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# Cliffside Park Public Schools

# Grade 4

## Mathematics

**Topic Name: Topic 1: Generalize Place Value Understanding**

**Topic 2: Fluently Add and Subtract Multi-Digit Whole Numbers**

**Resource: enVision Math 2.0, Pearson, 2016**

**Duration: September**

**Topic 1 (7 Days)**

**Topic 2 (8 Days)**

## Enduring Understandings

### Topic 1

- Our number system is based on groups of ten. Whenever we get 10 in one place value, we move to the next greater place value.
- In a multi-digit whole number, a digit in one place represents ten times what it would represent in the place immediately to its right.
- Place value can be used to compare numbers. Rounding whole numbers is a process for finding the multiple of 10, 100, and so on closest to a given number.
- Good math thinkers use math to explain why they are right. They can talk about the math that others do, too.

### Topic 2

- Representing numbers and numerical expressions in equivalent forms can make some calculations easy to do mentally. There is more than one way to do a mental calculation.
- There is more than one way to estimate a sum or difference. Estimation gives a way to replace numbers with other numbers that are close and easier to compute with mentally.
- The standard addition algorithm for multi-digit numbers breaks the calculation into simpler calculation into simpler calculations using place value.
- The standard addition and subtraction algorithms for multi-digit numbers break the calculation into simpler calculations using place value starting with the ones, then the tens, and so on.
- Good math thinkers know how to think about words and numbers to solve problems.



<h2>Essential Questions</h2>			
<h3>Topic 1</h3> <ul style="list-style-type: none"> <li>• How are greater numbers written?</li> <li>• How can whole numbers be compared?</li> <li>• How are place values related?</li> <li>• What are some ways to write numbers to one million?</li> <li>• How are the digits in a multi-digit number relates to each other?</li> <li>• How do you compare numbers?</li> <li>• How can you round numbers?</li> <li>• How can you construct arguments?</li> </ul>			
<h3>Topic 2</h3> <ul style="list-style-type: none"> <li>• How can sums and differences of whole numbers be estimated?</li> <li>• What are standard procedures for adding and subtracting whole numbers?</li> <li>• How can you use mental math to solve problems?</li> <li>• How can you estimate sums and differences of whole numbers?</li> <li>• How do you add whole numbers?</li> <li>• How do you subtract whole numbers?</li> <li>• How do you subtract across zeros?</li> <li>• How can you use quantitative reasoning to solve problems?</li> </ul>			

**Focus of Standards:**

Student Outcomes	Skills	Assessments	Resources
<h3>Topic 1</h3> <ul style="list-style-type: none"> <li>• I can read and write numbers through one million in expanded form, with numerals, and using number names.</li> <li>• I can recognize that a digit in one place has ten times the value of the same digit in the place to</li> </ul>	<ul style="list-style-type: none"> <li>• Solving problems</li> <li>• Understanding concepts</li> <li>• Reasoning</li> </ul>	<h3>Formative</h3> <ul style="list-style-type: none"> <li>• Diagnostic assessment</li> <li>• Study Island</li> <li>• Xtra Math</li> <li>• Exit tickets</li> <li>• Round Robin group</li> </ul>	<h3>Envision Math 2.0</h3> <p><b>Digital</b></p> <ul style="list-style-type: none"> <li>• Student and Teacher eTexts</li> <li>• Interactive Math</li> </ul>



