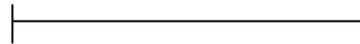


Skills: Did students actively read, write, and/or communicate mathematical knowledge and relationships in both mathematical and everyday language?

1. Students develop and/or demonstrate skills through elaborate reading, writing, speaking, modeling, diagramming, displaying, and/or demonstrating

Not Observable Clearly Observable



- * Communicate mathematics in written form—essays/journals/blogs
- * Develop valid mathematical arguments
- * Use appropriate details or evidence in explanations
- * Integrate mathematical content areas by using multiple representations

2. Students’ skills are used to demonstrate conceptual understanding, not just recall

Not Observable Clearly Observable



- * Organize information/data
- * Recognize mathematical relationships
- * Consider alternatives
- * Interpret or evaluate mathematical arguments/proofs
- * Compare/contrast different mathematical models/approaches/structures
- * Predict/hypothesize

3. Students use appropriate methods and tools to acquire and represent information

Not Observable Clearly Observable



- * Summarize and interpret many different types of graphs
- * Recognize and explain the meaning of information presented using mathematical notation.
- * Produce mathematically valid oral, written, and/or symbolic arguments to support a position
- * Use symbols, diagrams, graphs, and words to clearly communicate mathematical ideas, reasoning, and their implications

What am I thinking right now about the “Skills” category?

Knowledge: Did students demonstrate depth of conceptual understanding of mathematics?

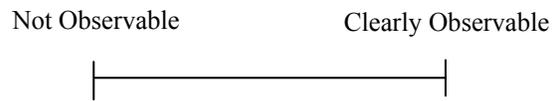
4. Students construct knowledge and manipulate information and ideas to build on prior learning, to discover new meaning, and to develop conceptual understanding

- * Generate their own ideas, questions, or hypotheses
- * Synthesize information
- * Analyze/critically examine information
- * Use symbolic representation
- * Arrive at a conclusion or interpretation



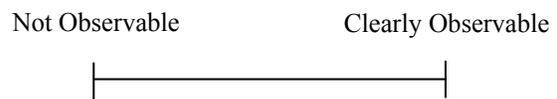
5. Students engage in substantive communication, which could include speaking/writing, that builds conceptual knowledge

- * Summarize and interpret mathematical information in oral or written formats
- * Apply/explain/debate ideas
- * Form generalizations
- * Raise and formulate coherent/complete questions
- * Produce mathematically valid oral, written, and/or symbolic arguments to support a position or conclusion



6. Teacher conveys high standards for performance for all students

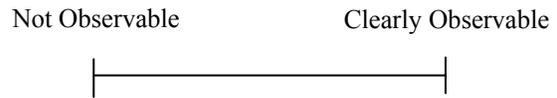
- * Aligns lesson with stated goals and learning targets
- * Organizes lesson around the process and/or content components of the College Readiness Standards



What am I thinking right now about the “Knowledge” category?

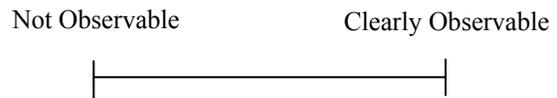
Thinking: Did students demonstrate mathematical thinking through reflection and/or metacognition?

7. Teacher uses a variety of questioning strategies to encourage students’ development of critical thinking, problem solving, and performance skills



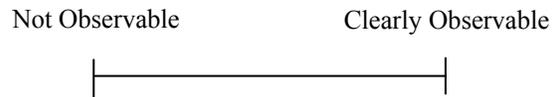
- * Asks students their opinions
- * Gives sufficient wait time
- * Asks open-ended questions
- * Focuses on higher-order thinking questions

8. Students use logical reasoning and mathematical knowledge to define and solve problems



- * Analyze a situation and describe the problem(s) to be solved
- * Compare and contrast the different mathematical concepts and procedures that could be used for a particular task
- * Formulate a plan for solving the problem
- * Use logical reasoning and mathematical knowledge to obtain and justify correct solutions
- * Recognizes when an approach is unproductive and makes logical modifications
- * Provide oral, written, and/or symbolic explanations of the reasoning used to obtain a solution

9. Students demonstrate verbally or in writing that they are intentionally reflecting on their own learning



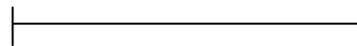
- * Make a text-to-text and/or text-to-self connection
- * Develop real-world connections
- * Reflect quietly to gain personal meaning
- * Students examines and learns from his or her errors through self-evaluation and/or constructive feedback from peers/teacher

What am I thinking right now about the “Thinking” category?

Application: Did students extend their learning into their lives and/or other content areas?

10. Teacher and/or students extend mathematical thinking across mathematical content areas, and to other disciplines and real life situations

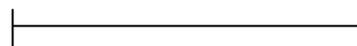
Not Observable Clearly Observable



- * Use mathematical ideas and strategies to analyze relationships within mathematics and in other disciplines and real life situations
- * Recognize patterns and apply mathematical concepts and procedures to real world situations
- * Integrate mathematical content areas by using multiple representations
- * Recognize and clarify mathematical structures that are embedded in other contexts
- * Demonstrate connection to a personal experience

11. Students plan to extend mathematical learning into life experience and/or carry out independent research

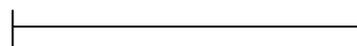
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- * Partner with community members/business
- * Participate in a service-based learning project, job shadow, internship, or mentorship
- * Students explore new ideas posing questions about their meaning, significance, and implications
- * Choose research projects
- * Identify information sources to be used in a project
- * Articulate the purpose of a particular project
- * Identify a community connection to support the project
- * Present finished projects to an audience

12. Students produce a product and/or performance for an audience beyond the class

Not Observable Clearly Observable



- * Post student work on a website
- * Write a letter to a newspaper editor
- * Present work at a conference/symposium

What am I thinking right now about the “Application” category?

Relationships: Do interpersonal interactions reflect a supportive learning environment?

13. The classroom is a positive, inspirational, safe, and challenging academic environment

Not Observable Clearly Observable



- * Students work and move comfortably
- * Students interact positively with each other and teacher
- * Students' ideas are solicited and encouraged
- * Students willing to take risks and be challenged
- * Teacher models and expects responsible behavior
- * Teacher provides challenging assignments
- * Teacher creates a welcoming environment where students appear to feel safe, secure, and respected and there is an atmosphere of respect, sincerity, warmth, and humor

14. Students work collaboratively to share knowledge, complete projects, and/or critique their work

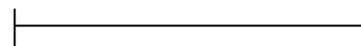
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- * Teacher solicits contributions from all students
- * Students actively explore new ideas
- * Students receive social support for learning through periodic grouping with peers
- * Comments/responses from peers are positive and constructive
- * Students participate in math problem solving groups

15. Instructional approaches are adapted to meet the needs of diverse learners (differentiated learning)

Not Observable Clearly Observable



- * Students participate in enrichment and/or remediation activities
- * Students experience multiple ways to practice a concept or new learning
- * Multiple representations are used to match learning types
- * Students make their own choices about ways to approach learning tasks
- * Lesson is based on students' needs rather than text progression

What am I thinking right now about the “Relationships” category?