Unit 2 - Decimals

Content Area: **Mathematics**
Course(s): **Mathematics**
Time Period: **Week 7**
Length: **3 Weeks**
Status: **Published**

Unit Overview

Students will begin this unit by completing operations with multi-digit numbers, with special attention on dividing multi-digit numbers. This will prepare them for operations with decimals with multiple digits. The purpose of this unit is to have students add, subtract, multiply, and divide decimals. Students will use estimation as well as the actual procedures to complete these operations. Along with operations on decimals, students will use their knowledge of place values to round, compare, and order decimals as a review of the previous year. Students will then apply their skills on operating with decimals in real world problems, such as using decimal multiplication to find the percent of a number.

Standards

MA.6.RP.A.3c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
MA.5.NBT.A.3	Read, write, and compare decimals to thousandths.
MA.5.NBT.A.4	Use place value understanding to round decimals to any place.
MA.5.NBT.B	Perform operations with multi-digit whole numbers and with decimals to hundredths.
MA.6.NS.B	Compute fluently with multi-digit numbers and find common factors and multiples.
MA.6.NS.B.2	Fluently divide multi-digit numbers using the standard algorithm.
MA.6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Essential Questions

- How can estimating before computing with decimals help?
- How do operations with decimals compare with operations with whole numbers?
- How do place values play a role in each different operation of decimals?
- How can you use decimals in real life?

Application of Knowledge: Students will know that...

- multiplication of decimals can be used to find the percent of a number.
- the divisor always has to be a whole number.

- to get an exact answer when dividing, zeros can be added to the dividend until there is no remainder left.
- to place the decimal point when multiplying decimals, find the sum of the number of decimal places in each factor.
- when adding or subtracting decimals, the decimal point must be lined up so that the place values will be in line.
- when adding or subtracting decimals, zeros are added as needed to ensure the numbers have the same number of decimal places.

Application of Skills: Students will be able to...

- add and subtract decimals.
- divide decimals.
- divide multi-digit numbers.
- find the percent of a number by using multiplication of decimals.
- multiply decimals.

Assessments

- Do Now: These daily assessments will include a few questions to check for prior knowledge and to determine mastery of particular topics. Remediation can also be done through this activity on an as needed basis.
- Exit Tickets and Quick Checks: These will be used to measure student understanding of the lesson and assist in determining whether remediation is needed for the topic or if there were any common misconceptions amongst the students.
- Communicator Practice: During guided practice, this will be used as a quick whole-class assessment tool to check for complete comprehension.
- IXL Practice: This online tool will be used to formatively assess students during independent practice. This will provide students with practice and immediate self-check.
- Homework and Classwork: These will be used to formatively assess students. Some examples of activities that can be used in class as assessments are listed in suggested activities (Shopping List, Multiplying with Decimals Showdown, Decimal Operation Scavenger Hunt, and Decimals Board Game)
- Marzano learning goals self-assessment: Students will complete tiered questions to determine their own proficiency in the topic on a scale of 0 to 4
- Informal Observations: Walking around the room, listening to productive conversations, and checking in on students will help to formatively assess their learning.
- Mid-Chapter Quiz: This will be used to formatively assess students halfway through the chapter.
- Chapter Test: This will be used to summatively assess students at the end of the chapter.
- Information from this unit will be included on a locally developed, mid-year or end of year benchmark assessment that may take the form of a test, performance based project, or other summative assessment.

Suggested Activities

- Grade 6 Digits Topic 7 Launches
- Inquiry labs using hundreds blocks to show operations with decimals
- Student centered Smart Board lessons using hundreds blocks that students can drag and drop to perform operations with decimals
- Review games using communicators
- Marzano learning goals self-assessment: Students will complete tiered questions to determine their own proficiency in the topic on a scale of 0 to 4
- Shopping List: Students go around the room to different stores and buy items of decimal value. This will enforce their skills in adding and multiplying decimals
- Multiplying with Decimals Showdown: Students will work in groups. They will receive task cards that they must solve individually and then "showdown" when each student has a possible solution. Students will talk about their mistakes if there are any.
- Dividing Decimals Board Game: This is a board game focusing solely on dividing decimals with problems where the divisor is a whole number or decimal.
- Decimal Operation Scavenger Hunt: Students will walk around the room answering skill and problem-solving questions on decimal operations. Once they have the answer, they will use this to find and complete the next problem.
- Decimals Board Game: Students will play in a group and complete the problem presented to them when they land on a square on the board game.

Activities to Differentiate Instruction

Differentiation for special education:

- General modifications may include:
    - Modifications & accommodations as listed in the student's IEP
    - Assign a peer to help keep student on task
    - Modified or reduced assignments
    - Reduce length of assignment for different mode of delivery
    - Increase one-to-one time
    - Working contract between you and student at risk
    - Prioritize tasks
    - Think in concrete terms and provide hands-on-tasks
    - Position student near helping peer or have quick access to teacher
    - Anticipate where needs will be
    - Break tests down in smaller increments
- Content specific modifications may include:
    - Use hundreds blocks to help student visualize operations with decimals through manipulatives
    - Use grid lines to help student line up places and organize work when computing
    - Provide guided notes and step-by-step instructions for operations with decimals
    - Provide completed worked out examples on classwork and homework that students may use as a guide

Differentiation for ELL's:

- General modifications may include:
    - Strategy groups

    - Teacher conferences
    - Graphic organizers
    - Modification plan
    - Collaboration with ELL Teacher
- Content specific vocabulary important for ELL students to understand include:
    - Place values (tenth, hundredth, thousandth, etc.), annex, estimate, round, sum, difference, product, quotient, multi-digit numbers

Differentiation to extend learning for gifted students may include:

- Complete operations of decimals with more than two numbers.
- Include more digits in decimals
- Identify and analyze errors in worked out problems

Technology Integration

- iPads or Chromebooks as appropriate to the activity.
- Online learning components including use of the Digits digital textbook, Buzzmath, KhanAcademy, and other resources.
- Teacher integration of the SMART board to facilitate active student engagement throughout the course of the lesson.
- Software or online programs that teachers may use to create students materials or generate problems such as Kuta software.
- Additional practice provided through the use of IXL

Integrated/Cross-Disciplinary Instruction

- **ELA:** Using grammatically correct sentences, descriptive words, and transitions when analyzing and comparing decimals
- **Science:** Scientific notation or converting in the metric system
- **Economics:** Finding the percent of a number using decimal multiplication

Resources

- Digits student access and support: www.MyMathUniverse.com
- Digits teacher materials and support: www.pearsonrealize.com
- IXL: www.ixl.com
- SMART Exchange: www.exchange.smartteach.com
- SMART Board Lessons
- Pizzazz worksheets (self-correcting)
- Kuta software generated worksheets

- Khanacademy: www.khanacademy.org
- Buzzmath: www.buzzmath.com
- NCTM Illuminations: www.illuminations.nctm.org
- New Jersey Center for Teaching and Learning: www.njctl.org

21st Century Skills

CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP12	Work productively in teams while using cultural global competence.