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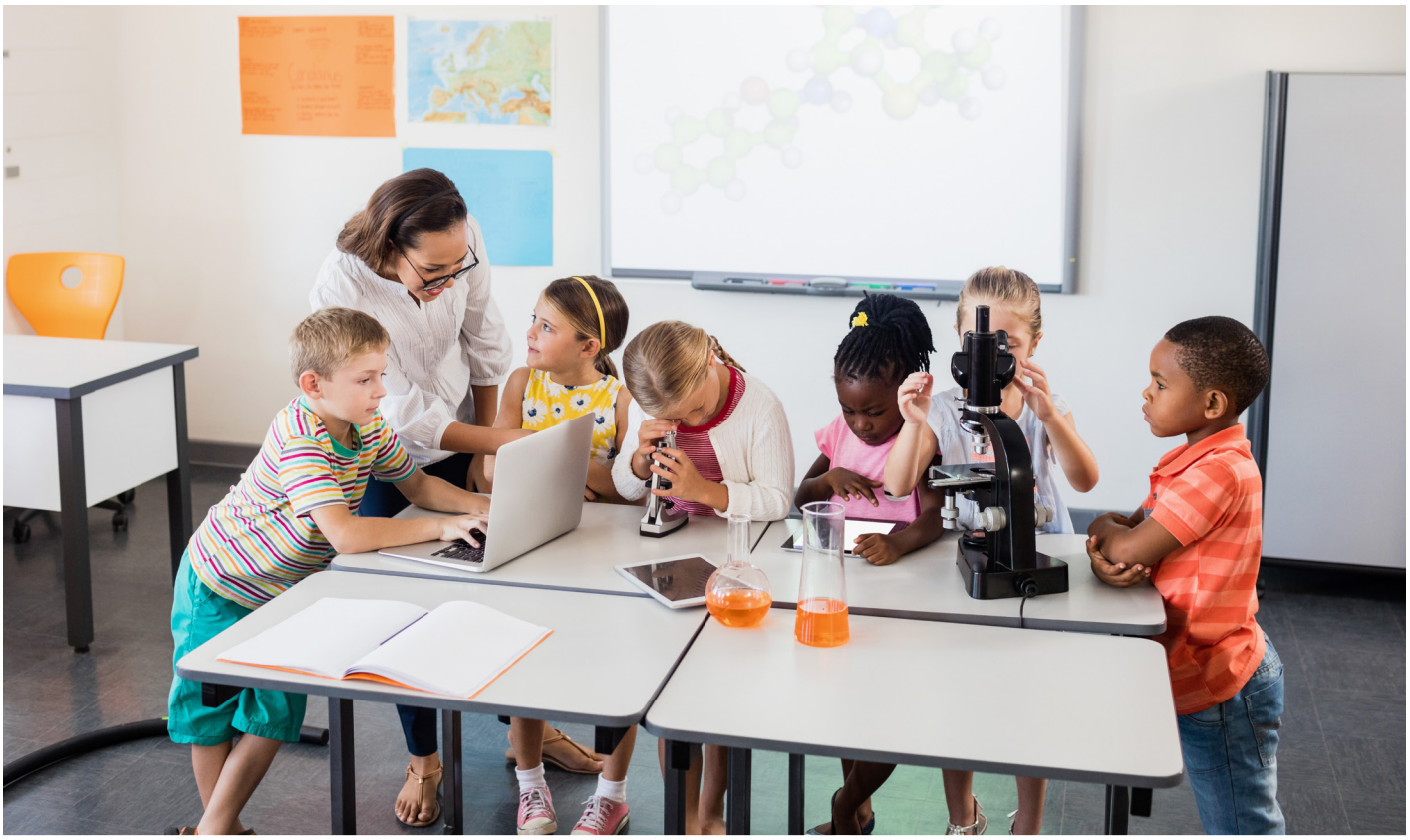

Supporting Early Literacy Development and Science Instruction

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Developed in collaboration with Panel Members from these organizations:

MICHIGAN Mathematics and Science Centers Network

UNIVERSITY OF MICHIGAN

NeXtGen Science Exemplar System

MICHIGAN STATE UNIVERSITY

Every state, in response to new or emerging state standards and frameworks in math, English Language Arts and literacy, science, and social studies, is recognizing the timely need to revisit existing curricular, instructional, and assessment priorities and policies. Each set of standards emphasizes the critical role of developing the following career and college ready skills to facilitate literacy and disciplinary learning across all grade levels, among them:

- reasoning and arguing from evidence
- critiquing another's argument
- making one's thinking public
- interpreting increasingly complex text, including representations of information in multiple formats
- participating in and supporting a culture of talk

These skills are lifelong collaboration practices frequently described and sought after in business, higher education, the professions, and human services. All students need consistent opportunities to practice and grow in their competency with such skills.

A panel of Michigan and nationally recognized experts in science and literacy joined to create the following statements of belief, consistent with research, about instruction in literacy and science in grades K-3.

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1. New Science Standards are an Opportunity[1]

The State Board of Education's adoption of the Michigan K-12 Science Standards derived from the Next Generation Science Standards provides a tremendous opportunity in our state not only to improve science learning, but also to improve literacy and thinking skills of all children.

2. Science Instruction Nearly Every Day[2]

Standards-aligned science, which involves language and literacy, should be a focus of primary-grade instruction each day. This instruction should include science investigations focused on making sense of phenomena in the natural and designed world (using physical materials as well as skills such as reasoning from evidence and making one's thinking public) to support the three-dimensional learning called for in the Michigan Science Standards. Instruction should also support students in developing language and the capacity for generating and interpreting science text (including graphs, diagrams, physical models, charts, and tables).

3. Literacy throughout the Day

Literacy instruction can and should occur throughout the elementary school day, rather than in a prescribed "literacy block." At the same time, Michigan's Foundational Skills standards (print concepts, phonological awareness, phonics and word recognition, and fluency) are essential to reading instruction and merits a devoted portion of the day.

4. Involvement in Investigation of Natural Phenomena and Complex Problems for ALL Students[3]

All students at all grade levels have a right to engage in first-hand investigations, reading, reasoning, and writing practices in the interest of asking and answering questions about the world. It is a matter of equity that all children, in all Michigan communities and at all grade levels, engage in standards-aligned science instruction.

5. Science Learning is Essential[4]

Science provides a compelling context for addressing many of the Michigan Standards for English Language Arts and Literacy. Participation in science requires students to generate, interpret, and use a range of informational texts. Michigan standards for English Language Arts and Literacy cannot be fully addressed outside of the context of science education.

6. Science Education Supports Literacy Development[5]

Long-term reading achievement is fostered by development of world knowledge, vocabulary knowledge, and strategic thinking. Young children who participate in learning science are more likely to interpret and learn with challenging text, acquire rich vocabulary and language, write for a broader range of purposes, and build evidence-based argument to communicate with others.

7. Intensive Professional Learning[6]

All Michigan early elementary teachers need high-quality, extended professional learning to support 3-dimensional science learning, literacy, and creation of classroom cultures in which students regularly practice both. Such instruction is critical to student learning, ensuring they have the knowledge and skills they need to be career and college ready.

Endnotes

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[6]Lee, C.D., & Spratley, A. (2010). Reading in the disciplines: The challenges of adolescent literacy. New York: Carnegie Corporation; Pearson, P.D., Moje, E.B., & Greenleaf, C. (2010). Literacy and science: Each in the service of the other. Science, 328, 459-463.