Englewood Public School District
Mathematics
Grade 4
First Marking Period

Unit – Place Value

Overview: During this unit, students will learn about place value of whole numbers, estimation and number theory, and whole number multiplication and division.

Time Frame: Chapter 1 – 11 days, Chapter 2 – 11 days, Chapter 3 - 20 days
(Pacing includes 1 day for Chapter Opener pages if needed.)

Enduring Understandings:
Read, compare, and order numbers according to the place value of their digits.
When two factors are multiplied, the product is a multiple of both numbers.
Knowing factors and multiples can help in estimating products and quantities.
Place value is used to multiply and divide multi-digit numbers.
Estimation can be used to check the reasonableness of the answer.

Essential Questions:
How can you use place value to help solve problems?
Why is it important to be able to estimate?
How does decomposing numbers into factors help make multiplication and division easier?

Standards	Topics and Objectives	Activities	Resources	Assessments
Chapter 1				
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 ÷ 70 = 10 by applying concepts of place value and division.*	**Topics** Understanding place value of whole numbers up to 100,000. Twenty-First Century Themes and Skills include: • Creativity and	Students will discuss how learning these math skills impact our everyday lives, including future careers. (9.2.4.A.4) 4.NBT.A.1 Thousands and Millions of Fourth Graders	**SE-4A:** 5-26 **Workbook 4A:** 1-14 **Common Core Focus Lesson Appendix** **Think Central**: Online access to all Math in Focus materials listed above and	**Unit 1 Benchmark Assessments:** • Common Formative Assessment • Exact Path **Formative Assessments:** • Do Now

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.OA.C.5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

Mathematical Practices
MP.1, MP.3, MP.5, MP.6, MP.7

Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

Objectives

Students will be able to:
- Write numbers to 100,000 in standard form, word form, and expanded form.
- Compare and order numbers to 100,000.
- Identify how much more or less one number is than another.
- Find the rule in a number pattern.
- Add multi-digit numbers without regrouping.
- Add multi-digit numbers with regrouping.
- Subtract multi-digit numbers without regrouping.
- Subtract multi-digit numbers with regrouping.

4.NBT.A.2 Ordering 4-digit numbers
4.OA.C.5 Double Plus One

Math Playground
http://www.mathplayground.com/

Math Coach – Fact Fluency
http://schoolwires.henry.k12.ga.us/Page/21865

Math Wire – Basic Facts Link
http://mathwire.com/numbersense/bfactslinks.html

Math Fact Practice
http://www.playkidsgames.com/games/mathfact/mathFact.htm

Critical Thinking and Problem Solving p.21-22: Put on Your Thinking Cap!

Everything you need to know about math journals:
https://thecornerstoneforteachers.com/math-journals/
(NJSLSA.R1, RI.4.7, NJSLSA.W2, SL.4.6, NJSLSA.L1)

Virtual Manipulatives

Professional Resources:
The Model Method from the Ministry of Education Singapore and Bar Modeling: A Bar Modeling Tool by Yeap Ban Har, PhD.

Lesson and Component Walkthrough:
www.hmhelearning.com

Technology Resources
- Math in Focus eBooks
- Math in Focus Teacher Resources CD

Arizona Flip Book – Gr 4
http://www.tusd1.org/resources/curriculum/math/4flipbookedited.pdf

North Carolina Dept of Ed. Wikispaces:
http://maccss.ncdpi.wikispaces.net/Elementary

Standards Solution Lessons:
- **PARCC Lesson 8-** Type I- Selected-Response-Multiple Answers
- **PARCC Lesson 15 –** Practice PARCC Type I Number and Operations Base Ten
- **PARCC Lesson 17 -**

- Exit Ticket
- Math Journal Entries (CRP4)
- Math notebook (NJSLSA.W2.)
- Calendar skills
- Observations
- Discussions: in groups, have students explain different ways of solving problems (CRP4)
- Multiple choice / short answer assessments

Summative Assessments:

Math in Focus Assessments

Chapter Review/Test – pp 25-26

Assessments 4 – pp.4-6

ExamView Assessment Suite – Test and Practice Generator

Alternative Assessments:
Learning centers: each learning center focuses on a different type of problem

Play cards for place value:
https://www.education.com/activity/article/Play_Place_Value_fourth/
(RI.4.7)

