

03. Place Value

Content Area: **Math**
Course(s):
Time Period: **Full Year**
Length: **4 weeks**
Status: **Published**

General Overview, Course Description or Course Philosophy

In this unit, students will focus on the following place value skills and concepts:

- building 3-digit numbers
- expanded form
- comparing 3-digit numbers
- making exchanges
- using base-10 blocks to add and subtract

OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS

Enduring Understandings:

- Number sense develops through experience.
- Patterns provide insights into potential relationships.
- Place value relationships can help simplify mathematical operations and equations.
- The location of digits in a number determines the value of the number.
- To compare two numbers, one must compare the digits in each place, starting with the largest place.
- Understanding place value can lead to number sense and efficient strategies for computing with numbers.
- Place value is used to compare numbers.

Essential Questions:

- Why is place value important?
- How do I use place value to enhance my addition and subtraction skills and build my number sense?
- How does a digit's position affect its value?
- How can you use patterns on a hundreds chart to add or subtract two-digit numbers?
- In what ways can items be grouped to make exchanges for unit(s) of higher value?
- How do you compare numbers?

CONTENT AREA STANDARDS

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|---------------|---|
| | tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: |
| MA.2.NBT.A.3 | Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. |
| MA.2.NBT.A.4 | Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons. |
| MA.2.NBT.A.1a | 100 can be thought of as a bundle of ten tens — called a “hundred.” |
| MA.2.NBT.A.1b | The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones). |
| MA.2.NBT.B.5 | Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. |
| MA.2.NBT.B.8 | Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900. |
| MA.K-12.6 | Attend to precision. |
| MA.K-12.7 | Look for and make use of structure. |
| MA.K-12.8 | Look for and express regularity in repeated reasoning. |

RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)

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| LA.W.2.5 | With guidance and support from adults and peers, focus on a topic and strengthen writing as needed through self-reflection, revising and editing. |
| LA.SL.2.1 | Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. |
| PFL.9.1.2. FI.1 | Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards). |
| TECH.9.4.2.CI.1 | Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). |

STUDENT LEARNING TARGETS

- I can use objects or pictures to model the number 100
- I can explain the value of 100
- I can use objects or pictures to model or represent the numbers 100, 200, 300, 400, 500, 600, 700, 800, and 900
- I can explain the value of 100, 200, 300, 400, 500, 600, 700, 800, and 900
- I can write numbers to 1000 using:
 - Base-ten numerals (e.g., 4 hundreds, 5 tens, 6 ones is written in standard form as 456)
 - Number names (e.g., 456 is written as four hundred fifty six)
 - Expanded form (e.g., 456 is written in expanded notation as $400 + 50 + 6$)
- I can read numbers to 1000 using:
 - Base-ten numerals (e.g., 4 hundreds, 5 tens, 6 ones is stated in standard form as 456)
 - Number names (e.g., 456 is stated as four hundred fifty six)
 - Expanded form (e.g., 456 is stated in expanded notation as $400 + 50 + 6$)
- I can identify the value of each digit in a three-digit number

- I can represent three-digit numbers using models, number lines, base-ten blocks, etc.
- I can compare the size of two three-digit numbers
- I can explain comparisons using place value (the meaning of the hundreds, tens, and ones digits)
- I can explain what the symbols $>$, $<$, and $=$ mean
- I can use $>$, $<$, and $=$ symbols to record the results of comparisons between three digit numbers
- I can identify the value of each digit in a two or three-digit number
- I can use mental strategies (e.g., number patterns, counting on, mental images of blocks, number lines, etc.) to add 10 or 100 to a given number
- I can explain how to mentally find 10 or 100 more than a given number without counting to quickly solve a problem
- I can identify the value of each digit in a two or three-digit number
- I can use mental strategies (e.g., number patterns, counting back, mental images of blocks, number lines, etc.) to subtract 10 or 100 from a given number
- I can explain how to mentally find 10 or 100 less than a given number without counting to quickly solve a problem
- I can illustrate addition within 100 using pictures or other visual representation
- I can describe how to combine two 2-digit numbers using strategies based on:
 - Place value
 - Properties of operations
 - The relationship between addition and subtraction
 - Decomposing and composing numbers
- I can add numbers fluently with:
 - Accuracy (correct answer)
 - Efficiency (a reasonable number of steps and amount of time)
 - Flexibility (using various strategies)
- I can illustrate subtraction within 100 using pictures or other visual representation
- I can describe how to subtract two 2-digit numbers using strategies based on:
 - Place value
 - Properties of operations
 - The relationship between addition and subtraction
 - Decomposing and composing numbers
- I can subtract numbers fluently with:
 - Accuracy (correct answer)
 - Efficiency (a reasonable number of steps and amount of time)
 - Flexibility (using various strategies)

