrupt children's concentration).

- Communicate that all family members — mothers, fathers, siblings, and others — are part of the child's home language and literacy environment and can support their development.

**Show families they can support language and emergent literacy in many ways in addition to "reading," including:**

- Sharing books with pictures.

- Story-telling.

- Singing, rhyming, chanting, rapping, or other word play.

**Incorporate families' culture and language in all settings.**

- Represent the child's cultural background and home language (if it has a written form) in books, labels, and other materials.

- Provide families with children's books (to borrow or keep) in their home language or most comfortable language.

- Encourage families to communicate with their children in their most comfortable language. Recognize that the ability to speak multiple languages has many social and cognitive benefits for children.

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## Process for Development and Review

This document was developed by the Early Literacy Task Force (ELTF), a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. The Early Literacy Task Force included representatives from the following organizations, although their participation does not necessarily indicate endorsement by the organization they represent:

| | |
|---|---|
| Early Childhood Administrators' Network, MAISA | Michigan Reading Association |
| English Language Arts Leadership Network , MAISA | Michigan State University |
| General Education Leadership Network, MAISA | Michigan Virtual University |
| Kalamazoo Public Schools | Reading NOW Network |
| Michigan Association for Computer Users in Learning | REMC Association of Michigan |
| Michigan Association of Supervisors of Special Education | Southwest Michigan Reading Council |
| Michigan Department of Education | Technology Readiness Infrastructure Grant |
| Michigan Elementary and Middle School Principals Association | University of Michigan |
| Michigan's Integrated Behavior and Learning Support Initiative | |

Feedback on drafts of the document was elicited from other stakeholders, resulting in a number of revisions to the document.

## Essential Instructional Practices in Language and Emergent Literacy

MICHIGAN ASSOCIATION OF INTERMEDIATE SCHOOL ADMINISTRATORS
SUPPORTING REGIONAL EDUCATION SERVICE AGENCIES

General Education Leadership Network

Literacy Essentials

Online | **gomaisa.org/geln**     Online | **literacyessentials.org**     Twitter | **#MichiganLiteracy**

# Essential Instructional Practices in Early Literacy: Prekindergarten

This document was developed by the **Early Literacy Task Force**, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. For a full list of representatives, please see the back page.

# INSTRUCTIONAL PRACTICES

*This document is intended to be read in concert with* Essential Instructional Practices in Language and Emergent Literacy: Birth to Age Three, *and the* Essential Instructional Practices in Early Literacy: Grades K to 3. *There is important overlap and continuity in these three documents, and some children will benefit from instructional practices identified in multiple documents.*

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## Purpose

The purpose of this document is to increase Michigan's capacity to provide effective and equitable early literacy practices for every child every day. The document identifies research-supported instructional practices in prekindergarten that should be a basis of professional learning, policy, and instruction throughout the state. Research indicates that each of these practices can have a positive impact on literacy development. The use of these practices in every classroom every day is expected to make a measurable positive difference in the state's literacy achievement. The practices should be viewed, as in practice guides in medicine, as presenting a minimum "standard of care" for Michigan's children. Other documents available at literacyessentials.org address other age groups, grade levels, and aspects of education systems, including coaching practices, school-level practices, and systems-level practices.

Throughout this document, we use the term "teachers" to encompass educators in home-based, center-based, and school-based settings. We use the term "classroom" broadly to encompass any indoor and outdoor learning environments that are used to provide education to young children. We use the term "prekindergarten" to encompass the two to three years after toddlerhood and before beginning kindergarten.

## Core Commitments

The MAISA GELN Early Literacy Task Force is united in our belief that all children thrive when research deeply informs practice; education builds on every child's interests and individual, cultural, and linguistic assets; and educators hold high expectations for all children's development. Indeed, the Essential Instructional Practices in Early Literacy were built upon the premise that it is unacceptable for some Michigan children to experience research-supported instructional practices while others do not—especially in cases in which the quality of instruction is determined by children's socioeconomic, racial, linguistic, cultural, or other background characteristics. We are committed to an education system in which educators, families, communities, and children are respected and supported. We are also committed to working against all forms of bias that cause harm and that lead to inequitable education, in literacy and across all areas of development.

## Enabling Conditions

Use of the *Essential Instructional Practices in Early Literacy* should occur daily in school or childcare settings that are supportive and effective for children not only in literacy, but in all areas of development. There are many wide-ranging conditions that enable children to thrive in all areas of development, including literacy. A few key examples of such conditions include:

- an asset orientation toward children and their families and communities
- positive relationships between and among teachers, children, and families
- opportunities for children to develop healthy identities
- culturally relevant[1], responsive[2], and sustaining[3] pedagogical approaches throughout the day
- a playful approach to teaching and learning and lots of opportunities for children to play
- sufficient time for physical activity, meals, and play

For additional information about enabling conditions, see the *Essential School-Wide and Center-Wide Practices in Literacy and Mathematics, Prekindergarten and Elementary Grades*.

## Robust Resources

This document offers instructional practices, not a curriculum or curricular resources. Districts and other educational organizations, in consultation with educators and other experts, should provide, at minimum, curriculum materials that address all areas encompassed in early childhood curricula and that include abundant materials to read to young children (see Essential Eight). Educators, districts, and other educational organizations should use frameworks[4] that can guide the selection of materials and the design of curricular units and lessons. Frameworks that are used should attend to such factors as alignment to research; diversity, equity, and inclusion; and the goals of multiple stakeholders, including national and state organizations (e.g., standards documents), local educators, library media specialists, members of the local community, families, and children themselves. Materials should be coordinated and adapted as needed to reflect findings from research.

## Essential Practices

The recommended instructional practices are to occur throughout the day, largely integrated into opportunities for learning in all other areas, not in an isolated block identified as "English Language Arts" or "Literacy." Oral and written language development should not be the only focus of prekindergarten education. There should be ample room for development in other areas. Later academic achievement is predicted not only by oral and written knowledge and skill but also by mathematics learning, knowledge of the natural and social world, and certain aspects of social, emotional, and physical development[5].

It is also important to understand that this is not an exhaustive list of research-supported instructional practices, although practices not on this list should be carefully scrutinized with respect to alignment to research on literacy instruction. We should actively resist neglecting any of these research-supported practices. Every child in every classroom deserves teachers who implement each of these research-supported practices because they are important, interconnected, and necessary.

Within and across the prekindergarten years, practices should be implemented in developmentally sensitive and responsive ways. All practices listed below are for regular classroom instruction (i.e., Tier 1) and are appropriate for children of all linguistic backgrounds who are learning an alphabetic language. Within all practices, opportunities should be provided for translanguaging, that is, for children to draw on their full linguistic repertoire, including both nonverbal and verbal means of communication and all dialects and languages they are learning.

## 1. Intentional use of literacy artifacts in dramatic play and throughout the learning environment [6]

**Reading and writing materials are not only present but used throughout the learning environment in both teacher-led and child-led play.**

- Within daily opportunities for dramatic play, the teacher provides, models use of, and encourages children's engagement with appropriate literacy artifacts, such as:
  - order pads, menus, and placemats for a pizza parlor
  - traffic signs, maps, blueprints, and building-related books in the block/construction area
  - envelopes, stationery, postcards, stamps, and actual mail for a post office
  - waiting room reading material, a schedule, and a prescription pad for a doctor's office

- Within centers and other areas of the classroom, children are encouraged to interact with reading and writing materials, such as:
  - books related to construction or building in the block or construction area
  - simple recipes for making snacks
  - labels that indicate where items go
  - children's names, for example, on cubbies and sign-in sheets, which may vary over time (e.g., first, with photos, then later, without photos)
  - writing materials in each area of the classroom for drawing and writing–for example about objects being observed in the science area
  - story-related and replica toys (e.g., a miniature fire station play set)
  - digital tools aligned to screen-use guidelines and with carefully curated, research-aligned digital games and applications, digital picture books, e-books, and videos

## 2. Read aloud with reference to print [7]

**Daily read-alouds include verbal and nonverbal strategies for drawing children's attention to print, such as:**

- running fingers under words
- noting specific features of print and letters (e.g., "That is the letter 'd', like in Deondre's name.")
- asking children where to start reading and where to go next at the end of a line of text (i.e., return sweep)
- counting words
- pointing out print within pictures

## 3. Interactive read-alouds with a comprehension and vocabulary focus [8]

**The teacher reads aloud, in culturally and developmentally responsive ways, age-appropriate books and other materials, print or digital, described in Essential Eight, including by:**

- reading sets of texts that are thematically and conceptually related
- reading some texts multiple times with varied instructional foci
- engaging in higher-order discussion among children and teacher before, during, and after reading (e.g., with open-ended questions that invite children to respond in their own words and draw upon their knowledge and experiences)
- providing child-friendly, culturally relevant explanations of words within the text

- revisiting words after reading using tools such as movement, props, video, photo, examples, and nonexamples that support children in relating new words to known words and encourage children to say the words aloud
- using the words at other points in the day and over time
- teaching clusters of words related to those in the text, such as vocabulary related to garden or gardening

## 4. Play with sounds inside words [9]

**Although phonological awareness as a construct does not involve letters, phonological awareness instruction is best provided primarily in connection to letters. Teachers support phonological awareness development through various activities, such as:**

- listening to and creating variations on books with rhyming or alliteration
- singing certain songs (e.g., "Willoughby, Wallaby Woo," "Down by the Bay," "The Name Game," "Apples and Bananas")
- sorting pictures and objects by a sound or sounds in the name of each object

- playing games and leading transitions that feature play with sounds (e.g., alliteration games, a transition that asks all children whose names begin with the "mmm" sound to move to the next activity)
- engaging in "robot talk" or the like (e.g., the teacher has a robot-sounding puppet say the sounds "ffff" "iiii" "shhhhh," and children say "fish")

## 5. Brief, clear, systematic, and explicit instruction [10] in letter names, the sound(s) associated with the letters, and how the letters are shaped and formed [11]

**Instruction that has been shown to be effective in fostering the development of letter-sound knowledge is supported by tools and practices such as:**

- a high-quality alphabet chart[12]
- cards with children's names
- attention to how the teacher and children form and articulate sounds[13]
- opportunities to write the letters while learning their sounds
- alphabet books with appropriate keywords (please see the first bullet of this Essential)

- lowercase letters embedded in pictures of objects that begin with a primary sound of that letter (e.g., a lowercase "a" embedded in the image of an apple)
- references throughout the day (e.g., "That sign says the store is open. The first letter is 'o.' It makes the 'oh' sound: oooopen.")

Research suggests that we should set a benchmark of children naming 18 uppercase and 15 lowercase letters by the end of prekindergarten and should teach letter-sound associations rather than letter names or sounds alone. High-frequency word instruction is not appropriate for prekindergarten.

## 6. Interactions around writing [14]

**Adults engage in deliberate interactions with children around writing. Opportunities for children to write their names, informational, narrative, and other texts that are personally meaningful to them are at the heart of writing experiences. Children progress through a series of phases of writing development, from drawing as writing to scribbling to letter-like forms to random letter strings to representing some sounds in words with letters to (after preschool) representing all sounds in words. Attention should focus on sharing ideas, rather than just forming letters and spelling words, as children move through phases of writing development. Deliberate interactions around writing include the use of interactive writing and scaffolded writing techniques.**

- Interactive writing involves children in contributing to a piece of writing in which the teacher leads the writing and addresses children's developmental strengths and needs through explicit teaching, modeling, and involving children in writing in order to jointly compose a text. With the teacher's support, children determine/compose the content of the message, count the words, stretch words, listen for sounds within words, think about letters that represent those sounds, and write some of the letters. The teacher uses interactive writing as an opportunity for instruction—for example, regarding the directionality of writing, purposes for writing, and specific sound-letter relationships.

- Scaffolded writing involves the individual child in generating a message the child would like to write. The message is negotiated and repeated with the child until it is internalized. The teacher draws one line for each word in the message using a highlighter or pen. The child writes one "word" per line, where the "word" might be a scribble, letter-like form, random letter string, or one or a few letters within the word.

As indicated in Essential One of this document, materials for writing are available throughout the classroom as well as in an area primarily devoted to opportunities to write, and adults engage regularly to support children in classroom areas where writing may occur.

## 7. Extended conversation [15]

**Adults engage in interactions with children that regularly include:**

- responding to and initiating conversations with children, with repeated turns back and forth on the same topic

- encouraging talk among children through the selective use of open-ended questions, commenting on what children are doing, offering prompts (e.g., "Try asking your friend how you can help."), and scaffolding higher-order discussion, particularly during content-area learning

- modeling and providing practice with discussion that encourages a variety of ways for children to communicate with one another and the teacher (e.g.,

gestures, multiple languages, multiple dialects, and all of their linguistic resources)

- talking, including narrating and explaining, within dramatic play experiences and content-area learning, including intentional vocabulary-building efforts

- extending children's language (e.g., The child says, "Fuzzy." The adult says, "That peach feels fuzzy to me, too. What else do you notice about it?")

- discussing past and future events

- storytelling/story acting (individually and collaboratively dictating stories, acting out stories, and serving as an audience for others' stories)

## 8. Provision of abundant reading, listening, and viewing material in the classroom [16]

**The teacher reads aloud, interacts with children around, and provides access to:**

- a wide range of books and other texts, print and digital, including information books, poetry, and storybooks that are physically accessible to children (i.e., within children's reach), that portray groups of people in ways that are multidimensional, not all the same, and that challenge stereotypes

- books and other materials connected to children's interests, including texts that reflect children's backgrounds and cultural experiences, texts that reflect the backgrounds and cultural experiences of others, and texts that incorporate both, including class- and child-made books

- recorded books, videos, and digital picture books with and without written words and animations

- books from the classroom, school, and/or public library that teachers support children in borrowing to bring home and/or in accessing digitally (e.g., through MeL.org)

- comfortable places in which to look at books, frequently visited by the teacher(s) and by volunteers recruited to the classroom in order to support and encourage children's engagement with texts

## 9. Ongoing observation and other forms of assessment of children's language and literacy development that informs their education

**The teacher:**

- engages in observation and other forms of assessment that are not biased by race, socioeconomic status, or other factors and that are guided by:
  - the teacher's understanding of language and literacy development
  - the Early Childhood Standards of Quality for Prekindergarten and, if applicable, the Head Start Early Learning Outcomes Framework

- observes in multiple authentic contexts—including play, learning centers, outdoors, and whole- and small-group experiences—to inform specific instructional targets

- employs assessment tools that are considered appropriate for prekindergarten contexts

- uses information from observations and assessment tools to plan and carry out instruction and engage in interactions with children

## 10. Collaboration with families, caregivers, and the community in promoting literacy [17]

**Families, caregivers, and the community engage in language and literacy interactions with their children that can be drawn upon and extended in preschool. Preschool educators should work together to incorporate family, caregivers, and community funds of knowledge, assets, and perspectives into the classroom. Classroom teachers should serve as connectors between schools and families by:**

- inviting families, caregivers, and community members:
  - to read, present, and lead activities that share their personal and professional knowledge and engage children in literacy experiences in school
  - to work together with teachers to develop ways to build upon and further incorporate literacy-promoting strategies into everyday activities, such as cooking, communicating with friends and family, and traveling in the bus or car

- collaborating with families and caregivers regarding ways to read aloud to children and engage children in discussions during reading and writing

- incorporating songs, oral storytelling, and other texts from children's homes and communities into classroom activities (e.g., from cultural institutions in the community, neighborhood businesses)

- promoting literacy milestones (e.g., pretend-reading, which some parents mistakenly believe is "cheating" but is actually a desired activity in literacy development)

- encouraging families to speak with children in their home/most comfortable language, whether or not that language is English

- providing literacy-supporting resources, such as:
  - books and other materials from the classroom and digital libraries that children can borrow, use, or keep that reflect Essential Eight, bullet one
  - children's magazines, videos, and digital picture books with and without words
  - information about judicious, adult-supported use of educational television and applications that can, with guidance, support literacy development
  - announcements about local events
  - passes to local museums (for example, through www.michiganactivitypass.info)
  - ideas that promote children's interactions with family members while engaging in literacy and language activities (e.g., writing books together about the child and their family)

See also Essentials Eight, Nine, and Ten of the *Essential School-Wide and Center-Wide Practices in Literacy and Mathematics, Prekindergarten and Elementary Grades*.

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13 Children's linguistic backgrounds and their speech and language development affect how they pronounce sounds. Teachers should not focus on getting children to pronounce sounds the way that they do. Rather, teachers' focus should be on making sure that each child has a sound that they consistently associate with that letter, and teachers should make sure that the way the child pronounces the sound in a word allows them to connect that word to the concept. It is extremely important to be aware of children's speech and language development and linguistic backgrounds when teaching the alphabet and to approach the process with an asset-oriented view of children's language(s).

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## Process for Development and Review

This document was developed in 2016 by the Early Literacy Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. Its update was published in 2023 (lead updating team, in alphabetical order: Emily Caylor, Nell K. Duke, Gwendolyn Thompson McMillon, Mary Patillo-Dunn, and Tanya S. Wright). The Task Force included representatives from the following organizations, although their participation does not necessarily indicate endorsement by the organization they represent:

313 Reads

Early Childhood Administrators' Network, Michigan Association of Intermediate School Districts

English Language Arts Leadership Network of Michigan Association of Intermediate School Districts

General Education Leadership Network of Intermediate School Districts in Michigan

Michigan Association for Computer Users in Learning

Michigan Association of Intermediate School Administrators

Michigan Association of Media Educators

Michigan Association of Supervisors of Special Education

Michigan Department of Education

Michigan Elementary and Middle School Principals Association

Michigan's Integrated Behavior and Learning Support Initiative

Michigan Reading Association

Michigan State University

Michigan Virtual University

Oakland University

Reading NOW Network

Regional Educational Media Centers Association of Michigan

Southwest Michigan Reading Council

Technology Readiness Infrastructure Grant

University of Michigan

Feedback on drafts of the document was elicited from other stakeholders, resulting in a number of revisions to the document." to "Input and feedback on drafts of the original and updated document were elicited from other stakeholders, resulting in a number of revisions to the document.

## Essential Instructional Practices in Early Literacy: Prekindergarten

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# Essential Instructional Practices in Early Literacy

This document was developed by the **Early Literacy Task Force**, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. For a full list of representatives, please see the back page.

# INSTRUCTIONAL PRACTICES

*This document is intended to be read in concert with* Essential Instructional Practices in Literacy, Prekindergarten. *There is important overlap and continuity in these two documents, and some children will benefit from instructional practices identified in the prekindergarten document beyond the prekindergarten year.*

To reference this document: Michigan Association of Intermediate School Administrators General Education Leadership Network Early Literacy Task Force (2023). *Essential instructional practices in early literacy*: *K to 3*. Lansing, MI: Authors.

## Purpose

The purpose of this document is to increase Michigan's capacity to provide effective and equitable early literacy practices for every child every day. The document identifies research-supported instructional practices for kindergarten through third grade that should be a basis of professional learning, policy, and instruction throughout the state. Research indicates that each of these practices can have a positive impact on literacy development. The use of these practices in every classroom every day is expected to make a measurable positive difference in the state's literacy achievement. The practices should be viewed, as in practice guides in medicine, as presenting a minimum "standard of care" for Michigan's children. Other documents available at literacyessentials.org address other age groups, grade levels, and aspects of education systems, including coaching practices, school-level practices, and systems-level practices.

## Core Commitments

The MAISA GELN Early Literacy Task Force is united in our belief that all children thrive when research deeply informs practice; education builds on every child's interests and individual, cultural, and linguistic assets; and educators hold high expectations for all children's development. Indeed, the *Essential Instructional Practices in Early Literacy* were built upon the premise that it is unacceptable for some Michigan children to experience research-supported instructional practices while others do not—especially in cases in which the quality of instruction is determined by children's socioeconomic, racial, linguistic, cultural, or other background characteristics. We are committed to an education system in which educators, families, communities, and children are respected and supported. We are also committed to working against all forms of bias that cause harm and lead to inequitable education, in literacy and across all subjects and domains.

## Enabling Conditions

Use of the *Essential Instructional Practices in Early Literacy* should occur in a school day that is supportive and effective for children not only in literacy, but in all areas of development. There are many wide-ranging conditions that enable children to thrive in all school subjects and domains, including literacy. A few key examples of such conditions include:

- an asset orientation toward children and their families and communities
- positive relationships between and among teachers, children, and families
- opportunities for children to develop healthy identities
- culturally relevant[1], responsive[2], and sustaining[3] pedagogical approaches throughout the day
- sufficient time for physical activity, meals, and play

For additional information about enabling conditions, see the [Essential School-Wide and Center-Wide Practices in Literacy and Mathematics, Prekindergarten and Elementary Grades](#).

## Robust Resources

This document offers instructional practices, not a curriculum or curricular resources. Districts and other educational organizations, in consultation with educators and other experts, should provide, at minimum, curriculum materials that address literacy development, science, social studies, and mathematics and that include abundant materials for young children to read (see Essential Eight). Educators, districts, and other educational organizations should use frameworks[4] that can guide the selection of reading materials and the design of curricular units and lessons. These frameworks should attend to such factors as alignment to research; diversity, equity, and inclusion; and the goals of multiple stakeholders, including national and state organizations (e.g., standards documents), local educators, library media specialists, members of the local community, families, and children themselves. Materials should be coordinated and adapted as needed to reflect findings from research.

## Essential Practices

The *Essential Instructional Practices in Early Literacy* should occur throughout the day, including in science and social studies, not exclusively in an isolated block identified as "English Language Arts" or "Literacy." At the same time, literacy instruction should not take the place of science, social studies, or other curricular areas, nor of addressing standards in all other areas. That approach is counterproductive because later academic achievement is predicted not only by literacy knowledge and skills but also by mathematics learning, knowledge of the natural and social world, and certain aspects of physical, social, and emotional development.

It is also important to understand that this is not an exhaustive list of research-supported instructional practices, although practices not on this list should be carefully scrutinized with respect to alignment to research on literacy instruction. We should actively resist neglecting any of these research-supported practices. Every child in every classroom deserves teachers who implement each of these research-supported practices because they are important, interconnected, and necessary.

All practices listed below are for regular classroom instruction (i.e., Tier 1) and are appropriate for children of all linguistic backgrounds who are learning an alphabetic language. Within all practices, opportunities should be provided for translanguaging, that is, for children to draw on their full linguistic repertoire, including both nonverbal and verbal means of communication and all dialects and languages they are learning.

