Gr 5 Unit 4 Decimal Concepts and Coordinate Grids

Content Area: **Math**
Course(s):
Time Period: **Trimester 2**
Length: **4 Weeks**
Status: **Published**

Course Pacing Guide

In this unit, students extend their understanding of the base-10 place value system to include decimals. They read, write and represent decimals though thousandths in a variety of ways and learn strategies to compare, order and round decimals. Students are also introduced to the first quadrant of the coordinate grid. Finally, they apply whole number algorithms to add and subtract decimals.

Unit	MP/Trimester	Weeks
Unit 1 Area and Volume	1	3
Unit 2 Whole Number Place Value and Operations	1	4
Unit 3 Fraction Concepts Addition and Subtraction	1	4
Unit 4 Decimal Concepts and Coordinate Grids	**2**	**4**
Unit 5 Operations with Fractions	2	4
Unit 6 Investigations in Measurement;Decimal multiplication and Division	2	4
Unit 7 Multiplication of Mixed Numbers;Geometry;Graphs	3	4
Unit 8 Applications of Measurement, Computation, and Graphing	3	4

4.1

Extend place value patterns to decimals and practice reading and writing decimals to the thousandths.
4.2
Represent decimals to the thousandths place using base 10 numerals, number names, fractions, and thousandths grids.
4.3 Introduction to expanded form of decimals.
4.4
Use place value strategies to compare decimals to the thousandths.
4.5
Use number lines and place value understanding to round decimals to a given place. 4.6
Introduce coordinate grids and use ordered pairs to plot and identify points.
4.7
Play Hidden Treasure to practice plotting points on a coordinate grid.
4.8
Represent mathematical problems on a coordinate grid by plotting points to form pictures and applying rules to ordered pairs.

4.9
Form ordered pairs, graph them, and interpret coordinate values in context.

4.10
Develop and apply a rule to enlarge a picture on a coordinate grid. Discuss rules and pictures to revise work.
4.11

Shade grids to represent and sole decimal addition and subtraction problems.

4.12
Review whole number addition algorithms and use them to add decimals.

4.13
Review whole number subtraction algorithms and use them to subtract decimals.
4.14
Apply decimal addition and subtraction strategies to add and subtract money.

Unit Overview

Theme:

Decimal Concepts and Coordinate Grids

Conceptual Lens:

Refer to page 318 in teacher manual for mathematical content and topics.

Students will know:

Read and write decimals in words, numbers and expanded form.

Compare decimals.

Round decimals.

Plot points on a coordinate grid.

Use a coordinate grid to answer questions and solve problems.

Shad grids to add and subtract decimals.

Use algorithms to add and subtract decimals.

Enduring Understandings

I can use models to understand decimals.

I can read a decimal number from left to right; the number to the right of the decimal is the whole number.

I can use place value to write decimals in expanded form.

I can compare decimals by looking at each value from left to right.

I can round decimals the same way I round whole numbers.

I can use place value to add or subtract decimals.
Points, lines and planes are the foundation of geometry. Ordered pairs show an exact location on an ordered plane.

Essential Questions

Essential Questions:

How can I write quotients as equations?

How can I read and write decimals?

How do I compare decimals?

How do I round decimals?

What are different ways to display data?

How can data be used to answer questions?

Why is it important to organize data?

How are coordinates used to find a point a point on a plane?

Guiding Questions:

What does the denominator represent in a fraction?

What does the numerator represent in a fraction?

How can addition/subtraction of fractions be represented by objects, pictures, words and numbers?

What are real world situations when fractions are used to represent numbers?

What are real world situations when decimals are used to represent numbers?

How can and decimals be written in equivalent forms?

What kinds of models can be used to represent and decimals?

What are different ways to display data?

How can data be used to answer questions?
Why is it important to organize data?
How are coordinates used to find a point a point on a plane? How do you remember the rules for plotting an ordered pair?

