



BOE Approved 8/18

Cliffside Park Public Schools

Grade 3

Mathematics

Topic Name: Topic 10: Multiply by Multiples of 10

Topic 11: Use Operations with Whole Numbers to Solve Problems

Topic 12: Understand Fractions as Numbers

Resource: enVision Math 2.0, Pearson, 2016

Duration: February

Topic 10 (6 days)

Topic 11 (6 days)

Topic 12 (10 days)

Enduring Understandings

Topic 10

- An open number line can be used to find products when one factor is a multiple of 10.
- Basic multiplication facts and properties of multiplication can be used to find products when one factor is a multiple of 10.
- Different strategies can be used to find products when one factor is a multiple of 10.
- Good math thinkers look for relationships in math to help solve problems.

Topic 11

- Bar diagrams show relationships in a two-step word problem and help identify the operation or operations needed to solve the problem.
- The way quantities in a two-step problem are related determines the operations used to solve the problem. Equations show these relationships.
- Good math thinkers use math to explain why they are right. They can talk about the math that others do, too.



Topic 12

- A unit fraction represents one part of a whole that has been divided into equal parts. A fraction can represent multiple copies of a unit fraction.
- The whole can be found given a fractional part.
- Points on a number line can represent fractions. The denominator represents the number of equal parts between 0 and 1, and the numerator represents the number of parts between 0 and the point.
- A number line can be used to represent fractions greater than 1.
- A line plot is a way to organize data on a number line.
- Good math thinkers make sense of problems and think of ways to solve them. If they get stuck, they don't give up.

Essential Questions

Topic 10

- How can you multiply on an open number line?
- How can you use properties to multiply by multiples of 10?
- What is the rule for multiplying by multiples of 10?
- How can I use structure to multiply with multiples of 10?
- What are ways to multiply by multiples of 10?

Topic 11

- How can we use a diagram to solve 2-step problems?
- How can you solve 2-step problems?
- How can you critique the reasoning of others?
- What are ways to solve two-step problems?

Topic 12

- What are different interpretations of a fraction?
- How can you show and name the parts of a region?
- How can you use a fractional part to find the whole?
- How can you record fractions on a number line?
- How can you use a number line to represent fractions greater than 1?
- How can you make and use a line plot?
- How can you measure lengths and use line plots to show the data?



- How can you make sense of a problem and persevere in solving it?

Focus of Standards

Student Outcomes	Skills	Assessments	Resources
<p>Topic 10</p> <ul style="list-style-type: none"> • I can use an open number line and patterns to multiply by multiples of ten. • I can use properties of multiplication to find a product when one factor is a multiple of 10. • I can use different strategies to find a product when one factor is a multiple of 10. • I can use patterns to describe relationships between quantities. <p>Topic 11</p> <ul style="list-style-type: none"> • I can draw diagrams and write equations to show how the quantities in a problem are related. • I can solve two-step word problems involving different operations. • I can critique the reasoning of others using what I know about estimating. <p>Topic 12</p> <ul style="list-style-type: none"> • I can read and write a unit fraction. • I can use a fraction to represent multiple copies of a unit fraction. • I can identify the whole by seeing a part. • I can represent fractions on a number line. • I can represent fractions equal to or greater than 1 on a number line. • I can measure to the nearest fourth inch and show the data on a line plot. 	<ul style="list-style-type: none"> • Solving addition, subtraction, multiplication, and division problems • Understanding concepts • Reasoning 	<p>Formative</p> <ul style="list-style-type: none"> • Diagnostic assessment • Study Island • Exit tickets • Round Robin group work <ul style="list-style-type: none"> ○ Open ended questions ○ May/may not be game activity • Analysis of student homework • Class polls <ul style="list-style-type: none"> ○ Show of hands: 1 finger ok, 2 fingers need help, 3 fingers lost • One thing I learned/One thing I need work on <p>Summative</p> <ul style="list-style-type: none"> • End topic tests 	<p>Texts</p> <ul style="list-style-type: none"> • enVision math 2.0 <p>Digital</p> <ul style="list-style-type: none"> • Student/Teacher eText • Interactive math story • Home-school connection <p>Classroom Math Materials</p> <ul style="list-style-type: none"> • Grid paper • Place-value blocks • Multiplication tables • Drawing paper • Colored pencils • Paper and crayons • Fraction strips • Rulers • Number lines • Strips of paper



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<ul style="list-style-type: none">• I can measure to the nearest half inch and show the data on a line plot.• I can make sense of problems and keep working if I get stuck.		<ul style="list-style-type: none">• Group topic assessment• EOY test• SGO tests <p>Benchmark</p> <ul style="list-style-type: none">• Diagnostic assessment• Pearson benchmark tests• PARCC test <p>Alternative</p> <ul style="list-style-type: none">• Work paper from tests will also be graded for additional points if reasoning is clear and correct, even if answer is wrong• One on one conferencing• Oral presentation on math strand• Weekly time capsule:summary of what was learned• Topic Pattern search: find the thread in topic• Crosswords with math vocab	
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Vocabulary

Topic 10

open number line

Topic 11

No new vocabulary

Topic 12

Fraction, unit fraction, numerator, denominator, nearest fourth inch, line plot, nearest half inch

NJ Student Learning Standards: Math

Topic 10

Numbers in Base Ten

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

Topic 11

Operations and Algebraic Thinking

3.OA.D.8 Solve two-step word problems using the four operations. 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.

Topic 12

Number and Operation: Fractions

3.NF.A.1 Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.

3.NF.A.2a Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line.

3.NF.A.2b Understand a fraction as a number on the number line; represent fractions on a number line diagram. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.

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

Geometry

3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $1/4$ of the area of the shape.



Measurement and Data

3.MD.B.4 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

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

- 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.

Engineering Practices:

- Analyzing and Interpreting Data
- Using Mathematical and Computational Thinking

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



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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”.

Integrated Differentiation/Accommodations/Modifications for Mathematics <i>(Alternate Modes of Instruction and Support)</i>		
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>



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		<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> <p>Intensive individual intervention</p>
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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#/>