Children's books:
https://www.the-best-childrens-books.org/math-for-kids.html

More additional texts:
www.newsela.com
www.readworks.org
www.commonlit.org

Performance-Based Assessment Number and Operations Base Ten

- **CCSS Lesson Plan:** Base Ten Number Concepts
- **CCSS Prescriptive Lesson Plan:** Reading and Writing Multi-Digit Whole Numbers
- **CCSS Prescriptive Lesson Plan:** Number Patterns

4th grade worksheets:
https://www.k5learning.com/free-math-worksheets/fourth-grade-4
(CRP2, CRP4, CRP8)

4th grade worksheets, games, lessons, activities, online exercises:
https://www.education.com/resources/fourth-grade/
(CRP2, CRP4, CRP8)

4th grade videos, games interactive, assessments, lessons, homework and audio (select from drop down menu):
https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment
(CRP2, CRP4, CRP8)

Chapter 2

| 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 ÷ 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. | **Topics**

Finding factors and multiples of numbers and using them to estimate products and quotients.

Twenty-First Century Themes and Skills include:
• Creativity and Innovation
• Critical Thinking and Problem Solving
• Communication and Collaboration

Objectives

Students will be able to:
• Round numbers to | 4.NBT.A.3 Rounding on the Number Line
4.OA.A.3, 4.MD.A.3 Karl's Garden
4.OA.A.3 Carnival Tickets

Math Playground
http://www.mathplayground.com/

Math Coach – Fact Fluency
http://schoolwires.henry.k12.ga.us/Page/21865

Math Wire – Basic Facts Link
http://mathwire.com/numbersense/bfactslinks.ht | **SE-4A:** 32-68
Workbook 4A: 15-34

Common Core Focus Lesson Appendix

Think Central: Online access to all Math in Focus materials listed above and Virtual Manipulatives

Professional Resources:
The Model Method from the Ministry of Education Singapore and Bar Modeling: A Bar Modeling Tool by Yeap Ban Har, PhD.

Lesson and Component Walkthrough: | **Formative Assessments:**
• Do Now
• Exit Ticket
• Math Journal Entries (CRP4)
• Math notebook (NJSLSA.W2.)
• Calendar skills
• Observations
• Discussions: in groups, have students explain different ways of solving problems (CRP4)
• Multiple choice / short answer assessments

Summative Assessments: |

4.NBT.A. 3. Use place value understanding to round multi-digit whole numbers to any place.

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

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.

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

estimate sums, differences, products, and quotients.
- Estimate to check that an answer is reasonable.
- Decide whether an estimate or an exact answer is needed.
- Find multiples of whole numbers.
- Find common multiples and the least common multiple of two or more numbers.

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Math Fact Practice
http://www.playkidsgames.com/games/mathfact/mathFact.htm

Critical Thinking and Problem Solving p.62-63: Put on Your Thinking Cap!

Everything you need to know about math journals:
https://thecornerstoneforteachers.com/math-journals/
(NJSLSA.R1, RI.4.7, NJSLSA.W2, NJSLSA.L1)

Factors over the rainbow (full lesson):
https://www.education.com/lesson-plan/factors-over-the-rainbow/
(9.2.4.A.2)

Children's books:
https://www.the-best-childrens-books.org/math-for-kids.html

More additional texts:
www.newsela.com
www.readworks.org
www.commonlit.org

www.hmhelearning.com

Technology Resources
- Math in Focus eBooks
- Math in Focus Teacher Resources CD

Arizona Flip Book – Gr 4
http://www.tusd1.org/resources/curriculum/math/4flipbookedited.pdf

North Carolina Dept of Ed. Wikispaces:
http://maccss.ncdpi.wikispaces.net/Elementary

Standards Solution Lessons:
- **PARCC Lesson 6-** Type I- Constructed Response
- **CCSS Prescriptive Lesson Plan:** Rounding
- **CCSS Prescriptive Lesson Plan:** Solving Multi-step Problems
- **CCSS Prescriptive Lesson Plan:** Factoring

4th grade worksheets:
https://www.k5learning.com/free-math-worksheets/fourth-grade-4
(CRP2, CRP4, CRP8)

4th grade worksheets, games, lessons, activities,

Math in Focus Assessments

Chapter Review/Test – pp 67-68

Assessments 4 – pp.10-13

ExamView Assessment Suite – Test and Practice Generator

Alternative Assessments: Learning centers: each learning center focuses on a different type of problem

whole number in the range 1–100 is prime or composite.

