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# Cliffside Park Public Schools

# Grade 3

## Mathematics

**Topic Name: Topic 8: Use strategies and Properties to Add and Subtract**

**Topic 9: Fluently Add and Subtract Within 1000**

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

**Duration: January**

**Topic 8 (11 days)**

**Topic 9 (10 days)**

## Enduring Understandings

### Topic 8

- Some real-world problems that involve joining, separating, part-part whole, or comparing can be solved using addition. Two or more numbers can be added in any order, and the sum of any number and 0 is that number.
- Generalizations about how addition works emerge from investigating patterns and reasoning about mathematical relationships.
- Rounding is a process for finding multiples of 10 and 100, closest to a given number.
- There is more than one way to do mental math. Techniques involve changing the numbers or the expressions so that calculations are easy to do mentally.
- There is more than one way to estimate a sum. Two ways to estimate are rounding and using compatible numbers.
- There is more than one way to estimate a difference. Two ways to estimate are rounding and using compatible numbers.
- Addition and subtraction have an inverse relationship. That relationship can be used to solve problems.
- Good math thinkers choose and apply math they know to show and solve problems from everyday life.

### Topic 9

- The expanded algorithm for adding 3-digit numbers breaks the addition problem into a series of easier problems based on place value. Answers to the simpler problems are then used to find the final sum.
- The standard algorithm for adding 3-digit numbers is an extension to the standard algorithm for adding 2-digit numbers.



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- The addition of three or more numbers is an extension of adding two numbers.
- The expanded algorithm for subtracting multi-digit numbers breaks a larger subtraction problem into a series of easier problems based on place value. Answers to the simpler problems are then used to find the final difference.
- The standard algorithm for subtracting 3-digit numbers is an extension to the standard algorithm for subtracting 2-digit numbers.
- Good math thinkers use math to explain why they are right. They can talk about the math that others do, too.

## Essential Questions

### Topic 8

- What are some Properties of Addition?
- How can you find addition patterns?
- How can you round numbers?
- How can you use mental math to add?
- How can you use mental math to subtract?
- How can you estimate sums?
- How can you estimate differences?
- How can the relationship between addition and subtraction help you solve problems?
- How can sums and differences be estimated and found mentally?

### Topic 9

- How can you break large addition problems into smaller ones?
- How can you use addition to solve problems?
- How can you add more than 2 numbers?
- How can you break large subtraction problems into smaller ones?
- How can you use subtraction to solve problems?
- How can you subtract from a number with one or more zeros?
- How can you construct arguments?
- What are standard procedures for adding and subtracting whole numbers?

## Focus of Standards

Student Outcomes	Skills	Assessments	Resources
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<p><b>Topic 8</b></p> <ul style="list-style-type: none"> <li>• I can use properties to understand addition.</li> <li>• I can find and explain addition patterns.</li> <li>• I can use place value and a number line to round numbers.</li> <li>• I can use mental math to add.</li> <li>• I can use mental math to subtract.</li> <li>• I can use what I know about addition and place value to estimate sums.</li> <li>• I can use what I know about subtractions and place value to estimate differences.</li> <li>• I can use the relationship between addition and subtraction to solve problems.</li> <li>• I can apply the math I know to solve problems.</li> </ul> <p><b>Topic 9</b></p> <ul style="list-style-type: none"> <li>• I can use place value to break apart and add numbers.</li> <li>• I can use different strategies to regroup when adding 3-digit numbers.</li> <li>• I can use regrouping to add 3-digit numbers.</li> <li>• I can add three or more numbers using what I know about adding 3-digit numbers.</li> <li>• I can use place value to solve simpler problems when subtracting multi-digit numbers.</li> <li>• I can use place-value reasoning to subtract 3-digit numbers.</li> <li>• I can construct math arguments using what I know about addition and subtraction.</li> </ul>	<ul style="list-style-type: none"> <li>• Solving addition, subtraction, multiplication, and division problems</li> <li>• Understanding concepts</li> <li>• Reasoning</li> </ul>	<p><b>Formative</b></p> <ul style="list-style-type: none"> <li>• Diagnostic assessment</li> <li>• Study Island</li> <li>• Exit tickets</li> <li>• Round Robin group work             <ul style="list-style-type: none"> <li>◦ Open ended questions</li> <li>◦ May/may not be game activity</li> </ul> </li> <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>	<p><b>Texts</b></p> <ul style="list-style-type: none"> <li>• enVision math 2.0</li> </ul> <p><b>Digital</b></p> <ul style="list-style-type: none"> <li>• Student/Teacher eText</li> <li>• Interactive math story</li> <li>• Home-school connection</li> </ul> <p><b>Classroom Math Materials</b></p> <ul style="list-style-type: none"> <li>• Two-color counters</li> <li>• Drawing paper</li> <li>• Colored pencils</li> <li>• Number lines</li> <li>• Place-value blocks</li> <li>• Number tiles</li> <li>• Index cards</li> <li>• Place-value charts</li> </ul>
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		<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> <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>	
<p><b>Vocabulary</b> <b>Topic 8</b> associative (grouping) property of addition, commutative (order) property of addition, identity (zero) property of addition, round, place value, compatible numbers, inverse operations</p>			



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## Topic 9

regroup, conjecture

### **NJ Student Learning Standards: Math Operations and Algebraic Thinking**

**3.OA.D.9** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

### **Number and Operations in Base Ten**

**3.NBT.A.1** Use place value understanding to round whole numbers to the nearest 10 or 100.

**3.NBT.A.2** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

**3.NBT.A.3** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g.,  $9 \times 80$ ,  $5 \times 60$ ) using strategies based on place value and properties of operations.

### **Measurement and Data**

**3.MD.A.1** Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.

**3.MD.A.2** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).  
**5** Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.  
**6**

### **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**

**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 and Activities**

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.3.1. Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- RI.3.3. Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
- RI.3.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.

#### **Science**



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- 3-PS2-2 Science findings are based on recognizing patterns.
- 3-LS2-1 Construct an argument with data, evidence and/or a model.
- 3-LS3-2 Use evidence (eg., observations, patterns) to support an explanation.
- 3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

### **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. 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 for Mathematics (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> <p>Basic Skills</p>





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		Intensive individual intervention
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### Sources

- New Jersey Student Learning Standards (2016) <http://www.state.nj.us/education/cccs/2016/math/standards.pdf>
- New Jersey Student Learning Standards: Technology (2014) - <http://www.state.nj.us/education/cccs/2014/tech/8.pdf>
- New Jersey Student Learning Standards: ELA (2014) - <https://www.state.nj.us/education/cccs/2016/ela/g03.pdf>
- New Jersey Science and Engineering Practices - <https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf>
- New Jersey 21st Century Life and Careers 9.1 - <https://www.state.nj.us/education/cccs/2014/career/91.pdf>
- Pearson enVision 2.0 (2016) <https://www.pearsonrealize.com/index.html#/>