Engaging Children in Math

Standards

This professional development training module is aligned to Massachusetts standards and guidelines.

Massachusetts Quality Rating and Improvement System (QRIS)

Center and School Based:

- Curriculum and Learning 1A: Curriculum, Assessment, and Diversity: Level 2 Staff demonstrate language and literacy skills either in English or the child's language that provide a model for children.
- Curriculum and Learning 1A: Curriculum, Assessment, and Diversity: Level 4
 Program uses progress reports, appropriate screening tools, formative assessments, and information gathered through observation to inform curriculum planning, and use results to monitor each child's progress across developmental domains, and inform program decision-making (e.g. curriculum content, strategies for improved staff implementation, and professional development.)
- Curriculum and Learning 1B: Teacher-Child Relationships and Interactions: Level
 2 All staff receive orientation and ongoing formal professional development and supervision in how to support positive relationships and interactions through positive, warm and nurturing interactions.
- Curriculum and Learning 1B: Teacher-Child Relationships and Interactions: Level
 3 Staff engage children in meaningful conversations, use open-ended questions and
 provide opportunities throughout the day to scaffold their development of more complex
 receptive and expressive language, support children's use of language to share ideas,
 problem solve and have positive peer interactions.
- Curriculum and Learning 1B: Teacher-Child Relationships and Interactions: Level
 4 Staff utilizes teaching strategies that ensure a positive classroom environment, engage children in learning and promote critical thinking skills.

Family Child Care:

Curriculum and Learning 1A: Curriculum, Assessment, and Diversity: Level 2
 Materials reflect the language and culture of the children in the family child care home,
 their communities, and represent the diversity of society.

- Curriculum and Learning 1A: Curriculum, Assessment, and Diversity: Level 3
 Either directly or through a network or system, Educator uses screening tools, progress
 reports, formative assessments, and information gathered through observation to
 set goals for individual children across developmental domains.
- Curriculum and Learning 1A: Curriculum, Assessment, and Diversity: Level 4
 Either directly or through a system or network, provider uses screening tools, progress
 reports formative assessments, and information gathered through observation to inform
 curriculum planning, and use results to monitor each child's progress across
 developmental domains.
- Curriculum and Learning 1B: Teacher-Child Relationships and Interactions: Level 2 Educator has participated in formal professional development on how to support positive relationships and interactions with children through positive, warm and nurturing interactions.
- Curriculum and Learning 1B: Teacher-Child Relationships and Interactions: Level 4 Educators engage children in meaningful conversations, as age and developmentally appropriate, use open-ended questions and provide opportunities throughout the day to scaffold their language to support the development of more complex receptive and expressive language, support children's use of language to share ideas, problem solve and have positive peer interactions; Educators utilize teaching strategies that ensure a positive learning environment, engage children in learning and promote critical thinking skills.

National Association for the Education of Young Children (NAEYC)

Guidelines for Developmentally Appropriate Practice:

- (2) Teaching to enhance development and learning B.2 Teachers continually gather information about children in a variety of ways and monitor each child's learning and development to make plans to help children progress.
- (2) Teaching to enhance development and learning E.4 Teachers provide experiences, materials, and interactions to enable children to engage in play that allows them to stretch their boundaries to the fullest in their imagination, language, interaction, and self-regulation as well as to practice their newly acquired skills.
- (2) Teaching to enhance development and learning F.2 To stimulate children's thinking and extend their learning, teachers pose problems, ask questions, and make comments and suggestions.

- (2) Teaching to enhance development and learning F.3 To extend the range of children's interests and the scope of their thought, teachers present novel experiences and introduce stimulating ideas, problems, experiences, or hypotheses.
- (2) Teaching to enhance development and learning F.6 To enhance children's conceptual understanding, teachers use various strategies, including intensive interview and conversation, that encourage children to reflect on and "revisit" their experiences.
- (2) Teaching to enhance development and learning G.1 Teachers recognize and respond to the reality that in any group, children's skills will vary and they will need different levels of support. Teachers also know that any one child's level of skill and need for support will vary over time.
- (2) Teaching to enhance development and learning G.2 Scaffolding can take a variety of forms; for example, giving the child a hint, adding a cue, modeling the skill, or adapting the materials and activities. It can be provided in a variety of contexts, not only in planned learning experiences but also in play, daily routines, and outdoor activities.
- (3) Planning curriculum to achieve important goals A.1 Teachers consider what children should know, understand, and be able to do across the domains of physical, social, emotional, and cognitive development and across the disciplines, including language, literacy, mathematics, social studies, science, art, music, physical education, and health.
- (3) Planning curriculum to achieve important goals D.1 Teachers plan curriculum experiences that integrate children's learning within and across the domains (physical, social, emotional, cognitive) and the disciplines (including language, literacy, mathematics, social studies, science, art, music, physical education, and health).
- (4) Assessing children's development and learning C There is a system in place to
 collect, make sense of, and use the assessment information to guide what goes on in
 the classroom (formative assessment). Teachers use this information in planning
 curriculum and learning experiences and in moment-to- moment interactions with
 children—that is, teachers continually engage in assessment for the purpose of
 improving teaching and learning.

Massachusetts Curriculum Framework for Mathematics

Counting and Cardinality:

- MA.PK.CC.1 Listen to and say the names of numbers in meaningful contexts.
- MA.PK.CC.2 Recognize and name written numerals 0–10.
- MA.PK.CC.3 Understand the relationships between numerals and quantities up to ten.

- MA.PK.CC.4 Count many kinds of concrete objects and actions up to ten, using one-toone correspondence, and accurately count as many as seven things in a scattered
 configuration.
- MA.PK.CC.5 Use comparative language, such as *more/less than, equal to,* to compare and describe collections of objects.

Operations and Algebraic Thinking:

• **MA.PK.OA.1** Use concrete objects to model real-world addition (putting together) and subtraction (taking away) problems up through five.

Measurement and Data:

- **MA.PK.MD.1** Recognize the attributes of length, area, weight, and capacity of everyday objects using appropriate vocabulary (e.g., *long, short, tall, heavy, light, big, small, wide, narrow*).
- MA.PK.MD.2 Compare the attributes of length and weight for two objects, including longer/shorter, same length; heavier/lighter, same weight; holds more/less, holds the same amount.