## 1. Deliberate, research-informed efforts to foster literacy motivation and engagement within and across lessons [5]

**The teacher:**

- creates opportunities for children to see themselves as successful readers and writers by providing appropriately challenging tasks, defining success criteria, scaffolding, providing explicit feedback, incorporating diverse texts and authors that allow children to see that people who are like them in various ways can be successful authors, and other practices

- provides daily opportunities for children to make choices in their reading and writing (choices may be a limited set of options or from extensive options but within a specified topic or genre)

- offers regular opportunities for children to collaborate with peers in reading, writing, speaking, and listening, such as through pair and small-group discussions of texts of interest and opportunities to write within group projects

- helps establish purposes for children to read, write, and discuss in and out of school, beyond being assigned or expected to do so, such as for their enjoyment/interest, to answer their questions about the natural and social world, to address community needs, to communicate with a specific audience, and to draw on and affirm their identities

- uses additional strategies to generate excitement about reading and writing, such as book talks, updates about book series, and child-centered activities, including incorporating children's interests, involving children in classroom management decision-making processes, and engaging them in creating a positive learning environment. The teacher avoids attempting to incentivize reading through nonreading-related prizes, such as stickers, coupons, or toys, and avoids using reading and writing as "punishment" (e.g., "If you can't listen, I'm going to send you to sit and read")

## 2. Read-alouds of age-appropriate books and other materials, print or digital, including culturally relevant texts [6]

**Read-alouds involve:**

- sets of texts across read-aloud sessions that are thematically and conceptually related and that offer opportunities to learn that children could not yet experience independently

- modeling of appropriate fluency (accuracy, automaticity, and prosody) in reading

- child-friendly explanations of words, concepts, and information within the text; revisiting words after reading and using tools such as movement, props, videos, photos, examples, and nonexamples; and engaging children in saying the words aloud and using the words at other points in the day and over time

- interactivity, including higher-order discussion among children and between children and teachers before, during, and after reading

- instruction depending on the grade level and children's needs that:

  - develops **print concepts**, such as developing children's directionality by running a finger under the words and asking where to start, with texts being sufficiently visible to children so they can see specific features of print

  - models application of knowledge and strategies for **word recognition** (see Essential Three)

  - builds **knowledge of the structure and features of text**, including, with regard to structure, key story elements and common informational text structures (compare-contrast, cause-effect, problem-solution, description, and sequence), and with regard to text features, tables of contents, diagrams, captions, and indexes

  - describes and models **comprehension strategies**, including activating prior knowledge/predicting, questioning, visualizing, monitoring and fix-up, drawing inferences, and summarizing/retelling

  - describes and models strategies for ascertaining the meaning of unfamiliar **vocabulary**

## 3. Small group and individual instruction, using a variety of grouping strategies, most often with flexible groups formed and instruction targeted to (i.e., differentiated by) children's observed and assessed needs in specific aspects of literacy, including both writing and reading development (and therefore not by perceived general "ability" or "level") [7]

**The teacher:**

- ensures that children frequently experience small-group instruction and use most of their time in small groups to actually read and write (or work toward this goal in kindergarten and early first grade)
- coaches children as they engage in reading and writing—for example, with reading prompts focusing primarily on identifying words based on letters and groups of letters in words, monitoring for meaning, and rereading and with writing prompts focused on genre, ideation, organization/structure, and mechanics
- employs practices for developing reading **fluency**, such as repeated reading; echo reading; paired, partner, or dyad reading; and continuous or wide reading (many of these practices can also be used with the whole group)

- includes explicit instruction, as needed, in **word recognition strategies**, including multisyllabic word decoding, **text structure**, **comprehension strategies**, oral language, vocabulary, writing goal-setting, and **writing strategies**
- is deliberate in providing quality instruction to children in all groups, with meaning-making the ultimate goal of each group's work

While the teacher is with children in small groups, examples of research-supported activities in which children could engage include writing (e.g., in response to reading, in alignment with content-area instruction), repeated reading, dyad reading, brief handwriting practice, research-proven computer-adaptive literacy programs, listening to and reading along with recorded books.

## 4. Activities that build phonological awareness (grades K and 1) [8, 9]

**Teachers promote phonological awareness development, particularly phonemic awareness development. Although phonological awareness as a construct does not involve letters, phonological awareness instruction is best provided primarily in connection to letters. It entails explicit instruction[10], demonstration, play with sounds in words, and engaged study of words, such as by:**

- listening to and creating variations on books and songs with rhyming or alliteration
- sorting pictures, objects, and written words by a sound or sounds (e.g., words with a short-"e" sound versus words with a long-"e" sound)
- doing activities that involve segmenting sounds in words (e.g., Elkonin boxes, in which children move tokens or letters into boxes, with one box for each sound in the word), which supports orthographic mapping and spelling unfamiliar words

- doing activities that involve blending sounds in words (e.g., "robot talk" in which the teacher says "/f/ /ĭ/ /sh/" [i.e., the sounds "fffff" "iiiii" "shhhh"] and children say "fish"), which supports decoding
- creating daily opportunities to write meaningful texts in which children listen for the sounds in words to estimate their spellings

## 5. Explicit instruction [11] in letter-sound and sound-letter relationships [12]

**Earlier in children's development,** such instruction will focus on letter names, the sound(s) associated with the letters, how letters are shaped and formed, and decoding and spelling simple words (e.g., consonant-vowel-consonant [CVC] words with short vowels).

**Later in children's development,** the focus will be on more complex letter-sound relationships, including digraphs (two letters representing one sound, as in "sh," "th," "ch," "oa," "ee," and "ie"), blends or consonant clusters (two or three letters representing each of their sounds pronounced in immediate succession within a syllable, as in "bl" in "blue," "str" in "string," or "ft" as in "left"), diphthongs (two letters representing a single glided phoneme as in "oi" in "oil" and "ou" in "out"), common and less common spelling patterns (e.g., "-ake" in "cake" or "rake," "-all," "-ould"), and patterns in multisyllabic words, all as reflected in each child's oral language.

**Instruction fosters flexibility in children,** given that, in English, there are often multiple ways to spell a given sound and multiple sounds that a given spelling can represent.

**High-frequency words are taught with full analysis** of letter-sound relationships within the words (i.e., not by sight/memory), even in those that are not spelled as would be expected and/or that reflect relationships not yet learned.

**Instruction in letter-sound relationships is:**

- verbally precise and involves multiple channels, including opportunities to say, read, and write/spell words

- informed by careful observations of children's reading and writing and, as needed, assessments that systematically examine knowledge of specific sound-letter relationships

- taught systematically in relation to students' needs and aligned with the expectations of the Michigan K-3 Standards for English Language Arts

- accompanied by opportunities to apply the knowledge of the letter-sound relationships taught by reading books or other connected texts that include those relationships (i.e., texts in which most of the words are decodable based on what children have learned up to that point in the scope and sequence in addition to being written with attention to other factors, such as engagingness and the extent to which the reader is likely to be able to create a mental image associated with the meaning of the word [imageability])

- reinforced by coaching children during reading, most notably by prompting children to attend to the letters in words, recognize letter-sound relationships they have been taught, and monitor for meaning (not to identify words but to monitor/cross-check whether the word that has been decoded makes sense)

## 6. Research- and standards-aligned writing instruction on a daily basis and across content areas in the school day [13]

**The teacher provides opportunities for children to write a variety of texts for a variety of purposes and audiences. To support children in doing so, the teacher provides:**

- interactive writing experiences in grades K and 1, in which the teacher leads the writing and addresses children's developmental strengths and needs through explicit teaching, modeling, and involving children in writing in order to jointly compose a text

- instruction that fosters children's motivation and engagement with writing in alignment with Essential One

- instruction in writing processes and strategies—that is, teaching children a set of steps they can engage in independently to research, plan, revise, and edit writing, using a gradual release of responsibility

- opportunities to study models of writing, particularly opinion, informative/explanatory, and narrative texts (real and imagined), including texts by diverse authors (see Essential 8)

- explicit instruction in letter formation, with frequent, brief practice in writing specific letters, handwriting fluency (moving toward automaticity with authentic writing while maintaining legibility), spelling strategies (e.g., listening for sounds in words, syllable breaking, morphemic analysis), capitalization, punctuation, sentence construction (e.g., sentence combining), keyboarding (first expected by the end of grade 3[13]), and word processing

## 7. Intentional and ambitious efforts to build vocabulary and knowledge, including content and other cultural knowledge, throughout the day [14]

**The teacher:**

- selects vocabulary words to teach from read-alouds of literature and informational texts and from content-area curricula

- introduces word meanings to children during reading and content-area instruction using child-friendly explanations and providing opportunities for children to pronounce the new words and see the spelling of the new words

- provides many opportunities for children to review and use new vocabulary over time, including discussing ways that new vocabulary words relate to one another and to children's existing knowledge, addressing multiple meanings or nuanced meanings of a word across different contexts, and encouraging children to use new words in meaningful contexts (e.g., discussion of texts, discussion of content-area learning, semantic maps, writing)

- teaches, models, and provides practice with discussion processes and protocols and encourages a variety of ways for children to communicate with one another and the teacher (e.g., gestures, multiple languages, and all of their linguistic resources)

- teaches morphology (i.e., the meaning of word parts), including common word roots, cognates, prefixes, and suffixes

## 8. Abundant reading material in classroom and school libraries and reading opportunities in the classroom [15]

**The classroom includes:**

- a wide range of books and other texts (print, audio, video, and digital), including information books, poetry, and storybooks that children are supported in physically accessing (rather than being hidden away) that portray groups of people in ways that are multidimensional, not monolithic, and that challenge stereotypes
- books and other materials connected to children's interests, including texts that reflect children's backgrounds and cultural experiences, texts that reflect the backgrounds and cultural experiences of others, and texts that incorporate both, including class- and child-made books
- teacher-supported access to books from the classroom, school, and/or public library that children can borrow to bring home and/or access digitally

- comfortable places in which to read books, frequently visited by the teacher(s) and adult volunteers recruited to the classroom in order to support and encourage children's engagement with texts
- opportunities for children to engage in the reading of materials of their choice every day, with supports that include:
  a) instruction and coaching in how to select texts,
  b) instruction and coaching in employing productive strategies during reading,
  c) feedback on children's reading, and
  d) post-reading response activities, including text discussion

## 9. Ongoing observation and other forms of assessment of children's language and literacy development that informs their education [16]

**The teacher:**

- engages in observation and other forms of assessment that are not biased by race, socioeconomic status, or other factors and that are guided by
  - the teacher's understanding of language and literacy development (which must be continuously developed)
  - the Michigan K to 12 Standards for English Language Arts
- prioritizes observations during reading and writing, with a focus on observations informing the next steps in instruction (e.g., specific spelling patterns to reteach, specific genre features that don't appear to require further instruction)

- administers assessments of specific aspects of literacy development and of reading and writing as a source of information to identify children who may need additional instructional support and to build on the strengths of each child
- employs formative and diagnostic assessment tools for the purpose of identifying specific instructional strengths and needs (e.g., assessing knowledge of specific sound(s)-letter(s) relationships, assessing knowledge of specific vocabulary words taught, reading and writing strategies being used and not used) in order to inform next steps in classroom instruction

## 10. Collaboration with families, caregivers, and the community in promoting literacy [17]

**Families, caregivers, and the community engage in language and literacy interactions with children that can be drawn upon and extended in kindergarten through third grade. Educators should work together to incorporate family, caregivers, and community funds of knowledge, assets, and perspectives into the classroom. Classroom teachers should serve as connectors between schools and families by:**

- inviting families, caregivers, and community members:
  - to read, present, and lead activities that share their personal and professional knowledge and engage children in literacy experiences in school
  - to work with teachers to develop ways to build upon and further incorporate literacy-promoting strategies into everyday activities, such as cooking, communicating with friends and family, and traveling in the bus or car
- collaborating with families and caregivers regarding ways to read aloud to children and engage children in discussions during reading and writing
- incorporating songs, oral storytelling, and other texts from children's homes and communities into classroom activities (e.g., from cultural institutions in the community, neighborhood businesses)
- promoting children's out-of-school reading

- supporting families in fostering academic literacy learning at home and in after-school settings, including over the summer months (e.g., staffing after-school tutoring programs, providing materials for summer reading, providing structures for summer reading)
- encouraging families to speak with children in their home/most comfortable language, whether or not that language is English
- providing literacy-supporting resources, such as:
  - books and other materials from the classroom and digital libraries that children can use or keep that reflect Essential 8, bullet one
  - information about judicious, adult-supported use of educational television and applications that can, with guidance, support literacy development
  - announcements about local events
  - passes to local museums (for example, through www.michiganactivitypass.info)

See also Essentials Eight, Nine, and Ten of the Essential School-Wide and Center-Wide Practices in Literacy and Mathematics, Prekindergarten and Elementary Grades.

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11 Explicit instruction involves telling children what you want them to know rather than expecting that they will infer this information. For example, explicit instruction about the letter "l" might include (although not necessarily all at once) the following: "This [pointing] is the letter called ell. *Ell* stands for the /lll/ sound. Latoya's name starts with the /lll/ sound: LLLatoya. Lion

also starts with the /lll/ sound: /llllion/. You can make *ell* with a straight line down and a short line across, like this [demonstrating], or you can make *ell* with just a straight line down, like this [demonstrating]."

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# Process for Development and Review

This document was developed in 2016 by the Early Literacy Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. Its update was published in 2023 (lead updating team, in alphabetical order: Emily Caylor, Nell K. Duke, Gwendolyn Thompson McMillon, Mary Patillo-Dunn, Amanda Wowra, and Tanya S. Wright). The Task Force included representatives from the following organizations, although their participation does not necessarily indicate endorsement by the organization they represent:

313 Reads

Early Childhood Administrators' Network, Michigan Association of Intermediate School Districts

English Language Arts Leadership Network of Michigan Association of Intermediate School Districts

General Education Leadership Network of Intermediate School Districts in Michigan

Michigan Association for Computer Users in Learning

Michigan Association of Intermediate School Administrators

Michigan Association of Media Educators

Michigan Association of Supervisors of Special Education

Michigan Department of Education

Michigan Elementary and Middle School Principals Association

Michigan's Integrated Behavior and Learning Support Initiative

Michigan Reading Association

Michigan State University

Michigan Virtual University

Oakland University

Reading NOW Network

Regional Educational Media Centers Association of Michigan

Southwest Michigan Reading Council

Technology Readiness Infrastructure Grant

University of Michigan

Input and feedback on drafts of the original and updated document were elicited from other stakeholders, resulting in a number of revisions to the document.

## Essential Instructional Practices in Early Literacy: Grades K to 3

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**N**etwork

*a MAISA Collaborative*

# Essential Instructional Practices in Literacy

This document was developed by the **Early Literacy Task Force**, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. For a full list of representatives, please see the back page.



# INSTRUCTIONAL PRACTICES

*This document is intended to be read in concert with* Essential Instructional Practices in Literacy, Grades K to 3. *There is important overlap and continuity in these two documents, and some students will benefit from instructional practices identified in the K to 3 document beyond the K to 3 years.*

## Purpose

The purpose of the document is to increase Michigan's capacity to improve children's literacy by identifying a small set of research-supported instructional practices that could be the focus of professional development throughout the state. The focus of the document is on classroom practices, rather than on school- or systems-level practices (which are addressed in the document: Essential School-Wide and Center-Wide Practices in Literacy). Research suggests that each of these ten practices in every classroom every day could make a measurable positive difference in the State's literacy achievement. They should be viewed, as in practice guides in medicine, as presenting a minimum 'standard of care' for Michigan's children.

The practices listed can be used within a variety of overall approaches to literacy instruction and within many different structures of the school day; the document does not specify one particular program or approach to literacy instruction. We limited the list to ten practices; there are other literacy instructional practices that may be worthy of attention. In addition, new literacy research could alter or add to the instructional practices recommended here. For these reasons, choosing to enact the practices on this list would leave considerable agency and choice for individual districts, schools, and teachers.

The recommended practices should occur throughout the day, including being integrated into opportunities for science and social studies learning, not exclusively in an isolated block identified as "English Language Arts" or "Literacy." At the same time, literacy instruction should not take the place of science and social studies inquiry nor addressing the Michigan Grade Level Content Expectations for Social Studies nor addressing the Michigan K-12 Science Standards. In the long term, that approach is counterproductive; later academic achievement is predicted not only by literacy knowledge and skills, but by mathematics learning, knowledge of the natural and social world, and certain aspects of physical, social, and emotional development. Finally, it is important to read this document in relation to the State of Michigan's specific standards for literacy development in fourth and fifth grade , which should garner careful attention in all Michigan fourth- and fifth-grade classrooms and be one focus in observing classroom practice and children's development. The endnotes indicate some connections between the ten instructional practices and the Michigan Standards, and they reference research studies that support the practices listed.

## 1. Deliberate, research-informed efforts to foster motivation and engagement within and across lessons[4]

**The teacher:**
- Creates opportunities for children to identify as successful readers and writers (e.g., "I am a reader.")[5]
- Provides daily opportunities for children to make choices in their reading and writing across disciplines (choices may be a limited set of options or from extensive options but within a specific disciplinary topic or genre)
- Offers regular opportunities for children to collaborate with peers in reading and writing, such as through small-group discussion of texts of interest and opportunities to write within group projects[6]
- Helps establish meaningful purposes for children to read and write beyond being assigned or expected to do so, such as for their enjoyment/interest, to answer general or discipline-specific questions about the natural and social world, to address community needs, or to communicate with specific audiences[7]
- Builds positive learning environments that encourage students to set and achieve goals, as well as promote student independence
- Attends to and cultivates student interest by connecting literacy experiences to students' family and community experiences

## 2. Intentional, research-informed instruction using increasingly complex texts and tasks that build comprehension, knowledge, and strategic reading activity[8]

An important aspect of literacy instruction is foregrounding the use of reading and writing for the purpose of building knowledge about the world and about oneself. Ideally, comprehension instruction, including strategy instruction, is always in the service of supporting knowledge building. At times, the teacher needs to be very explicit about how to construct meaning from text, but this activity is always embedded in sense making with text. One dimension of comprehension instruction is signaling that there are many possible causes for comprehension breakdowns (e.g., poorly constructed text, insufficient prior knowledge, challenging concepts and vocabulary). It is important that students be encouraged to monitor their understanding and, when there has been a breakdown, have a repertoire of fix-up strategies. While teachers can model these fix-up strategies, the goal is for students to practice the use of these fix-up strategies so that they become independent readers.

**To build comprehension, knowledge, and strategic reading, the teacher:**
- Facilitates discussion of text meaning to support students to interpret the ideas in a text[7]
- Provides experiences for students to build knowledge to support their interpretation of text prior to reading (e.g., to build prior knowledge), during reading (e.g., to support text interpretation), and after reading (e.g., to extend learning)[9]
- Models and guides students to be metacognitive while reading (i.e., monitor for comprehension and use fix-up strategies when there are breakdowns in comprehension)
- Provides explicit comprehension strategy instruction (e.g., finding main ideas, summarizing, making connections between new text information and prior knowledge, drawing inferences). High quality strategy instruction includes:
  - Thoughtful selection of the text to use when introducing and teaching a comprehension strategy
  - Attending to the demands the text places on the readers to inform appropriate selection of texts
  - Demonstrating and describing how to apply the strategies that students are learning to different texts
  - Providing guided practice that reflects the difficulty level of the strategies that students are learning, as well as the demands of the text, and purposes for reading

## 3. Small group instruction, using a variety of grouping strategies, most often with flexible groups formed and instruction targeted to children's observed and assessed needs in specific aspects of literacy development[10]

**The teacher:**

- Is deliberate in providing quality instruction to children in all groups, with meaning-making the ultimate goal of each group's work, and ensures that children use most of their time actually reading and writing

- Provides and supports opportunities for small group discussion of literature and disciplinary text (e.g., Instructional Conversations and Literature Circles) so that students can draw on their own knowledge and the knowledge of their peers to co-construct the meaning of text

- Provides opportunities for developing reading fluency during small group work, such as paired and partner reading

- Uses small group routines (e.g., cooperative and collaborative learning, such as Reciprocal Teaching and Collaborative Strategic Reading) for fostering strategic reading and knowledge-building using text

- Provides opportunities for students to plan, draft, revise, and/or edit writing together, framed by specific guidelines for working together

## 4. Activities that build reading fluency and stamina with increasingly complex text[11]

**Activities include:**

- Listening to models of fluent reading (reading with appropriate accuracy, automaticity, and prosody) of age-appropriate books and other print or digital materials

- Engaging in repeated readings of familiar texts

- Engaging in wide reading of texts, including multiple modes (e.g., print, digital, visual, audio), genres, and topics

- Using reading materials of increasing text difficulty

- Opportunities to read independently for specific purposes, including for pleasure, for sustained periods of time

- Paired or partner reading

## 5. Discussion of the ideas in texts and how to construct text meaning across texts and disciplines[12]

**The teacher:**

- Reads aloud age-appropriate books and other materials, print or digital[13]

- Carefully selects texts that provide the grist for rich discussion, and analyses texts to identify specific learning goals, challenges (e.g., the complexity of the ideas in the text, insufficient information) and affordances (e.g., text organization, such as problem-solution or compare-contrast; text features, such as graphics or headings)[7]

- Uses discussion moves (e.g., linking students' ideas, probing children's thinking, having students return to the text to support claims about the ideas in the text) that help provide continuity and extend the discussion of the ideas in the text

- Provides tasks or discussion routines students know how to follow (e.g., Instructional Conversations and Literature Circles) when students discuss texts in small groups

- Provides regular opportunities for peer-assisted learning, especially for emergent bilingual learners, by pairing students at different levels of English proficiency

## 6. Research-informed and standards-aligned writing instruction[14]

**The teacher provides:**

- Daily time for student writing across disciplines, including opportunities for students to write using digital tools (e.g., word processing)[15]

- Opportunities to study text models of (e.g., mentor and student-written texts) and write texts for a variety of purposes and audiences, particularly opinion, informative/explanatory, and narrative texts (real and imagined)

- Occasions for students to use writing as a tool for learning disciplinary content and engaging in disciplinary practices (e.g., writing scientific explanations), and that provide clear and specific goals for writing (e.g., address both sides of an argument)

- Explicit instruction in and guided practice using writing strategies for planning, drafting, revising, and editing writing

- Explicit instruction in spelling strategies, capitalization, punctuation, sentence and paragraph construction, purpose-driven text structure and organization, keyboarding, and word processing[16]

## 7. Intentional and ambitious efforts to build vocabulary, academic language, and content knowledge[17]

**The teacher engages in:**

- Teaching morphology (e.g., common word roots, inflections, prefixes, and affixes) and syntax[18]
- Attending to word relations (e.g., semantic maps, concept mapping, etc.)
- Providing explicit instruction in both general academic and content area vocabulary during reading and disciplinary instruction[19]
- Engaging students in wide reading that exposes them to rich and discipline-specific academic language, and provides the opportunity for vocabulary learning in the context of reading[20]
- Encouraging the use of new vocabulary in a variety of contexts and modes, including reading, writing, and discussion of print or digital texts for discipline-specific purposes[21]

## 8. Abundant and diverse reading material, including digital texts, and opportunities to read in the classroom[22]

**The classroom includes:**
- A wide range of books and other texts (e.g., print, audio, video, and digital), including information books, poetry, literature, and magazines[20]
- Books and other materials connected to children's interest and that reflect children's backgrounds and cultural experiences, including class- and child-made books
- Books and other reading materials children can borrow and bring home and/or access digitally at home
- Reading materials that expose students to rich language and vocabulary learning[21]

- Daily opportunities for children to engage in independent reading of materials of their choice, with the teacher providing instruction and coaching in how to select texts and employ productive strategies during reading, feedback on children's reading, and post-reading response activities including text discussion[20]

## 9. Ongoing observation of children's language and literacy development that informs small group and individual instruction[23]

**The teacher:**
- Observes and assesses students during reading and writing activities using an array of indicators (e.g., ratings of fluency, retellings/summary and discussion to assess comprehension, productivity to assess writing fluency, and accuracy of mechanics in writing)
  *(Note: Use of formative assessments in these areas is particularly important for emergent bilingual speakers)*

- Uses formative/benchmark assessments to monitor progress in literacy development and to guide instructional decision-making (e.g., differentiated instruction) for all students, including adding additional supports and providing opportunities for enrichment

- Uses diagnostic and ongoing assessment data to identify students who are struggling with reading and writing, and to design intensive, systematic instruction that focuses on identified learning needs

- Provides explicit feedback, related to reading and writing development, in which the teacher points out what the learner is doing correctly and incorrectly, and builds on earlier feedback

## 10. Collaboration with families in promoting literacy[24]

**Teachers engage in:**
- Supporting families to continue to provide reading and academic learning opportunities at home and during the summer months (e.g., book lending programs)
- Building on students' family and cultural resources and knowledge in reading and writing instruction
- Promoting children's independent reading outside of school
- Speaking with children in their home/most comfortable language, whether or not that language is English[25]
- Providing literacy-supporting resources, such as the following:
  - Books from the classroom that children can borrow or keep
  - Children's magazines
  - Information about judicious, adult-supported use of educational television and applications, or "apps," that can, with guidance, support literacy development
  - Passes to local museums (for example, through www.michiganactivitypass.info)

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# Process for Development and Review

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## Essential Instructional Practices in Literacy Grades 4-5

**MAISA** — MICHIGAN ASSOCIATION OF INTERMEDIATE SCHOOL ADMINISTRATORS
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## Essential Instructional Practices for Disciplinary Literacy in the Secondary Classroom

This document was developed by the **Disciplinary Literacy Task Force**, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts.

