



developmentally responsive stem:

Applying the Engineering Design Process Through Experiential Learning

Training Description

This experiential professional development workshop engages educators in a developmentally responsive STEM simulation. Participants “adopt” a specific developmental stage (ages 3–8) and participate in a guided simple machines engineering challenge while applying the Engineering Design Process (EDP).

Through structured role-play, reflection, and facilitated discussion, educators analyze how developmental characteristics impact problem-solving, language use, frustration tolerance, collaboration, and instructional scaffolding. Participants examine how to intentionally modify STEM experiences to align with child growth and development principles while maintaining rigor and engagement.

This training bridges developmental theory with hands-on STEM curriculum design, equipping educators to implement engineering concepts in developmentally appropriate, inclusive, and reflective ways.

Core Competency Alignment

- **Child Growth and Development**
 - Participants examine & analyze how developmental characteristics influence STEM engagement & learning behaviors.
- **Learning Environments and Curriculum**
 - Educators apply the Engineering Design Process & identify strategies to design developmentally appropriate STEM learning environments.
- **Interactions with Children**
 - Participants reflect on scaffolding, language modeling, & guidance strategies that support problem-solving, persistence, & collaboration.
- **Professionalism and Leadership**
 - Educators engage in reflective practice to evaluate & improve instructional decision-making.

Learning Objectives

1. **Identify key developmental characteristics of children ages 3–8 that influence STEM learning.**
2. **Describe the stages of the Engineering Design Process and its application in early childhood settings.**
3. **Analyze how developmental stages impact engagement, frustration tolerance, and problem-solving during engineering tasks.**
4. **Modify simple machine STEM activities to align with developmental readiness and inclusive practice.**
5. **Apply reflective strategies to strengthen developmentally responsive STEM instruction.**

