High School Math GRC Rubrics

Consider the Following When Using The High 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/course 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 opportunities 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).
# High School Math GRC Rubrics

## Mathematics Content GRC’s

Mathematics Content GRC’s at the high school level align with the three Colorado Mathematics Content Standards listed below. This rubric should be applied to work in any of these standards (GRCs).

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

<table>
<thead>
<tr>
<th>Advanced Understanding</th>
<th>Meets the Standard</th>
<th>Approaching</th>
<th>Does Not Meet</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

- The student uses **appropriate** mathematical concepts and skills to solve application problems in both familiar and unfamiliar situations with **limited** scaffolds & supports.

- The student solves problems that require connections among multiple concepts **without scaffolded prompts**.

- The student uses **appropriate** mathematical concepts and skills to solve application problems in familiar situations with scaffolds & support.

- The student solves problems that require connections among multiple concepts with scaffolded prompts.

- The student demonstrates **limited success** in the use of **appropriate** mathematical concepts and skills to solve routine problems and applications to real life contexts.

- The student has **limited success** solving problems with concepts in isolation.

- The student solves problems involving concepts in isolation.

- The student is unsuccessful with applications to real life contexts.

- The student solves problems in involving concepts in isolation.
# High School Math GRC Rubrics

## High School Math Communication Rubric

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

<table>
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<td><strong>3</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
</tr>
<tr>
<td>• The student demonstrates the ability to <em>explain, construct</em> and <em>critique</em> mathematical reasoning with <em>concise, detailed, logical</em> and <em>complete arguments.</em></td>
<td>• Student explanations are <strong>complete and logical</strong> but may lack <strong>details, and/or coherent flow</strong> in presentation.</td>
<td>• Student explanations are <strong>fragmented</strong> with omissions in logic, details or coherent flow.</td>
<td>• Student provides only <strong>superficial</strong> explanations or explanations that <strong>do not match solutions.</strong></td>
</tr>
<tr>
<td>• The student demonstrates the ability to <em>effectively communicate conceptual understanding and contextual interpretation</em> of results.</td>
<td>• Conceptual or contextual understanding is inferred but not explicit.</td>
<td>• Concept/context explanations are <strong>vague, incomplete or inconsistent.</strong></td>
<td>• Concept/context connections are <strong>absent or inappropriate</strong> to prompt.</td>
</tr>
<tr>
<td>• The student <em>consistently uses accurate mathematical content language</em> with sophistication appropriate to prompt and level of course.</td>
<td>• The student is <strong>accurate but inconsistent in the use of mathematical content language</strong> appropriate to prompt and level of course.</td>
<td>• Basic mathematical language is present but <strong>not at levels appropriate</strong> to the prompt or level of course.</td>
<td>• Mathematical language is <strong>missing or generally inappropriate</strong> to the task.</td>
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Updated August 2013
# High School Math GRC Rubrics

## High School Math Procedural Fluency Rubric

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

<table>
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<td>1</td>
</tr>
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</table>

- The student demonstrates fluency in carrying out procedures *flexibly, accurately, efficiently and with clarity in organization*.
- The student *consistently* selects and applies *appropriate and efficient strategies* to make deductions and solve problems.

- Student procedural work is appropriate to task but may contain *minor errors in execution or organization*.
- The student *often* selects and applies *appropriate and efficient strategies* to make deductions and solve problems.

- Student procedural work *lacks coherent organization*, omits key steps or contains *multiple errors in execution*.
- The student selects and applies *rote strategies* to make deductions and solve problems.

- Student *procedural work is incoherent, missing or inappropriate* to task.
- The student demonstrates *limited success in applying rote strategies* to make deductions and solve problems.