Deliberate, research-supported efforts to motivate, engage, and support reading and writing

**Purpose** The purpose of this document is to increase Michigan's capacity to improve adolescents' literacies by identifying a focused set of research-supported instructional practices that have been shown to increase student achievement and/or engagement with academic literacies. These identified practices can be the focus of professional learning experiences throughout the state. The focus of the document is on classroom practices, rather than on school or system level practices. Research suggests that each of the sets of ten practices, if implemented in every secondary core content classroom (English Language Arts, Science,

*This document is intended to be read in concert with the* Essential School-Wide Practices in Disciplinary Literacy: Grades 6 to 12, *along with the suite of documents found at www.LiteracyEssentials.org.*

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Social Studies, Mathematics) at the unit and course level, could make a measurable positive difference in the literacy development and achievement of secondary students in the state.

These recommended practices should be integrated into instruction for all students, not just for those who are already high achieving or doing advanced coursework. Furthermore, these instructional practices should not be approached as an add-on to teaching content, but rather as a means to teach content and engage students in deeper learning. Students will need scaffolding as well as differentiated instruction as they are apprenticed into disciplinary literacy and learning practices. In addition, educators will need to pay careful attention to learning progressions and vertical alignment across grade levels when considering how to implement these practices systemically.

These practices should be viewed as essential components of all core course instruction at the secondary level. However, this document is not a list of instructional standards, nor is it meant to be an evaluation tool or checklist, but rather a resource for planning and implementing teacher professional learning opportunities that promote research supported teaching practices. Teachers will need time, opportunities to collaborate, and differentiated professional learning to implement these practices.

When implemented well, these instructional practices will help teachers engage their students with the content and skills outlined by the Michigan academic standards for English Language Arts, Science, Social Studies, and Mathematics at the Secondary level. Thus, they should not be presented or understood as being in competition with the learning of content, but rather in the service of content learning.

Choosing to enact the practices on this list does not lock individual districts, schools, and teachers into any particular curriculum or approach and allows for considerable autonomy and choice for educators. Disciplinary literacy instruction can and should be incorporated with instructional approaches and systems such as Project Based Learning, Culturally Sustaining Pedagogies, or Cultures of Thinking. The practices listed can be used with a wide range of instructional resources and within many different structures of the school day; the document does not specify one particular program or approach to literacy instruction. We limited this list to ten practices; there are other literacy instruction practices that may be worthy of attention. In addition, new literacy research could alter or add to the instructional practices recommended here.

## 1. Problem-based instruction

Develop and implement interactive problem-based units of instruction that frame authentic problems to help establish purposes for students to read, write, and communicate beyond being assigned or expected to do so (e.g. for their enjoyment/interest, to ask and answer abstract and authentic questions about their community and individual lives, to address needs in their community or beyond, and to communicate with a specific audience).

### The teacher:

- engages students in developing and asking questions, as well as planning inquiries;

- engages students in disciplinary-specific thinking;

- helps students make sense of problems at different scales, persevere in solving them, or make conjectures about solutions;

- helps students see connections to their lives and identities by reading and engaging in diverse real-world and issue-based investigations;

- creates opportunities for students to enact literate identities connected to their learning by attending to issues of equity, power, and justice;

- provides regular opportunities for students to make choices in their reading, writing, and communication;

- offers regular opportunities for students to collaborate with peers in reading and writing, such as through small-group discussion of texts on questions of interest, and opportunities to write within group projects; and

- differentiates instructional processes and product expectations based on frequent, formative, growth-oriented feedback that affirms high academic expectations and support for all students.

Goldman, S.R., Britt, M.A., Brown, W., Cribb, G., George, M., Greenleaf, C., Lee, C.D., Shanahan, C., & Project READI. (2016). Disciplinary literacies and learning to read for understanding: A conceptual framework for disciplinary literacy. *Educational Psychologist, 51*(2), 219-246. doi:10.1080/00461520.2016.1168741

Greenleaf, C., Schoenbach, R., Cziko, C., & Mueller, F. L. (2001). Apprenticing adolescent readers to academic literacy. *Harvard Educational Review, 71*(1), 79-129.

Mergendoller, J. R. , Maxwell, N. L. , & Bellisimo, Y. (2006). The Effectiveness of Problem-Based Instruction: A Comparative Study of Instructional Methods and Student Characteristics. *Interdisciplinary Journal of Problem-Based Learning, 1*(2).

Moje, E.B. (*2015*) Doing and Teaching Disciplinary Literacy with Adolescent Learners: A Social and Cultural Enterprise. Harvard Educational Review: June 2015, Vol. 85, No. 2, pp. 254-278.

Sungur, S., & Tekkaya, C. (2006). Effects of Problem-Based Learning and Traditional Instruction on Self-Regulated Learning. *The Journal of Educational Research, 99*(5), 307-320 doi:10.3200/JOER.99.5.307-320

## 2. Diverse texts and abundant reading opportunities in the school

### The teacher:

- engages students with texts that provide entry way into concepts, themes, and/or investigations of compelling issues;
- provides access and regular opportunities to work with a wide range of diverse texts (e.g. culture, race, gender, etc.) and diverse formats (e.g. print, audio, digital, etc.); authentic to the disciplines of varying complexity, structure, and genre; and
- engages students with online texts, databases, and tools in the service of investigations.

*notes*

Moje, E. B., Dillon, D. R., & O'Brien, D. G. (2000). Re-examining the roles of the learner, the text, and the context in secondary literacy. *Journal of Educational Research, 93*, 165-180.

Walker, N.T. & Bean, T. W. (2005). Sociocultural influences in content area teachers' seletion and use of multiple texts. *Reading Research and Instruction* 44(4): 61- 77.

## 3. Intentional and standards-aligned instruction in disciplinary reading

### The teacher:

- establishes compelling reasons for reading;
- teaches students to apply disciplinary tools and concepts when working with text;
- explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typical of the discipline;
- models through think-alouds how to ask questions of texts;
- teaches students to evaluate, gather, and use evidence from multiple sources (including multimodal and digital texts);
- helps students learn to identify and critique the claims of others, considering both their own perspective and the possible perspectives of the author/source (perspective may be disciplinary, cultural, gendered, racial, ethnic, etc.);
- regularly models and coaches students in critical reading practices relevant to the discipline;
- models how to discern data patterns, cause and effect relationships, and determine significance and provides students with supported opportunities to do so themselves;
- engages students in authentic investigations about their communities and world using a range of texts; and
- models how to draw and present conclusions in oral and written language.

Biancarosa, G., & Snow, C. E. (2006). *Reading next: A vision for action and research in middle and high school literacy*. A report to the Carnegie Corporation of New York. Washington, DC: Alliance for Excellent Education.

Carnegie Corporation Adolescent Literacy Council. (2010). Time to act: An agenda for advancing literacy for college and career success. New York, NY: Carnegie Corporation of New York.

Conley, M. (2008). Cognitive Strategy Instruction for Adolescents: What we know about the promise, what we don't know about the potential. Harvard Educational Review 78(1): 84-106.

Deshler, D. D., Schumaker, J. B., Lenz, B. K., Bulgren, J. A., Hock, M. F., Knight, J., & Ehren, B. J. (2001). Ensuring Content-Area Learning by Secondary Students with Learning Disabilities. *Learning Disabilities Research & Practice, 16*(2), 96-108. doi: 10.1111/0938-8982.00011

Fang, Z., & Schleppegrell, M. J. (2010). Disciplinary literacies across content areas: Supporting secondary reading through functional language analysis. *Journal of Adolescent & Adult Literacy, 53*(7), 587-597.

Fang, Z., & Schleppegrell, M. J. (2010). Disciplinary literacies across content areas: Supporting secondary reading through functional language analysis. *Journal of Adolescent & Adult Literacy, 53*(7), 587-597.

Goldman, S.R., Britt, M.A., Brown, W., Cribb, G., George, M., Greenleaf, C., Lee, C.D., Shanahan, C., & Project READI. (2016). Disciplinary literacies and learning to read for understanding: A conceptual framework for disciplinary literacy. *Educational Psychologist, 51*(2), 219-246. doi:10.1080/00461520.2016.1168741

Greenleaf, C., Schoenbach, R., Cziko, C., & Mueller, F. L. (2001). Apprenticing adolescent readers to academic literacy. *Harvard Educational Review, 71*(1), 79-129.

Learned, J., Stockdill, D., & Moje, E.B. (2011). Integrating reading strategies and knowledge building in adolescent literacy instruction. In A.E. Farstrup & J. Samuels (Ed.s), *What Reading Research Has to Say*. Newark, DE: International Reading Association.

Lee, C. D., & Spratley, A. (2010). Reading in the disciplines and the challenges of adolescent literacy. New York City: Carnegie Corporation of New York.

Rainey, E. C., & Moje, E. B. (2012). Building insider knowledge: Teaching students to read, write and think in ELA and across the disciplines. *English Education, 45*(1), 71-90.

Schoenbach, R., & Greenleaf, C. (2012). *Reading for understanding: How Reading Apprenticeship improves disciplinary learning in secondary and college classrooms* San Francisco, CA: Jossey-Bass.

Shanahan, T., & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review, 78*(1), 40-61.

Spires, H. A., Kerkhoff, S. N., Graham, A. C., Thompson, I., & Lee, J. K. (2018). Operationalizing and validating disciplinary literacy in secondary education. *Reading and Writing, 31*(6), 1401–1434. https://doi.org/10.1007/s11145-018-9839-4

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## 4. Intentional and standards-aligned instruction in disciplinary writing

### The teacher:

- establishes compelling reasons for writing and communicating;

- engages students in writing to process and analyze texts;

- teaches students to apply disciplinary tools and concepts when producing text;

- explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typical of the discipline;

- provides opportunities to study models and write a variety of texts for a variety of purposes and audiences;

- provides instruction in discipline-specific writing processes, strategies, and conventions;

- teaches students to gather and organize evidence to support and communicate;

- provides explicit instruction as needed in text features, writing mechanics and other standards-aligned content;

- helps students learn to develop and communicate evidence-based claims, considering both their own

perspectives and the possible perspectives of their audience (perspectives may be disciplinary, cultural, gendered, racial, ethnic, etc.);

- provides regular time for students to write, both formally and informally; for a variety of purposes and audiences;

- engages students in using both paper/pencil and digital media tools to research; and

- scaffolds writing activities as appropriate, and moves students to independent levels of research, reading, and writing.

Graham, S. and Perin, D. 2007. *Writing next: Effective strategies to improve writing of adolescents in middle and high school.* New York: Carnegie Corporation of New York.

Rainey, E. C., & Moje, E. B. (2012). Building insider knowledge: Teaching students to read, write and think in ELA and across the disciplines. *English Education, 45*(1), 71-90.

Shanahan, T., & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review, 78*(1), 40-61.

Spires, H. A., Kerkhoff, S. N., Graham, A. C., Thompson, I., & Lee, J. K. (2018). Operationalizing and validating disciplinary literacy in secondary education. *Reading and Writing, 31*(6), 1401–1434. https://doi.org/10.1007/s11145-018-9839-4

## 5. Higher-order discussion of increasingly complex text across varying participation structures

### The teacher:

- establishes compelling reasons and allocates time for whole-group, small-group, and paired discussion of text, using a range of discussion and grouping strategies;

- teaches students how to engage in productive discussions, including through digital tools;

- develops discussions that surface in productive ways students' misconceptions about topics, concepts, or issues, and engages students in communicating and critiquing conclusions;

- poses questions that foster textual understanding and higher-order engagement with text;

- provides modeling and instruction to teach students how to generate their own higher-level questions about texts;

- engages students in discussion of text genres, structures, and discursive practices of the discipline;

- supports students in using artifacts and data to build arguments;

- helps students learn to situate facts and events in larger schemes and concepts in their talk and discussion; and

- supports students in explaining or connecting real world events and trends from various cultural and disciplinary perspectives.

Applebee, A. N., Langer, J. A., Nystrand, M., & Gamoran, A. (2003). Discussion-Based Approaches to Developing Understanding: Classroom Instruction and Student Performance in Middle and High School English. *American Educational Research Journal, 40*(3), 685-730. doi:10.3102/00028312040003685.

Lee, C. & Smagorinsky, P. (2000). Introduction: Constructing meaning through collaborative inquiry. In C. Lee & P. Smagorinsky (Eds.), *Vygotskian Perspectives on Literacy Research.* New York, NY: Cambridge University Press.

## 6. Opportunities for and instruction in speaking and listening

### The teacher:

- establishes compelling reasons for presenting and listening to presentations;

- provides regular opportunities for students to listen and respond to oral presentations, including those that incorporate visual and quantitative information

to make students' conclusions public (e.g., debates, reports, presentations to external audiences);

- models and teaches strategies for effective oral communication in academic disciplines; and

- teaches students strategies for listening and responding to presentations.

# 7. Intentional efforts to build vocabulary and conceptual knowledge

## The teacher:

- presents vocabulary as language in use (as opposed to words from decontextualized lists);

- teaches multiple meanings or nuanced meanings of a word across different contexts and encourages students to use new words in meaningful contexts (e.g., discussion of texts, discussions of content area learning, semantic maps);

- provides repeated opportunities for students to review and use new vocabulary over time, including discussing ways that new vocabulary relates to one another and to students' existing conceptual knowledge;

- explicitly teaches words that build necessary knowledge for reading and writing texts of instruction;

- engages students in morphemic analysis (i.e., analysis of the meaning of word parts) of unfamiliar vocabulary;

- selects Tier 2 and Tier 3 vocabulary words to teach using disciplinary texts of instruction;

- encourages talk about vocabulary among students, particularly during disciplinary learning and students' discussions of print or digital texts; and

- encourages students to identify and explore new vocabulary independently and provides instruction to support this process.

Beck, I. L., McKeown, M. G., & Kucan, L. (2013). *Bringing words to life: Robust vocabulary instruction*: Guilford Press.

Nagy, W., & Hiebert, E. (2011). Toward a theory of word selection. In M. L. Kamil, P. D. Pearson, P. Afflerbach, & E. B. Moje (Eds.), *Handbook of reading research* (Vol. 4). New York: Routledge.

# 8. Ongoing observation and assessment of students' academic language and literacy development that informs their education

## The teacher:

- engages in observation and assessment guided by:
  - ❖ an understanding of language and literacy development;
  - ❖ an understanding of assessment as an opportunity to identify and build upon student strengths, as well as to address areas of improvement;
  - ❖ an understanding of, and respect for, the student as a member of cultural and linguistic communities;
  - ❖ recognition of students' socioemotional needs;
  - ❖ relevant standards documents;

- prioritizes observation and assessment that is closest to actual reading and writing (e.g. prioritizing student work/writing as data for making instructional decisions as opposed to relying on standardized test scores which can mask proficiencies and areas in need of development);

- administers assessments as one source of information to determine which students may need additional instructional supports;

- employs formative and diagnostic assessment tools as needed to inform specific instructional targets (e.g., assessing knowledge of specific vocabulary words taught, reading and writing strategies being used and not used) and engage in the instructional practices described in this document;

- engages students in the development of learning goals, as well as in supported, productive self- and peer-assessment and feedback;

- provides timely and specific formative feedback to students to guide learning and literacy development;

- develops assessments that analyze how students apply disciplinary tools, concepts, and literacy practices across relevant domains; and

- assesses students' ability to evaluate sources, use evidence, and make evidence-based claims.

Afflerbach, P. (2007). *Understanding and using reading assessment, K-12*. Newark, DE: International Reading Association.

Johnston, P., & Costello, P. (2005). Principles for literacy assessment. *Reading Research Quarterly, 40*(2), 256-267. doi:10.1598/RRQ.40.2.6

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## 9. Community networking to tap into available funds of knowledge in support of developing students' content knowledge and identities

### The teacher provides learning activities that:

- help students connect and build on in-school and out-of-school literacy practices and identities;
  - ❖ connect learning to family, cultural, and community histories; and
  - ❖ connect to youth and popular cultural activities and concerns.
- address community activities, issues, or concerns and engage students in communication and problem solving about them;
- leverage students' literacies, learning, and knowledge to benefit their school, district, and/or community (e.g., peer education, research fairs, concerts, demonstrations and exhibitions, student-to-student mentoring, service learning);
- invite people representing a variety of occupations into the classroom (either face-to-face or via digital tools) to work with and engage in conversation with students;
- enable students to communicate conclusions to authentic audiences; and
- connect to and engage with discipline-related activities and spaces in local communities (e.g., local music groups, hobby groups, museums, universities, libraries).

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Moje, E. B., & Hinchman, K. (2004). Culturally responsive practices for youth literacy learning. In J. Dole & T. Jetton (Eds.), *Adolescent literacy research and practice* (pp. 331-350). New York : Guilford Press.

Moll, L. C., C. Amanti, et al. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory into Practice* 31(2): 132.

Moje, E.B. (*2015*) Doing and Teaching Disciplinary Literacy with Adolescent Learners: A Social and Cultural Enterprise. Harvard Educational Review: June 2015, Vol. 85, No. 2, pp. 254-278.

## 10. Metadiscursive awareness within and across academic and cultural domains (attention to language use at the "meta" level, e.g. talking about talk)

### The teacher:

- supports students to connect and build on in-school and out-of-school literacy practices and ways with words by identifying language processes and discussing how language is used based on different purposes, audiences, and cultural perspectives;
- engages students in metalanguistic discussion about ways with words within and across the disciplines; and
- provides learning activities that teach students to evaluate how language is used in powerful and effective ways in the discipline based on the purpose, audience, context, and genre of the text.

Fang, Z. (2012). Language correlates of disciplinary literacy. *Topics in Language Disorders* 32(1), 19-34.

Fang, Z., & Schleppegrell, M. J. (2010). Disciplinary literacies across content areas: Supporting secondary reading through functional language analysis. *Journal of Adolescent & Adult Literacy, 53*(7), 587-597.

Moje, E. B. (2007). Developing socially just subject-matter instruction: A review of the literature on disciplinary literacy. In L. Parker (Ed.), *Review of research in education*, (pp. 1-44). Washington, DC: American Educational Research Association.

Moje, E.B. (*2015*) Doing and Teaching Disciplinary Literacy with Adolescent Learners: A Social and Cultural Enterprise. Harvard Educational Review: June 2015, Vol. 85, No. 2, pp. 254-278.

# Essential Practices for Literacy Instruction in the Secondary ELA Classroom

Deliberate, research-supported efforts to motivate, engage, and support reading, writing, speaking, listening, and viewing in English Language Arts

## 1. Problem-based instruction

Develop and implement interactive units of instruction that frame important problems or questions in order to provide authentic purposes for students to read and write beyond being assigned or expected to do so (e.g. for their enjoyment/interest, to ask and answer questions about humanity, society, their community and/or individual lives, to address needs in their community or beyond, or to communicate with a specific audience).

### Within these problem-based units, the teacher:

- engages students in asking questions, both literal and conceptual, about the world around them to develop generative thinkers.

- engages students in abstract and disciplinary-specific thinking and reasoning (e.g. analyzing literature, composing texts in a rhetorically-appropriate manner, participating in effective communication).

- helps students make sense of texts from different time periods, cultures, and regions.

- aids students in seeing themes from literature in their everyday lives and identities (i.e., cultural, racial, ethnic, gendered).

