

*The Mathematical Skills and Competencies Necessary for the 21<sup>st</sup> Century  
Small Group Discussion and Gallery Walk*

- Basic math concepts
  - Figuring out problems and then do the math
- Knowledge base to pursue higher level math
- Ability to break problems down
- Flexibility of number (use trial and error)
- Efficiency
- Check your work (is it reasonable)
- Technology use
  
- Comfort with math
- Chooses to use math to solve problems
- Proficiency in the language of math (communicate mathematically)
- Flexibility – can approach problems in more than one way
- Familiarity with the newest math (Newton v. Google)
- Interpret and communicate the information that math produces
  
- Necessary Mathematical Skills and Competencies
- Used in careers
  - Reasoning, collaboration, communication
  - Problem solver
  - Use of technology
- Good Citizenship
  - Personal finance
    - Balancing check book
  - Interpreting / understanding different representations of number
- Cultural appreciation
  - Math in art, literature, music
  - Patterns
- Having a good number sense – how all mathematics relates to itself and other areas
  
- Be ready to take college algebra if needed
- Estimate – know if answer is reasonable or not
- Calculator is a tool; also able to check for reasonable answers
- Communicate your “math”, solution; explain
- Able to read and understand data, statistics, graphs, etc. in order to make financial and other decisions
- Deep understanding of the number system
  
- Ability to apply math understanding to a variety of situations
- Knowing the limits of math
- Able to communicate math thinking
- Able to use math tools
- Know multiple perspectives
- Understand the vocabulary and grammar of math

- Appreciate the challenge!
- All children should have access to math skills
- Basic arithmetic skills are essential for success in math
- In addition to skills, understanding underlying concepts is crucial
- Nevertheless some automatic recall is an absolute (e.g.  $2 + 3 = 5$ )
- Problem solving skills must be taught
- The basic mathematics foundations will not change
- Good problem solvers (identify problem, figure our best options to solve it)
- Be flexible in their thinking
- Build competence and confidence
- Develop a strong number sense
- Tools are helpful, but the individual needs to understand
- Understand the “Language” of math
- Help students/parents understand the importance of math
- Prepare for the world of the future as well as the present
- Fast Basic Facts
- Good thinkers/problem solvers
- What statistically significant means
- Communicate thinking
- Understand proportion/fractions
- Work with others and individually
- Understand why math is important – relative to life
- What a formula really means
- Think flexibly
- Know how to learn
- Understand geometric relations
- Support each child’s individual ability
- Live without calculator or learn be a good estimator
- Pascal’s Triangle and other facts
- Pattern analysis