Math6.org Activities for Decimals

Vocabulary Studies
___1) On-Line Word Search
___2) 3 Column Notes
___3) Flash Cards
___4) Crossword Puzzle
___5) Matching Practice
___6) Vocabulary Millionaire!

Tests and Games
___67) Quiz Bowl - Decimal Values
___68) Millionaire - Decimal Place Value
___69) Mid Chapter Quiz
___70) Quiz Bowl
___71) Practice Test
___72) Decimals Millionaire

Activities by Lesson

3.1 Compare and Order Decimals
___7) Identify Place Values Lesson
___8) Identify Place Values (GP)
___9) Place Value Machine
___10) Place Values Quiz
___11) Reading Decimals Lesson
___12) Writing Decimals Lesson
___13) Writing Decimals (GP)
___14) Writing Decimals Quiz
___15) Ordering Decimals (GP)
___16) Lesson Quiz
___17) **Quiz Bowl - Decimal Values
___18) **Millionaire - Decimal Place Value

3.2 Estimation with Decimals
___19) Rounding Decimals Lesson
___20) Rounding Decimals (GP)
___21) Rounding Decimals Machine
___22) Rounding Decimals Quiz
___23) Estimation Worksheet
___24) Estimation with Decimals (GP)
___25) Lesson Quiz
___26) **Estimating Expenses

3.3 Adding and Subtracting Decimals
___27) Review Worksheet
___28) Add and Subtract Decimals Lesson
___29) Add and Subtract Decimals (GP)
___30) Lesson Quiz
___31) **Banking Basics

3.4 Metric Measures
___32) Review Worksheet
___33) Metric Roots Matching
___34) Powers of 10 (GP)
___35) Powers of 10 Quiz
___36) Metric Ladder (GP)
___37) Lesson Quiz
___38) **Metric Zoo

3.5 Scientific Notation
___39) Review Worksheet
___40) Scientific Notation (GP)
___41) Lesson Quiz
___42) **The Universe

3.6 Multiplying Decimals
___43) Review Worksheet
___44) Counting Decimal Places Practice
___45) Multiply Decimals Lesson
___46) Multiply Decimals (GP)
___47) Lesson Quiz
___48) **Financial News

3.7 Dividing Decimals by Whole Numbers
___49) Review Worksheet
___50) Decimal Dividends Lesson
___51) Decimal Dividends (GP)
___52) Lesson Quiz
___53) **Split the Bill

3.8 Dividing with Decimal Divisors
___54) Review Worksheet
___55) Decimal Divisors Lesson
___56) Decimal Divisors (GP)
___57) Lesson Quiz
___58) **Real World Work

3.9 Interpret the Quotient
___59) Review Worksheet
___60) Lesson Quiz
___61) **Party Time!

3.10 Equations with Decimals
___62) Review Worksheet
___63) Decimal Equations Lesson
___64) Decimal Equations (GP)
___65) Lesson Quiz
___66) **Weight Loss

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<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
<th>Example</th>
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<tbody>
<tr>
<td>Addend</td>
<td>One of the terms of an addition sentence. A number to be added to another.</td>
<td>$7 + 6 = 13$</td>
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<tr>
<td>Kilo</td>
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</tr>
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</table>
Math Journal - Chapter 3 - Decimals

3.01 Complete 5 of 19 Math6.org activities related to this lesson (3.1) or use sample problems from page 94-95 to create a lesson model. Write the instructions and show the solutions to represent, compare and order decimal numbers.

3.02 Estimation is supposed to be an easy thing to do, yet plenty of students refuse to or hate to estimate. Survey at least 10 students (not in sixth grade) and at least 5 adults concerning estimation. (easy, annoying, hard, never do). Present your data in an appropriate graph. (use multiplication to make your adult population equivalent to students surveyed)

3.03 Create a flow map (complete with example boxes) to model the process of addition or subtraction of decimals.

3.04 Many people use mnemonic devices to memorize things. My Very Eager Mother Just Served Us Nine Pizzas is a famous mnemonic device to assist with the order of the planets. Please Excuse My Dear Aunt Sally will help you to remember the order of operations. Make up a mnemonic device for the Metric roots. (don't steal - King Henry Died By Drinking Chocolate Milk!)

3.05 You are an advertising executive. The owners of Scientific Notation want more people to use Scientific Notation and have asked you to create a 30 second commercial to accomplish this goal.

3.06 Multiplying Decimals is a simple process, but it must be memorized. Create a flow map to show and model the process of multiplying decimals.