- supports students to develop critical literacy and critical viewing practices across different text genres and formats.

- helps students understand the text features of different genres, and how different genres function in the world outside of school.

- creates opportunities for students to enact literate identities, drawing from both within and outside of school literacy practices and funds of knowledge (e.g. providing opportunities for students to see themselves as authors by publishing and sharing their work in the school community).

- presents regular opportunities for students to choose materials, products, and processes in their reading, writing, and communication.

- offers regular opportunities for students to engage in independent, sustained reading and writing activities as well as collaborate with peers, such as through small-group discussion of texts of interest and opportunities to write within group projects.

- provides scaffolded support to students as needed to assist them in developing their literacy proficiencies, removing supports over time to generate more independence.

- differentiates instructional processes and product expectations based on frequent, formative, growth-oriented feedback that affirms high academic expectations and support for all students.

Rainey, E. C. (2017). Disciplinary literacy in English language arts: Exploring the social and problem-based nature of literary reading and reasoning. *Reading Research Quarterly, 52*(1), 53-71. doi:10.1002/rrq.154

Ertmer, P. A., Glazewski, K. D., Jones, D., Ottenbreit-Leftwich, A., Goktas, Y., Collins, K., & Kocaman, A. (2009). Facilitating technology-enhanced problem-based learning (PBL) in the middle school classroom: An examination of how and why teachers adapt. *Journal of Interactive Learning Research, 20*(1), 35.

Muhammad, G., & Love, B. L. (2020). Cultivating genius: An equity framework for culturally and historically responsive literacy. Scholastic.

## 2. Diverse texts and abundant reading opportunities in the school

### The teacher:

- engages students with texts that provide entry way into questions, puzzles, themes, authors, issues of equity, power, and social justice, and/or genres that can be investigated further.

- provides access and regular opportunities to work with a wide range of diverse texts (e.g. books, online texts, databases, and tools) that reflect diversity across cultures, ethnic groups, geographic locations, genders, and social roles; and of varying complexity, structure, and genre; (e.g., novels, short stories, poetry, comics, newspaper articles, magazines, journals, advertisements, websites, discussion boards, internet postings), including the following:

  ❖ rigorous texts on grade level and beyond,

  ❖ texts that allow students to reflect on their own interests and identities and also explore interests and identities different than their own, so that they can participate in diverse cultural and social contexts.

- engages students with online texts, databases, and tools that provide an entryway into concepts, themes, and/ or investigations of compelling issues authentic to the disciplines.

- fosters a reading culture that promotes engagement with diverse texts in a variety of contexts (e.g. independent reading, online communities, reading conferences, book clubs, book talks).

Athanases, S. Z. (1998). Diverse learners, diverse texts: Exploring identity and difference through literary encounters. *Journal of Literacy Research*, *30*(2), 273-296.

Lopez, A. E. (2011). Culturally relevant pedagogy and critical literacy in diverse English classrooms: A case study of a secondary English teacher's activism and agency. *English Teaching*, *10*(4), 75.

Lee, C.D. (2007). *Culture, literacy, & learning: Taking bloom in the midst of the whirlwind*. New York, NY: Teachers College Press.

Muhammad, G., & Love, B. L. (2020). Cultivating genius: An equity framework for culturally and historically responsive literacy. Scholastic.

## 3. Intentional and standards-aligned instruction in disciplinary reading practices

### The teacher:

- establishes compelling reasons for reading, listening to, and viewing a variety of texts (see Practice #1 above).

- teaches students to apply disciplinary tools and concepts when working with text.

  ❖ explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typically applied or used in disciplines connected to English Language Arts.

  ❖ models through think-alouds how to ask questions of texts.

  ❖ provides explicit instruction in vocabulary, literary elements and devices, and language skills in the context of reading.

  ❖ in addition to reading for literary merit, also supports students as they read texts to examine author's craft in producing the text.

  ❖ models how to evaluate texts from different

perspectives and engage in critical reading or viewing practices.

  ❖ supports students to work with different literary theories to interpret texts.

  ❖ teaches students how to synthesize concepts and ideas, as well as analyze language use, across texts, and disciplines.

- supports students to read, analyze, and critically view multimodal texts (e.g. web pages, graphic novels, and digital narrations) in a variety of genres and for a variety of purposes.

- engages students in research and argumentation about questions of interest to them.

  ❖ connects literature and other texts to current social problems and themes.

  ❖ provides instruction and practice in reading, analyzing, and synthesizing across multiple texts in the research process.

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# 3. Intentional and standards-aligned instruction in disciplinary reading practices (continued)

❖ supports youth in determining the significance of examples, information, or facts they locate through different sources(digital and physical) in the context of research and inquiry.

❖ models how to discern patterns and relationships (e.g. cause and effect) across data, accounts, or explanations.

❖ teaches students to gather and evaluate evidence from multiple sources to develop evidence-based arguments.

❖ helps students learn to identify and critique the claims of others, considering both their own perspectives and the possible perspectives of the author/source (perspectives may be disciplinary, cultural, racial, ethnic, gendered, etc.).

• explores non-fiction and fiction texts with students to examine how words, sentence structures, and the organization of texts are used to convey concepts and messages.

• provides learning activities that develop critical digital, media, and visual literacies.

• scaffolds reading activities as appropriate using a range of strategies.

Rainey, E. C., & Moje, E. B. (2012). Building insider knowledge: Teaching students to read, write and think in ELA and across the disciplines. *English Education, 45*(1), 71-90. http://www.jstor.org.proxy.lib.umich.edu/stable/23365001

Lee, C.D., Goldman, S.R., Levine, S., & Magliano, J. (2016). Epistemic cognition in literary reasoning. In I. Braten, W.A. Sandoval, J.A. Greene (Eds.), *Handbook of epistemic cognition* (pp. 165-183). New York, NY: Routledge.

Reynolds, T., & Rush, L.S. (2017). Experts and novices reading literature: An analysis of disciplinary literacy in English language arts. *Literacy Research and Instruction, 56*(3), 199-216.

# 4. Intentional and standards-aligned instruction in disciplinary writing

## The teacher:

• establishes various compelling reasons for writing in English-related disciplines (e.g. literary studies, journalism, technical writing, creative writing) (see Practice #1)

• teaches students how to analyze rhetorical context when producing text and communication, including:

❖ writing for different purposes, such as analyzing a literary text, entertaining an audience, or informing an audience.

❖ writing for different authentic audiences (such as peers, community members, and other public audiences).

• considering how language choices and conventions can shift depending on purpose and audience.

• provides regular time for students to write both formally and informally, acknowledging and providing opportunities for practice with different writing strategies and processes.

❖ reinforcing the different recursive stages of process writing (including prewriting, planning, drafting, revising for feedback, editing, and publishing).

❖ reinforcing that writing for different purposes and genres relies on different processes and strategies.

• teaches and reinforces the habits of minds of good writers (e.g., creativity, flexibility, persistence, curiosity).

• explicitly names, describes, and models the dispositions, strategies, and patterns of thinking that are typical of different genres within ELA (e.g., literary analysis, creative nonfiction, poetry, book reviews, technical documents).

❖ provides students with practice in writing in different modalities, registers, voices, and rhetorical styles, using different media for different purposes and audiences.

• helps students learn to develop and communicate evidence-based claims, considering both their own perspective and the perspective of others (perspectives may be disciplinary, cultural, racial, ethnic, gendered, etc.).

• offers explicit instruction in ELA-related vocabulary, textual elements and devices, and language skills in the context of writing.

• teaches students to use digital tools to deepen and communicate content knowledge.

• scaffolds writing activities as appropriate, and moves students to independent levels of research, reading, and writing.

Rainey, E. C., & Moje, E. B. (2012). Building insider knowledge: Teaching students to read, write and think in ELA and the disciplines. *English Education, 45*(1), 71-90. http://www.jstor.org.proxy.lib.umich.edu/stable/23365001

VanTassel-Baska, J., Zuo, L., Avery, L. D., & Little, C. A. (2002). A curriculum study of gifted-student learning in the language arts. *Gifted Child Quarterly, 46*(1), 30-44.

# 5. Higher-order discussion of increasingly complex text across varying participation structures

## The teacher:

- establishes compelling reasons for engaging in discussion of text (see Practice #1 above), including texts produced by students.

- allocates time for whole-group, small-group, and paired discussions of text, and uses a range of grouping and discussion strategies (e.g. Socratic seminars, jigsaw, etc.), including face-to-face and online formats.

- has students use appropriate evidence from the text to support claims in discussion.

- poses questions that foster textual understanding and deep engagement with text, as well as development of critical viewing and critical reading of diverse texts (including visual texts).

- provides modeling and instruction to teach students how to generate their own higher-level questions about texts (e.g. appraises, assesses, or critiques on a basis of specific standards and criteria).

- teaches students how to engage in productive discussions, including discussion moves appropriate to ELA (e.g. discussing a text from different perspectives, identifying and discussing an author's use of literary devices, identifying rhetorical moves in a model text).

- offers opportunities for dramatic interpretations of literature.

- engages students in discussions around how words, sentence structures, and the organization of texts are used to convey concepts and messages in both non-fiction and fiction texts.

- asks students to identify similar themes, characters, conflicts, linguistic features, plot structures, and text structures among different texts and seek connections, analogies, and patterns.

- supports students' knowledge and criticality of historical, social, political, and psychological issues with texts considering various disciplinary and cultural perspectives.

- engages students in discussion around digital and media literacies, and engages students in dialogue through digital tools to share and communicate ideas with text, speech, and visualization.

Applebee, A. N., Langer, J. A., Nystrand, M., & Gamoran, A. (2003). Discussion-based approaches to developing understanding: Classroom instruction and student performance in middle and high school English. *American Educational Research Journal*, *40*(3), 685-730.

Nystrand, M. (2006). Research on the role of classroom discourse as it affects reading comprehension. *Research in the Teaching of English*, 392-412.

# 6. Opportunities for and instruction in critically viewing, speaking and listening

## The teacher:

- establishes compelling reasons for presenting or performing and listening to presentations/performances.

- provides regular opportunities for students to listen and respond to oral presentations, including those that incorporate visual and quantitative information to make students' conclusions public (e.g., debate, reports, presentations to external audiences).

- models and teaches strategies for effective oral communication across different genres.

- teaches students strategies for critically viewing, as well as listening and responding to presentations or performances.

- engages students in discussion of, and practice with, norms and strategies for engaging in civil discourse around a range of issues, including potentially controversial topics.

Nystrand, M. (1997). *Opening Dialogue: Understanding the Dynamics of Language and Learning in the English Classroom. Language and Literacy Series*. Teachers College Press, PO Box 20, Williston, VT 05495-0020 (paperback: ISBN-0-8077-3573-6, $19.95; cloth: ISBN-0-8077-3574-4, $44)..

Langer, J. A. (2001). Beating the odds: Teaching middle and high school students to read and write well. *American Educational Research Journal*, *38*(4), 837-880.

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## 7. Intentional efforts to build vocabulary and conceptual knowledge

### The teacher:

- presents vocabulary as language in use (in context).

- teaches multiple, nuanced meanings of a word across different contexts and encourage students to use new words in meaningful ways (e.g., discussion of texts, discussions of content area learning, semantic maps).

- provides repeated opportunities for students to review and use new vocabulary over time, including discussing ways that new vocabulary relate to one another and to students' existing conceptual knowledge.

- explicitly teaches words that build necessary knowledge for reading and writing texts of instruction.

  ❖ engages students in morphemic analysis (i.e., analysis of the meaning of word parts) of unfamiliar vocabulary encountered in texts and instruction.

- selects Tier 2 and Tier 3 vocabulary words to teach using disciplinary texts of instruction.

- encourages talk about vocabulary among students, particularly during disciplinary learning and students' discussions of print and/or digital texts (e.g. encourages talk about vocabulary among students and models how to examine and evaluate how people use language to achieve certain outcomes within systems and relations of power).

- encourages students to identify, explore, and use new vocabulary independently and provides instruction to support this process.

Smagorinsky, P., & Smith, M. W. (1992). The nature of knowledge in composition and literary understanding: The question of specificity. *Review of Educational Research*, *62*(3), 279-305.

Smagorinsky, P. (1991). The writer's knowledge and the writing process: A protocol analysis. *Research in the Teaching of English*, 339-364.

## 8. Ongoing observation and assessment of students' academic language and literacy development that informs their education

### The teacher:

- engages in observation and assessment guided by:
  ❖ an understanding of language and adolescent literacy development (e.g. creating a range of assessment items guided by an understanding of different reading processes such as literal and inferential comprehension of text).
  ❖ an understanding of assessment as an opportunity to build upon student strengths, as well as to address areas for improvement;
  ❖ an understanding of, and respect for, the student as a member of multiple cultures and linguistic communities;
  ❖ a recognition of students' socioemotional needs; and
  ❖ relevant standards documents; for example, Michigan K-12 Standards for English Language Arts.

- prioritizes observation and assessment that is closest to authentic reading and writing
  ❖ e.g. prioritizing student work/writing as data for making instructional decisions as opposed to standardized test scores which can mask proficiencies and areas in need of development.

- administers assessments as one source of information to determine which students may need additional instructional supports.

- employs formative and diagnostic assessment tools as needed to inform specific instructional targets (e.g., assessing knowledge of specific vocabulary words taught, reading and writing strategies being used and not used) and engage in the instructional practices described in this document.

- provides timely and specific formative feedback to guide students' learning and literacy development.

- involves students in the development of success criteria and learning goals, as well as in supported, productive self and peer assessment.

- develops assessments that analyze how students develop and use disciplinary tools, concepts, and literacy practices.

Marshall, B. (2004). Goals or horizons—the conundrum of progression in English: or a possible way of understanding formative assessment in English. *Curriculum Journal*, *15*(2), 101-113.

Hodgen, J., & Marshall, B. (2005). Assessment for learning in English and mathematics: A comparison. *Curriculum journal*, *16*(2), 153-176.

## 9. Community networking to tap into available funds of knowledge in support of developing students' knowledge and identities

### The teacher:

- helps students connect and build on their in-school and out-of-school literacy practices and identities,

  ❖ connecting learning and literacy development to family and community issues, as well as economic and political decisions.

  ❖ engaging with community activities and audiences to address natural and social concerns.

  ❖ connecting to youth and popular cultural production, activities, networks, and concerns.

- leverages students' literacies, learning, and knowledge to benefit their school, district, and/or community (e.g. peer education, research fairs, student to student mentoring, service learning).

- invites authors, artists, journalists, media professionals, and other speakers relevant to English Language Arts to the classroom (either face-to-face or via digital tools) to work with and engage in conversation with students.

- connects to and engages with literary experiences and spaces in local communities (libraries, bookstores, local writers, etc.).

- honors and engages with the diversity of literacy practices in the school community.

- enables students to communicate conclusions to and/or share literary work with authentic audiences.

Lee, C.D. (2007). *Culture, literacy, & learning: Taking bloom in the midst of the whirlwind*. New York, NY: Teachers College Press.

Gutiérrez, K. D. (2008). Developing a sociocritical literacy in the third space. *Reading research quarterly*, *43*(2), 148-164.

## 10. Metadiscursive awareness within and across academic and cultural domains (attention to language use at the "meta" level, e.g. talking about talk)

### The teacher:

- supports all students in navigating across multiple linguistically and culturally diverse contexts both inside and outside of schools, with a focus on helping them learn the linguistic practices of disciplinary cultures.

- understands and respects the relationship between their students' language and identities while also helping students develop new disciplinary languages and identities.

  ❖ e.g. reading and analyzing literature that reflect a variety of langauages and dialects.

- leads students in examining U.S.-based language varieties, including in their own communities, in the course of reading and analyzing literature and other text forms

  ❖ e.g. studying the historical, cultural, and political underpinnings of language varieties such as African American English, Spanglish, etc.

- provides students with opportunities to deconstruct and investigate the intersections between language, identity, and power in the service of disciplinary problems and puzzles represented in literature and other text forms.

- supports students in making informed decisions about language and literacy practices in and across the

literacy and language disciplines.

  ❖ e.g. providing students with opportunities to sustain their language and literacy practices even as they learn new disciplinary practices.

- supports students to connect and build on their in-school and out-of-school language and literacy practices by identifying language processes and discussing how language is used based on different purposes and audiences, including disciplinary audiences and purposes.

  ❖ e.g. discussing the role of audience and purpose with students by having them compare how they communicate with friends about an issue or problem with how they would write a critique of literature or an analysis of a text that examines the same problem.

## 10. Metadiscursive awareness within and across academic and cultural domains (attention to language use at the "meta" level, e.g. talking about talk)(continued)

- engages students in high level discussion about ways with words within and across the disciplines.
  - ❖ e.g. noting how the use of first person in writing changes across academic disciplines and genres.
- provides learning activities that teach students to evaluate how language is used in powerful and effective ways in the discipline based on the purpose, audience, social context, and genre of the text.
  - ❖ e.g. having students analyze important, influential texts (e.g. Langson Hughes' poem, "I too") and discuss why and how that particular text made an impact, with an emphasis on the use of language.

- ❖ e.g. teaching students about the standards of evidence in the disciplines associated with English Language Arts (journalism vs. literary critique) and using these to create powerful arguments.
- ❖ e.g. teaching students to consider the role of language as a social construct through examining the historical and contemporary contexts language has been used to empower and disempower.

Baker-Bell, A. (2020). Linguistic justice: black language, literacy, identity, and pedagogy. Routledge, Taylor &; Francis Group.

Heath, S.B. *Ways with Words: Language, Life, and Work in Commuities and Classrooms.* New York: Cambridge University Press, 1983.

Martínez, R. A. (2010). " Spanglish" as Literacy Tool: Toward an Understanding of the Potential Role of Spanish-English Code-Switching in the Development of Academic Literacy. *Research in the Teaching of English*, 124-149.

Gabriel, R., Wenz, C., & Dostal, H. (2016). Disciplinary Text-Dependent Questions: Questioning for Learning in the Disciplines. The Challenge of Literacy in the Disciplines. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, *89*(6), 202-207.

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# Essential Practices for Literacy Instruction in the Secondary Mathematics Classroom

Deliberate, research-supported efforts to motivate, engage, and support reading, writing, speaking, and listening in mathematics

## 1. Problem-based instruction

Develop and implement interactive problem-based units of instruction that frame mathematics problems to help establish purposes for students to read, write, and communicate beyond being assigned or expected to do so (e.g. for their enjoyment/interest; to ask and answer abstract and authentic, disciplinary questions using mathematics, including questions about their community and individual lives; to address needs in their community or beyond; and to communicate with a specific audience).

### Within these problem-based units, the teacher:

- engages students in asking mathematical questions, both practical and theoretical. (SMP1)*

- engages students in abstract and quantitative mathematical thinking and reasoning. (SMP2)

- helps students make sense of problems at different scales and persevere in solving them. (SMP1)

- helps students see the mathematics of everyday life by reading real-world scenarios that incorporate or highlight representations of mathematical problems and concepts. (SMP1, SMP2, SMP4)

- helps students imagine the theory of mathematics, or "pure mathematics," to help students understand that mathematics can be used to wonder about the world and that such wondering can lead to applications of mathematical concepts in the world outside of school. (SMP7, SMP8)

- creates opportunities for students to enact literate mathematics identities, drawing from both within and outside of school literacy practices (e.g. having students communicate mathematical explanations to a public audience to strengthen their identities as users and doers of math). (SMP1-8)

- provides regular opportunities for students to make choices in their reading, writing, and communication about mathematics.

- offers regular opportunities for students to collaborate with peers as a community of problem solvers through reading, writing, and communicating around mathematics.

- provides scaffolded support to students as needed to assist them in developing their literacy proficiencies, removing supports over time to generate more independence.

- differentiates instructional content, processes, and products to account for varying academic needs and skills and appropriately challenge all students.

- assists students to connect their lived experiences and cultural identities to mathematics as they: inquire about relevant issues of equity, power, and justice; make sense of varying cultural perspectives; and, leverage understanding those perspectives along with mathematics to propose possible solutions.

Boaler, J. and Selling, S. K. (2017). Psychological imprisonment or intellectual freedom? A longitudinal study of contrasting school mathematics approaches and their impact on adults' lives. *Journal for Research in Mathematics Education 48*, 1.

Draper, R. J., & Siebert, D. (2004). Different Goals, Similar Practices: Making Sense of the Mathematics and Literacy Instruction in a Standards-Based Mathematics Classroom. *American Educational Research Journal, 41*(4), 927–962. https://doi.org/10.3102/00028312041004927

Lampert, M. (1990). When the problem is not the question and the solution is not the answer: Mathematical knowing and teaching. *American educational research journal, 27*(1), 29-63.

## 2. Diverse texts and abundant reading opportunities in the school

### The teacher:

- Provides access, supports, and regular opportunities to work with
  - ❖ mathematical text in all its forms, including (but not limited to):
    - ■ mathematical models using multiple representations (symbolic, graphical, numeric, words/verbal forms); (SMP4)
    - ■ symbols, expressions, inequalities, equations, and functions; (SMP2, SMP4, SMP7, SMP8)
    - ■ diagrams, tables, graphs, sketches, maps, and physical models; (SMP4, SMP5)
    - ■ explanations, justifications, arguments, and proofs - expressed verbally, visually, and demonstratively (e.g., a physical or animated enactment); (SMP2, SMP3, SMP6)
    - ■ input, output, and intermediate states from a variety of tools ranging from low-tech (e.g., paper folding, number lines) to high-tech (e.g., Desmos, Excel); (SMP5)
    - ■ photos and video, audio recordings, demonstrations, and presentations; (SMP2, SMP4, SMP5, SMP7)
    - ■ problem scenarios stated in words, as well as via combinations of text forms; (SMP1) and
    - ■ prose, ranging from students' own written work which includes the above text forms to prose by others, including recreational mathematics, articles, and books.   (SMP1, SMP2, SMP3, SMP6)
  - ❖ a wide range of texts that help students see mathematics as connected to their own interests, including career explorations, and to their own interactions with and uses of mathematics in everyday life.
  - ❖ culturally-relevant texts that provide entry into mathematical concepts and/or investigations of compelling problems or contexts, including those texts that enable students to interrogate and make sense of historical, political, economic, and social problems from different cultural perspectives (e.g., race, gender, economic, religious, geographic, able-body, and language); teachers enable students to bring mathematical thinking to bear to make, use, and evaluate conjectures in these contexts. (SMP1, SMP2, SMP3)
- engages students in recognizing how mathematics may be used within a text or set of texts to:
  - ❖ amplify, clarify, or distort interpretations of information or problem situations, and
  - ❖ analyze the purpose and/or the reasoning of the authors(s) of that text(s) and of those interpreting or using that text(s). (SMP2, SMP3)

Donahue, D. (2003). Reading across the great divide: English and math teachers apprentice one another as readers and disciplinary insiders. *Journal of Adolescent & Adult Literacy, 47*(1), 24-37.

