UPDATED: DCSD CITE Generalist Rubric Aligned to NCTM Effective Mathematics Practices and Teacher/Student Recommendations

3.1 Teacher demonstrates an understanding of educational best practices and content knowledge.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP2: Implement tasks that promote reasoning and problem solving.**	• Support students' exploration of tasks without taking over their thinking. • Encourage students to use varied approaches and strategies to make sense of tasks.	• Expect that others may use other strategies to solve tasks and that discussing these strategies will advance their own thinking.
• **MTP3: Use and connect mathematical representations.**	• Select tasks that allow students to decide which representations to use. • Allocate substantial time for students to use, discuss, and make connections among representations. • Introduce forms of useful representations. • Ask students to draw or use other visuals to support and justify their reasoning. • Focus students' attention on the mathematical ideas of a representation, not the representation itself.	• Use multiple forms of representations to solve problems. • Justify their mathematical understanding and reasoning with drawings, diagrams, and other representations. • Sketch diagrams to make sense of problem situations. • Contextualize mathematical ideas by connecting them to familiar situations in their world. • Consider the advantages of using various representations when solving problems. • Make choices about which forms of representations to use to solve problems.
• **MTP4: Facilitate meaningful mathematical discourse.**	• Select and sequence student approaches and solution strategies for whole-class discussion. • Make explicit connections between	• Present and explain their reasoning and representations in pairs, small groups, and whole-class discussion.

	student approaches and mathematical goals.	
• **MTP5: Pose purposeful questions.**	• Intentionally make the mathematics more visible and accessible for student examination and discussion. • Allow sufficient wait time to allow students an opportunity to formulate and offer responses.	• Reflect on their reasoning instead of simply providing an answer.
• **MTP6: Build procedural fluency from conceptual understanding.**	• Give students opportunities to use their own reasoning and methods for solving problems. • Ask students to discuss and explain why their procedures work to solve particular problems. • Connect student-generated strategies to more efficient procedures as appropriate. • Use visual models to support students' understanding. • Provide students opportunities for distributed practice of procedures.	• Make sure they understand and explain the mathematical basis for the procedures they use. • Demonstrate flexible use of strategies while reflecting on which work best for specific types of problems. • Determine if a specific approach to a problem generalizes to a broad class of problems. • Strive to use procedures appropriately and efficiently.
• **MTP7: Support productive struggle in learning mathematics.**	• Help students understand that confusion and mistakes are a natural part of learning and facilitate discussions about student mistakes and struggles.	• Struggle at times with mathematics tasks but know that confusion and struggles are often overcome. • Help classmates without telling them what the answer is or how to solve the problem.

3.2 Teacher purposefully plans lessons that integrate content, including mathematics and literacy practices

Aligned NCTM Effective Mathematics Teaching Practices:	NCTM Recommendations for Teachers:	NCTM Recommendations for Students:
• **MTP1: Establish mathematics goals to focus learning.**	• Clearly articulate the mathematics that students are learning in a lesson, a series of lessons or unit. • Identify where the goal fits in a mathematics learning progression.	• Engage in discussion of the goals/outcomes for mathematics and how they relate to them. • Use learning goals to focus on their progress in learning mathematical content and developing skill using mathematical practice.
• **MTP4: Facilitate meaningful mathematical discourse.**	• Identify where the goal fits in a mathematics learning progression. • Position students as the authors of ideas.	• Seek to understand the strategies used by peers by asking clarifying questions and by trying out and discussing others' approaches. • Identify similarities and differences between varying approaches.

3.3 Teacher purposefully plans lessons and authentically integrates higher order thinking skills.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP4: Facilitate meaningful mathematical discourse.**	• Identify where the goal fits in a mathematics learning progression. • Position students as the authors of ideas.	• Seek to understand the strategies used by peers by asking clarifying questions and by trying out and discussing others' approaches. • Identify similarities and differences between varying approaches.
• **MTP5: Pose purposeful questions.**	• Go beyond gathering information to probing thinking and requiring explanation and justification • Intentionally make the mathematics	• Listen to and critique the reasoning of their peers, using examples to support or counterexamples to refute arguments.

	more visible and accessible for student examination and discussion.	