Declarative Knowledge

Students will understand that:

- 100 can be thought of as a bundle of ten tens, called a "hundred."
- three digits of a three-digit number represent amounts of hundreds, tens, and ones.
- 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, nine hundred (0 ones).
- place value is used to compare 3-digit numbers

- there are many ways to represent numbers up to 1000
- the $<$, $>$, $=$ are used to record comparisons of 3-digit numbers

Procedural Knowledge

Students will be able to:

- Write numbers to 1000 using base-ten numerals number names, and expanded form.
- Read numbers to 1000 using base-ten numerals, number names, and expanded form.
- Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits.
- Write a $>$, $=$, and $<$ symbol to record the results of comparisons between three-digit numbers.
- Add fluently within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- Subtract fluently within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

RESOURCES (Instructional, Supplemental, Intervention Materials)

Lessons:

- 4-4
- 2-1
- 1-3
- 4-5
- [\(Independent\) Problem Solving Task 4a](#)
- 4-6
- 4-7

Calendar Math: money skills, reinforcement of fact fluency

Supplemental Resources:

- [Memory Base 10](#)
- Illustrative Math- Digits 2-5-7 <https://tasks.illustrativemathematics.org/content-standards/2/NBT/A/4/tasks/396>
- Illustrative Math- Using Pictures to Explain Number Comparisons <https://tasks.illustrativemathematics.org/content-standards/2/NBT/A/4/tasks/1237>
- Illustrative Math- Looking at Numbers Every Which Way <https://tasks.illustrativemathematics.org/content-standards/2/NBT/A/3/tasks/1236>
- Illustrative Math- Bundling and Unbundling: <https://tasks.illustrativemathematics.org/content-standards/2/NBT/A/1/tasks/144>
- Illustrative Math- Counting Stamps: <https://tasks.illustrativemathematics.org/content-standards/2/NBT/A/1/tasks/574>

EVIDENCE OF LEARNING

Refer to the 'Formative, Summative, and Benchmark Assessments' sections.

Formative Assessments

- Journal Pages
- Self-Assessments/Student Friendly Scales
- White board responses
- Exit/Entrance Tickets
- Math Talks
- Open Response

Summative Assessments

- End of Unit Assessment
- Fact Fluency Assessments
- End of Unit Self Assessment

Benchmark Assessments

- EDM BOY Assessment
- IXL Screener / Diagnostic Snapshot BOY
- IXL Diagnostic Snapshot MOY
- IXL Diagnostic Snapshot EOY

INTERDISCIPLINARY CONNECTIONS

Money and place value (dimes and pennies)- Lesson 1-3 & 2-1

Writing- Lesson 4-7

- Career Readiness: Utilize Critical Thinking to Make Sense of Problems and Persevere in Solving Them

- Technology/Multimedia: Educational Tech Application
- Financial/Economic/Business/Entrepreneurial Literacy
- Science & Health: Social Emotional Learning
- English/Language Arts: Information Writing
- Social Studies: Current Events

LA.W.2.5

With guidance and support from adults and peers, focus on a topic and strengthen writing as needed through self-reflection, revising and editing.

PFL.9.1.2. FI.1

Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards).

ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS

- simplify written directions
- visuals
- manipulatives
- graphic organizers
- sentence starters
- wait time
- additional time for tasks
- verbal responses
- illustrations
- colored number grids

See link to Accommodations & Modifications document in course folder.