Draper, R. J., & Siebert, D. (2004). Different Goals, Similar Practices: Making Sense of the Mathematics and Literacy Instruction in a Standards -Based Mathematics Classroom. *American Educational Research Journal, 41*(4), 927–962. https://doi.org/10.3102/00028312041004927

Siegel, M. (1989). A Critical Review of Reading in Mathematics Instruction: The Need for a New Synthesis.

## 3. Intentional and standards-aligned instruction in disciplinary reading

### The teacher:

- establishes compelling reasons for reading in mathematics (see Practice #1 above).
- teaches students to apply disciplinary tools and concepts when working with text.
  - ❖ explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typical of flexible and fluent mathematical thinkers.
  - ❖ strategically plans for which mathematical words, symbols, and phrases may need explicit definition and explanation and which are best developed through student investigation, discovery, and refinement. (SMP6)
    - ■ for words and phrases needing explicit attention, regularly uses and explains their meanings using precise, accurate, and usable definitions.
    - ■ for words and phrases better suited to student exploration and definition construction, provides students with supports needed to develop their own definitions through investigation, discovery, and refinement.
  - ❖ teaches students to reason abstractly and quantitatively when engaging with text-based problems. (SMP2)
  - ❖ teaches students to critically read and evaluate mathematical explanations, models,  arguments, and other relevant types of mathematics texts. (SMP1, SMP3, SMP4)
  - ❖ explicitly teaches the meaning, purpose, and appropriate usage of mathematical symbols (i.e., internationally recognized shorthand for complex concepts).  (SMP6)
  - ❖ models** how to read and make sense of relevant and authentic word-based mathematical problems. (SMP1)
  - ❖ teaches students how to look for and make use of structure when engaging with mathematical texts. (SMP7)
  - ❖ teaches students how and when to look for regularity in repeated reasoning when engaging with mathematics texts. (SMP8)
  - ❖ engages students in regularly translating across forms of representation (e.g., from written text to equations to tables to graphs; from words to symbols).  (SMP1, SMP2)
  - ❖ models for students how to write and think metacognitively through mathematical problems.

# 3. Intentional and standards-aligned instruction in disciplinary reading (continued)

(SMP1, SMP2)

❖ helps students read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments. (SMP 3)

- engages students in authentic mathematical investigations about their communities and world and supports them in using mathematics to conduct those investigations. (SMP1, SMP4)

  ❖ develops, with students, one or more questions of interest which may be answered through collecting and analyzing data.

  ❖ develops, with students, appropriate strategies for collecting that data.

  ❖ teaches students how to record data observations systematically and rigorously by:

    ■ employing multiple forms of representation (drawings, numbers, graphs, charts, word-based

descriptions, etc.). (SMP1, SMP4)

    ■ teaching students how to translate from one form to another. (SMP1, SMP2)

  ❖ models how to discern data patterns and determine significance. (SMP5, SMP6, SMP7, SMP8)

  ❖ models how to draw and present conclusions in oral and written language. (SMP3)

  ❖ teaches students how to strategically use and analyze digital and online mathematics texts and tools. (SMP5)

- scaffolds reading activities as appropriate using a range of strategies.

Donahue, D. (2003). Reading across the great divide: English and math teachers apprentice one another as readers and disciplinary insiders. *Journal of Adolescent & Adult Literacy, 47*(1), 24-37.

Shanahan, T., & Shanahan, C. (2008). Teaching disciplinary literacy to adolescents: Rethinking content-area literacy. *Harvard Educational Review, 78*(1), 40-59.

# 4. Intentional and standards-aligned instruction in disciplinary writing

## The teacher:

- establishes compelling reasons for writing and communicating about and with mathematics (see Practice #1 above).

- teaches students to write and communicate about and with mathematics for different authentic purposes and audiences.

- engages students in writing to process and analyze mathematical texts and/or concepts. (SMP2)

- teaches students to construct viable mathematical arguments, and to critique the arguments of others from multiple perspectives (perspectives may be disciplinary, cultural, racial, ethnic, gendered, etc.). (SMP3)

  ❖ teaches students to use data and mathematical concepts, theorems, etc. to support their arguments.

- explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typical of flexible and fluent mathematical thinkers.

  ❖ provides instruction in discipline-specific writing processes, strategies, and conventions, and attention as to why those writing norms exist in the discipline (e.g. notation conventions). (SMP3, SMP6)

  ❖ attends to precision in mathematical language. (SMP6)

- teaches students how to write mathematical proofs by:

  ❖ enabling students to compare and contrast argument and mathematical proof, including their purposes. (SMP3, SMP6)

  ❖ teaches students to construct and evaluate arguments centered on a mathematical claim and arguments. (SMP3)

  ❖ using models of well-written proofs, contrasting them with poorly-written proofs, to help students learn the features of strong proofs. (SMP3)

  ❖ practicing writing proofs in formats appropriate for the purpose and audience on a regular basis. (SMP3)

  ❖ providing explicit instruction as needed in text features, writing mechanics, and other standards-aligned content.

- provides regular time for students to write, both formally and informally, aligned with Practice #1 above.

- provides instruction in and opportunities for the use of technology tools to problem solve and communicate about mathematics.

  ❖ engages students in using a diversity of tools to build mathematical models. (SMP1, SMP4, SMP5)

- provides opportunities for students to practice using written language (e.g., proofs, models, metacognitive writing of problem solving processes) to make their conclusions public. (SMP3)

- moves students to independent levels of research, reading, and writing in mathematics. (SMP1-8)

- scaffolds writing activities as appropriate using a range of strategies.

Brozo, W. G., &; Crain, S. (2018). Writing in Math: A Disciplinary Literacy Approach. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 91*(1), 7–13. https://doi.org/10.1080/00098655.2017.1342435

Lim, L. & Pugalee, D.K. (2004). Using journal writing to explore: "They communicate to learn mathematics and they learn to communicate mathematically." *Ontario Action Researcher* 7(2).

Pugalee, D. K. (2001), Writing, Mathematics, and Metacognition: Looking for Connections Through Students' Work in Mathematical Problem Solving. *School Science and Mathematics*, 101: 236–245.

# 5. Higher-order discussion of increasingly complex text across varying participation structures

## The teacher:

- establishes compelling reasons for engaging in discussion of mathematical text (including student-produced text), representations, and/or problems (see Practice #1 above).

- allocates time for whole-group, small-group, and pair discussion of text, and uses a range of discussion and grouping strategies.

- poses questions, and assists students in posing their own questions, that foster textual understanding and higher-order engagement with text. (SMP1)

- develops discussions that surface in productive ways students' misconceptions about topics, concepts, or issues, and engages students in communicating and critiquing conclusions.

- engages students in discussion of text types, structures, representations, and discursive practices of the discipline (e.g. precision of language, particularly with definitions). (SMP6)

- provides modeling and instruction to teach students how to generate their own higher level questions, including questions that help them understand and critique the communities and the world around them.

- teaches students how to engage in productive discussions, including discussion moves appropriate to mathematics (e.g. analyzing and interpreting word problems, evaluating and applying definitions). (SMP1, SMP2, SMP6)

- provides learning activities in which students read, analyze, and discuss problems and proofs that mathematicians might use to build mathematical arguments. (SMP3)

- engages students in reasoning abstractly and quantitatively when talking about math. (SMP2)

- asks students to understand, interpret, and use mathematical symbol systems and notation in their classroom talk. (SMP2, SMP6)

- models for students how to use and connect multiple representations. (SMP1, SMP2, SMP4)

- asks students to identify similar problem structures among different texts and seek connections, analogies, and patterns.
    - ❖ assists students to make connections between prior and new knowledge and represent that knowledge using mathematics. (SMP7, SMP8)

- supports students to explain or connect authentic, and/or abstract phenomena from a mathematical perspective using mathematical language. (SMP1, SMP2, SMP6, SMP7, SMP8)

- engages students in discussion around digital and media literacies and tools, and engages students in dialogue through digital tools to share and communicate ideas. (SMP5)

Draper, R. J., & Siebert, D. (2004). Different Goals, Similar Practices: Making Sense of the Mathematics and Literacy Instruction in a Standards -Based Mathematics Classroom. *American Educational Research Journal*, *41*(4), 927–962. https://doi.org/10.3102/00028312041004927

Huang, J., Normandia, B., & Greer, S. (2005). Communicating mathematically: Comparison of knowledge structures in teacher and student discourse in a secondary math classroom. *Communication Education*, *54*(1), 34-51.

Tanner, M.L., & Casados, L. (1998). Promoting and studying discussions in math classes. *Journal of Adolescent & Adult Literacy*, *41*(5), 342-350.

# 6. Opportunities for and instruction in speaking and listening

## The teacher:

- establishes compelling reasons for presenting and listening to mathematical presentations or explanations. (SMP3, SMP4)

- teaches students to consider audience and purpose when preparing to speak or present. (SMP3, SMP4)

- provides regular opportunities for students to listen and respond to oral presentations, including those that incorporate visual and quantitative information to make students' conclusions public (e.g., debate, reports, presentations to external audiences). (SMP3, SMP4)

- teaches students to listen to and productively critique the reasoning of others. (SMP3)

- teaches students strategies for listening and responding to mathematical explanations and/or presentations. (SMP1, SMP3, SMP6)

Kotsopoulos, D. (2007). Mathematics discourse: "It's like hearing a foreign language." *Mathematics Teachers*, 101(4), 301-305.

Tanner, M.L., & Casados, L. (1998). Promoting and studying discussions in math classes. *Journal of Adolescent & Adult Literacy*, *41*(5), 342-350.

Walshaw, M. & Anthony, G. (2017). The teacher's role in classroom discourse: A review of recent research into mathematics classrooms. *Review of Educational Research* 78(3), 516-551.

# 7. Intentional efforts to build vocabulary, symbolic, and conceptual knowledge

### The teacher:

- presents vocabulary as language in use (as opposed to presenting words in decontextualized lists).
- connects mathematical symbols to language and word meanings. (SMP2, SMP6)
- attends to the need for precision in mathematical language. (SMP6)
- teaches multiple meanings or nuanced meanings of a word across different contexts and encourages students to use new words in meaningful contexts (e.g., discussion of texts, discussions of content area learning, semantic maps). (SMP6)
- provides repeated opportunities for students to review and use new vocabulary over time, including discussing ways that new vocabulary relate to one another and to students' existing conceptual knowledge. (SMP2)
- engages students in developing their own definitions of new words through investigation, discovery, and refinement.
- explicitly teaches words that build necessary knowledge for reading and writing texts of instruction and communicating key mathematics concepts. (SMP1)

- engages students in morphemic analysis (i.e., analysis of the meaning of word parts) of unfamiliar vocabulary. (SMP1)
- selects Tier 2 and Tier 3 vocabulary words to teach using disciplinary texts of instruction. (SMP1, SMP6)
- encourages talk about vocabulary among students, particularly during disciplinary learning and students' discussions of print or digital texts. (SMP2, SMP3)
- encourages students to identify and explore new vocabulary independently and provides instruction to support this process.

Draper, R. J., & Siebert, D. (2004). Different Goals, Similar Practices: Making Sense of the Mathematics and Literacy Instruction in a Standards -Based Mathematics Classroom. *American Educational Research Journal, 41*(4), 927–962. https://doi.org/10.3102/00028312041004927

Kotsopoulos, D. (2007). Mathematics discourse: "It's like hearing a foreign language." *Mathematics Teachers,*101(4), 301-305.

Walshaw, M. & Anthony, G. (2017). The teacher's role in classroom discourse: A review of recent research into mathematics classrooms. *Review of Educational Research* 78(3), 516-551.

# 8. Ongoing observation and assessment of students' language and literacy development that informs their education

### The teacher:

- engages in observation and assessment guided by:
  - ❖ an understanding of language and literacy development, as well as of mathematical learning and development.
    - ■ e.g. understanding the difference between literal comprehension and inferential comprehension of any text, including mathematical texts like word problems, is helpful for teachers when developing and analyzing assessments.
  - ❖ an understanding of assessment as an opportunity to identify and build upon students' strengths, as well as to address areas for improvement;
  - ❖ an understanding of, and respect for, the student as a member of multiple cultures and linguistic communities.a recognition of students' socioemotional needs.
  - ❖ relevant standards documents and connected mathematical practices. (SMP1-8)
- prioritizes multiple forms of student evidence, including evidence gathered from observation, as data for making instructional decisions over standardized test scores which can mask proficiencies and areas in need of development.

- administers assessments as one source of information to determine which students may need additional instructional supports.
- employs formative and diagnostic assessment tools as needed to inform specific instructional targets (e.g., assessing knowledge of specific vocabulary words taught) and engage in the instructional practices described in this document.
- provides timely and specific formative feedback to drive student learning.
- involves students in the development of learning goals, as well as in supported, productive self and peer assessment / feedback. (SMP3)
- develops assessments that analyze how students apply disciplinary tools, concepts, and literacy practices. (SMP 1-8)

Miller, P., & Koesling, D. (2009). Mathematics teaching for understanding: Reasoning, reading, and formative assessment. In S. Plaut (Ed.), *The right to literacy in secondary schools.* (Chapter 5, pp. 65-80). New York: Teachers College Press.

Bailey, A. L., & Heritage, M. (Eds.). (2008). *Formative assessment for literacy, grades K-6: Building reading and academic language skills across the curriculum.* Corwin Press.

## 9. Community networking to tap into available funds of knowledge in support of developing students' mathematical knowledge and identities

### The teacher provides learning activities that:

- help students connect and build on their in-school and out-of-school literacy practices and identities.

- connect mathematics learning to family, cultural, and community issues, as well as economic and political decisions. (SMP3, SMP4)

- address and communicate about natural and social concerns raised through community activities, issues, audiences, and forums by applying mathematical analysis and tools. (SMP3, SMP4, SMP5)

- connect to youth and popular cultural activities and concerns.

- leverage students' literacies, learning, and knowledge to benefit their school, district, and/or community (e.g. peer education, research fairs, student to student mentoring, service learning).

- invite people representing a variety of occupations who use mathematics in their work, such as skilled tradespeople, artisans, business professionals, natural and social scientists, health professionals, and mathematicians, into the classroom (either face-to-face or via digital tools) to work with and engage in conversation with students.

- connect to and engage with math-oriented activities and spaces in local communities (financial institutions, government agencies such as labor departments, colleges and universities, laboratories).

- enable students to communicate conclusions about mathematical problems or contexts to authentic audiences. (SMP3, SMP4)

Boaler, J. and Selling, S. K. (2017). Psychological imprisonment or intellectual freedom? A longitudinal study of contrasting school mathematics approaches and their impact on adults' lives. *Journal for Research in Mathematics Education 4*8, 1.

Brewley, D. (2013). Mathematics literacy for liberation, liberation in mathematics literacy: The Chicago Young People's Project as a community of practice. In J. Leonard & D.B. Martin (ed.s), *The Brilliance of Black Children in Mathematics* (pp. 275-296). Charlotte, NC: Information Age Publishing.

Gutstein, Eric. (2006). "The Real World As We Have Seen It": Latino/a Parents' Voices On Teaching Mathematics For Social Justice. *Mathematical Thinking and Learning 8,* 331-358.

## 10. Metadiscursive awareness within and across academic and cultural domains (attention to language use at the "meta" level, e.g. talking about talk)

### The teacher:

- supports students to connect and build on their in-school and out-of-school literacy practices and ways with words by identifying language processes and discussing how language is used based on different purposes and audiences, and cultural perspectives. (SMP3, SMP6)

  ❖ e.g. comparing how mathematicians report statistical data with how data is used in popular media.

  ❖ e.g. calling attention to the multiple meanings of words like "evaluate" and "product" that have very specific meanings in mathematics.

- ❖ e.g. analyzing the use of modifiers, including adjectives and adverbs, in mathematics text as compared to literary texts.

- provides learning activities that teach students to evaluate how language is used in powerful and effective ways in the discipline based on the purpose, audience, and genre of the text. (SMP2, SMP3, SMP4, SMP5, SMP6)

Olson, M., & Truxaw, M. (2009). Preservice Science and Mathematics Teachers and Discursive Metaknowledge of Text. *Journal of Adolescent & Adult Literacy, 52*(5), 422-431.

Razfar, A., & Leavitt, D. R. (2011). Developing metadiscourse: Building mathematical discussions in an urban elementary classroom. *Canadian Journal of Science, Mathematics and Technology Education, 11*(2), 180-197.

## Essential Practices for Literacy Instruction in the Secondary Mathematics Classroom

\* SMP: Standards for Mathematical Practice from the Common Core State Standards
(see: http://www.corestandards.org/Math/Practice/)

\*\*Models and modeling are important terms to briefly discuss as they have different, although related, meanings in terms of general pedagogy as compared to scientific and mathematical practice.

In this document, when referring to general teaching practices, such as "teacher models how to discern data patterns," modeling is the teaching practice of demonstrating a process for students in order to show them how it is done. Effective modeling involves breaking down complex practices into steps when helpful, questioning learners about what they are seeing, thinking out loud, and engaging learners in dialogue about the practice or process once demonstrated.

More specific to science and mathematics, modeling refers to the development of simplified representations of complex concepts or systems that help to explain a phenomenon or to make predictions about the phenomena. Models can be mental representations or other external representations that exist in diverse formats, from drawings to 3D models to physical enactments of systems.

# Essential Practices for Literacy Instruction in the Secondary Social Studies Classroom

Deliberate, research-supported efforts to motivate, engage, and and support reading, writing, speaking, listening, and viewing in social studies

## 1. Inquiry-based instruction

Develop and implement interactive inquiry based units of instruction that frame social science problems or questions to help establish purposes for students to read and write beyond being assigned or expected to do so (e.g. for their enjoyment/interest, to ask and answer their questions about the social world including their community and individual lives, to address needs in their community or beyond, to communicate with a specific audience, or to explore issues of equity, social justice, and/or identity).

### Within these inquiry-based units, the teacher:

- engages students in developing and asking questions, as well as planning inquiries about history, politics, economics, geography, and the social world.
  - ❖ also discusses the role of supporting questions in the inquiry process and supports students to generate new, compelling questions during an inquiry.
- engages students in disciplinary specific (e.g. historical, political, economic, sociological, or geographic) thinking.
- helps students make sense of historical, political, economic, and social problems at different scales (e.g. temporal or spatial), and make conjectures about possible solutions.

- helps students see social science connections to their lives and identities by reading and engaging in discipline specific, real-world and/or issue based investigations with attention to issues of equity, power, and justice.
- creates opportunities for students to enact literate identities connected to social science learning and communication, drawing from both within and outside of school literacy practices (e.g. gives students opportunities be social science authors by having them create historical texts and present them to younger students).
- provides regular opportunities for students to make choices in their reading, writing, and communication.
- offers regular opportunities for students to collaborate with peers in reading and writing, such as through small-group discussion of texts on questions of interest and opportunities to write within group projects.
- provides scaffolded support to students as needed to assist them in developing their literacy proficiencies, removing supports over time to generate more independence.
- differentiates instructional processes and product expectations based on frequent, formative, growth-oriented feedback that affirms high academic expectations and support for all students.

Bain, R. (2005, January). They thought the world was flat? Applying the principles of how people learn in teaching high school history. In Donovan, S. & Bransford, J. (Eds.). (2005). *How Students Learn: History, Mathematics, and Science in the Classroom*, pp.179-214. Washington, D.C.: National Academies Press.

Bain, R.. (2006). Rounding up unusual suspects: Facing the authority hidden in the history classroom. *Teachers College Record* **108**(10): 2080.

Reisman, A. (2012). Reading like a historian: A document-based history curriculum intervention in urban high schools. *Cognition and Instruction* 30(1).

## 2. Diverse texts and abundant reading opportunities in the school

### The teacher:

- engages students with texts that provide entry way into investigations of compelling issues or social science problems with attention to matters of equity, power and justice.

- provides students access to a range of texts about a similar problem or topic within a specific investigation, but also to varying texts across the span of a school year.

- provides access and regular opportunities to work with:

  ❖ a wide range of social studies texts authentic to the different social science disciplines (i.e. print, audio, visual, and multimodal) including primary, secondary and tertiary texts.

  ❖ texts of varying complexity, structure, and format or genre, including both primary and secondary sources (e.g. informational texts, maps, biographies, articles, photographs, videos, charts or tables, music, oral history, historical novels, poetry and comics/cartoons).

  ❖ a wide range of texts that help students see the social sciences as connected to their interests

and that reflect their backgrounds and cultural experiences, as well as reflecting the backgrounds and cultural identities of others.

  ❖ texts that allow students to reflect on their own identities as well as texts that engage them in exploring identities different than their own.

  ❖ online texts, databases, and tools in the service of investigations.

Afflerbach, P. & VanSledright, B. (2001, May). Hath! Doth! What? Middle graders reading innovative history text. *Journal of Adolescent and Adult Literacy*, vol. 44, no. 8, pp. 696-707.

Bain, R. (2005, January). They thought the world was flat? Applying the principles of how people learn in teaching high school history. In Donovan, S. & Bransford, J. (Eds.). (2005). *How Students Learn: History, Mathematics, and Science in the Classroom*, pp.179-214. Washington, D.C.: National Academies Press.

Bain, R.. (2006). Rounding up unusual suspects: Facing the authority hidden in the history classroom. *Teachers College Record* **108**(10): 2080.

Lee, Y., Lemanski, L. M., Van Deventer, M. M., & O'Brien, D. G. (2020). Leveraging Collaborative Expertise: Social Studies Teachers' Perspectives of Disciplinary Literacy Instruction. Literacy Research and Instruction, 1–22. https://doi.org/10.1080/19388071.2020.1826069

Moje, E. B., & Speyer, J. (2014). Reading challenging texts in high school: How teachers can scaffold and build close reading for real purposes in the subject areas. . In K. Hinchman & H. Thomas (Eds.), *Best practices in adolescent literacy instruction* (2nd ed., pp. 207-231). New York: Guilford.

Reisman, A. (2012). Reading like a historian: A document-based history curriculum intervention in urban high schools. *Cognition and Instruction* 30(1).