<p>its right.</p> <ul style="list-style-type: none"> <li>• I can use place value to compare numbers and record my comparisons using greater than, less than or equal to.</li> <li>• I can use place value to round numbers.</li> <li>• I can construct arguments using what I know about place-value relationships.</li> </ul> <p><b>Topic 2</b></p> <ul style="list-style-type: none"> <li>• I can use properties and strategies to change the structure of a problem to add and subtract with mental math.</li> <li>• I can use rounding and place value to estimate sums and differences.</li> <li>• I can use the standard algorithm and place value to add multi-digit numbers.</li> <li>• I can use the standard algorithm and place value to subtract whole numbers.</li> <li>• I can make sense of quantities and relationships in problem situations.</li> </ul>		<p>work</p> <ul style="list-style-type: none"> <li>○ Open ended questions</li> <li>○ May/may not be game activity</li> </ul> <ul style="list-style-type: none"> <li>• Analysis of student homework</li> <li>• Class polls <ul style="list-style-type: none"> <li>○ Show of hands: 1 finger ok, 2 fingers need help, 3 fingers lost</li> </ul> </li> <li>• One thing I learned/One thing I need work on</li> </ul> <p><b>Summative</b></p> <ul style="list-style-type: none"> <li>• End topic tests</li> <li>• Group topic assessment</li> <li>• EOY test</li> <li>• SGO tests</li> </ul> <p><b>Benchmark</b></p> <ul style="list-style-type: none"> <li>• Diagnostic assessment</li> <li>• Pearson benchmark tests</li> <li>• PARCC test</li> </ul> <p><b>Alternative</b></p>	<p>story</p> <ul style="list-style-type: none"> <li>• Home-School Connection</li> </ul> <p><b>Classroom Math Materials</b></p> <ul style="list-style-type: none"> <li>• Place-value charts</li> <li>• Self-stick notes</li> <li>• Poster board</li> <li>• Number lines</li> <li>• Colored pencils</li> <li>• Place-value blocks</li> </ul>
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		<ul style="list-style-type: none"> <li>• Work paper from tests will also be graded for additional points if reasoning is clear and correct, even if answer is wrong</li> <li>• One on one conferencing</li> <li>• Oral presentation on math strand</li> <li>• Weekly time capsule:summary of what was learned</li> <li>• Topic Pattern search: find the thread in topic</li> <li>• Crosswords with math vocab</li> </ul>	
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**Vocabulary**  
**Topic 1:** place value, millions, period, expanded form, greater than symbol, less than symbol, rounding, conjecture  
**Topic 2:** commutative property of addition, associative property of addition, identity property of addition, counting on, compensation, variable, algorithm, inverse operations

**NJ Student Learning Standards: Math**  
**Topic 1**  
**Number and Operations in Base Ten**  
**4.NBT.A.1** Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that  $700 \div 70 = 10$  by applying concepts of place value and division.  
**4.NBT.A.2** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.  
**4.NBT.A.3** Use place value understanding to round multi-digit whole numbers to any place.  
**Topic 2**  
**Number and Operations in Base Ten**



**4.NBT.B.4** Fluently add and subtract multi-digit whole numbers using the standard algorithm.

### **Operations and Algebraic Thinking**

**4.OA.A.3** Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

### **Standards for Mathematical Practice**

**MP1. Make sense of problems and persevere in solving them.**

**MP2. Reason abstractly and quantitatively.**

**MP3. Construct viable arguments and critique the reasoning of others.**

**MP4. Model with mathematics.**

**MP5. Use appropriate tools strategically.**

**MP6. Attend to precision.**

**MP7. Look for and make use of structure.**

**MP8. Look for and express regularity in repeated reasoning.**

### **Career Ready Practices**

**CRP1.** Act as a responsible and contributing citizen and employee.

**CRP2.** Apply appropriate academic and technical skills.

**CRP3.** Attend to personal health and financial well-being.

**CRP4. Communicate clearly and effectively and with reason.**

**CRP5.** Consider the environmental, social and economic impacts of decisions.

**CRP6. Demonstrate creativity and innovation.**

**CRP7.** Employ valid and reliable research strategies.

**CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.**

**CRP9.** Model integrity, ethical leadership and effective management.

**CRP10.** Plan education and career paths aligned to personal goals.

**CRP11.** Use technology to enhance productivity.

**CRP12.** Work productively in teams while using cultural global competence.

### **NJSLS Technology Standards**



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**8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.**

8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

8.1.5.A.3 Use a graphic organizer to organize information about a problem or issue.