Mathematical Practices
MP.1, MP.2, MP.3, MP.4, MP.6

online exercises:
https://www.education.com/resources/fourth-grade/
(CRP2, CRP4, CRP8)

4ᵗʰ grade videos, games interactive, assessments, lessons, homework and audio (select from drop down menu):
https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment
(CRP2, CRP4, CRP8)

4ᵗʰ grade Common Core worksheets:
https://www.ixl.com/math/grade-4
(CRP2, CRP4, CRP8)

Khan Academy – videos, lessons, assessments
www.khanacademy.org

Chapter 3				
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,*	**Topics** Using place value to multiply and divide multi-digit numbers.	Students will discuss how learning these math skills impact our everyday lives, including future careers. (9.2.4.A.4)	**SE-4A:** 77-119 **Workbook 4A:** 41-66 **Common Core Focus Lesson Appendix**	**Formative Assessments:** • Do Now • Exit Ticket • Math Journal Entries (CRP4) • Math notebook

recognize that 700 ÷ 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.**

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

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.**

Twenty-First Century Themes and Skills include:
- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

Objectives

Students will be able to:
- Multiply multi-digit numbers by a 1-digit number using an array model
- Use different methods to multiply up to 4-digit numbers by 1-digit numbers, with or without regrouping.
- Multiply two 2-digit numbers using an area model
- Multiply by 2-digit numbers, with or without regrouping.
- Estimate products.
- Model regrouping in division.
- Divide a 3-digit number by a 1-digit number with regrouping.
- Divide up to a 4-digit number by a 1-digit number with regrouping, and with or without remainders.

4.NBT.B.6 mental Division Strategy
4.NBT.B To regroup or not to regroup

Math Playground
http://www.mathplayground.com/

Math Coach – Fact Fluency
http://schoolwires.henry.k12.ga.us/Page/21865
Math Wire – Basic Facts Link
http://mathwire.com/numbersense/bfactslinks.html
Math Fact Practice
http://www.playkidsgames.com/games/mathfact/mathFact.htm

Critical Thinking and Problem Solving p.116: Put on Your Thinking Cap!

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Arizona Flip Book – Gr 4
http://www.tusd1.org/resources/curriculum/math/4flipbookedited.pdf

North Carolina Dept of Ed. Wikispaces:
http://maccss.ncdpi.wikispaces.net/Elementary

Standards Solution Lessons:
- **PARCC Lesson 13** - Performance-Based Assessment – Introduction-Justification-Modeling

(NJSLSA.W2.)
- Calendar skills
- Observations
- Discussions: in groups, have students explain different ways of solving problems (CRP4)
- Multiple choice / short answer assessments

Summative Assessments:

Math in Focus Assessments

Chapter Review/Test – pp 118-119

Assessments 4 – pp.17-19

ExamView Assessment Suite – Test and Practice Generator

Alternative Assessments:
Learning centers: each learning center focuses on a different type of problem

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.

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. (see Table 2)

4.OA.A.3. Solve multistep

- Estimate quotients.
- Solve real-world problems.
- Solve multi-step word problems using the four operations.
- Represent the problems with a letter standing for the unknown quantity.

Factors, multiples and patterns:
https://www.khanacademy.org/math/cc-fourth-grade-math/cc-4th-fact-mult-topic

Children's books:
https://www.the-best-childrens-books.org/math-for-kids.html

More additional texts:
www.newsela.com
www.readworks.org
www.commonlit.org

- **PARCC Lesson 14 –** Practice PARCC Type I Number and Operations Base Ten
- **PARCC Lesson 16 –** Performance-Based Assessment –Operations and Algebraic Thinking
- **CCSS Lesson Plan:** Discovering the Standard Algorithm for Addition
- **CCSS Lesson Plan:** Subtracting Multi—digit Whole Numbers
- **CCSS Lesson Plan:** Multiplying Multi-digit Numbers
- **CCSS Lesson Plan:** Division with Remainders
- **CCSS Lesson Plan:** Division with Whole Number Quotients
- **CCSS Lesson Plan:** Representing Multiplicative Comparison
- **CCSS Prescriptive Lesson Plan:** Dividing Up to 4 Digit Numbers
- **CCSS Prescriptive Lesson Plan:** Choosing the Right Operation

4th grade worksheets:
https://www.k5learning.com/free-math-worksheets/fourth-

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.