New Jersey Student Learning Standards (No CCS)

MA.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.
MA.5.NBT.A.3	Read, write, and compare decimals to thousandths.
MA.5.NBT.A.3a	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).
MA.5.NBT.A.3b	Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
MA.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.
MA.5.G.A.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

Amistad Integration

Amistad Integration Document

The Girl With a Mind for Math: The Story of Raye Montague by Julia Finley Mosca

SOC.5-8.1.3.1	Compare and contrast differing interpretations of current and historical events.
SOC.5-8.1.3.2	Assess the credibility of sources by identifying bias and prejudice in documents, media, and computer-generated information.

Holocaust/Genocide Education

- Teach district mandated diversity lessons
- Incorporate Responsive Classroom Program into classroom community

SOC.5-8.1.1.1	Construct timelines of the events occurring during major eras including comparative events in world history for the different civilizations.
SOC.5-8.1.1.2	Explain how major events are related to one another in time.

Interdisciplinary Connections

Lesson 4.4 – Physical Education

Exploring Batting Averages MM 129 TM 351 Students utilize current batting averages of local sports teams to extend knowledge of fractions.

4.7 – Social Studies

Using Latitude and Longitude TM 371 and Activity Card 49 Using a sampling of world maps, students deepen understanding of coordinate pairs by using latitude and longitude. Activity Card 49.

4.10- Art
Folder Art Activity. TM 388- 396
Folder Art – Open response activity provides the students will the tools to enlarge a drawing to scale using coordinate grids.

Technology Standards

Digital Resources:

https://www.mathplayground.com/grade_5_games.html

https://www.khanacademy.org/math/cc-fifth-grade-math/5th-volume

http://newtech.coe.uh.edu/

TECH.8.1.5.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.

TECH.8.1.5.A.4	Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data.
TECH.8.1.5.B.CS1	Apply existing knowledge to generate new ideas, products, or processes.
TECH.8.1.5.C.CS4	Contribute to project teams to produce original works or solve problems
TECH.8.1.5.F.CS1	Identify and define authentic problems and significant questions for investigation.

21st Century Themes/Careers

Through the integration and interdisciplinary connections in each unit, students will develop the understanding that math relates to the individual and global society.

Activity cards and enrichment activities provide a variety of options for developing computational strategies.

The following site provides access to real life collaborative math projects.

http://mathwire.com/problemsolving/probs58.html

CAEP.9.2.8.B.1	Research careers within the 16 Career Clusters ® and determine attributes of career success.
CAEP.9.2.8.B.4	Evaluate how traditional and nontraditional careers have evolved regionally, nationally, and globally.

Financial Literacy Integration

Making a Difference

Essential Question: How can sharing with others improve our community and the lives of people throughout the world?

Objective: Create colorful, persuasive posters that entice others to support a charity of each student's choice.

http://www.scholastic.com/browse/article.jsp?id=3758472

9.1.8.A.1 Explain the meaning and purposes of taxes and tax deductions and why fees for various benefits (e.g., medical benefits) are taken out of pay.

9.1.8.A.2 Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income. 9.1.8.A.3 Differentiate among ways that workers can improve earning power through the acquisition of new knowledge and skills.

9.1.8.A.4 Relate earning power to quality of life across cultures.

9.1.8.A.5 Relate how the demand for certain skills determines an individual’s earning power.

9.1.8.A.6 Explain how income affects spending decisions.

9.1.8.B.1 Distinguish among cash, check, credit card, and debit card.

9.1.8.B.2 Construct a simple personal savings and spending plan based on various sources of income.

9.1.8.B.3 Justify the concept of "paying yourself first" as a financial savings strategy.

9.1.8.B.4 Relate the concept of deferred gratification to [investment,] meeting financial goals, and building wealth.

9.1.8.B.5 Explain the effect of the economy on personal income, individual and family security, and consumer decisions.

9.1.8.B.6 Evaluate the relationship of cultural traditions and historical influences on financial practice.