Rouet, J. F., Britt, M. A., Mason, R. A., & Perfetti, C. A. (1996). Using multiple sources of evidence to reason about history. *Journal of Educational Psychology* 88(3): 478–493.

## 3. Intentional and standards-aligned instruction in disciplinary reading

### The teacher:

- establishes compelling reasons for reading in social studies (see Practice #1 above).

- explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typical of the social sciences.

- teaches students to apply disciplinary tools and concepts when working with text.

  ❖ e.g. models through think-alouds how to ask questions of texts (e.g. routinely ask students to question the author's stance, perspective, historical or social context and motives, and resulting bias).

  ❖ e.g. teaches students to ask the following questions to determine the source of a document:

    ■ who produced (wrote, drew, or narrated) this text? What was their purpose and audience?(sourcing)

    ■ when was this text produced? (contextualization)

    ■ what was the historical, social, or cultural context in which this text was produced? (contextualization)

  ❖ regularly models and coaches students in critical reading practices relevant to the social studies:

    ■ models how to compare text-based accounts and look for similarities and differences (i.e. corroborating).

- teaches students to evaluate sources and gather and use evidence from multiple sources, including multimodal and digital texts in the context of an investigation or inquiry

  ❖ helps students learn to evaluate the credibility of a source by examining how experts value the source.

  ❖ helps students learn to identify and critique the claims of others, considering both their own perspective and the possible perspectives of the author/source (perspective may be disciplinary, cultural, racial, ethnic, gendered, etc.)

  ❖ collects data or gathers accounts with students.

  ❖ supports youth in substantiating and determining the significance of data they locate through

# 3. Intentional and standards-aligned instruction in disciplinary reading (continued)

different sources(digital and physical).

❖ models how to discern patterns and relationships (e.g. cause and effect)  across data, accounts, or explanations.

❖ teaches students how to record and organize important ideas or facts generated from analysis of data,  images, textual evidence, etc. in research.

• scaffolds reading activities as appropriate using a range of strategies.

Afflerbach, P. & VanSledright, B. (2001, May). Hath! Doth! What? Middle graders reading innovative history text. *Journal of Adolescent and Adult Literacy*, vol. 44, no. 8, pp. 696-707.

Bain, R.. (2006). Rounding up unusual suspects: Facing the authority hidden in the history classroom. *Teachers College Record* **108**(10): 2080.

De La Paz, S., Felton, M., Monte-Sano, C., et. al. (2014).   Developing historical reading and writing with adolescent readers: Effects on student learning. *Theory & Research in Social Education* 42(2).

Kucan, L., Cho, B.Y.,  & Han, H.  (2017) Introducing the historical thinking practice of contextualizing to middle school students. *The Social Studies* 108(5), 210-218,

Lee, Y., Lemanski, L. M., Van Deventer, M. M., & O'Brien, D. G. (2020). Leveraging Collaborative Expertise: Social Studies Teachers' Perspectives of Disciplinary Literacy Instruction. *Literacy Research and Instruction*, 1–22. https://doi.org/10.1080/19388071.2020.1826069

Moje, E. B., & Speyer, J. (2014). Reading challenging texts in high school:  How teachers can scaffold and build close reading for real purposes in the subject areas. . In K. Hinchman & H. Thomas (Eds.), *Best practices in adolescent literacy instruction* (2nd ed., pp. 207-231). New York: Guilford.

Monte-Sano, C. (2011).  Beyond reading comprehension and summary: Learning to read and write in history by focusing on evidence, perspective, and interpretation. *Curriculum Inquiry* 41(2).

Reisman, A. (2012). Reading like a historian:  A document-based history curriculum intervention in urban high schools. *Cognition and Instruction* 30(1).

# 4.  Intentional and standards-aligned instruction in disciplinary writing

## The teacher:

• establishes compelling reasons for writing and communicating in social studies (see Practice #1 above).

• engages students in writing to process and analyze primary, secondary, and tertiary texts.

• explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typical of social studies.

❖ provides instruction in discipline-specific writing processes, strategies, and conventions, and attention as to why those writing norms exist in the discipline, particularly those involving researching, planning, and revising historical accounts and making social science arguments in other social science disciplines (e.g. the need to revisit and refine claims in light of new evidence encountered in an inquiry).

❖ provides opportunities to study models of, and write a variety of, texts for different purposes and audiences, particularly historical accounts or arguments, other social science arguments, as well as other informative/explanatory, and narrative texts.

• teaches students to apply disciplinary tools and concepts when producing text and communication (e.g. establishing historical or political significance for an event being discussed or written about).

• teaches students to gather and organize evidence to support  and communicate social science arguments.

• provides students scaffolded opportunities to explore and use different text features (e.g. headings; table of contents; glossary, etc.) and text structures (cause and effect; problem / solution; sequence of events; etc.) in their writing about social science questions and ideas.

• provides explicit instruction as needed in writing mechanics and other standards-aligned content.

• provides regular time for students to write, both formally and informally, aligned with Practice #1 above.

• engages students in using both paper/pencil and digital media tools to practice historical and other social science research.

• provides opportunities for students to practice using written language (e.g., letters to editors, document-based essays) to make their conclusions public, or to critique the claims or conclusions of others.

• helps students learn to develop and communicate evidence-based claims, considering both their own perspectives and the possible perspectives of their audience (perspectives may be disciplinary, cultural, racial, ethnic, gendered, etc.).

• provides opportunities for students to develop and share multimodal and digital communications authentic to the social studies, including as a means to take informed action around public policy and/or social justice issues.

• moves students to independent levels of research, reading, and writing  about inquiry based questions chosen by themselves and/or their instructors.

• scaffolds writing activities as appropriate using a range of strategies.

De La Paz, S., Felton, M., Monte-Sano, C., et. al. (2014).   Developing historical reading and writing with adolescent readers: Effects on student learning. *Theory & Research in Social Education* 42(2).

Monte-Sano, C. (2011).  Beyond reading comprehension and summary:

Learning to read and write in history by focusing on evidence, perspective, and interpretation. *Curriculum Inquiry* 41(2).

## 5. Higher-order discussion of increasingly complex text across varying participation structures

### The teacher:

- establishes compelling reasons for engaging in discussion of text (see Practice #1 above), including texts produced by students.

- allocates time for whole-group, small-group, and pair discussion of text, and uses a range of discussion and grouping strategies.

- poses questions that foster textual understanding and higher-order engagement with text (e.g. questions that move students beyond literal understanding into inferential and extended thinking about ideas in text).

- provides modeling and instruction to teach students how to generate their own higher level questions about texts, with attention to issues of equity, power, and justice.

- engages students in discussion of text genres, structures, and language practices of the discipline.

- teaches students how to engage in productive discussions, including discussion moves appropriate to the social sciences (e.g. routinely asking students to question the author's stance, perspective, historical or social context and motives, and resulting bias).

- supports students to read and discuss artifacts and data sources that historians and other social scientists would use to build social scientific arguments.

- has students use evidence from the past or from social science theory or research in discussions.

- has students read and discuss the findings of multiple social science accounts.

- engages students with reading secondary sources (work produced by actual social scientists) and also consult tertiary sources (textbooks, maps, and other reference materials) for chronology and spatial framing to prepare for discussions.

- helps students learn to connect facts and events to larger patterns, schemes and/or concepts in their talk and discussions.

- uses discussions to support students to produce their own social scientific arguments and narratives.

- supports students to explain or connect real world events/trends from a social science perspective using social science language, while also recognizing various disciplinary and cultural perspectives.

- develops productive discussions that surface students' misconceptions about social science topics, concepts, or issues, and that engage students in communicating and critiquing conclusions, while also attending to issues of equity, power, and justice.

- engages students in discussion around digital and media literacies, and engages students in dialogue through digital tools to share and communicate ideas and take informed action.

*notes*_____

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Vaughn, S., Swanson, E. A., Roberts, G., Wanzek, J., Stillman-Spisak, S. J., Solis, M., & Simmons, D. (2013). Improving reading comprehension and social studies knowledge in middle school. *Reading Research Quarterly*, *48*(1), 77-93.

Murphy, P. K., Wilkinson, I. A., Soter, A. O., Hennessey, M. N., & Alexander, J. F. (2009). Examining the effects of classroom discussion on students' comprehension of text: A meta-analysis. *Journal of Educational Psychology*, *101*(3), 740.

## 6. Opportunities for and instruction in speaking and listening

### The teacher:

- establishes compelling reasons for presenting and listening to presentations about social science problems or questions.

- provides regular opportunities for students to listen and respond to oral presentations, including those that incorporate visual and quantitative information to make students' conclusions public (e.g., debates and presentations to external audiences).

- models and teaches strategies for effective oral communication in the social sciences.

- teaches students strategies for listening and responding to presentations.

- engages students in discussion of, and practice with, norms and strategies for engaging in civic discourse around a range of issues, including potentially controversial topics.

*notes*_____

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Cazden, C. B. (2003). Classroom Discourse: Courtney B. Cazden and Sarah W. Beck. In *Handbook of discourse processes* (pp. 170-202). Routledge.

Bain, R. (2005, January). They thought the world was flat? Applying the principles of how people learn in teaching high school history. In Donovan, S. & Bransford, J. (Eds.). (2005). *How Students Learn: History, Mathematics, and Science in the Classroom*, pp.179-214. Washington, D.C.: National Academies Press.

# 7. Intentional efforts to build vocabulary and conceptual knowledge

## The teacher:

- presents vocabulary as language in use (as opposed to words from decontextualized lists).

- teaches multiple meanings or nuanced meanings of a word across different contexts, including historical contexts, and encourages students to use new words in meaningful contexts (e.g., discussion of texts, discussions of content area learning, semantic maps).

- provides repeated opportunities for students to review and use new vocabulary over time, including discussing ways that new vocabulary relate to one another and to students' existing conceptual knowledge.

- explicitly teaches words that build necessary knowledge for reading and writing texts of instruction

  ❖ engages students in morphemic analysis (i.e., analysis of the meaning of word parts) of unfamiliar vocabulary.

- selects Tier 2 and Tier 3 vocabulary words to teach using disciplinary texts of instruction.

- encourages talk about vocabulary among students and models how to examine and evaluate the functions of language to achieve certain outcomes within systems and relations of power.

- encourages students to identify and explore new vocabulary independently and provides instruction to support this process.

Vaughn, S., Martinez, L. R., Linan-Thompson, S., Reutebuch, C. K., Carlson, C. D., & Francis, D. J. (2009). Enhancing social studies vocabulary and comprehension for seventh-grade English language learners: Findings from two experimental studies. *Journal of Research on Educational Effectiveness*, *2*(4), 297-324.

De La Paz, S., Felton, M., Monte-Sano, C., et. al. (2014). Developing historical reading and writing with adolescent readers: Effects on student learning. *Theory & Research in Social Education* 42(2).

Lloyd, C.D. (2014). *Exploring Spatial Scale in Geography*. Hoboken, NJ: Wiley Blackwell.

# 8. Ongoing observation and assessment of students' language and literacy development that informs their education

## The teacher:

- engages in observation and assessment guided by:

  ❖ an understanding of language and literacy development (e.g. creating a range of assessment items guided by an understanding of the difference between literal comprehension and inferential comprehension of texts).

  ❖ an understanding of assessment as an opportunity to identify and build upon student strengths, as well as to address areas of improvement;

  ❖ an understanding of, and respect for, the student as a member of multiple cultures and linguistic communities;

  ❖ a recognition of students' socioemotional needs;

  ❖ relevant standards documents.

- prioritizes observation and assessment that is closest to actual reading and writing.

  ❖ e.g. prioritizing student work/writing as data for making instructional decisions as opposed to relying on standardized test scores which can mask proficiencies and areas in need of development.

- administers assessments as one source of information to determine which students may need additional instructional supports.

- employs formative and diagnostic assessment tools as needed to inform specific instructional targets (e.g., assessing knowledge of specific vocabulary words taught, reading and writing strategies being used and not used) and engage in the instructional practices described in this document.

- provides students with timely and specific formative feedback to drive learning and disciplinary literacy development.

- involves students in the development of learning goals, as well as in supported, productive self and peer assessment / feedback.

- develops assessments that analyze how students apply disciplinary tools, concepts, and literacy practices across relevant social science domains (civics, economics, geography, history).

  ❖ assesses students ability to evaluate sources, use evidence, and make evidence-based claims.

Achugar, M., & Carpenter, B. D. (2014). Tracking movement toward academic language in multilingual classrooms. *Journal of English for Academic Purposes*, *14*, 60-71.

Bailey, A. L., & Heritage, M. (Eds.). (2008). *Formative assessment for literacy, grades K-6: Building reading and academic language skills across the curriculum*. Corwin Press.

Gillis, V., & Van Wig, A. (2015). Disciplinary Literacy Assessment. *Journal of Adolescent & Adult Literacy*, *58*(6), 455-460.

## 9. Community networking to tap into available funds of knowledge in support of developing students' social science knowledge and identities

### The teacher provides learning activities that:

- help students connect and build on their in-school and out-of-school literacy practices and identities.
  - ❖ connect social science learning to family and community histories, geographic patterns or features, economic and political decisions
  - ❖ tap into community activities and audiences to address social scientific concerns, particularly at local and state levels of government when appropriate.
  - ❖ connect to youth and popular cultural activities and concerns.
- leverage students' literacies, learning, and knowledge to benefit their school, district, and/or community (e.g. peer education, research fairs, student to student mentoring, service learning).
- invite people from occupations who use the social sciences (e.g. historians, economists, geographers, local government officials, law enforcement, or political scientists) to the classroom (either face-to-face or via digital tools) to work with and engage in conversation with students.

- connect to and engage with social science activities and spaces in local communities (museums, universities, community colleges, governmental agencies, monuments/memorials, historical societies, community based organizations,  etc.).
- enable students to communicate conclusions to authentic audiences and take informed action on issues of public policy and/or social justice.
- honor the diversity of literacy practices and historical narratives in the school community.

Gutierrez, K., Rymes, B., & Larson, J. (1995). Script, counterscript, and underlife in the classroom: James Brown versus Brown v. Board of Education. *Harvard educational review*, *65*(3), 445-472.

Harman, R. M., & Khote, N. (2017). Critical SFL Praxis With Bilingual Youth: Disciplinary Instruction in a Third Space. *Critical Inquiry in Language Studies, 15*(1), 63–83. https://doi.org/10.1080/15427587.2017.1318663

Stockdill, D. & Moje, E. B.  (2013).  Adolescents as readers of social studies:  Examining the relationship between youth's everyday and social studies literacies and learning. *Berkley Review of Education* 4(1):  35-68.

## 10. Metadiscursive awareness within and across academic and cultural domains (attention to language use at the "meta" level, e.g. talking about talk)

### The teacher:

- supports students to connect and build on their in-school and out-of-school literacy practices and ways with words by identifying language processes and discussing how language is used based on different purposes and audiences, and cultural perspectives.
  - ❖ e.g. discussing the role of audience and purpose with students by having them compare how they communicate with friends about an issue or problem to how they might communicate about the same topic with an authority figure like a principal, and then using this discussion to help them think about other comparisons like the differences between writing a text message and writing an academic paper.   The goal is to make them aware of how language can and should shift in different contexts.
- engages students in high level discussion about ways with words within and across the disciplines.
  - ❖ e.g. discussing how and why the meaning of a word like product changes in meaning across academic contexts
  - ❖ e.g. noting how the use of first person in writing changes across academic disciplines and genres

- provides learning activities that teach students to evaluate how language is used in powerful and effective ways in the discipline based on the purpose, audience, historical and social context, and genre of the text.
  - ❖ e.g. having students analyze important, influential texts in the discipline (e.g. Martin Luther King's "I have a dream" speech) and discuss why and how that particular text made an impact, with an emphasis on the use of language
  - ❖ e.g. teaching students about the standards of evidence in the disciplines of the social sciences and using these to create powerful arguments

Achugar, M., & Stainton, C. (2010). Learning history and learning language: Focusing on language in historical explanations to support english language learners. In *Instructional explanations in the disciplines* (pp. 145-169). Springer, Boston, MA.

Achugar, M., & Carpenter, B. D. (2012). Developing disciplinary literacy in a multilingual history classroom. *Linguistics and Education*, *23*(3), 262-276.

Harman, R. M., & Khote, N. (2017). Critical SFL Praxis With Bilingual Youth: Disciplinary Instruction in a Third Space. *Critical Inquiry in Language Studies, 15*(1), 63–83. https://doi.org/10.1080/15427587.2017.1318663
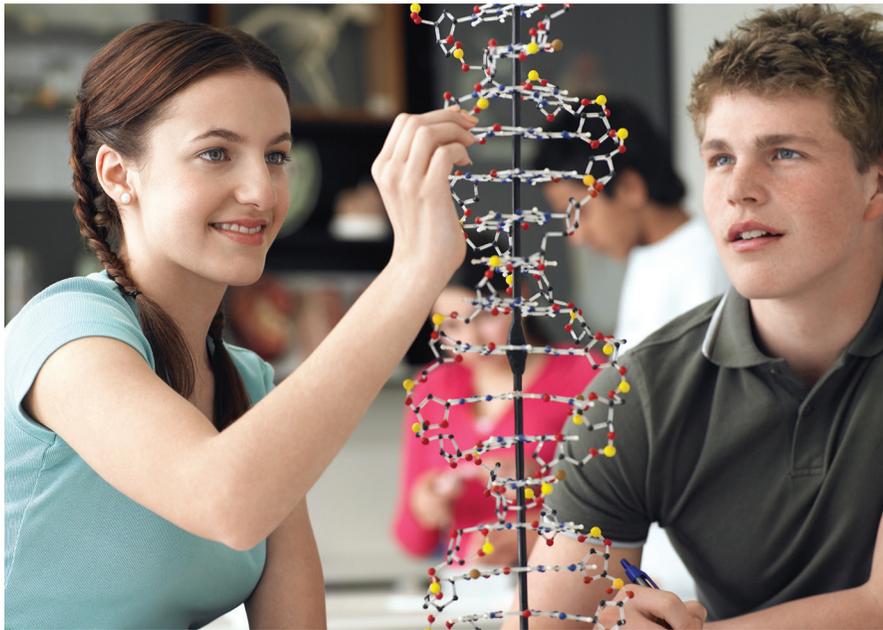
# Essential Practices for Literacy Instruction in the Secondary Science Classroom

Deliberate, research-supported efforts to motivate, engage, and and support reading, writing, speaking, listening, and viewing in science

## 1. Problem-based instruction

Develop and implement interactive, problem-based units of instruction that frame scientific problems and phenomena, as well as engineering problems, to help establish purposes for students to read and write beyond being assigned or expected to do so (e.g. for their enjoyment/interest; to ask and answer questions about the natural and physical world including questions relevant to their communities, health, and lives; to address needs or problems in their community or beyond; and to communicate with a specific audience about science and engineering).

### Within these phenomenon or problem-based units, the teacher:

- supports students to develop and pursue questions about the natural world inspired by their lived realities that can leverage the experiences, knowledge, and resources of their communities and families.

- engages students in abstract scientific thinking and reasoning, as well as in iterative design thinking.

- helps students see science and engineering in their everyday lives and identities by reading and engaging in authentic investigations, simulations, and/or engineering design cycles.

- helps students explore scientific theories in order to understand that science can be used to wonder about the world and that such wondering can lead to applications of scientific concepts in the world

outside of school.

- creates opportunities for students to enact scientific and literate identities, drawing from both within and outside of school literacy practices (e.g. positions students as science writers and communicators by having them produce educational materials for younger students).

- provides regular opportunities for students to make choices in their reading, writing, and communication.

- offers regular opportunities for students to collaborate with peers in reading, writing, speaking, and listening, such as small-group discussion of texts on questions of interest and opportunities to write within group projects.

- provides scaffolded support to students as needed to assist them in developing their literacy proficiencies, removing supports over time to generate more independence.

- differentiates instructional processes and product expectations to account for varying academic needs to appropriately challenge all students.

Gallagher, S. A., Sher, B. T., Stepien, W. J. and Workman, D. (1995). Implementing Problem-Based Learning in Science Classrooms. *School Science and Mathematics*, 95, 136–146.

Kolodner, J.L., Camp, P.J., Crismond, D., et. al. (2003). Problem-based learning meets case-based reasoning in the middle school science classroom: Putting learning by design™ into practice. *Journal of the Learning Sciences 12*(4).

## 2. Diverse texts and abundant reading opportunities in the school

### The teacher:

- engages students in the exploration of compelling phenomena or problems to generate questions and set purpose for the use of texts and primary source documents, secondary source documents, students, family, and/or community generated text (or use print or digital resources) in order to make sense of complex ideas.

- provides access and regular opportunities to draw on text to support explanation of phenomena and solution of problems with

  - ❖ a wide range of texts relevant to science and engineering concepts and of varying complexities and types (i.e. print, audio, visual, and multimodal) including scientific reports, science related policy documents, research notes, newspaper articles, magazines, journals, data representations, diagrams, infographics, documentary videos, science websites, technical manuals or instructions, and/or any print or digital resources that can be read or viewed to make meaning.

  - ❖ a wide range of science and engineering texts by diverse authors, including student-created text, that help students see science and engineering as connected to their lives and interests and that reflect their backgrounds, cultural experiences, and interactions with the natural and designed world, and that also reflect the backgrounds and cultural experiences of others.

- engages students with digital and/or online texts, databases, and tools in the service of scientific explanations or engineering design.

O'Reilly, T., & McNamara, D. S. (2007). The impact of science knowledge, reading skill, and reading strategy knowledge on more traditional "high-stakes" measures of high school students' science achievement. *American Educational Research Journal, 44*(1), 161-196.

Pearson, P. D., Moje, E., & Greenleaf, C. (2010). Literacy and science: Each in the service of the other. *Science, 328*(5977), 459-463.

Greenleaf, C., Brown, W., & Litman, C. (2004). Apprenticing urban youth to science literacy. *Bridging the gap; Improving literacy learning for preadolescent and adolescent learners in grades 4, 12*, 200-226.

## 3. Intentional and standards-aligned instruction in disciplinary reading

### The teacher:

- establishes compelling reasons for reading in science and/or engineering as related to the phenomenon to be explained or problem to be solved (see recommendation #1 above).

- teaches students to recognize and analyze different purposes and audiences for science and engineering writing.

- provides opportunities for students to apply disciplinary tools and concepts when working with text.