3.4 Teacher purposefully plans lessons and authentically integrates the Colorado Essential skills.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP4: Facilitate meaningful mathematical discourse.**	• Identify where the goal fits in a mathematics learning progression. • Position students as the authors of ideas.	• Seek to understand the strategies used by peers by asking clarifying questions and by trying out and discussing others' approaches • Identify similarities and differences between varying approaches • Listen to and critique the reasoning of their peers, using examples to support or counterexamples to refute arguments.
• **MTP5: Pose purposeful questions.**	• Advance student understanding by building on to student thinking, rather than taking over or funneling it. • Go beyond gathering information to probing thinking and requiring explanation and justification.	• Expect to be asked to clarify, elaborate, and justify their thinking • Think carefully about how to present their responses instead of rushing to respond quickly • Reflect on their reasoning instead of simply providing an answer • Listen to and respond to the contributions of their classmates

4.1 Teacher selects and/or creates formal and informal assessments that guide instruction and have a clear purpose.

Aligned NCTM Effective Mathematics Teaching Practices:	NCTM Recommendations for Teachers:	NCTM Recommendations for Students:
• **MTP1: Establish mathematics goals to focus learning.**	• Clearly articulate the mathematics that students are learning in a lesson, a series of lessons or unit. • Identify where the goal fits in a mathematics learning progression.	• Engage in discussion of the goals/outcomes for mathematics and how they relate to them. • Use learning goals to focus on their progress in learning mathematical content and developing skill using mathematical practice.
• **MTP8: Elicit and use evidence of student thinking.**	• Identify what counts as progress toward mathematics learning goals. • Interpret student thinking to assess mathematical understanding, reasoning, and methods. • Elicit and gather evidence of student understanding, reasoning, and methods. • Reflect on evidence of student learning to plan future instructional steps.	• Reveal their mathematical understanding in written work and classroom discourse. • Reflect on mistakes and underdeveloped mathematical conceptions to improve their understanding. • Assess and monitor their own progress towards mathematical goals. • Monitor their own progress toward learning goals.

4.2 Teacher uses effective, student-centered practices to formally and informally assess students before, during and after learning.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP1: Establish mathematics goals to focus learning.**	• Clearly articulate the mathematics that students are learning in a lesson, a series of lessons or unit. • Identify where the goal fits in a	• Engage in discussion of the mathematical goal and how it relates to them. • Use learning goals to focus on their

	mathematics learning progression. • Refer to the mathematical purpose of a lesson and how students should connect it to other learning.	progress in learning mathematical content and developing skill using mathematical practice. • Connect their current work to math they have already learned and math they will learn in the future. • Monitor their own progress toward learning goals.
• **MTP8: Elicit and use evidence of student thinking.**	• Identify what counts as progress toward mathematics learning goals. • Interpret student thinking to assess mathematical understanding, reasoning, and methods. • Elicit and gather evidence of student understanding, reasoning, and methods. • Reflect on evidence of student learning to plan future instructional steps.	• Reveal their mathematical understanding in written work and classroom discourse. • Reflect on mistakes and underdeveloped mathematical conceptions to improve their understanding. • Assess and monitor their own progress towards mathematical goals. • Monitor their own progress toward learning goals.

4.3 Teacher analyzes student performance via a body of evidence to support instructional decisions.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP1: Establish mathematics goals to focus learning.**	• Clearly articulate the mathematics that students are learning in a lesson, a series of lessons or unit. • Identify where the goal fits in a mathematics learning progression. • Refer to the mathematical purpose of a lesson and how students should connect it to other learning.	• Engage in discussion of the mathematical goal and how it relates to them. • Use learning goals to focus on their progress in learning mathematical content and developing skill using mathematical practice. • Connect their current work to math they

	• Use goals to guide lesson planning, instructional decisions within lessons, and lesson reflections.	have already learned and math they will learn in the future. • Monitor their own progress toward learning goals.

