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# Cliffside Park Public Schools

# Grade 3

## Mathematics

**Topic Name: Topic 13: Fraction Equivalents and Comparison**

**Topic 14: Solve Time, Capacity, and Mass Problems**

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

**Duration: March**

**Topic 13 (10 days)**

**Topic 14 (11 days)**

## Enduring Understandings

### Topic 13

- The same fractional amount can be represented by an infinite set of different but equivalent fractions.
- There are a limitless number of fraction names for each point on a number line. These points can be used to name equivalent fractions.
- If two fractions have the same denominator, the fraction with the greater numerator is the greater fraction.
- If two fractions have the same numerator, the fraction with the greater denominator is less than the other fraction.
- Benchmark numbers such as 0,  $\frac{1}{2}$ , and 1 can be used to compare fractions.
- You can use a number line to compare fractions.
- Whole numbers can be represented by many different fraction names.
- Good math thinkers use math to explain why they are right. They can talk about the math that others do, too.

### Topic 14

- Clocks can be used to tell time to the nearest minute.
- Elapsed time can be found by finding the total amount of time that passes between a starting time and an ending time.
- Time intervals can be added or subtracted to solve problems.
- Benchmarks can be used to estimate capacity (liquid volume).
- Capacity (liquid volume) is a measure of the amount of liquid a container can hold.



- Mass is a measure of the quantity of matter in an object.
- Problems involving mass and volume can often be solved with a picture or a diagram.
- Good math thinkers know how to think about words and numbers to solve problems.

**Essential Questions**

**Topic 13**

- How can you compare fractions with the same denominator?
- How can benchmark numbers be used to compare fractions?
- How can you compare fractions using the number line?
- How can you use fraction names to represent whole numbers?
- How can you construct arguments?
- What are different ways to compare fractions?

**Topic 14**

- How can time, capacity, and mass be measured and found?
- How do you tell time to the nearest minute?
- How can you find elapsed time?
- How can you add or subtract time intervals?
- What metric units are used to estimate and measure liquid volume?
- How do we measure capacity?
- How can we use reasoning to estimate mass?
- How do you measure mass?
- How do you use drawings to solve problems?
- How can you use reasoning to solve problems?

**Focus of Standards**

**Student Outcomes**

**Topic 13**

- I can find equivalent fractions that name the

**Skills**

- Solving addition, subtraction,

**Assessments**

**Formative**

- Diagnostic

**Resources**

**Texts**

- enVision math 2.0



<p>same part of a whole.</p> <ul style="list-style-type: none"> <li>• I can use number lines to represent equivalent fractions.</li> <li>• I can compare fractions that refer to the same whole and have the same denominator by comparing their numerators.</li> <li>• I can compare fractions that refer to the same whole and have the same numerator by comparing their denominators.</li> <li>• I can use what I know about the size of benchmark numbers to compare fractions.</li> <li>• I can compare two fractions by locating them on a number line.</li> <li>• I can use representations to find fraction names for whole numbers.</li> <li>• I can construct math arguments using what I know about fractions.</li> </ul> <p><b>Topic 14</b></p> <ul style="list-style-type: none"> <li>• I can show and tell time to the minute using clocks.</li> <li>• I can measure intervals of time in hours and minutes.</li> <li>• I can use representations to solve word problems about time.</li> <li>• I can use standard units to estimate liquid volumes.</li> <li>• I can use standard units to measure liquid volumes.</li> <li>• I can use standard units to estimate the masses of solid objects.</li> <li>• I can use grams and kilograms to measure the mass of objects.</li> <li>• I can use pictures to help solve problems about</li> </ul>	<p>multiplication, and division problems</p> <ul style="list-style-type: none"> <li>• Understanding concepts</li> <li>• Reasoning</li> </ul>	<p>assessment</p> <ul style="list-style-type: none"> <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> <ul style="list-style-type: none"> <li>• Diagnostic assessment</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>• Fraction strips</li> <li>• Number lines</li> <li>• Red pencils</li> <li>• Half of an empty egg carton</li> <li>• Blank clock faces</li> <li>• Colored pencils</li> <li>• One liter bottles</li> <li>• Large bowls</li> <li>• Assorted containers</li> <li>• Marked 1-liter beaker</li> <li>• 6 containers</li> <li>• Soup can</li> <li>• Differently -sized soup bowls</li> <li>• Large pot</li> <li>• Water</li> <li>• Pan balance</li> <li>• Gram and kilogram weights</li> <li>• Classroom objects</li> </ul>
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<p>mass and volume.</p> <ul style="list-style-type: none"> <li>I can make sense of quantities and relationships in problem situations.</li> </ul>		<ul style="list-style-type: none"> <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>	
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### Vocabulary

#### Topic 13

equivalent fractions

#### Topic 14

elapsed time, A.M., P.M., time interval, capacity (liquid volume), milliliter, liter, mass, gram, kilogram

### NJ Student Learning Standards: Math



## Topic 13

### Number and Operations: Fractions

**3.NF.A.3a** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

**3.NF.A.3b** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Recognize and generate simple equivalent fractions, e.g.,  $1/2 = 2/4$ ,  $4/6 = 2/3$ . Explain why the fractions are equivalent, e.g., by using a visual fraction model.

**3.NF.A.3c** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form  $3 = 3/1$ ; recognize that  $6/1 = 6$ ; locate  $4/4$  and 1 at the same point of a number line diagram.

**3.NF.A.3d** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using a visual fraction model.

## Topic 14

**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). 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.

### 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.



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- 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”.



<b>Integrated Differentiation/Accommodations/Modifications for Mathematics</b> <i>(Alternate Modes of Instruction and Support)</i>		
<b>Modifications to Support Gifted and Talented Students</b>	<b>Modifications to Support English Language Learners</b>	<b>Modifications to Support Our Learners (Students with IEPs/504s and At-Risk Learners)</b>
<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
<b>Sources</b> 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> 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> New Jersey Student Learning Standards: ELA (2014) - <a href="https://www.state.nj.us/education/cccs/2016/ela/g03.pdf">https://www.state.nj.us/education/cccs/2016/ela/g03.pdf</a> 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> 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> Pearson enVision 2.0 (2016) <a href="https://www.pearsonrealize.com/index.html#/">https://www.pearsonrealize.com/index.html#/</a>		