3.07 Write a "How To" paragraph that explains how a person could discover the thickness of one page in your text book.

3.08 No Entry - Complete Lesson Quiz

3.09 Create a word problem that requires the solution to be rounded up to the next whole number.

3.10 Cheerleading: Keeping the problem balanced while using inverse operations is the part of the process that most students fail to maintain. Create a poem, song or cheer to encourage your classmates to consider keeping a problem balanced.

General Scoring Rubric:
- 0 No Response
- 1 Wrong response
- 2 Weak response
- 3 Showed understanding
- 4 Showed understanding and cited an example
- 5 Showed understanding, cited examples and communicated effectively enough to enable others to understand.
1.03 Compare and order rational numbers.
Essential Question

Gas stations price gasoline with a decimal to three places rather than as money to 2 places. ($2.699) or ($2.69 9/10). This gets consumers to read the price as $2.69 rather than the $2.70 - that it is. This practice allows your parents to believe they are paying 20 - 30 cents less per tank full, while they actually are paying 2 - 3 cents less than $2.70 per gallon. Any way that you look at it your parents are saving money on every tank of gas.

Will you argue to support this current practice or force the change to pricing to a full cent?
Wayne County Schools 21st Century Instructional Lesson Plan
Representing, Comparing and Ordering Decimals

<table>
<thead>
<tr>
<th>NAME:</th>
<th>Subject: Math</th>
</tr>
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<tbody>
<tr>
<td>Date:</td>
<td>Grade Level (s): 6</td>
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<tr>
<td>Standards/Objectives Addressed (NCSCOS)</td>
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</tbody>
</table>

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**Essential Question(s) (In student-friendly terms)**
Gas stations price gasoline with a decimal to three places rather than as money to 2 places. ($2.699) or ($2.69 9/10). This gets consumers to read the price as $2.69 rather than the $2.70 - that it is. This practice allows your parents to believe they are paying 20 - 30 cents less per tank full, while they actually are paying 2 - 3 cents less than $2.70 per gallon. Any way that you look at it your parents are saving money on every tank of gas. Will you argue to support this current practice or force the change to pricing to a full cent?

**Assess (Look at student data to plan. Use formative and/or summative assessments.)**
Common Errors for Comparing and ordering rational numbers involve a lack of understanding of place values. A quick lesson to review and quiz to assess student skills regarding reading and writing decimal numbers will provide data to determine the direction and extensions of this lesson.

**High Yield Instructional Strategies (check all that apply to the lesson)**

| Identifying similarities and differences | Reinforcing effort and providing recognition | Nonlinguistic representation | Setting objectives and providing feedback |
| Questions, cues, and advance organizers | Summarizing and note taking | Cooperative learning | Generating and testing hypotheses |
| Homework and practice | | | |

**Learner Diversity**
- How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

**Engage (Anticipatory Set)**
- Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Today we will learn to compare and order decimal numbers using place value. We will begin with a review of place values and the place value system. We will use the spinner game to practice.

**Instructional Practices Used in this Lesson**

<table>
<thead>
<tr>
<th>Coaching</th>
<th>Providing Directions/Instructions</th>
<th>Learning Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion</td>
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<td>Teacher-directed Questions and Answers</td>
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<tr>
<td>Hands-on experiences</td>
<td>Direct Instruction</td>
<td>Modeling</td>
</tr>
<tr>
<td>Presentation</td>
<td>Testing</td>
<td>Other: Math6.org</td>
</tr>
<tr>
<td>Suggested brained-based learning activities promoting the above Instructional Practices</td>
<td></td>
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<tr>
<td>-----------------------------------------------</td>
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</tr>
<tr>
<td>Think-Pair-Share</td>
<td>Instructional Games</td>
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<tr>
<td>Thinking Maps</td>
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<td>Student Facilitators</td>
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<tr>
<td>Technology Integration</td>
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<td>Storytelling</td>
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<tr>
<td>Use of visuals</td>
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<td>Simulations/Role Play</td>
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</table>

<table>
<thead>
<tr>
<th>Type(s) of Grouping Used:</th>
</tr>
</thead>
<tbody>
<tr>
<td>___small group</td>
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</table>

**Explain, Explore, Elaborate**

**Content Chunks: How will you divide and teach the content?**

- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

**Evaluate (Feedback/Closure)**

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Use sample problems from page 94-95 to create a lesson model. Write the instructions and show the solutions to represent, compare and order decimal numbers.

