

“Rigor Redefined”

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(Verbatim comments from committee members)

According to the article:

“Today’s students need to master seven survival skills to thrive in the new world of work. And these skills are the same ones that will enable students to become productive citizens who contribute to solving some of the most pressing issues we face in the 21st century.”

Committee discussion: What these skills look like in the classroom and how they apply to mathematics...

1. Critical Thinking and Problem Solving

- Appropriate questioning by students, by teachers
- Balance between teacher and student talk
- Appropriate clues and/or use of prior knowledge/skills
- To become a critical thinker and problem solver you need the foundation to reach that goal

2. Collaboration and Leadership

- Copying does not equal collaboration
- Collaboration shouldn’t create ill feelings in terms of assessment
- Use technology that is available, don’t be afraid of it

Skills 1 & 2: Looks like/sounds like

- Using individual, group, teams to problem solve
- Integrating skill into investigation
- “Failure is a road to knowledge”
- Students teaching one another as a strategy to solidify understanding
- Collaborative thinking leads to growth, includes personal accountability

- Questioning as a way of taking learning deeper
- Developing the “courage of one’s convictions”
- Balance between skill development and higher level thinking
- Teaching a way of thinking for life-long learning

3. Agility and Adaptability

- Solutions arrived at differently
- 2 numbers that have a difference of 5
 - number line or grid
 - fact triangle
- = Flexibility in thinking

4. Initiative and Entrepreneurialism

- Take risks

Skills 3 & 4

- Student: Persistence in finishing work
- Student: Be willing to try... and fail, rather than not try at all
- Teacher: Adapt to different learning styles
- Student: Extension on knowledge
- Student: Apply learned concepts to new situations
- Student: Risk aversion
- COE example
- Workplace collaboration
- Mathematical fluency
- Being able to solve one problem using multiple strategies
- Celebrate alternate methods for solving problems
- Safe environment that encourages all answers and strategies

4. Effective Oral and Written Communication

- Kids can explain why and how they are doing what they're doing; show their thinking in written and oral form
- Why and how ↑ math concept retention (application)
- Teaching peers what you did
- Oral explanation of math ↑ confidence

5. Accessing and Analyzing Information

- Can't memorize how to solve every math problem but must know how to find tools/resources to solve it
- Using anchor charts for skills/strategies = ownership of concept/buy-in
- Getting an answer is only the start → what does the answer mean?
- Graphs and diagrams

7. Curiosity and Imagination

- Math provides answers to lots of whys
- Connecting Math to Music and Art
- Proofs

Skills 5, 6, & 7

- If students can verbally and/or in written language explain their thinking, they both understand the math and could lead to higher level thinking
 - Journaling, Exit slips
- Anchor Charts, Focus lessons
 - Tell students what is important
 - Have students be able to pull out extraneous information
- Enough time to allow for imagination in math?
 - Projects could allow for more/Group conversations/Group work/open-ended problems