4 Math Unit 02: Generalize Place-Value Structure

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 1**
Length: **8 days**
Status: **Published**

Unit Overview

Place Value Understanding of Multi-Digit Whole Numbers

In this unit, students extend their understanding of the base-ten place-value structure to multi-digit numbers within one million. They analyze the relationship between the value of digits in consecutive positions in 3-digit numbers and then look to generalize that relationship to 4- and 5-digit numbers. They notice that just as 100 is 10 times 10, and 1,000 is 10 times 100, a digit in any place in a number has 10 times the value of the same digit in the place to the right. Students explore the three-position periods that define our base-ten number system and explain the names of different positions within one million and the values of digits in them.

Students extend their understanding of place value and number sense concepts learned in previous grades. These include:

- **Represent numbers in different forms:** Students read and write up to 6-digit numbers in standard, expanded, and word forms.
- **Compare multi-digit numbers:** Students compare up to two 6-digit numbers.
- **Round multi-digit numbers:** Students round multi-digit numbers to an appropriate place based on the purpose of the estimated value.

What Students Are Learning

- Students generalize the base-ten place-value structure, and explain that a digit in one place represents ten times the value of the digit in the place to its right.
- Students represent multi-digit whole numbers using forms such as standard, expanded, and word forms.
- Students compare two multi-digit numbers using place value and round multi-digit numbers to an appropriate place for the given estimation need.

Number Routines

- Would You Rather?
- Which Doesn't Belong?
- Notice & Wonder

Standards

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.
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.

Materials

Core Materials:

Reveal Math

2.1 Understanding the Structure of Multi-Digit Numbers

2.2 Read and Write Numbers to One Million

2.3 Compare Multi-Digit Numbers

2.4 Round Multi-Digit Numbers

Supplemental Materials:

- ST Math
- Happy Numbers
- 3 Act Lessons
- Building Fact Fluency Kit
- Brainingcamp Manipulatives
- Nearpod Lessons
- Brainpop Resources
- Online Resources

Technology

DA	Data & Analysis
	Data can be organized, displayed, and presented to highlight relationships.
8.1.5.DA.1	Collect, organize, and display data in order to highlight relationships or support a claim.
	Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data.
8.1.5.DA.3	Organize and present collected data visually to communicate insights gained from different views of the data.
8.1.5.DA.4	Organize and present climate change data visually to highlight relationships or support a claim.
8.2.5.ED.2	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
8.2.5.ED.3	Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task.

Assessment

Formative Assessment

- Unit Readiness Diagnostics
- Lesson Checks
- Exit Tickets
- Teacher Observation

Summative Assessment

- Unit Assessment Performance Task
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects

Accommodations & Modifications

Special Education

<table>
<tr><th colspan="4">Differentiated Instruction</th></tr>
<tr><td colspan="4">Accommodate Based on Students Individual Needs: Strategies</td></tr>
<tr>
<td>Time/General
Extra time for assigned tasks
Adjust length of assignment
Timeline with due dates for reports and projects
Communication system between home and school
Provide lecture notes/outline</td>
<td>Processing
Extra response time
Have students verbalize steps
Repeat, clarify, or reword directions
Mini-breaks between tasks
Provide a warning for transitions
Reading partners</td>
<td>Comprehension
Precise step-by-step directions
Short manageable tasks
Brief and concrete directions
Provide immediate feedback
Small group instruction
Emphasize multi-sensory learning</td>
<td>Recall
Teacher-made checklist
Use visual graphic organizers
Reference resources to promote independence
Visual and verbal reminders
Graphic organizers</td>
</tr>
<tr>
<td>Assistive Technology
Computer/whiteboard
Tape recorder
Spell-checker</td>
<td>Tests/Quizzes/Grading
Extended time
Study guides
Focused/chunked</td>
<td>Behavior/Attention
Consistent daily structured routine</td>
<td>Organization
Individual daily planner
Display a</td>
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• Audio-taped books	tests • Read directions aloud	• Simple and clear classroom rules • Frequent feedback	written agenda • Note-taking assistance • Color code materials

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System

- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

RI.CI.4.2	Summarize an informational text and interpret the author's purpose or main idea citing key details from the text.
ETS1.B	Developing Possible Solutions
	Testing a solution involves investigating how well it performs under a range of likely conditions.

Career Readiness, Life Literacies & Key Skills

9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
9.2.5.CAP.4	Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
9.4.5.CT	Critical Thinking and Problem-solving
	The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.
9.4.5.CT.1	Identify and gather relevant data that will aid in the problem-solving process (e.g., 2.1.5.EH.4, 4-ESS3-1, 6.3.5.CivicsPD.2).
9.4.5.CT.3	Describe how digital tools and technology may be used to solve problems.
9.4.5.CT.4	Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global (e.g., 6.1.5.CivicsCM.3).
9.1.5.FI	Financial Institutions
	People can choose to save money in many places such as home in a piggy bank, bank, or credit union.
9.1.5.FI.1	Identify various types of financial institutions and the services they offer including banks, credit unions, and credit card companies.

Career Ready Practices

STEM CAREER: Park Ranger Student talks about the work of park rangers. Student explains the place value of a 4-

digit number.

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.