**Describe, Analyze, Reflect:**

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Essential Question: Gas stations price gasoline with a decimal to three places rather than as money to 2 places. ($2.699) or ($2.69 9/10). This gets consumers to read the price as $2.69 rather than the $2.70 - that it is. This practice allows your parents to believe they are paying 20 - 30 cents less per tank full, while they actually are paying 2 - 3 cents less than $2.70 per gallon. Any way that you look at it your parents are saving money on every tank of gas. Will you argue to support this current practice or force the change to pricing to a full cent?

Objective(s) Numbers: 1.03

Outcomes: Compare and order rational numbers.

Materials: Textbook pages 92-95; Overhead Spinner; Overhead Decimal Place Values

Anticipatory Set: Today we will learn about decimal values and comparing and ordering decimals.

During the Lesson

Presentation of Information: Writing (how to)
Integration of Other Subjects: Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: You can use decimal place value to represent decimals in standard, expanded and word form. Also, decimal values will help you to compare and order decimals.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Review place value charts. Create an 8 digit place value chart with the hundreds period and decimal values through 10,000th. Have the students represent the following numbers using their charts, standard, expanded and word form. {5.698 ; 32.042 ; 8.16 ; 8.0016} Use a 4x4 to model the steps for comparing and ordering numbers. 1. line up the decimals 2. add 0’s to make a box. 3. compare from left to right. Compare data sets from text page 93.

After the Lesson

Independent Practice: Text page 94-95 {1–5, 9–13, 17–25 odd, 30–33, 37–42}
AIG: {17–27, 30–42}
Assign workbook page 3.1

Closure / Assessment: Complete 5 of 19 Math6.org activities related to this lesson (3.1) or use sample problems from page 94-95 to create a lesson model. Write the instructions and show the solutions to represent, compare and order decimal numbers.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are 15 activities connected with this lesson
Identify Place Values Lesson
Identify Place Values GP
Place Value Machine
Place Values Quiz
Reading Decimals Lesson
Writing Decimals Lesson
Writing Decimals Guided Practice
Writing Decimals Quiz
Ordering Decimals Guided Practice
Quiz Bowl - Decimal Values
Millionaire - Decimal Place Value
<table>
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<th>Tens</th>
<th>Ones</th>
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</table>
Math Objectives

1.01c, 1.04c, 1.07
Make estimates in appropriate situations; Estimate the results of computations; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.
Essential Question

Estimation is a skill that adults use all of the time. It is easy and quick. However, to teach estimation, teachers feel the need to see students' work in order to assist them when errors are made. Since this is much more work than simply solving a problem, many students hate to estimate properly and instead solve the problem and round their answers. Can you devise a plan to help your teacher show students how wonderful and simple estimation is while maintaining the ability to assist students as needed?
Estimating with Decimals

### Standards/Objectives Addressed (NCSCOS)

1.01c, 1.04c, 1.07  
Make estimates in appropriate situations; Estimate the results of computations; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

### Essential Question(s) (In student-friendly terms)

Estimation is a skill that adults use all of the time. It is easy and quick. However, to teach estimation, teachers feel the need to see students’ work in order to assist them when errors are made. Since this is much more work than simply solving a problem, many students hate to estimate properly and instead solve the problem and round their answers. Can you devise a plan to help your teacher show students how wonderful and simple estimation is while maintaining the ability to assist students as needed?

### Assess (Look at student data to plan. Use formative and/or summative assessments.)

Refresh assessment of decimal place values and rounding.

### High Yield Instructional Strategies (check all that apply to the lesson)

<table>
<thead>
<tr>
<th>Strategy</th>
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<tr>
<td>Identifying similarities and differences</td>
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<td>Reinforcing effort and providing recognition</td>
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<td>Cooperative learning</td>
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<td>Generating and testing hypotheses</td>
<td>✓</td>
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<td>Homework and practice</td>
<td>✓</td>
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</tbody>
</table>

### Learner Diversity

- How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

### Engage (Anticipatory Set)

- Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Today we will learn about estimating decimal sums, differences, products, and quotients. We will review the tricks for estimation with division!

### Instructional Practices Used in this Lesson

<table>
<thead>
<tr>
<th>Practice</th>
<th>Yes</th>
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<tbody>
<tr>
<td>Coaching</td>
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Suggested brain-based learning activities promoting the above Instructional Practices

<table>
<thead>
<tr>
<th>Think-Pair-Share</th>
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<th>Music/Rhyme/Rhythm/Rap</th>
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<tr>
<td>✓</td>
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Type(s) of Grouping Used:

- ___ small group  ✓ student pairs  ✓ whole group  ✓ individual

Explain, Explore, Elaborate

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Estimating with Decimals

Essential Question: Estimation is a skill that adults use all of the time. It is easy and quick. However, to teach estimation, teachers feel the need to see students' work in order to assist them when errors are made. Since this is much more work than simply solving a problem, many students hate to estimate properly and instead solve the problem and round their answers. Can you devise a plan to help your teacher show students how wonderful and simple estimation is while maintaining the ability to assist students as needed?