9.1.8.B.9 Determine the most appropriate use of various financial products and services (e.g., ATM, debit cards, credit cards, check books).

9.1.8.B.10 Justify safeguarding personal information when using credit cards, banking electronically, or filing forms.

9.1.8.D.5 Explain the economic principle of supply and demand.

9.1.8.E.1 Explain what it means to be a responsible consumer and the factors to consider when making consumer decisions. 9.1.8.E.2 Identify personal information that should not be disclosed to others and the possible consequences of doing or not doing so.

9.1.8.E.3 Compare and contrast product facts versus advertising claims.

9.1.8.E.4 Prioritize personal wants and needs when making purchases.

9.1.8.E.6 Compare the value of goods or services from different sellers when purchasing large quantities and small quantities.

9.1.8.E.8 Recognize the techniques and effects of deceptive advertising.

CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
CAEP.9.2.8.B.7	Evaluate the impact of online activities and social media on employer decisions.

Instructional Strategies & Learning Activities

Refer to the last page of every lesson additional instructional learning actitivies.

Additional Materials Needed for Advanced Preparation

Fraction circles

Number cards

Paper Clip

Colored pencils

Road Maps

Political Maps

Money – Bills Money –coins

Differentiated Instruction

See pages inTeacher's Manual p. 331, 339, 345, 351, 357, 365, 371, 377, 383, 389, 399, 407, 413, 419 for Readiness Activities, Enrichment and Extra Practice

- Use data from Tech-Exit Tickets, Exit Slips, and Progress Monitoring to group students for each skill
- Student "may-do" activities
- sentence and discussion stems
- visual anchor charts for previous, current, and next lessons

Formative Assessments

Exit tickets

math message

journal pages, home links

Open Response

Math Messages Slate Activities

EDM4 Games

Fraction of
Fraction Capture

Decimal Top-it

Rename that Mixed Number
Over and Up Squares

Hidden Treasure

High Number Toss

Decimal Top-it

Prism Pile-Up

Speed and Save

Summative Assessment

Unit 4 Progress Check and open ended response

Quizzes

Assessment Check in

Benchmark Assessments

Beginning of the year benchmark assessment.

Alternate Assessments

Progress monitoring by standard on Link it.

Resources & Technology

https://www.ixl.com/math/grade-5

BOE Approved Texts

Closure

- Gallery Walk - On chart paper, small groups of students write and draw what they learned. After the completed works are attached to the classroom walls, others students affix post-its to the posters to extend on the ideas, add questions.
- Low-Stakes Quizzes - Give a short quiz using technologies like Kahoot or a Google form.
- Have students write down three quiz questions (to ask at the beginning of the next class).
- Question Stems - Have students write questions about the lesson on cards, using question stems framed around Bloom's Taxonomy. Have students exchange cards and answer the question they have acquired.
- Kids answer the following prompts: "What takeaways from the lesson will be important to know three years from now? Why?
- Have students dramatize a real-life application of a skill.
- Ask a question. Give students ten seconds to confer with peers before you call on a random student to answer. Repeat.
- Have kids orally describe a concept, procedure, or skill in terms so simple that a child in first grade would get it.
- Direct kids to raise their hands if they can answer your questions. Classmates agree (thumbs up) or disagree (thumbs down) with the response.
- Have kids create a cheat sheet of information that would be useful for a quiz on the day's topic.
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At Risk/504, Gifted and Talented, ELL, Special Education

Struggling Learners/504

- behavior management support
- Have student restate information
- preferential seating
- extended time on tests and assignments
- reduced homework or classwork
- Have student restate information
- Lab and math sheets

Gifted and Talented Students (Challenge Activities)

- Offer the Most Difficult First
- Pretest for Volunteers
- Offer choice
- Speak to Student Interests
- Allow G/T students to work together
- Tiered learning
- Focus on effort and

English Language Learners

- Advance Notes
- Extended Time
- Teacher Modeling
- Simplified Written and Verbal Instructions
- E-Dictionaires
- Google Translate