## Interdisciplinary Connections

NJSLS for ELA and Science are introduced, developed, and practiced in the context of learning math content and engaging in mathematical practices.

### ELA Standards

- RL.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
- RI.4.1. Refer to details and examples in a text and make relevant connections when explaining what the text says explicitly and when drawing inferences from the text.
- RI.4.3. Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
- RI.4.4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

### Science

- 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
- 4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.

## NJSLS: 21st Century Life and Careers

**Key Subjects and 21st Century:** Themes Mastery of key subjects and 21st century themes is essential to student success. Key subjects include English, reading or language arts, world languages, arts, mathematics, economics, science, geography, history, government and civics.



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In addition, schools must promote an understanding of academic content at much higher levels by weaving 21st century interdisciplinary themes into key subjects:

- Global Awareness
- Financial, Economic, Business and Entrepreneurial Literacy

9.1.4.A.2 Identify potential sources of income

9.1.4.C.5 Determine the relationship among income, expense and interest

9.1.4.D.2 Explain what it means to “invest”.



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## Integrated Differentiation/Accommodations/Modifications (Alternate Modes of Instruction and Support)

Modifications to Support Gifted and Talented Students	Modifications to Support English Language Learners	Modifications to Support Our Learners (Students with IEPs/504s and At-Risk Learners)
<p>Provide appropriate challenge for wide ranging skills and development areas.</p> <p>Participate in inquiry and project-based learning units of study</p> <p>Assigning roles within partnerships</p> <p>Differentiated supports: content, process, product, environment</p>	<p>Native Language Translation (peer, online assistive technology, translation device, bilingual dictionary)</p> <p>Pair visual prompts with verbal presentations</p> <p>Front load and immerse students in literacy and language experiences related to content</p> <p>Provide students with visual models, sentence stems, concrete objects, and hands-on materials.</p> <p>Model procedures for life skills.</p> <p>Collaboration between ELL and general education teacher to maximize learning</p>	<p>Review student individual educational plan and/or 504 plan.</p> <p>Establish procedures for accommodations and modifications for assessments as per IEP/504.</p> <p>Establish procedures for modification of classwork and homework as per IEP/504.</p> <p>Modify classroom environment to support academic and physical needs of the students as per IEP/504.</p> <p>Provide appropriate accommodations, instructional adaptations, and/or modifications as determined by the IEP or 504 team.</p> <p>Differentiation through content, process, product, environment</p> <p>Provide Title I services to students not meeting academic standards in ELA and/or Math.</p> <p>Provide instructional adaptations and interventions in the general education classroom.</p> <p>Modify classroom environment to support student needs.</p> <p>Differentiated instruction</p>





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		<p>Basic Skills</p> <p>Intensive individual intervention</p>
<p><b>Sources</b></p> <p>New Jersey Student Learning Standards (2016) <a href="http://www.state.nj.us/education/cccs/2016/math/standards.pdf">http://www.state.nj.us/education/cccs/2016/math/standards.pdf</a></p> <p>New Jersey Student Learning Standards: Technology (2014) - <a href="http://www.state.nj.us/education/cccs/2014/tech/8.pdf">http://www.state.nj.us/education/cccs/2014/tech/8.pdf</a></p> <p>New Jersey Student Learning Standards: ELA (2014) - <a href="https://www.state.nj.us/education/cccs/2016/ela/g04.pdf">https://www.state.nj.us/education/cccs/2016/ela/g04.pdf</a></p> <p>New Jersey Science and Engineering Practices - <a href="https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf">https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf</a></p> <p>New Jersey 21st Century Life and Careers 9.1 - <a href="https://www.state.nj.us/education/cccs/2014/career/91.pdf">https://www.state.nj.us/education/cccs/2014/career/91.pdf</a></p> <p>Pearson enVision 2.0 (2016) <a href="https://www.pearsonrealize.com/index.html#/">https://www.pearsonrealize.com/index.html#/</a></p>		