



BOE Approved 8/18

Cliffside Park Public Schools

Grade 4

Mathematics

Topic Name: Topic 6: Use Operations with Whole Numbers to Solve Problems

Topic 7: Factors and Multiples

Resource: enVision Math 2.0, Pearson, 2016

Duration: December

Topic 6 (7 Days)

Topic 7 (7 Days)

Enduring Understandings

Topic 6

- Both addition and multiplication can be used to make comparisons. Bar diagrams and equations can be used to show both situations and to distinguish between them.
- Bar diagrams and equations can be used to solve problems involving multiplicative comparison.
- Sometimes there is a hidden question that must be answered before solving a problem. Bar diagrams and equations can represent problems and are helpful in answering both parts of a problem.
- Sometimes there are hidden questions that must be answered before solving a problem. Bar diagrams and equations can represent problems and are helpful in answering all parts of a problem. Good math thinkers make sense of problems and think of ways to solve them. If they get stuck, they don't give up.

Topic 7

- Factors of a number n can be shown by arranging n counters into rows with the same number of counters in each row. The number of rows and the number of counters in each row are factors of n .
- Factors of a number can be found in pairs by thinking about multiplication.
- Good math thinkers look for things that repeat, and they make generalizations.
- Prime numbers have exactly 2 factors and composite numbers have more than 2.



- The product of any nonzero whole number and a given nonzero whole number is a multiple of both. Factors and multiples are closely related.

Essential Questions

Topic 6

- How is comparing with multiplication different from comparing with addition?
- How can you use equations to solve multi-step problems?
- How can you solve a comparison problem involving multiplication as comparison?
- How can you use diagrams and equations to solve multi-step problems?
- How can you use equations to solve more multi-step problems?
- How can you make sense of a multi-step problem and persevere in solving it?

Topic 7

- How can you use arrays or multiplication to find the factors of a number?
- How can you use multiplication to find the factors of a number?
- How can you use repeated reasoning to find all factors of a number?
- How can you identify prime and composite numbers?
- How can you find multiples of a number?

Focus of Standards

Student Outcomes	Skills	Assessments	Resources
<p>Topic 6</p> <ul style="list-style-type: none"> • I can use multiplication or addition to compare one quantity to another. • I can use multiplication or division to compare 	<ul style="list-style-type: none"> • Solving problems • Understanding concepts • Reasoning 	<p>Formative</p> <ul style="list-style-type: none"> • Diagnostic assessment • Study Island • Xtra Math • Exit tickets 	<p>Envision Math 2.0</p> <p>Digital:</p> <ul style="list-style-type: none"> • Student and Teacher eTexts • Interactive Math



<p>one quantity to another.</p> <ul style="list-style-type: none">● I can solve multi-step problems by finding and solving the hidden question first.● I can solve multi-step problems by finding and solving hidden questions first.● I can make sense of problems and keep working if I get stuck. <p>Topic 7</p> <ul style="list-style-type: none">● I can find the factors of a whole number.● I can use multiplication to find the factor pairs for a whole number.● I can use repeated reasoning to generalize how to solve similar problems.● I can use factors to determine if a whole number is prime or composite.● I can use multiplication to find multiples of a number.		<ul style="list-style-type: none">● 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● Group topic assessment● EOY test● SGO tests <p>Benchmark</p> <ul style="list-style-type: none">● Diagnostic assessment● Pearson benchmark tests● PARCC test	<p>story</p> <ul style="list-style-type: none">● Home-School Connection <p>Classroom Math Materials</p> <ul style="list-style-type: none">● 2-color counters● Centimeter grid paper● 2-color square counters
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		<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 6: no new vocabulary

Topic 7: factors, factor pairs, multiple, generalize, prime number, composite number

NJ Student Learning Standards: Math

Topic 6

Operations and Algebraic Thinking

4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

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.

Number and Operations in Base Ten

4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Topic 7

Operations and Algebraic Thinking

4.OA.B.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

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

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



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- 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
- 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

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 (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. See Rtl in enVision 2.0.</p> <p>Modify classroom environment to support student needs.</p>



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		Differentiated instruction Basic Skills 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/g04.pdf>
New Jersey 21st Century Life and Careers 9.1 - <https://www.state.nj.us/education/cccs/2014/career/91.pdf>
New Jersey Science and Engineering Practices - <https://www.state.nj.us/education/aps/cccs/science/resources/QR35.pdf>
Pearson enVision 2.0 (2016) <https://www.pearsonrealize.com/index.html#/>