

The Early Science Initiative

Using science to drive high-quality teaching and learning

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What is The Early Science Initiative?



- ESI is a **Strategic partnership** among researchers, practitioners, implementation scientists, and school leaders from the University of Miami, the Ounce of Prevention, the Educare Learning Network, and four Educare Schools: Miami, Omaha-Kellom, Omaha-Indian Hill, and Seattle.
- ESI is expanding **intentional science teaching and learning** in early childhood classrooms by supporting program-embedded instructional coaches in providing high-quality **embedded-professional development** focused on the content-area of science.
- ESI is implemented through a **co-constructed process** to support integration into existing systems and practices, and to promote **alignment with individual school cultures**.
- The goal of ESI is to use science as a foundation to **cultivate a culture of inquiry** that raises the quality of teaching and learning in classrooms, and promotes continuous quality improvement.

Why Science?

- Draws upon **children's natural curiosity** about how their world works
- Involves a hands-on minds-on, goal-directed, collaborative teaching approach that produces **high engagement, motivation, and interest**



- Promotes the development of **higher-order thinking skills and executive functions**
- Supports learning across **multiple early learning and development domains** (e.g., math, language and social/emotional)
- Elicits teachers' consistent use of **high-quality instructional supports** (e.g., concept development, feedback loops, and advanced language and vocabulary)

The Early Science Framework Science is three-dimensional



Science **content and pedagogy** is built using The Early Science Framework (adapted by the University of Miami from the Conceptual Framework for K-12 Science Education).



Crosscutting Concepts
What scientists understand



Practices
What scientists do



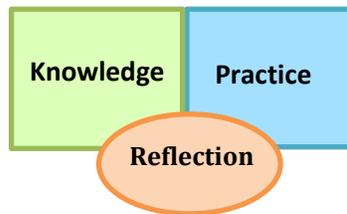
Core Ideas
What scientists are investigating

This framework moves educators away from disconnected, “cute” science activities toward **comprehensive, intentionally planned and deliberately implemented** learning experiences that **set the foundation for future science education.**

Model for Professional Development

ESI uses ongoing cycles of **knowledge, practice, and reflection (KPR)** as the theory of change from both a **professional learning** and **science inquiry** perspective.

Knowledge
*Building knowledge of:
Science content and Science
pedagogy*



Practice
*Transferring knowledge into
practice by **facilitating**
embedded PD for teachers*

Reflection
*Personal and group reflection to
construct and refine **pedagogical**
narratives*

Our goal is to bring these two cycles together to generate **high-impact inquiry-based teaching and learning.**