Special Education Students

- Give directions in small steps and in as few words as possible.
- Number and sequence the steps in a task.
- Have student repeat the directions for a task.

with highlighted instructions • Graph paper to assist in organizing or lining up math problems • Use of manipulatives • No penalty for spelling errors or sloppy handwriting • Follow a routine/schedule • each time management skills • Verbal and visual cues regarding directions and staying on . task • Adjusted assignment timelines • Visual daily schedule • Immediate feedback • Work-in-progress check • Pace long-term projects	practice • Encourage risk taking		• Provide visual aids. • Go over directions orally. • Shorten assignments to focus on mastery of key concepts. • Provide a vocabulary list with definitions. • Permit as much time as needed to finish tests. • Allow tests to be taken in a room with few distractions (e.g., the library). • Have test materials read to the student, and allow oral responses. • Divide tests into small sections of similar questions or problems.
4.1 – Representing Time 10 Patterns activity p. 331	4.1 – Writing many names for decimals. MM 122	4.1 – Pattern vocabulary activity p. 331	4.1 – Reading and writing decimals. Activity Card 42 and MM 121.
4.2 – Using place value to interpret decimals to hundredths MM TA 22 and TA24.	4.2 – Exploring decimals with metric units. MM 124	4.2 –Vocabulary activity p. 339	4.2 – Representing decimals with thousandths grids. Activity card 43 and MM TA23
4.3 – Identifying the value of a digit activity. MM TA24,	4.3 –Exploring decimals through the millionths. MM 126-127.	4.3 – Vocabulary activity p. 345	4.3 – Using expanded form. Activity card
4.4 – Testing ideas about digits activity p. 351	4.4 – Exploring batting averages. MM 129	4.4 – Reviewing greater than and less than, p. 351	4.4 – Playing Build-it Decimal version. Activity card 45 and MM G15
4.5 – Relating shaded grids to a number line. MM 131.	4.5 – Rounding repeating decimals. MM 132	4.5 - Physical response prompts page 357	4.5 – Spinning to round, Activity card 46 and MM 133

4.6 – Exploring map features activity, page 365	4.6 – Created designs with decimal coordinates MM137-138 and TA28	4.6 – Vocabulary activity p. 365	4.6 – Plotting your initials. Activity card 47 and MM136 TA28
4.7 – Plotting people and objects on a floor grid activity, page 371	4.7 – Using latitude and longitude. Activity card 49 and MM 141-142	4.7 – Vocabulary activity p. 371	4.7 – Playing blocks to the Target Activity card 48.
4.8 – What's my Rule? MM 144	4.8 – Connect the Dots Challenge. Activity card 50	4.8 – Vocabulary activity p. 377	4.8 – Plotting a mystery word. MM 145 and TA28
4.9 – Matching graphs to contexts. MM 147	4.9 – Finding rules for graphs. MM 148	4.9 – Vocabulary activity p. 383	4.9 – Interpreting data from a grid. Activity Card 51 and MM 149
4.11- Exchanging base 10 blocks. MM TA22	4.11- Writing decimal addition and subtraction fact families. Activity card 53 and MM TA22	4.11- Introduce multiple contexts for the word grid, p. 399	4.11 Solving more decimal addition and subtraction problems with grids. MM TA22
4.12 – Reviewing addition algorithms. SRB 85-88	4.12 – Adding Times. Activity card 54	4.12 – Building background knowledge p. 407	4.12 – Playing Decimal Top-It. SRB 298-299
4.13 – Reviewing subtraction algorithms. SRB 91-94	4.13 – Making a Big Difference. Activity card 55.	4.13 – Demonstrating counting up, page 413	4.13 –Playing decimal top-it TA23 and TA25.
4.14 – Connecting money to decimals, page 419	4.14 – Playing a variation of spend and save. SRB 323, MM G27	4.14 – Role play of math message, p. 419	4.14 Adding and subtracting of money amounts. Activity card 56.