  - ❖ explicitly names, describes, and models the dispositions, strategies, and patterns of thinking utilized by scientists and engineers.

  - ❖ models* through think-alouds how to ask reasonable scientific questions of texts.

  - ❖ teaches students how to ask testable questions of ideas in texts and define problems to be explored through experimentation, observation, design cycles, or discussion and/or writing.

  - ❖ teaches students to critically comprehend and evaluate a range of scientific explanations** of processes and phenomena.

  - ❖ teaches students to critically engage with scientific argumentation** by

    - ■ analyzing claims found in text and evaluating the evidence provided and considering a range of perspectives (perspectives may be disciplinary, cultural, gendered, etc.).

    - ■ modeling the analysis and interpretation of data to produce evidence to support claims, and providing students supported opportunities to do so as well.

    - ■ modeling the questioning of evidence for possible challenges or rebuttals to claims, and providing students supported opportunities to do so as well.

  - ❖ models how to draw and present claims based on evidence in oral and written language.

  - ❖ models for students how to comprehend and evaluate texts to interpret results of investigations.

  - ❖ teaches students to read, analyze, and interpret artifacts and data that scientists might use to build scientific arguments.

  - ❖ models how to interpret and use data gathered in the process of engineering design cycles in order to explore and/or optimize possible solutions

- engages students in real-world investigations about questions of interest to them using a range of texts that should include tables, charts, graphs, diagrams, videos, and articles:

## 3. Intentional and standards-aligned instruction in disciplinary reading (continued)

- ❖ collects and analyzes data with students.
- ❖ models how to record data observations systematically and rigorously, and supports students as they learn how to do so, by:
    - ■ employing multiple forms of representation to record data or model phenomena or relationships (e.g. drawings, numbers, graphs, charts, word-based descriptions, etc.).
    - ■ teaching students how to translate from one representation of data to another in the process of data analysis.
- ❖ models how to discern data patterns and determine significance, and use evidence to support claims or inform engineering design solutions, and provides students supported opportunities to do so

- ❖ teaches students how to strategically use and analyze a range of science and/or engineering texts and tools, including digital texts and tools.
- engages students in creating, analyzing, and evaluating a wide range of scientific models of phenomena, or engineering models of potential solutions to a design problem.
- scaffolds reading activities as appropriate using a range of strategies.
- scaffolds instruction to respond to linguistic diversity as students draw on texts and scientific representations.

Greenleaf, C., Brown, W., & Litman, C. (2004). Apprenticing urban youth to science literacy. *Bridging the gap; Improving literacy learning for preadolescent and adolescent learners in grades 4, 12,* 200-226.

Kolodner, J.L., Camp, P.J., Crismond, D., et. al. (2003). Problem-based learning meets case-based reasoning in the middle school science classroom: Putting learning by design™ into practice. *Journal of the Learning Sciences 12*(4).

Tang, K.-S., & Putra, G. B. S. (2019). In Global developments in literacy research for science education (pp. 281–300). essay, SPRINGER INTERNATIONAL PU.

## 4. Intentional and standards-aligned instruction in disciplinary writing

### The teacher:

- establishes various compelling reasons for writing in science (see Practice #1) and teaches students to:
    - ❖ write for different purposes, such as to process and analyze scientific texts, develop and carry out an investigation, to research and/or explain a phenomenon, to put forth an evidentiary claim or scientific model, or to communicate about engineering design processes and solutions.
    - ❖ write for different audiences, such as scientific, engineering, and public audiences.
    - ❖ consider how language choices and conventions can shift depending upon purpose and audience.
- provides regular time for students to write, aligned with instructional practice #1, both formally and informally, including the use of iterative writing processes (e.g. drafting, revising from feedback, editing, publishing)
- explicitly names, describes, and models the dispositions, strategies, and patterns of thinking typical of different forms of science writing.
- provides instruction in discipline-specific writing processes, strategies, and conventions, and discusses why those writing norms exist in the discipline (e.g. notation conventions) such as:
    - ❖ recording observations and other data in systematic ways (e.g. logs, notebooks, spreadsheets, tables, sketches, diagrams, etc.)
    - ❖ analyzing and interpreting data.
    - ❖ designing appropriate and flexible systems for recording, documenting and analyzing data and/or engineering design decisions.
    - ❖ developing models of relationships and patterns in data.

- teaches students how to write scientific arguments by:
    - ❖ using examples of well-written scientific arguments to help students learn the features of strong scientific arguments.
    - ❖ iteratively writing scientific arguments on a regular basis.
    - ❖ providing explicit instruction as needed in the use of text features, writing mechanics and other standards-aligned content.
- provides students scaffolded opportunities to explore and use different text features (e.g. headings; table of contents; glossary, etc.) and text structures (cause and effect; problem / solution; sequence of events; etc.) in their writing about science and engineering.
- engages students in using both paper/pencil and digital media tools to process investigations and develop models.
- moves students to independent levels of research, reading, and writing.
- scaffolds writing activities as appropriate using a range of strategies.
- supports students to write and communicate across linguistic differences.

Duschl, R.A. & Osborne, J. (2002). Supporting and Promoting Argumentation Discourse in Science Education. *Studies in Science Education* 38, 1.

Lee, O., Quinn, H., & Valdes, G. (2012). Language Demands and Opportunities in Relation to Next Generation Science Standards for English Language Learners: What Teachers Need to Know. Understanding Language: Stanford University School of Education.

Pearson, P. D., Moje, E. B., & Greenleaf, C. (2010). Literacy and science: Each in the service of the other. *Science, 328,* 459-463.

Tang, K.-S., & Putra, G. B. S. (2019). In Global developments in literacy research for science education (pp. 281–300). essay, SPRINGER INTERNATIONAL PU.

## 5. Higher-order discussion of increasingly complex text across varying participation structures

### The teacher:

- establishes compelling reasons that connect to students' identities for engaging in discussion of texts (see Practice #1), including texts produced by students, and involves students in
    - ❖ discussion of observations, investigations, models, or prototypes as they apply to a phenomenon or problem that is the focus of learning.
    - ❖ discussion of text genres, structures, and discursive practices of the discipline.
    - ❖ discussions that surface, in productive ways, students' ideas (regardless of scientific accuracy) about the science phenomenon and principles.
    - ❖ discussion in which they iteratively formulate explanatory models by integrating and synthesizing concepts across science domains and within engineering.
    - ❖ discussions of scientific claims in which they evaluate the evidence and reasoning used to support the claims.
- teaches students how to engage in productive discussions, making visible common purposes or outcomes of discussion and dialogue in science and engineering (e.g. forming hypotheses; triangulating data; testing hypotheses and forming conclusions based on analysis; defining an engineering problem; exploring how to optimize a design solution) while also attending to issues of equity, power, and justice.
- allocates time for whole-group, small-group, and pair discussion of text, and uses a range of discussion and grouping strategies.

- poses questions that foster textual understanding and higher-order engagement with text (e.g. questions that move students beyond literal understanding into inferential and extended thinking about ideas in text) and provides modeling and instruction to teach students how to generate their own higher level questions.
- has students read and discuss the findings and significance of multiple scientific accounts or explanations of a similar problem or phenomenon (e.g. comparing findings from two studies on the same question, or evaluating differing design solutions to the same problem).
- supports students explaining phenomena from a scientific perspective and often using age-appropriate and accurate scientific language.
- engages students in discussion around digital and media literacies as used in science and engineering practices, and engages students in dialogue through digital tools to share and communicate ideas.

Greenleaf, C., Brown, W., & Litman, C. (2004). Apprenticing urban youth to science literacy. *Bridging the gap; Improving literacy learning for preadolescent and adolescent learners in grades 4, 12*, 200-226.

Lee, O., Quinn, H., & Valdes, G. (2012). Language Demands and Opportunities in Relation to Next Generation Science Standards for English Language Learners: What Teachers Need to Know. Understanding Language: Stanford University School of Education.

Rappa, N. A.& Tang, K.-S. (2018). Integrating disciplinary-specific genre structure in discourse strategies to support disciplinary literacy. *Linguistics and Education, 43*, 1–12. https://doi.org/10.1016/j.linged.2017.12.003

## 6. Opportunities for and instruction in speaking and listening

### The teacher:

- establishes compelling reasons for presenting and listening to teachers' and peers' presentations, including the sharing of scientific explanations, arguments, and models; as well presentation of engineering design processes and solutions.
- makes visible the importance of audience and purpose for different types of scientific communication and provides opportunities for students to develop presentations for different audiences and purposes, both real and simulated.
- provides regular opportunities for students to listen and respond to oral presentations, including those that incorporate visual and quantitative evidence or data to make students' conclusions public (e.g., debate, reports, presentations to external audiences).

- models and teaches strategies for effective oral communication in science.
- teaches students strategies for listening and responding to presentations.

Duschl, R.A. & Osborne, J. (2002). Supporting and Promoting Argumentation Discourse in Science Education. *Studies in Science Education* 38 , 1.

Greenleaf, C., Brown, W., & Litman, C. (2004). Apprenticing urban youth to science literacy. *Bridging the gap; Improving literacy learning for preadolescent and adolescent learners in grades 4, 12*, 200-226.

Lee, O., Quinn, H., & Valdes, G. (2012). Language Demands and Opportunities in Relation to Next Generation Science Standards for English Language Learners: What Teachers Need to Know. Understanding Language: Stanford University School of Education.

## 7. Intentional efforts to build age-appropriate scientific vocabulary and conceptual knowledge

### The teacher:

- presents vocabulary as language in use (rather than presenting scientific terms from decontextualized lists).

- capitalizes on students reading, writing, speaking, and listening experiences around phenomena to identify and use age-appropriate scientific words and principles.

- identifies multiple meanings or nuanced meanings of a scientific word across different contexts and encourages students to use new scientific words accurately in meaningful contexts (e.g., discussion of texts, discussions of content area learning, concept or semantic maps, diagrams).

- provides iterative opportunities for students to explore, review, and use new vocabulary over time, both verbally and in writing, including discussing ways that new vocabulary words relate to one another and to students' existing conceptual knowledge.

- when needed, explicitly teaches words that build necessary knowledge for reading and writing texts of instruction.

- engages students in morphemic analysis (i.e., analysis of the meaning of word parts) of unfamiliar words.

- selects Tier 2 and Tier 3 vocabulary words to teach using disciplinary texts.

- encourages productive talk among students, particularly during disciplinary learning and students' discussions of print or digital texts.

- encourages students to identify, explore and then appropriately use new words independently and provides learning opportunities to support this process.

Duschl, R.A. & Osborne, J. (2002). Supporting and Promoting Argumentation Discourse in Science Education. *Studies in Science Education* 38 , 1.

Greenleaf, C., Brown, W., & Litman, C. (2004). Apprenticing urban youth to science literacy. *Bridging the gap; Improving literacy learning for preadolescent and adolescent learners in grades 4*, *12*, 200-226.

Lee, O., Quinn, H., & Valdes, G. (2012). Language Demands and Opportunities in Relation to Next Generation Science Standards for English Language Learners: What Teachers Need to Know. Understanding Language: Stanford University School of Education.

## 8. Ongoing observation and assessment of students' academic language and literacy development that informs their education

### The teacher:

- engages in observation and assessment guided by:
  - ❖ an understanding of language and literacy development (e.g. understanding the difference between literal comprehension and inferential comprehension of any text, including scientific texts, is helpful for teachers when developing and analyzing text-based assessment items).
  - ❖ an understanding of assessment as an opportunity to identify and build upon student strengths, as well as to address areas of improvement;
  - ❖ an understanding of, and respect for, the student as a member of multiple cultures and linguistic communities;
  - ❖ a recognition of students' socioemotional needs;

- prioritizes multiple forms of student work as data for making instructional decisions rather than to standardized test scores which can mask proficiencies and areas in need of development.

- administers multiple forms of formative assessment as one source of information to determine which students may need additional instructional supports .

- employs formative and diagnostic assessment tools as needed to inform specific instructional targets (e.g., assessing knowledge of specific vocabulary words taught, reading and writing strategies being used and not used) and engage in the instructional practices described in this document.

- provides timely and specific formative feedback to students to guide learning and literacy development.

- involves students in the development of learning goals, as well as in supported, productive self and peer assessment / feedback.

- develops assessments that analyze how students apply disciplinary tools, concepts, and literacy practices.
  - ❖ assesses students' ability to analyze data and use evidence to support a scientific claim.

Keeley, P. (2015). *Science Formative Assessment, Volume 1: 75 Practical Strategies for Linking Assessment, Instruction, and Learning*. Corwin Press.

Bailey, A. L., & Heritage, M. (Eds.). (2008). *Formative assessment for literacy, grades K-6: Building reading and academic language skills across the curriculum*. Corwin Press.

## 9. Community networking to tap into available funds of knowledge in support of developing students' science knowledge and identities

**The teacher provides learning activities that:**

- help students connect and build on their in-school and out-of-school literacy practices and identities.

- connect science learning to family and community issues, local and regional problems or concerns, and economic and political decisions.

- tap into community activities and audiences to address and explore scientific questions, or natural and social concerns.

- connect to youth and popular cultural activities and concerns.

- leverage students' literacies, learning, and knowledge to benefit their school, district, and/or community (e.g. peer education, research fairs, student to student mentoring, service learning).

- invite people from diverse (e.g. ethnic, cultural, gendered, etc.) perspectives who represent a range of occupations who use science and engineering practices in their work to the classroom (either face-to-face or via digital tools) to work with and engage in conversation with students.

- connect to and engage with informal and out-of-school time science experiences in local communities (museums, laboratories, universities, community colleges, governmental agencies such as health departments, etc.).

- enable students to communicate their own and others' scientific models and explanations and engineering problems to authentic audiences through argumentation.

González, N., Neff, D., Amanti, C., & Moll, L. (2006). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. In *Funds of knowledge* (pp. 83-100). Routledge.

Lee, O., Quinn, H., & Valdes, G. (2012). Language Demands and Opportunities in Relation to Next Generation Science Standards for English Language Learners: What Teachers Need to Know. Understanding Language: Stanford University School of Education.

Moje, E. B., Ciechanowski, K. M., Kramer, K., Ellis, L., Carrillo, R., & Collazo, T. (2004). Working toward third space in content area literacy: An examination of everyday funds of knowledge and discourse. *Reading research quarterly*, *39*(1), 38-70.

## 10. Metadiscursive awareness within and across academic and cultural domains (attention to language use at the "meta" level, e.g. talking about talk)

**The teacher:**

- supports students connecting and building on their in-school and out-of-school literacy practices and ways with words by identifying language processes and discussing how language is used based on different purposes and audiences, and cultural perspectives.

  ❖ e.g. discussing the role of audience and purpose with students by having them compare how they communicate with friends about an issue or problem to how they might communicate about the same topic with an authority figure like a principal, and then using this discussion to help them consider other comparisons of language use such as the differences between writing a text message and writing a scientific presentation. The goal is to make them aware of how language can and should shift in different contexts.

- engages students in metalinguistic discussion about ways with words within and across the disciplines and areas in need of development.

  ❖ e.g. discussing how and why the meaning of a word like product changes in meaning across academic contexts

  ❖ e.g. noting how the use of first person in writing changes across academic disciplines and genres

- provides learning activities that teach students to evaluate how language is used in powerful and effective ways in the discipline based on the purpose, audience, historical and social context, and genre of the text.

  ❖ e.g. having students analyze important, influential texts in the disciplines of the sciences (e.g. Darwin's *On the Origin of Species*) and discuss why and how that particular text made an impact, with a focus on language use

  ❖ e.g. teaching students about the standards of evidence in different forms of science writing and using these to create powerful arguments

Greenleaf, C., Brown, W., & Litman, C. (2004). Apprenticing urban youth to science literacy. *Bridging the gap; Improving literacy learning for preadolescent and adolescent learners in grades 4*, *12*, 200-226.

Campbell, T, Oh, P. S., & Neilson, D. (2012). Discursive modes and their pedagogical functions in model-based inquiry (MBI) classrooms. *International Journal of Science Education*, *34*(15), 2393-2419.

## Essential Practices for Literacy Instruction in the Secondary Science Classroom

*Models and modeling are important terms to briefly discuss as they have different, although related, meanings in terms of general pedagogy as compared to scientific and mathematical practice.

In this document, when referring to general teaching practices, such as "teacher models how to discern data patterns," modeling is the teaching practice of demonstrating a process for students in order to show them how it is done. Effective modeling involves breaking down complex practices into steps when helpful, questioning learners about what they are seeing, thinking out loud, and engaging them in dialogue about the practice or process once demonstrated.

More specific to science and mathematics, modeling refers to the development of representations of complex concepts or systems that help to explain a phenomenon or to make predictions about the phenomena. Models can be mental representations or other external representations that exist in diverse formats, from drawings to 3D models to physical enactments of systems.

**The terms argument and explanation are often used interchangeably in science education. In this document, we are operating with the understanding that they are related, but different practices. See the statement below from stemteachingtools.org.

*Explanations are constructed from models and representations of reality—not out of data and warrants. With arguments, scientists attempt to logically reason from the data to a conclusion using appropriate warrants. Argumentation often involves comparing different explanations for natural phenomena in an evidence-based way. The two practices are deeply linked to each other, but they do different intellectual work for scientists.*

http://stemteachingtools.org/brief/1

*notes* _____

# Glossary:

The terms below are part of the technical and disciplinary language of education. Many of these terms are familiar, but many also have multiple interpretations, so it is important to develop shared understandings of our operating definitions as you consider the practice recommendations in this document. We offer definitions of some important terms below. These particular terms are woven throughout this document and were identified as essential words of academic discourse by members of the statewide working group.

## Critical Literacy

Critical literacy is the ability to read texts in an active, reflective manner in order to better understand power, inequality, culture, formative assessment, community, and injustice in human relationships.[1]

## Culture/Cultural Domains

Cultural domains are categories of human interaction, belief, and meaning that every culture shares. There are several domains of cultural, including Family & Kinship, Religion & Spirituality, Sex & Gender, Political & Social Relations, Economics & Resources, Time & Space, Language & Communication, Technology & Material, History & Myth, Sustenance & Health, Aesthetics & Recreation, and Learning & Knowledge. The intersections across domains show how cultures are holistic systems, meaning all the parts are connected,and change in one area will usually cause change in several other areas.

## Culturally Responsive

Cultural responsiveness requires individuals to be culturally competent. This competency is having an awareness of one's own cultural identity and views about difference, and the ability to learn and build on the varying cultural and community norms of students and their families. It is the ability to understand the within-group differences that make each student unique, while celebrating the between-group variations that make our [world] a tapestry. that culturally responsive leaders need to continuously support minoritized students through examination of assumptions about race and culture. Further, they argue that as demographics continue to shift, so should practice that responds to student needs, understanding that it is "deleterious for students to have their cultural identities rejected in school and unacknowledged as integral to student learning" (Khalifa, Gooden, & Davis, 2016).

## Culturally Sustaining Pedagogy

Seeks to perpetuate and foster- to sustain-linguistic, literate and cultural pluralism as part of school for positive social transformation and revitalization. (Django Paris and H. Samy Alim)

## Direct instruction

Direct instruction is a broad term used to describe the explicit teaching of a particular skill set or body of knowledge through lecture delivery or demonstrations to students.

Direct instruction is a valuable approach to teaching discrete skills and particular sets of facts that students need. It can and should be paired with other instructional approaches like inquiry-based learning.

In direct instruction, the teacher is providing information to the students. In the 6-12 classroom, this might be seen as lecture or dialogue. The students' role is to listen, ask meaningful questions, take notes, and consolidate information.

## Disciplinary Literacy

Disciplinary literacy refers to the specialized literacy practices of a particular disciplinary domain or area (e.g. mathematics, history, biology). These practices include the ways that scholars identify, evaluate, use, and produce the wide range of texts and information or data sources typical of their particular discipline, including the specialized reading, writing, and communication practices used to analyze, produce, and share information. Disciplinary literacy also includes specialized vocabularies and communication norms that shift across purposes and audiences authentic to the discipline. Some scholars include ways of thinking about text and communication as a part of disciplinary literacy.

Disciplinary literacy instruction helps students learn the content and practices of important academic disciplines and also helps them develop critical literacy and thinking skills. This includes, but is not limited to, the use and production of a wide range of texts. Disciplinary literacy instruction also helps to prepare students for critical media consumption, college level learning, and a range of career trajectories.

### Discourse

Discourse, in the context of this document, refers to the ways of using language and communication practices in a particular community or domain. Discourse norms and practices shift across disciplines and/or communities.

Explicitly teaching students the discourse of a discipline helps them gain access to content presented in disciplinary texts, prepares them to produce disciplinary work, and builds their metacognitive awareness of language across domains.

### Discursive

Discursive means "of or relating to discourse." So the discursive practices of a discipline, for example, are the distinct ways that people in that discipline generally use communication and language in their work.

In mathematical writing, for example, adjectives are used only when needed and with precision. When reading a mathematics text, therefore, mathematicians tend to view adjectives as precise descriptors and don't look for deeper meanings. In historical writing, however, adjectives have the potential to convey an attitude or perspective about events, so historians think about who the author of a text was as they also analyze their word choice and consider the possible bias of the source. The discursive practices of the disciplines are different, so texts are read differently as well.

### Domain

In this document, domain refers to an academic subject or field of study.

It is important to introduce students to the idea that the domains or disciplines they study, while similar in some ways, also have important differences in how knowledge is constructed and communicated.

### Explicit instruction

Explicit instruction involves planned and purposeful instruction in which a teacher clearly lays out identifiable learning goals for students, provides modeling or demonstration of a skill or strategy, opportunities for practicing the developing skill with feedback, and additional independent practice with clear criteria for success.

Explicit instruction is particularly important for the development of academic vocabulary, disciplinary reading skills, and disciplinary writing skills. Learning goals should drive the selection of instructional strategies, and learning processes need to be clearly modeled and scaffolded for students.

### Formative Assessment

Formative assessment is a planned, ongoing process used by all students and teachers during learning and teaching to elicit and use evidence of student learning to improve student understanding of intended disciplinary learning outcomes and support students to become self-directed learners. Effective use of the formative assessment process requires students and teachers to integrate and embed the following practices in a collaborative and respectful classroom environment: Clarifying learning goals and success criteria within a broader progression of learning; Eliciting and analyzing evidence of student thinking;

Engaging in self-assessment and peer feedback; Providing actionable feedback; and Using evidence and feedback to move learning forward by adjusting learning strategies, goals, or next instructional steps. (Michigan Assessment Consortium)

### Funds of Knowledge

Funds of knowledge is a concept that emerged from the work of researchers Luis Moll, Cathy Amanti, Deborah Neff, and Norma Gonzalez (2001). They describe funds of knowledge "as the historically accumulated and culturally developed bodies of knowledge and skills essential for household or individual functioning and well-being" (p. 133). In other words, funds of knowledge represent the resources that students can call upon in their learning through life experience and in connection to social networks in their community.[2]

Attending to funds of knowledge in a learning community can help both teachers and students tap into valuable resources and extend their learning opportunities beyond the classroom walls.