4.4 Teacher provides students with feedback that is precise, accurate, timely, and actionable.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP1: Establish mathematics goals to focus learning.**	• Identify where the goal fits in a mathematics learning progression. • Refer to the mathematical purpose of a lesson and how students should connect it to other learning.	• Engage in discussions of the mathematical goal and how it relates to them.
• **MTP7: Support productive struggle in learning mathematics.**	• Praise students for their efforts to persevere and make sense of mathematical ideas.	• Ask questions related to the source of their struggles that will help them make progress.
• **MTP8: Elicit and use evidence of student thinking.**	• Make in-the-moment decisions on how to respond to students.	• Reflect on mistakes and under-developed mathematical conceptions to improve their understanding.

5.1 Teacher uses instructional strategies to facilitate learning opportunities for students to demonstrate content knowledge.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**

• **MTP1: Establish mathematics goals to focus learning.**	• Clearly articulate the mathematics that students are learning in a lesson, series of lessons, or unit. • Identify where the goals fit in a mathematics learning progression • Refer to the mathematical purpose of a lesson and how students should connect it to other learning. • Use goals to guide lesson planning, instructional decisions within lessons, and lesson reflections.	• Engage in discussion of the mathematical goal(s) and how it relates to them. • Use learning goals to focus on their progress in learning mathematical content and developing skill using mathematical practice. • Connect their current work to math they have already learned and math they will learn in the future.

5.2 Teacher uses instructional strategies to facilitate learning opportunities for students to demonstrate higher-order thinking skills.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP2: Implement tasks that promote reasoning and problem solving.**	• Motivate learning by giving students opportunities to explore and solve problems that build on and extend their current understanding. • Select tasks that offer multiple problem-solving approaches and varied use of tools and representations. • Regularly pose tasks that require a high level of cognitive demand. • Support students' exploration of tasks without taking over their thinking. • Encourage students to use varied approaches and strategies to make sense of tasks.	• Persevere when making sense of and solving tasks. • Take responsibility for connecting the ideas in a task to prior learning.
• **MTP4: Facilitate meaningful**	• Engage students in the purposeful	• Identify similarities and differences

mathematical discourse.	sharing of mathematical ideas and problem solving approaches. • Position students as the authors of ideas.	between varying approaches.
• **MTP5: Pose purposeful questions.**	• Advance student understanding by building on to student thinking, rather than taking over or funneling it. • Go beyond gathering information to probing thinking and requiring explanation and justification.	• Expect to be asked to clarify, elaborate and justify their thinking. • Think carefully about how to present their responses instead of rushing to respond quickly. • Reflect on their reasoning instead of simply providing an answer.
• **MTP7: Support productive struggle in learning mathematics.**	• Give students time to struggle and support their thinking rather than doing the work for them.	• Ask questions related to the source of their struggles that will help them make progress.

5.3 Teacher facilitates authentic opportunities for students to develop and demonstrate growth in the Colorado Essential Skills.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP2: Implement tasks that promote reasoning and problem solving.**	• Motivate learning by giving students opportunities to explore and solve problems that build on and extend their current understanding. • Select tasks that offer multiple problem-solving approaches and varied use of tools and representations. • Regularly pose tasks that require a high level of cognitive demand. • Support students' exploration of tasks without taking over their thinking.	• Expect that others may use other strategies to solve tasks and that discussing these strategies will advance their own learning. • Present and explain their reasoning and representations in pairs, small groups, and whole-class discussions.