Mathematical Practices
MP.1, MP.2, MP.3, MP.4, MP.5, MP.6, MP.7, MP.8

grade-4
(CRP2, CRP4, CRP8)

4th grade worksheets, games, lessons, activities, online exercises:
https://www.education.com/resources/fourth-grade/
(CRP2, CRP4, CRP8)

4th grade videos, games interactive, assessments, lessons, homework and audio (select from drop down menu):
https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment
(CRP2, CRP4, CRP8, 9.2.4.A.4)

4th grade Common Core worksheets:
https://www.ixl.com/math/grade-4
(CRP2, CRP4, CRP8)

Khan Academy – videos, lessons, assessments
www.khanacademy.org

Key Vocabulary:
Chapter 1:
digit, place value, compare, number pattern, place-value chart, ten-thousand, hundred-thousand, standard form, word form, expanded form, greater than (>), less than (<), more than, greatest, least, order

Chapter 2:
Estimate, reasonable, front-end estimation, rounding, product, quotient, factor, common factor, greatest common factor, prime number, composite number, whole number, multiple, common multiple, least common multiple, consecutive whole numbers

Chapter 3:
round, estimate, product, regroup, quotient, remainder

NJ Learning Standards Vocabulary:
4.NBT.A.1, 2 & 3
Generalize place value understanding for multi-digit whole numbers.
place value, greater than, less than, equal to, ‹, ›, =, comparisons/compare, round

4.NBT.B.4, 5 & 6
Use place Value understanding and properties of operations to perform multi-digit arithmetic.
add, addend, sum, subtract, difference, equation, strategies, (properties)-rules about how numbers work, rectangular arrays, area model, multiply, divide, factor, product, quotient, reasonableness

4.OA.A.1, 2 & 3
Use the four operations with whole numbers to solve problems.
multiplication/multiply, division/divide, dividend, divisor, addition/add, subtraction/subtract, equations, unknown, remainders, reasonableness, mental computation, estimation, rounding

4.OA.B.4
Gain familiarity with factors and multiples.
multiplication/multiply, division/divide, factor pairs, factor, multiple, prime, composite

4.OA.C.5
Generate and analyze patterns.
pattern (number or shape), pattern rule

Accommodations and Modifications:

Students with special needs: Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

ELL/ESL students: Students will be supported according to the recommendations for "can do's" as outlined by WIDA -

https://www.wida.us/standards/CAN_DOs/

Students at risk of school failure: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Gifted and Talented Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.**

English Language Learners:	Special Education:	At-Risk:	Gifted and Talented:
- Simplify language used in directions (verbal and in writing) - Provide a vocabulary list with definitions in both languages - Teaching modeling - Peer modeling - Word walls - Give directions in small steps and in as few words as possible - Provide visual aids - Group similar problems together - Repeat directions when necessary	- Shorten assignments to focus on mastery or key concepts - Utilize modifications & accommodations delineated in the students' IEP - Work with paraprofessional - Work with a partner - Maintain adequate space between desks - Keep workspaces clear of unrelated materials - Provide fewer problems to attain passing grades - Tape a number line to the student's desk - Create a math journal that they can use during class, on assignments and (if teacher allows) on assessments - Provide extra time to complete a task when needed - Provide definitions of different graphs / charts	- Allow students to complete an independent project as an alternative test Use visual demonstrations, illustrations and models - Give directions / instructions verbally and in simple written format - Peer support - Increased one – on – one time - Teachers may modify instructions by modeling what the student is expected to do - Instructions may be printed out in large print and hung up for the students to see during the time of the lesson - Review behavior expectations and make adjustments - Create a math journal that they can use during class, on assignments and (if teacher allows) on	- Allow students to complete an independent project as an alternative test Inquiry based instruction - Independent study - Higher order thinking skills - Adjusting the pace of the lessons - Real world scenarios - Student driven instruction

	with illustrations • Allow tests to be taken in a separate room • Allow students to use a calculator when appropriate • Divide test into small sections of similar questions or problems	assessments	

Interdisciplinary Connections: ELA

NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from 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*
RI.4.5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text
RI.4.7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears
NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content
NJSLSA.L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking
SL.4.3. Identify the reasons and evidence a speaker provides to support particular points.
SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Integration of Technology Standards NJSLS:

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

21st Century Standards:
9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Career Ready Practices:

CRP2: Apply appropriate academic and technical skills
CRP4: Communicate clearly and effectively and with reason
CRP6: Demonstrate creativity and innovation

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

Major Supporting Additional (Identified by PARCC Model Content Frameworks)