### Genre

Genre is a category of artistic composition, as in music or literature, characterized by similarities in form, style, or subject matter. It is also used to describe different forms or types of writing and communication. A genre has identifiable characteristics and structures that differentiate it from others.

While most commonly used in literature and English Language Arts, genre is used across these documents to refer to different types of texts that are produced in the disciplines. Different genres of text have different conventions, structures, and other features, and it is important to make these visible to students as they both read and produce a range of texts.

### Inquiry and inquiry-based learning

Inquiry-based learning is a form of learning that starts with the development and exploration of questions, problems or scenarios—rather than simply delivering information or facts. Inquiry learning involves students in investigations, research, phenomena-based or problem-based learning experiences in which they construct knowledge. It is often facilitated with a teacher helping to guide the inquiry process.

While more time consuming, research suggests that inquiry-based learning in all major content areas results in deeper student learning of conceptual knowledge. All of the major sets of learning standards and/or frameworks (CCSS, NGSS, C3) now explicitly attend to and promote inquiry in the classroom.

Inquiry-based learning falls along a continuum. Inquiry with high teacher direction and low student direction may be referred to as "Limited Inquiry". When students have more direction on the continuum, we may use the term "Structured Inquiry". Further along the continuum with higher student direction is referred to as "Guided Inquiry", and inquiry with the highest level of student control and the lowest level of teacher control is referred to as "Open Inquiry".

## Intentional Instruction

Intentional instruction occurs when the teacher is clear and transparent about what they are going to teach. In this framework, teachers purposefully identify and then implement specific strategies, tools, or learning routines that can help students achieve established learning goals.

Intentional instruction pays attention to what students will learn, but also how, when, and why they will learn it. This includes creating, sharing, connecting to, and assessing learning targets.

Intentional instruction is an important concept in that it reminds educators of the importance of intentional planning and thoughtful selection of strategies, tools, and routines that align with learning goals.

## Linguistic Diversity

Approximately seven thousand spoken languages and innumerable spoken dialects and sign languages are in use around the world, some with millions of speakers and others with only a few. The study of linguistic diversity includes how languages are acquired; language pedagogy; individual and societal impacts of bi/multilingualism; policy and political issues; and language maintenance, revitalization, and loss. Addressing these issues requires multidisciplinary perspectives, and the references here reflect that multidisciplinarity. (Teresa McCarty and Ran Chen )

## Literacy

In this document, literacy is framed as a set of socially constructed (developed by people through interaction) practices that use some form of a symbol system to communicate meaning, along with a technology to produce and share it. Therefore, literacy is more than just the skill sets of reading and producing different forms of texts; it also includes the application of these skills "for specific purposes in specific contexts of use" (Scribner & Cole, 1981).

Literacy then provides the means to access, process, and communicate information. It is central to all academic disciplines and should thus be included as an important component in disciplinary instruction.

Literacy has always been a collection of cultural and communicative practices shared among members of particular groups. As society and technology change, so does literacy. Because technology has increased the intensity and complexity of literate environments, the 21st century demands that a literate person possess a wide range of abilities and competencies, many literacies.[3]

## Media literacy

"Media Literacy is a 21st century approach to education. It provides a framework to access, analyze, evaluate, and create messages in a variety of forms, from print to video to the Internet. Media literacy builds an understanding of the role of media in society as well as essential skills of inquiry and self-expression necessary for citizens of a democracy." [4]

Media literacy is extremely important in today's technologically driven society. Students encounter a vast amount of information across multiple media, and they must call upon a wide body of knowledge and a range of analytical skills to critically interact with this information.

## Metadiscourse

Metadiscourse is a term that refers to a discussion about a discussion (and so on), as opposed to a simple discussion about a given topic. It involves communication and consideration of communication itself. **Metadiscursive** then means "of and pertaining to metadiscourse."

So metadiscursive analysis is the process of using language to analyze and consider how language is used in different contexts. Building metadiscursive awareness is important so that students become more thoughtful and strategic in their use of language. Students move through multiple academic domains over the course of a day, each with differing ways of communicating, and it is helpful to make this visible to them.

## Modality

A modality is a specific form or mode in which something exists, is experienced, or is expressed.

Students encounter information and data, and they communicate about information and data, across multiple modalities. They interact with print text, audio, video, and multimodal websites. It is therefore important to provide practice and instruction with information across modalities.

## Modeling

In this document, when referring to general teaching practices, such as "teacher models how to discern data patterns," modeling is the teaching practice of demonstrating a process for students in order to show them how it is done.

Effective modeling involves breaking down complex practices into steps when helpful; questioning learners about what they are seeing; thinking out loud; and engaging students in dialogue about the practice or process once demonstrated.

More specific to science and mathematics, modeling also refers to the development of simplified representations of complex concepts or systems that help to explain a phenomenon or to make predictions about the phenomenon. Models can be mental representations or other external representations that exist in diverse formats, from drawings to 3D models to physical enactments of systems.

## Morphemic Analysis

Morphemic analysis is a strategy used to determine or infer the meanings of words by examining their meaningful parts (prefixes, suffixes, roots, etc).

Morphemic analysis is a key skill for building word knowledge that is important across all of the academic disciplines.

## Multimodal

Multimodal refers to something occurring or being communicated through multiple media of communication or varying forms of expression. For example, a campaign video may have images, music, text, and data all presented in one multimodal text.

Students regularly interact with multimodal texts (videos with embedded audio text, for example), and need instruction and practice in order to be critical consumers of these texts.

### Problem-based learning

Problem-based learning is a student oriented pedagogical framework in which learning about a given topic is grounded in collaborative work to solve a complex problem or answer an open-ended question.

Problem based learning is often used interchangeably with inquiry-based learning. In this document, we preferred to use problem based learning as we see it as a more open and flexible term. In this framework, engaging problems drive learning and help to motivate students and provide purpose for literate practice. Problem based learning involves problem exploration and definition; elicitation and consideration of prior knowledge; generation of new questions that must be answered; evaluation of possible problem solutions or answers and ways to develop them; and engagement in the process of resolving the problem or answering the question; communication of findings, conclusions, or claims; and the possibility of generating new questions.

These practices, in general, are common to all disciplinary learning. Moreover, problems provide purpose for learning and direction for the use and production of text.

### Registers

A register is a variety of a language used for a particular purpose or in a particular social setting (e.g. formal vs. informal registers in different situations).

Students learn about register as they learn about how our language use changes across social settings and communities.

### Scaffolding, scaffolds

A way of teaching in which the teacher provides support in the form of modeling, prompts, direct explanations, and targeted questions – offering a teacher-guided approach to build independent knowledge or skill. As students begin to acquire mastery of targeted objectives, direct supports are reduced and the learning becomes more student-guided and independent.

Scaffolding is key to effective instruction and helps students develop new knowledge and skills when they are challenged. As scaffolds are removed students can become more independent learners. It is important, however, for teachers to use scaffolds strategically so as appropriately challenge students and engage them in productive struggle.

### Social Emotional or Socioemotional Learning

Social and emotional learning (SEL) is an integral part of education and human development. SEL is the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions. (CASEL)

### Student Identities

Age, gender, religious or spiritual affiliation, sexual orientation, race, ethnicity and socioeconomic status are all identities. Some identities are things people can see easily (like race or assumed gender), while other identities are internalized and are not always easy to see (like a disability, socioeconomic status or education level). The broader society, over history, has defined, ascribed meaning, and given status and power to various identities. Since they can shape the experiences of students within classrooms, it is important for teachers to understand social identities to actively develop inclusive learning environments for all students

### Text

In literary theory, a text is any object that can be "read," whether this object is a work of literature, a street sign, an arrangement of buildings on a city block, or styles of clothing. In this document, text refers to any kind of encoded information that students are asked to analyze, use, or produce.

As stated, students should have opportunities to work with a wide range of texts. Every academic discipline uses a wide range of texts and multiple ways to produce and communicate knowledge.

### Text feature

Text features are the structural components of a text that provide guidance for readers, listeners, and/or viewers at the practical and conceptual level.

Structural text features in print, for instance, include titles and subtitles, italics and bold words, tables of contents and indexes, and pictures and captions. In audio texts, features may include music, sound effects, a change in speaker; or verbal cues indicating a transition.

Conceptual text features include elements such as an argument with claim, evidence, and reasoning; a sequential narrative; a cause and effect explanation; a problem and solution structure; a comparison and contrast; or other specific way of organizing ideas.

Attending to text features can help students learn to read, listen, and view as well as to and write, speak, and produce texts more effectively for a variety of audiences, purposes, and contexts.

Text features include titles subtitles, headings, italics and bold words, table of contents, index, pictures and captions, diagrams, and other such parts of the larger text that convey meaning and provide structure.

Students can learn to use text features to read more strategically, and can also learn to use text features in their own text production to develop coherent and considerate texts.

## Text structure

Text structure refers to how information within a text is organized, both in terms of format and conceptual structure. With respect to conceptual structure, text structure is the way that ideas are organized in a text, such as through an argument with claim, evidence, and reasoning; a sequential narrative; a cause and effect explanation; a problem and solution structure; a comparison and contrast; or other specific way of organizing ideas.

Attending to text structure helps students learn to read and produce text more effectively and helps them discern conceptual frameworks and ways of thinking about text and the ideas being communicated.

## Theme

A **theme** in a piece of writing, a talk, or a discussion is an important idea or subject that runs through it. Theme is defined as a main idea or an underlying meaning of a literary work, which may be stated directly or indirectly. It is important not to confuse a theme of a literary work with its subject. Subject is a topic that acts as a foundation for a literary work, while a theme is an opinion expressed on the subject. For example, a writer may choose a subject of war for his story, and the theme may be his personal opinion that war is a curse for humanity. Usually, it is up to the readers to explore the theme of a literary work by analyzing characters, plot, and other literary devices.[5]

## Tiered Vocabulary

**Tier 1:** These are the common, everyday words that most children enter school knowing already. Since we usually don't need to explicitly teach these, this is a tier without tears!

**Tier 2:** This tier consists of words that are used across the content areas and are important for students to know and understand. Included here are process words like analyze and evaluate that students will need to access and understand content; to participate effectively in discussion, writing, and problem solving; and to apply their understanding outside the classroom. These are words to own for the rest of life.

**Tier 3:** This tier consists of content-specific vocabulary—the words that are often defined in textbooks or glossaries. These words are part of the disciplinary literacy (of mathematics, of science, of technology, etc.) and often convey precise and nuanced concepts and information. Year to year, these terms build and extend the breadth and depth of students' knowledge in and understanding of a subject, and students are unlikely to learn these terms by absorbing them in day-to-day life. [6]

## Visual literacy

Visual literacy is the ability to analyze, interpret, and make meaning from information presented in the form of an image, or other visual representation.

Across multiple disciplines, images, graphics, and other visual representations are used to convey meaning. Students need instruction and support to learn the disciplinary, analytical skills of visual literacy.

## Voice

Voice is the distinct personality, style, or point of view of a piece of writing or any other creative work.

Students need to become aware of differences across disciplines with respect to voice and the ways that voice is developed and expressed.

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[1] http://www.learnnc.org/lp/pages4437
[2] http://www.learnnc.org/lp/pages939
[3] http://www2.ncte.org/statement/21stcentdefinition/
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[5] https://www.collinsdictionary.com/us/dictionary/english/theme; https://literarydevices.net/theme/
[6] Beck, McKeown, and Kucan (2013)

# Essential Coaching Practices for Elementary Literacy

This document was developed by the **Early Literacy Task Force**, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. For a full list of representatives, please see the back page.



# COACHING PRACTICES

This document is intended to be partnered with *Essential Instructional Practices in Early Literacy: Prekindergarten* and *Essential Instructional Practices in Early Literacy: K to 3* as well as *Essential School-Wide and Center-Wide Practices in Literacy*.

## Purpose

The purpose of this document is to increase Michigan's capacity to improve children's literacy by identifying a small set of research-supported literacy coaching practices that should be a focus of professional development throughout the state. Literacy coaching can provide powerful job-embedded, ongoing professional development with a primary goal of enhancing classroom literacy instruction through improving teacher expertise.[1] Effective literacy coaching supports teachers to successfully navigate the daily challenges they face in their classrooms. As a result, instructional capacity and sustainability within the schools increases.[2] In addition, through improving teacher expertise and the quality of core instruction, student achievement increases.[3]

The focus of this document is to identify the critical qualifications, dispositions, activities, and roles of effective elementary literacy coaches. Research suggests that each of the seven essentials is an important contributor to literacy coaching that results in increased student literacy learning. They should be viewed, as in practice guides in medicine, as presenting minimum expectations for Michigan's literacy coaches.

## 1. Effective literacy coaches have specialized literacy knowledge and skills beyond that of initial teacher preparation.[4]

**Literacy coaches, due to the complexity of literacy instruction, must:**

- have an in-depth knowledge of reading and writing processes and acquisition[5]

- recognize the varied purposes for assessment (e.g., screening, diagnostic, monitoring progress, achievement), select specific assessments that meet those purposes, administer and score assessments, and use assessment results to inform instruction[6]

- know and appropriately use research-informed instructional practices to help all students develop literacy knowledge, skills, and abilities including concepts of print, phonemic awareness, letter-sound knowledge, word reading, comprehension, vocabulary, fluency, writing, critical thinking, and motivation[7]

- be able to create a literate learning environment that considers how the physical arrangement, materials, group work, routines, and motivational factors such as choice and purpose contribute to learning in today's diverse classrooms[8]

**Literacy coaches develop in-depth literacy knowledge and skills[9] by:**

- completing advanced course work in literacy that results in a reading teacher or reading or literacy specialist endorsement

- having successful classroom teaching experience as evidenced by positive student learning

- continually updating their knowledge through professional reading, active participation in professional development workshops, and attendance at local, state, and national professional conferences

Teachers report that literacy coaches need advanced

literacy knowledge and skills in order to carry out their responsibilities such as modeling research-informed literacy practices, helping teachers analyze assessment data and solve instructional problems, and recommending appropriate materials and resources.[10]

When literacy coaches have completed advanced course work in literacy and been successful classroom teachers, students of teachers they coached exhibited more literacy growth than students of teachers coached by literacy coaches who had not completed advanced course work in literacy.[11]

## 2. Effective literacy coaches apply adult learning principles in their work. [1, 2, 13, 14]

**Effective literacy coaches also have specialized knowledge about adult learning principles, and they apply those principles when working with teachers.**

- Adults are most interested in learning when it has immediate relevance to their job. Thus, the focus of literacy coaching should be on classroom instructional practices that foster literacy development.

- Adults want to be actively involved in the planning, implementation, and evaluation of their learning. Thus, effective literacy coaches work with teachers to develop goals and methods for addressing and assessing those goals.

- Adults learn from reflecting on the problems that arise during the implementation of new knowledge/skills. Thus, effective literacy coaches guide teachers to reflect deeply on their practice and on the results of implementing new strategies with their learners.

- Adults learn best when they can integrate new knowledge and skills with previous experiences. Thus, effective literacy coaches help teachers understand how new concepts and strategies are similar and different from concepts they know and strategies they are currently learning.

## 3. Whether working with large groups, small groups, or individual teachers, effective literacy coaches demonstrate specific skills and dispositions in order to engage teachers and build collaborative relationships.[15]

**Effective literacy coaches:**

- use a variety of strategies to establish rapport and trust as the initial steps in building collaborative relationships (e.g., one-on-one conversations about teaching or student learning in general, attending grade level/team meetings as an interested listener/learner, finding specific resources/materials for a teacher)[16]

- strive to determine the underlying beliefs about literacy of the teachers with whom they are working in order to develop collaborative relationships[17]

- use language when engaging in conversations with teachers that is encouraging and supportive, not evaluative[18]

- position themselves as co-learners[19] and/or facilitators of teacher learning[20]

- are intentional, collaborating with teachers to set specific goals for their work with a respect for teachers' time and expertise. However, literacy coaches also demonstrate flexibility by being open to conversations and questions as they arise—conversations and questions that may lead to more intentional coaching.[21]

- are reflective—regarding their demonstration teaching, their observations of teacher's instruction, and the conversations they have with teachers[22]

## 4. Literacy coaching is most effective when it is done within a multi-year school-wide or district-wide initiative focused on student learning and is supported by building and district administrators.

**Research results indicate that initiatives, including those that involve a literacy coaching component[23], may require three to five years to show impact on student learning.[24]**

*Support from building and district administrators is evidenced in various ways.*

- Teacher participation in activities with the coach is higher when principals:[25]

  - present the coaches as sources of literacy expertise

  - actively participate in the professional development sessions designed for coaches and administrators as well as in activities facilitated by the coaches (e.g., modeling instruction, conferring with teachers)[26]

    - exhibit respect for the coaches as valued professionals

    - give coaches autonomy over their schedules

- Principals support coaches by:[27]
  - presenting them as sources of literacy expertise to the teachers

  - clearly describing and endorsing the coaching foci to the teachers

  - explicitly encouraging teachers to work with their coach

  - observing their work with teachers

  - explicitly communicating to them personally how much their work is valued[28]

## 5. Effective literacy coaches spend most of their time working with teachers to enhance teacher practice and improve student learning. They make effective use of their time by using a multi-faceted approach to coaching.

**Effective literacy coaches:**

- Spend time working directly with teachers, helping teachers to align their beliefs with research-informed instructional practices and enhance their:
  - classroom literacy environments[29]
  - use of research-informed literacy strategies[30]
  - implementation of new literacy programs and strategies[31]
  - use of practices aligned with state standards or curricular initiatives[32]

- Schedule their time so that they are spending as much time as possible working directly with teachers because more coaching with teachers has been associated with higher student achievement at both the school[33] and coach[34] level.

- Spend more time interacting with teachers by using a multi-faceted approach to coaching, carefully determining what types of coaching can be done effectively with large groups, small groups, and individual teachers.[35]

- Consistently monitor the amount of time they spend working with teachers. Time spent on managerial tasks (e.g., maintaining an assessment database, ordering materials) or attending meetings not directly related to their coaching work reduces the time spent addressing literacy initiatives and lowers teachers' perceptions about how helpful coaches are.[36]

## 6. When coaching individual teachers, effective literacy coaches employ a core set of coaching activities that are predictors of student literacy growth at one or more grade levels.[37]

***Conferencing.*** Coaches and teachers hold one-on-one conferences for numerous purposes[38], including the following:

- to determine specific purposes for collaborations between the literacy coach and the teacher

- to analyze the critical instructional elements and benefits of a lesson taught by the coach to demonstrate a specific strategy or scaffolding technique

- to analyze the critical instructional elements and benefits of a lesson taught by the teacher

- to examine and select appropriate texts and materials for specific lessons and/or students

- to evaluate and make changes to the literacy environment of the classroom

- to discuss assessment results to determine instructional needs and plan instruction for the whole class, small groups of students, and individual students, particularly when the teacher is concerned about the progress of one or more students[39]

***Modeling.*** Coaches engage in modeling for numerous purposes, including the following[40]:

- to enable teachers to learn how instructional practices work with their own students, giving them confidence to implement these practices

- to demonstrate how appropriate pacing, scaffolding, and materials contribute to students' engagement and learning

- to provide teachers with opportunities to observe and document students' literacy behaviors and response to instruction

- to demonstrate how to administer assessments and use data to inform instruction

***Observing.*** Coaches engage in observation for numerous purposes, determined in collaboration with teachers[41], including the following:

- to observe and document specific literacy behaviors of students whose progress is of concern to the teacher
- to observe how literacy instructional practices are

being implemented across the school to inform future professional development efforts at the school, grade, or individual teacher level

- to observe a teacher's instruction in order to provide support related to various aspects of instruction (e.g., planning, scaffolding, pacing, selecting materials, grouping, assessing progress toward instructional objectives)

***Co-planning.*** Coaches and teachers co-plan[42] instruction in order to:

- help build collaborative relationships as both coach and teacher are seen as important contributors to the process

- ensure that instructional planning includes delineating learner outcomes, selecting appropriate practices, determining grouping options, and developing outcome-based assessment

- inform additional support from the coach which may include modeling, co-teaching, and/or observation of the co-planned instruction

- use assessment data to meet the instructional needs of students

## 7. Effective literacy coaches are integral members of literacy leadership teams at the school and/or district level.[43]

**Literacy coaches serve as literacy leaders within their schools[44] by:**

- providing grade/team-level professional development

- collaborating with special educators about literacy instruction for students who have special needs[45]

- serving on school committees that focus on literacy-related and student achievement issues, including being a member of the intervention and student support teams[46]

- working with administrators and other teachers to establish a school-wide literacy vision and to develop/refine and manage the school's literacy program

- analyzing data and helping teachers use the data to make decisions[47]

- serving as a liaison between the district and their schools by attending district-level meetings/ workshops and sharing the information with the appropriate stakeholders (e.g., administrators, teachers, support personnel)

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# Process for Development and Review

This document was developed by the Early Literacy Task Force, a subcommittee of the Michigan Association of Intermediate School Administrators (MAISA) General Education Leadership Network (GELN), which represents Michigan's 56 Intermediate School Districts. The Task Force included representatives from the following organizations, although their participation does not necessarily indicate endorsement by the organization they represent:

Early Childhood Administrators' Network, MAISA

English Language Arts Leadership Network , MAISA

General Education Leadership Network, MAISA

Kalamazoo Public Schools

Michigan Association for Computer Users in Learning

Michigan Association of Supervisors of Special Education

Michigan Department of Education

Michigan Elementary and Middle School Principals Association

Michigan's Integrated Behavior and Learning Support Initiative

Michigan Reading Association

Michigan State University

Michigan Virtual University

Reading NOW Network

REMC Association of Michigan

Southwest Michigan Reading Council

Technology Readiness Infrastructure Grant

University of Michigan

Feedback on drafts of the document was elicited from other stakeholders, resulting in a number of revisions to the document.

## Essential Coaching Practices for Elementary Literacy

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