# Place Value and addition and subtraction of whole numbers and decimals

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

## Unit Overview

The goal of this unit is to deepen a student's understanding of decimals and place values to the thousandths, understand the value of multi digit numbers, be able to add and subtract whole numbers and decimals.

## Enduring Understandings

There are many ways to solve a problem.
With decimals, each place value to the left of another is ten times greater than the one to the right.
Decimal place value is an extension of whole number place value.

The base-ten numeration system extends infinitely to very large and very small numbers.

Any number, measure, numerical expression, or equation can be represented in a variety of ways that can have the same value.

Numbers can represent quantity, position, location, and relationships, and symbols may be used to express these relationships.

## Essential Questions

How can an understanding of patterns, models and relationships lead to an understanding of equations?
How can this patterns be understood to write an equation?
How do you read, write, and compare decimals?
What are different ways decimals be modeled and compared?
How do you round decimals?
How can you describe the relationship between any two place-value positions? Decimal place values?
How can you use base-ten blocks/area models to model decimal addition/subtraction?
How does understanding the structure of the number system help you solve problems?

## Learning Objectives

Explain place value, and how tens place is 10x more than the ones place. Students will also explain how the ones place is one tenth that tens place.

Identify and explain benchmarks for rounding numbers,

Identify and explain what a mathematical expression is.
The standard algorithm for adding and subtracting decimals.

Identify and analyze patterns, models, and relationships to deepen their understanding of how equations represent real-world and mathematical situations.
Translate patterns and relationships into algebraic equations using appropriate mathematical symbols and structure.
Read, write, and compare decimal numbers using place value understanding and number sense.
Students will model and compare decimals using visual tools such as number lines, area models, and base-ten blocks.
Students will round decimals to a specified place value to estimate and solve problems effectively.
Explain how each place-value position relates to another, including the impact of moving left or right in both whole numbers and decimals.
Use models, such as base-ten blocks and area models, to represent and solve decimal addition and subtraction problems.

## Standards: Content

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| 5.OA | Operations and Algebraic Thinking |
| 5.OA.A | Write and interpret numerical expressions |
| 5.OA.A.1 | Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. |
| 5.OA.A.2 | Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. |
| 5.NBT | Number and Operations in Base Ten |
| 5.NBT.A | Understand the place value system |
| 5.NBT.A.1 | Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. |
| 5.NBT.A.3 | Read, write, and compare decimals to thousandths. |
| 5.NBT.A.3.a | Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000). |
| 5.NBT.A.3.b | Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. |
| 5.NBT.B | Perform operations with multi-digit whole numbers & with decimals to hundredths |
| 5.NBT.B.5 | With accuracy and efficiency, multiply multi-digit whole numbers using the standard algorithm. |
| 5.NBT.B.7 | Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. |
| 5.DL.A | Understand and analyze data visualizations |
| | Analysis of data and visualizations at this grade excludes ratio, rate, proportion and |

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| | percentages. These concepts are introduced in Grade 6 |
| 5.DL.A.1 | Understand how different visualizations can highlight different aspects of data. Ask questions and interpret data visualizations to describe and analyze patterns. |
| 5.DL.A.2 | Develop strategies to collect, organize and represent data of various types and from various sources. Communicate results digitally through a data visual (e.g., chart, storyboard, video presentation). |
| 5.DL.A.3 | Collect and clean data to be analyzable (e.g., make sure each entry is formatted correctly, deal with missing or incomplete data). |
| 5.DL.A.4 | Using appropriate visualizations (i.e., double line plot, double bar graph), analyze data across samples. |

## Standards: Interdisciplinary

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| 9.4.2.CT.1 | Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). |
| 9.4.2.CT.3 | Use a variety of types of thinking to solve problems (e.g., inductive, deductive). |
| 9.2.5.CAP.6 | Compare the characteristics of a successful entrepreneur with the traits of successful employees. |
| 9.2.5.CAP.7 | Identify factors to consider before starting a business. |
| 9.1.2.PB.1 | Determine various ways to save and places in the local community that help people save and accumulate money over time. |
| 9.1.2.PB.2 | Explain why an individual would choose to save money. |
| 8.1.5.DA.1 | Collect, organize, and display data in order to highlight relationships or support a claim. |
| 8.1.5.DA.5 | Propose cause and effect relationships, predict outcomes, or communicate ideas using data. |
| 9.4.2.IML.2 | Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). |
| 9.4.2.IML.3 | Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). |
| 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. |
| 8.2.5.ED.5 | Describe how specifications and limitations impact the engineering design process. |

## Assessment Evidence

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| Formative | Collaborative Activities, Homework, Daily Classwork, Discussion, Independent Class Assignment, Informal Observations of Students, Games, Exit Slips, Questioning, Teacher Made Pages, Learning Centers, Problem of the Day, Reveal Workbooks, Fluency Checks, Curious, Activity Based Exploration, Guided Exploration, On My Own. |
| Summative | Tests, Mid-Chapter Checkpoint assessments, teacher generated assessments |
| Alternative & Benchmark | Alternative – Reteaching, One on One Conferencing, Learning Centers, student portfolio of assignments, Homework, Higher Order Thinking Problems, Additional leveled practice, orally administered assessments. |

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| | Benchmark - LinkIt Benchmark Assessments, Totowa TPA |
| Assessment Evidence Resource | |

## Instructional Resources

Smartboard, Computers, websites and digital interactives/models, Multi-media presentations, video streaming, Brain Pop, Microsoft 365, Primary and Secondary Source Documents, Reveal Math Resources, manipulatives, post-it notes, markers, number lines, chart & graph paper, construction paper, glue, scissors, paperclips, crayons, envelopes, dot ink & cards, geo blocks, number cubes/dice.

Instructional Resource List

## Curricular Mandates

*Below are the curricular requirements as defined in NJ Administrative Code and Statute*

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| | Amistad | | Diversity, Equity, and Inclusion |
| | Holocaust | | LGBT and Disabilities (Grades 6-12) |
| | Climate Change | | Asian American & Pacific Islander |

## Social Emotional Learning (SEL) Competencies

*NJ Social and Emotional Learning Competencies & Sub-Competencies*

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| | Self-Awareness | X | Relationship Skills |
| X | Responsible Decision-Making | | Social Awareness |
| | Self-Management | | |

## 21st Century Skills & Themes

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| | Global and Cultural Awareness | X | Technology Literacy | | Planning and Budgeting |
| X | Creativity and Innovation | | Financial Institutions | | Risk Management and Insurance |
| | Information and Media Literacy | | Digital Citizenship | | Economic and Government Influences |
| X | Critical Thinking and Problem Solving | | Credit Profile | | Career Awareness and Planning |
| | Civic Financial Responsibility | | Financial Psychology | | |