# **Math Observation Tool**

1. Essential Content Are children engaged in intellectually stimulating work that is developmentally appropriate?

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| INDICATOR | 1. NOVICE | 2. APPROACHING DEVELOPING | 3. DEVELOPING | 4. PROFICIENT |
| 1a. Children engage with content and concepts that are essential to early childhood education and reflect the content of the math standards. | Concepts and content covered do not connect to any or very few mathematical standards *or* there is no math content present. | Some concepts and content covered are essential to early childhood education and reflect the content of the math standards. | Most concepts and content covered are essential to early childhood education and reflect the content of the math standards. | All or almost all concepts and content covered are essential to early childhood education and reflect the content of the math standards |
| 1b. Children are being asked questions and engaged in tasks that build their problem-solving and critical thinking skills in math. | Few or no questions or tasks build children’s problem-solving and critical thinking skills in math. | Some questions and tasks build children’s problem-solving and critical thinking skills in math. | Most questions and tasks build children’s problem-solving and critical thinking skills in math. | All or almost all questions and tasks build children’s problem-solving and critical thinking skills in math. |
| 1c. Children engage in math work in appropriate ways that reflect their age and developmental progress. | Math tasks, questions, and activities are not developmentally appropriate for most students. | Math tasks, questions, and activities are developmentally appropriate for some children in the classroom. | Math tasks, questions, and activities are developmentally appropriate for most children in the classroom. | Math tasks, questions, and activities are developmentally appropriate for all or almost all children in the classroom. |
| Overall rating: Children are engaged in intellectually stimulating math work that is developmentally appropriate. | Very few or no children are engaged in intellectually stimulating math work that is developmentally appropriate. | Some children are engaged in intellectually stimulating math work that is developmentally appropriate. | Most children are engaged in intellectually stimulating math work that is developmentally appropriate, | All or almost all children are engaged in intellectually stimulating math work that is developmentally appropriate. |

# Math Language Development Are children building their math vocabulary by engaging with complex math vocabulary and communicating their thinking about math?

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| INDICATOR | 1. NOVICE | 2. APPROACHING DEVELOPING | 3. DEVELOPING | 4. PRFICIENT |
| 2a. Children are being asked and asking deep, thoughtful, and developmentally appropriate questions that encourage conversation about math. | Children are not asked and do not ask questions to encourage conversation about math and/or questions that are asked are developmentally inappropriate. | Some children are asked and/or some children ask questions to encourage conversation about math.  There are missed opportunities for the teacher to ask questions to encourage conversation about math. | Most children are asked and/or most children ask questions to encourage conversation about math. | All or almost all children are asked and/or all or almost all children ask questions to encourage conversation about math. |
| 2b. Children communicate accurately and precisely about math using appropriate, specific vocabulary. | Children do not communicate using math vocabulary and/or when they do, it is inaccurate.  When children communicate inaccurately, the teacher does not attempt to support them in using the correct vocabulary, and/or the teacher does so in a way that discourages students from speaking up in the future.  The teacher does not model for students how to use appropriate, specific math vocabulary in a variety of settings to support their communication. | Some children communicate accurately using math vocabulary.  Some children may communicate inaccurately, and the teacher misses opportunities to support them in using the correct vocabulary.  The teacher rarely models for students how to use appropriate, specific math vocabulary in a variety of settings to support their communication. | Most children communicate accurately using math vocabulary.  When children use vocabulary inaccurately, the teacher regularly asks questions or uses other strategies to support students in using the correct vocabulary.  The teacher sometimes models for students how to use appropriate, specific math vocabulary in a variety of settings to support their communication. | All or almost all children communicate accurately using math vocabulary.  The teacher effectively supports students in using vocabulary accurately.  The teacher models for students how to use appropriate, specific math vocabulary in a variety of settings to support their communication. |
| 2c. Children communicate their thinking and reflect on their approach to problems (in developmentally appropriate ways including verbally, through drawings or emergent writing, gestures, signs, models or symbols.). | Children are provided with very few or no opportunities to share their thinking with peers or the teacher to reflect on their approach to problems. | Children are provided with some opportunities to share their thinking with peers or the teacher to reflect on their approach to problems.  Some children share their thinking with peers or the teacher to reflect on their approach to problems. | Children are provided with several opportunities to share their thinking with peers or the teacher to reflect on their approach to problems.  Most children share their thinking with peers or the teacher to reflect on their approach to problems. | Children are provided with consistent opportunities to share their thinking with peers or the teacher to reflect on their approach to problems.  All or almost all children share their thinking with peers and/or the teacher to reflect on their approach to problems. |
| 2d. Children are exposed to complex math language and vocabulary. | Questions/tasks/centers and interactions with the teacher do not expose children to complex math language and vocabulary. | Some questions/tasks/centers and interactions with the teacher expose children to complex math language and vocabulary. | Most questions/tasks/centers and interactions with the teacher expose children to complex math language and vocabulary. | All or almost all questions/tasks/centers and interactions with the teacher expose children to complex math language and vocabulary when appropriate. |
| Overall rating: Children are building their math vocabulary by engaging with complex math vocabulary and communicating their thinking about math. | Very few or no children are building their math vocabulary by engaging with complex math vocabulary and communicating their thinking about math. | Some children are building their math vocabulary by engaging with complex math vocabulary and communicating their thinking about math. | Most children are building their math vocabulary by engaging with complex math vocabulary and communicating their thinking about math. | All or almost all children are building their math vocabulary by engaging with complex math vocabulary and communicating their thinking about math. |

# Owning the Learning: Are children developing and demonstrating perseverance as they take on the cognitive work in the classroom?

