



Standards for Mathematical Practice and Gifted and Talented Education

Presented by

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Common Core
State Standards
for Mathematics

Standards for
Mathematical
PRACTICE

Standards for
Mathematical
CONTENT

Mathematical
Habits

Procedural
Skills

Procedural Skill
WITH
Understanding

Standards for Mathematical Practice

#1 Make Sense of Problems and Persevere in Solving Them
6 Attend to Precision

Overarching Habits of Mind of a Productive Mathematical Thinker

#2 Reason
Abstractly and
Quantitatively

#4 Model With
Mathematics

#7 Look For and
Make Use of
Structure

#3 Construct
Viable Arguments
and Critique the
Reasoning of
Others

#5 Use
Appropriate Tools
Strategically

#8 Look For and
Express
Regularity in
Repeated
Reasoning

Modeling and Using Tools

Reasoning and Explaining

Seeing Structure and
Generalizing

Examples of Essential Questions

- Kindergarten - Why are numbers important? How can numbers be represented?
- Grade 1 - How can we solve addition and subtraction problems using different strategies? How can we show that addition and subtraction are related?
- Grade 2 - How does place value help us solve problems? How can we solve and represent problems in different ways?
- Grade 3 - How can you determine the value of a digit in relation to its place in a number? How does the associative or commutative property help you add or multiply numbers?
- Grade 4 - What determines the value of a number? What is an effective way to estimate solutions to problems?
- Grade 5 - How can you represent decimal values? How can I write an expression that demonstrates a situation or context?

Example of Differentiated Math Task

3rd Grade

General Education Task	Accelerated Task
<p>Two Step Number Patterns:</p> <ol style="list-style-type: none"><li>1. Create a two step number pattern that uses both addition and subtraction.<li>2. Try to include at least 10 numbers in the sequence.<li>3. Explain the rule for your number pattern.	<p>A Kumeyaay tribe migrated from the mountains to the seashore on foot each year, a distance of 65 miles. All members of the tribe made this annual migration. If the average man could walk 15 miles a day, the average woman can walk 10 miles, and the average child can walk 5 miles, how long will it take the entire tribe to arrive at the ocean's shore? Will they travel together or in separate groups? How will they keep everyone safe? Plot the journey on a map of our region. What obstacles will the Kumeyaay encounter? How will that slow them down? What other things might slow the group down? How could they account for these?</p>
<p>Mathematical Practices:</p> <ul style="list-style-type: none"><li>• Make sense of a problem and persevere in solving it.<li>• Reason abstractly and quantitatively.<li>• Attend to precision.<li>• Look for and express regularity in repeated reasoning.	<p>Complexity:</p> <ul style="list-style-type: none"><li>• Understand complex concepts<li>• Make connections across disciplines<li>• View understandings from other perspectives <p>Novelty:</p> <ul style="list-style-type: none"><li>• Construct unique and individualized meaning of a concept<li>• Express understanding of subject matter creatively

Example of Differentiated Math Task

4th Grade

General Education Task

Estimating to Multiply

Choose a chapter book from your classroom. Turn to a page in the middle of the book. About how many words do you think there are on the page? How could you find out using compatible numbers?

Demonstrate your thinking in numbers, words and pictures.

Mathematical Practices:

- Make sense of a problem and persevere in solving it.
- Reason abstractly and quantitatively.
- Model with mathematics.
- Attend to precision.

Accelerated Task

The average American throws away 4 pounds of trash a day and recycles or composts $1\frac{1}{2}$ pounds a day. About how much trash does the average family four throw away a week, a month, a year? About how much does the average family four recycle or compost in a week, a month, a year? About how does this compare to your family? Where does all the trash go? What are the long term effects of trash creation and disposal? What are the alternatives available? If you were a waste management engineer how would you address this problem? Create an argument and presentation to support your solution. Be sure to thoroughly support your solution.

Depth:

- Use language of the discipline
- Identify patterns and trends
- Investigate impact
- Gather proof

Complexity:

- Understand complex concepts
- Make connections across disciplines
- Think like a disciplinarian

Novelty:

- Think critically
- Use problem solving

Considerations as you view the video

- How are the students analyzing the mathematical concept in the students A and B 's work? Which Standards for Mathematical Practice are being used?
- How are the students creating a viable argument supported by evidence based on the work they were given?
- How is the work the partners are doing growing their understanding throughout the process?

Standards for Mathematical Practice Classroom Video- Part I

- <http://www.insidemathematics.org/classroom-videos/public-lessons/5th-6th-grade-math-multiple-representations-of-numerical-patterning/problem-2>

For More Information

- On Common Core Math Standards

www.sandi.net/commoncore

Choose “Common Core for Parents” this will take you to the “Parents Room” where you will find multiple links dedicated to the Common Core State Standards

- On GATE Programming

www.sandi.net/GATE