	• Encourage students to use varied approaches and strategies to make sense of tasks.	
• **MTP4: Facilitate meaningful mathematical discourse.**	• Engage students in the purposeful sharing of mathematical ideas and problem solving approaches. • Position students as the authors of ideas.	• Listen to and critique the reasoning of peers, using examples to support or counterexamples to refute arguments. • Seek to understand the strategies used by peers by asking clarifying questions and by trying out and discussing others' approaches.
• **MTP5: Pose purposeful questions.**	• Advance student understanding by building on to student thinking, rather than taking over or funneling it. • Go beyond gathering information to probing thinking and requiring explanation and justification.	• Expect to be asked to clarify, elaborate and justify their thinking. • Think carefully about how to present their responses instead of rushing to respond quickly. • Reflect on their reasoning instead of simply providing an answer. • Listen to and respond to the contributions of their classmates.
• **MTP7: Support productive struggle in learning mathematics.**	• Give students time to struggle and support their thinking rather than doing the work for them.	• Struggle at times with mathematics tasks but know that confusion and struggles are often overcome. • Persevere in problem solving and know it is acceptable to say, "I don't know how to proceed here," but not acceptable to give up.

5.4 Teacher differentiates and/or modifies instruction to meet individual student needs based on data and knowledge of students		
Aligned NCTM Effective Mathematics	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**

Teaching Practices:		
• **MTP1: Establish mathematics goals to focus learning.**	• Clearly articulate the mathematics that students are learning in a lesson, a series of lessons or unit. • Identify where the goal fits in a mathematics learning progression. • Use goals to guide lesson planning, instructional decisions within lessons, and lesson reflections.	• Engage in discussion of the mathematical goal and how it relates to them. • Use learning goals to focus on their progress in learning mathematical content and developing skill using mathematical practice. • Connect their current work to math they have already learned and math they will learn in the future. • Monitor their own progress toward learning goals.
• **MTP7: Support productive struggle in learning mathematics.**	• Anticipate what students might struggle with during a lesson and be prepared to support them through the struggle. • Help students understand that confusion and mistakes are a natural part of learning.	• Struggle at times with mathematics tasks but know that confusion and struggles are often overcome. • Ask questions related to the source of their struggles that will help them make progress.
• **MTP8: Elicit and use evidence of student thinking.**	• Make in the moment decisions on how to respond to students.	• Ask questions and respond to the learning of their classmates.

5.5 Teacher demonstrates responsiveness and flexibility throughout instruction.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP7: Support productive struggle in learning mathematics.**	• Anticipate what students might struggle with during a lesson and be prepared to support them through the struggle. • Help students understand that	• Struggle at times with mathematics tasks but know that confusion and struggles are often overcome. • Ask questions related to the source of

	confusion and mistakes are a natural part of learning.	their struggles that will help them make progress.
• **MTP8: Elicit and use evidence of student thinking.**	• Make in the moment decisions on how to respond to students.	• Ask questions and respond to the learning of their classmates.

5.6 Teacher facilitates learning opportunities to engage all students in meaningful and relevant activities.		
Aligned NCTM Effective Mathematics Teaching Practices:	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**
• **MTP3: Use and connect mathematical representations.**	• Elicit and assess students' abilities to use representations to solve problems.	• Consider the advantages of using various representations when solving problems.
• **MTP4: Facilitate meaningful mathematical discourse.**	• Engage students in the purposeful sharing of mathematical ideas and problem solving approaches. • Position students as the authors of ideas.	• Listen to and critique the reasoning of peers, using examples to support or counterexamples to refute arguments. • Seek to understand the strategies used by peers by asking clarifying questions and by trying out and discussing others' approaches.
• **MTP8: Elicit and use evidence of student thinking.**	• Elicit and gather evidence of student understanding at strategic points during instruction.	• Ask questions and respond to the learning of their classmates.

5.7 Teacher facilitates opportunities for all students to purposefully use tools and available technology to enhance learning.		
Aligned NCTM Effective Mathematics	**NCTM Recommendations for Teachers:**	**NCTM Recommendations for Students:**

Teaching Practices:		
• **MTP2: Implement tasks that promote reasoning and problem solving.**	• Select tasks that offer multiple problem solving approaches and varied use of tools and representations.	• Use tools and representations as needed to support their thinking.
• **MTP3: Use and connect mathematical representations.**	• Elicit and assess students' abilities to use representations to solve problems.	• Consider the advantages of using various representations when solving problems.
• **MTP6: Build procedural fluency from conceptual understanding.**	• Use visual models to support students' understanding.	