

National Standards for Mathematics K-12 Standards

Abstract : The core standards for mathematical practice are indeed really useful in order to have a complete grip of the common core values and concepts within the mathematical workings. The national standards for mathematics were really easy to find on the core standards organization website. These standards were present in clear heading on the website and one could also easily download these standards from the website. The national standards for mathematics subjects are also presented in complete formatted form which is easy to understand. For instance, it starts from general standards like preserving the problems solving methods and then moves towards more specific standards like use of structures in mathematics as well as expressing the regularity in repeated reasoning. This made the standard easily readable.

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Despite the fact that the standards have been clearly written, there is no information about the people and groups or the individuals who have been behind the writing of this standard. However, the reasoning and major philosophy behind the provision of the standard has been explained under the heading of each standard. The standard also provides complete information about the knowledge for which it has been designed which also makes it really useful. For instance, the standard explain, the precision method where it states that “calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context”

I think there are a lot of areas which are not covered within these standards like the expression of figures and some predefined rules in mathematics which should be used to make the understanding in mathematics comparatively easier. The standards for mathematics were presented based on the various grade levels, like in grade one, there is a basic introduction of the algebraic thinking and then with more grade levels, there is a constant increase in the level of grades understanding and how various operations are being understood. I think these standards are developmentally appropriate because each grade level understands the same topic like operations, algebraic thinking, number and operations in

base ten, measurement and data as, well as geometry, but the difference is in terms of complexity for each of the grade level which is well maintained in this grade.

There are some standards which are repeated from various grade levels in order to have complete increase in the depth of understanding. For instance, the common methods of statistics and probability are being explained and the same concepts are also repeated in the working of statistics and probability in the higher grade levels. I think that these standards should be used while making the curriculum standards and I would definitely be doing this at grade level eight to make the curriculum. Mathematical standards which are mentioned are useful because they have been designed by keeping into account each of the grade level's needs and standards. This is the reason why the standards for each grade have been subdivided.

Example for Kansas Mathematical Standards for Grade 1:

1. Make sense of problems and persevere in solving them: students who are skillful in mathematics at first form a suitable understanding of the problem. As the problem is comprehensively understood they plan a solution for the problem accordingly. Grade 1 students develop the trait of solving the problems and becoming independent on their own. Students can think about different ways of solving the problem and form different approaches to the solution.
2. Reason abstractly and quantitatively: student proficiency is directly proportional to making sense of the numbers and their relationships. Students refer to the approach they are well aware of and may solve the problem using examples. It helps the students to form a logical depiction of the problem and they can apply the best possible approach into solving the problem.

3. Construct viable arguments and critique the reasoning of others: After understanding the problem first thoroughly students would recall the mathematics definitions and assumptions they previously learned. They tend to form a conclusion keeping in mind all the mathematical ideas. Proficient students would compare their ideas with others and try to move towards improvement.

4. Model with mathematics: Mathematically skilled learners in Grade 1 exhibit real-life mathematical conditions with a number sentence or an equation, and investigated so as to ensure that their equation precisely corresponds to the problem framework. They understand the relationship between the numbers and form a judgment about the important numbers. Students try to represent their solutions mathematically and may have to think in order to do so.

5. Use appropriate tools strategically: It is very important that talented students employ appropriate tools for problem solving. These gears may consist of physical matters such as geometric shapes, fraction bars, cubes, diagrams or drawings, rulers and other kinds of measuring tools that can help the students to form effective solutions to the problems. These tools in addition also help students to enhance their understanding about the matter.

6. Attend to precision: students who seem to be talented in mathematics are accurate in their measurements, communication and calculations. In order to express their ideas strongly they communicate with others in their language that could help others understand. There are no room for errors or variations in mathematics and the calculations have to be precise and perfect.

7. Look for and make use of structure: students tend to search for structures and

patterns in the number system and additional ranges of mathematics. At this stage, students make use of structure such as place value, the properties of operations, other generalizations about the performance of the operations. In mathematics it is vital to understand the patterns and structures in mathematics.

8. Look for and express regularity in repeated reasoning: Mathematically capable students in Grade 1 initiate to look for consistency in problem structures when resolving mathematical problems. Students try to search for approaches that may help be more proficient in calculations, including doubles strategies. Looking at repeated calculations helps the students evaluate and improve their intermediate results.

Yes, these standards have been aligned with the needs of the national standards. There were some concepts which were left out like

providing the information about the formulas consistency standards to be applied in the rules. There were some extra rules like the provision of information regarding the improvement of the intermediate results which were not discussed in the national standards. Indeed these standards do appear to be really appropriate for the students of Grade 1. I however do not disagree with anything which has been presented in the document because I am of the opinion that all these standards present in the document are well subjected to the needs of the Grade 1 students. I do not want to delete anything but I want to add information about the formulas formation and understanding. Yes, I would really find it useful if I were to write the new curriculum for my class for Mathematics for Grade 1 only.

References

Standards Link: <http://www.corestandards.org/Math/Practice/>

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