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| INDICATOR | 1. NOVICE | 2. APPROACHING DEVELOPING | 3. DEVELOPING | 4. PROFICIENT |
| 3a. Children complete an appropriately challenging amount of the cognitive work. | Children complete very little or none of the cognitive work; the teacher completes all or almost all the cognitive work. | Some children complete an appropriately challenging amount of the cognitive work. The teacher completes some of the cognitive work (i.e.: expands on children’s responses) that children could own. | Most children complete an appropriately challenging amount of the cognitive work during the lesson. The teacher rarely finishes any of the cognitive work that children could own. | All or almost all children complete an appropriately challenging amount of the cognitive work during the lesson. The teacher does not finish any of the cognitive work that children could own. |
| 3b. Most children try hard to engage in the work and answer questions, even if the work is challenging. | No children or very few try hard to complete challenging work or answer questions. | Some children try hard to complete challenging work and answer questions. | Most children consistently try hard to complete work and answer questions, even if the work is challenging. | All or almost all children consistently try hard to complete work and answer questions, even if the work is challenging. |
| 3c. The teacher asks questions and presents tasks that provide a productive struggle for children, and fosters perseverance in children. | Perseverance is rarely or not at all encouraged, and tasks do not provide developmentally appropriate challenge for children. | Perseverance is sometimes encouraged, and some tasks provide developmentally appropriate challenge for children. | Perseverance is encouraged, and most tasks provide developmentally appropriate challenge for children. | Perseverance is encouraged and all or almost all most tasks provide developmentally appropriate challenge for children. |
| 3d. The teacher provides appropriate supports to children to engage in the thinking of the lesson. | The teacher does not provide supports to children to engage in the thinking of the lesson.  *or* Supports that are provided for children are not effective in engaging them in the thinking of the lesson. | The teacher sometimes provides supports to children to engage in the thinking of the lesson.  Some supports may not effectively engage children in the thinking of the lesson. | The teacher regularly provides supports to children to engage in the thinking of the lesson.  Some supports may not effectively engage children in the thinking of the lesson. | The teacher regularly provides supports to children to engage in the thinking of the lesson.  All or almost all supports effectively engage children in the thinking of the lesson. |
| Overall rating: Children are developing and demonstrating perseverance as they take on the cognitive work in the classroom. | Very few or no children develop and demonstrate perseverance to take on the cognitive work in the classroom. | Some children develop and demonstrate perseverance to take on the cognitive work in the classroom. | Most children develop and demonstrate perseverance to take on the cognitive work in the classroom. | All or almost all children develop and demonstrate perseverance to take on the cognitive work in the classroom. |

# Integrated, Cohesive Learning Do children engage in math that is intentional and integrated throughout the day?

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| INDICATOR | 1. NOVICE | 2. APPROACHING DEVELOPING | 3. DEVELOPING | 4. PROFICIENT |
| 4a. Children engage in intentionally integrated real-world mathematical practice throughout the day through routines such as attendance, lunch distribution, store center (counting money), building center (size and shapes), etc. | Children do not engage in mathematical practice throughout the day.  Mathematical practice is either not present in the classroom or only present during a specific math time during the day. | Children are provided few opportunities to engage in intentional mathematical practice throughout the day.  *or* Children are provided with several opportunities to engage in mathematical practice throughout the day, but they are not intentional or purposeful. | Children are provided with several opportunities to engage in intentional mathematical practice throughout the day. | Children are provided with ample opportunities to engage in intentional mathematical practice throughout the day. |
| 4b. Children have multiple opportunities and spaces for self-directed exploration of math concepts and play and foster thinking and exploration related to math. | Children have no or very few opportunities and spaces for self-directed exploration of math concepts and play.  There are missed opportunities to foster thinking and exploration related to math. | Some children have some opportunities and spaces for self-directed exploration of math concepts and play.  There are missed opportunities to foster thinking and exploration related to math. | Most children have several opportunities and spaces for self-directed exploration of math concepts and play. | All or almost all children have multiple opportunities and spaces for self-directed exploration of math concepts and play. |
| 4c. Teacher takes advantage of all appropriate opportunities to dig into math when students express interest. | The teacher does not take advantage of opportunities to explore math with students when they express interest. | The teacher rarely takes advantage of opportunities to explore math with students when they express interest. | The teacher occasionally takes advantage of opportunities to explore math with students when they express interest. | The teacher consistently takes advantage of opportunities to explore math with students when they express interest. |
| Overall rating: Children engage in math that is intentional and integrated throughout the day. | Children do not engage in math that is intentional and not integrated throughout the day. | Children engage in math that is sometimes intentional and integrated throughout some of the day. | Children engage in math that is intentional in most instances and integrated throughout most of the day. | Children engage in math that is intentional and integrated throughout the entire day. |