

Middle School Math GRC Rubrics

Consider the Following When Using the Middle School Math Rubrics

- Gradebook Reporting Criteria (GRC) are based on the Colorado Academic Standards. GRCs are designed for reporting on student learning in student- and parent-friendly language. Most courses have four GRCs.
- A student may receive a 3 or 4 at any point in time, provided that current work and performance of that student align with the descriptors at a Level 3 or 4.
- The difference between Level 3 and Level 4 performance is generally based on student work that involves transfer, depth, and complexity.
- When a student's performance falls between two performance level descriptors on a rubric, a teacher should seek input from colleagues and use professional judgment in making a determination of performance.
- In order to assess if a student is achieving at the "Advanced Understanding" (Level 4) of performance, **it will be necessary to provide opportunities for students to work at the highest level of performance.** To accomplish this goal, teachers will need to adjust instruction and assessment practices.
- For example:
 - Use of assessment frameworks for each unit to identify types of questions / items at each performance level for assessments and to guide instruction.
 - *Use of Item Banks (Available to one grade level teacher at each school.) as samples of items at each performance level for end of unit expectations.*
 - The item banks are representative of end of unit expectations, but Level 3 type questions when initially presented as opportunities for student exploration and inquiry can provide the opportunity for students to "exercise" Level 4 expectations in the process of working toward meeting Advanced Understanding of a standard within a unit.
 - Level 3 opportunities may at times be viewed as Level 4 opportunities when initially introduced and explored in class activities or on a formative assessment so long as they are relatively unfamiliar and /or un-scaffolded when presented or assessed.
 - Students should be given opportunities to work with new material as *unfamiliar contexts* and *without scaffolds* regularly as part of their classroom experience to promote thinking at Level 4 (Advanced Understanding).

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Middle School Math Content Rubric

Mathematics Content GRC's at the middle school level *are the same as* the Colorado Mathematics Content Standards. This rubric should be applied to work in any of these standards (GRCs).

- Standard 1: Number Sense, Properties and Operations
- Standard 2: Patterns, Functions and Algebraic Structures
- Standard 3: Data Analysis, Statistics and Probability
- Standard 4: Shape Dimension and Geometric Relationships

Advanced Understanding 4	Meets the Standard 3	Approaching 2	Does Not Meet 1
<ul style="list-style-type: none"> • The student uses appropriate mathematical concepts and skills to solve application problems in both familiar and unfamiliar situations with limited scaffolds & supports. <p style="text-align: center;">and/or</p> <ul style="list-style-type: none"> • The student solves problems that <i>require connections among multiple concepts</i> without scaffolded prompts. 	<ul style="list-style-type: none"> • The student uses appropriate mathematical concepts and skills to solve application problems in familiar situations with scaffolds & support. <p style="text-align: center;">and/or</p> <ul style="list-style-type: none"> • The student solves problems that <i>require connections among multiple concepts</i> with scaffolded prompts. 	<ul style="list-style-type: none"> • The student uses appropriate mathematical concepts and skills to solve routine problems but is unsuccessful with applications to real life contexts. <p style="text-align: center;">and/or</p> <ul style="list-style-type: none"> • The student solves problems involving concepts in isolation. 	<ul style="list-style-type: none"> • The student demonstrates limited success in the use of appropriate mathematical concepts and skills to solve <i>routine problems and applications to real life contexts</i>. <p style="text-align: center;">and/or</p> <ul style="list-style-type: none"> • The student has limited success solving problems with concepts in isolation.

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Middle School Math Communication Rubric

Mathematics Communication GRC at the middle school level addresses a student's ability to *explain, construct* and *critique* mathematical reasoning using *precise* and *accurate* mathematical language.

Advanced Understanding 4	Meets the Standard 3	Approaching 2	Does Not Meet 1
<ul style="list-style-type: none"> ○ The student demonstrates the ability to <i>explain, construct</i> and <i>critique</i> mathematical reasoning with <i>concise, detailed, logical and complete arguments.</i> ○ The student demonstrates the ability to <i>effectively communicate conceptual understanding and contextual interpretation</i> of results. ○ The student <i>consistently uses accurate mathematical content language</i> with sophistication appropriate to prompt and level of course. 	<ul style="list-style-type: none"> ○ Student explanations are <i>complete and logical but may lack details, and/or coherent flow</i> in presentation. ○ Conceptual or contextual <i>understanding is inferred but not explicit.</i> ○ The student is <i>accurate but inconsistent in the use of mathematical content language</i> appropriate to prompt and level of course. 	<ul style="list-style-type: none"> ○ Student <i>explanations are fragmented</i> with omissions in logic, details or coherent flow. ○ Concept/context explanations are <i>vague, incomplete or inconsistent.</i> ○ <i>Basic</i> mathematical language is present <i>but not at levels appropriate</i> to the prompt or level of course. 	<ul style="list-style-type: none"> ○ Student provides only <i>superficial</i> explanations <i>or</i> explanations that <i>do not match solutions.</i> ○ Concept/context connections are <i>absent or inappropriate</i> to prompt. ○ Mathematical language is <i>missing or generally inappropriate</i> to the task.

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Middle School Math Procedural Fluency Rubric

Mathematics Procedural Fluency GRC at the middle school level addresses a student's ability to *select and execute appropriate procedural aspects of mathematics work in an organized and efficient manner.*

Advanced Understanding 4	Meets the Standard 3	Approaching 2	Does Not Meet 1
<ul style="list-style-type: none"> The student demonstrates fluency in carrying out procedures <i>flexibly, accurately, efficiently and with clarity in organization.</i> The student <i>consistently</i> selects and applies <i>appropriate and efficient strategies</i> to make deductions and solve problems. 	<ul style="list-style-type: none"> Student procedural work is appropriate to task but may contain <i>minor errors in execution or organization.</i> The student <i>often</i> selects and applies <i>appropriate and efficient strategies</i> to make deductions and solve problems. 	<ul style="list-style-type: none"> Student procedural work <i>lacks coherent organization</i>, omits key steps or contains <i>multiple errors in execution.</i> The student selects and applies <i>rote strategies</i> to make deductions and solve problems. 	<ul style="list-style-type: none"> Student <i>procedural work is incoherent, missing or inappropriate</i> to task. The student demonstrates <i>limited success in applying rote strategies</i> to make deductions and solve problems.