Objective (s) Numbers: **1.01c, 1.04c, 1.07**

Outcomes: Make estimates in appropriate situations; Estimate the results of computations; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

Materials: Textbook pages 96-99

Anticipatory Set: Today we will learn about estimating decimal sums, differences, products, and quotients.

Presentation of Information:

Integration of Other Subjects: Writing (presentation/display)
Reading (vocabulary, problem solving, analyzing expectation)

Integration of Reading: Reading for information and interpretation.
Computer, Projector, PowerPoint, Internet

Modeling: When solving word problems, we often need to write an equation. To do so, you must know what operations are needed. Learning about the key words for translating will help us with this skill.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4 x 4. Model Estimation by rounding in blocks 1 & 2. Model Estimation using Compatible numbers in 3 & 4. {26.85 - 1.35 ; 615.07 - 31.64 ; 12.17*0.64 ; 271.2/4.3}

After the Lesson

Independent Practice Text page 98 - 99 { 1–8, 11–19, 27–30, 36–41} 
**AIG**: {12–33, 35–41} 
Assign workbook page 3.2

Closure / Assessment: Estimation is supposed to be an easy thing to do, yet plenty of students refuse to or hate to estimate. Survey at least 10 students (not in sixth grade) and at least 5 adults concerning estimation. (easy, annoying, hard, never do). Present your data in an appropriate graph. (use multiplication to make your adult population equivalent to students surveyed)

Integration with School-wide Focus: Improve mathematics computation and problem solving.

**Related Math6.org Activities:** There are **10** activities connected with this lesson

- Rounding Decimals Lesson
- Rounding Decimals Quiz
- Rounding Decimals GP
- Estimation with Decimals GP
- **Estimating Expenses**
Math Objectives

1.04b, 1.04c, 1.04d, 5.02
Describe the effect of operations on size; Estimate the results of computations; Judge the reasonableness of solutions; Use and evaluate algebraic expressions.
Essential Question

Students A and B are excellent students and get virtually all of their solutions correct. When adding or subtracting decimals, student A adds the zeros to make a box (as the teacher has instructed), while student B believes this is a waste of time and pencil lead. You must choose to support student B or the teacher. Can you explain to student B why he must add zeros to make a box or explain to the teacher why she must allow student B to use his alternate style?
NAME:                      | Subject: Math
Date:                     | Grade Level (s): 6

Standards/Objectives Addressed (NCSCOS)
1.04b, 1.04c, 1.04d, 5.02
Describe the effect of operations on size; Estimate the results of computations; Judge the reasonableness of solutions; Use and evaluate algebraic expressions.

Essential Question(s) (In student-friendly terms)
Students A and B are excellent students and get virtually all of their solutions correct. When adding or subtracting decimals, student A adds the zeros to make a box (as the teacher has instructed), while student B believes this is a waste of time and pencil lead. You must choose to support student B or the teacher. Can you explain to student B why he must add zeros to make a box or explain to the teacher why she must allow student B to use his alternate style?

Assess (Look at student data to plan. Use formative and/or summative assessments.)
Examine students’ comfort with place value and regrouping.

High Yield Instructional Strategies (check all that apply to the lesson)

<table>
<thead>
<tr>
<th>Instructional Strategy</th>
<th>✔</th>
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</thead>
<tbody>
<tr>
<td>Identifying similarities and differences</td>
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<tr>
<td>Reinforcing effort and providing recognition</td>
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<tr>
<td>Nonlinguistic representation</td>
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<td>Setting objectives and providing feedback</td>
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<tr>
<td>Questions, cues, and advance organizers</td>
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<tr>
<td>Summarizing and note taking</td>
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<td>Cooperative learning</td>
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<tr>
<td>Homework and practice</td>
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</tbody>
</table>

Learner Diversity
• How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)
• Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Examine student graphs from yesterday’s closure. Have BIC graphs placed onto the overhead. Today we will learn how to add and subtract decimals.

Instructional Practices Used in this Lesson

<table>
<thead>
<tr>
<th>Instructional Practice</th>
<th>✔</th>
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</thead>
<tbody>
<tr>
<td>Coaching</td>
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<tr>
<td>Providing Directions/Instructions</td>
<td>✔</td>
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<td>✔</td>
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<tr>
<td>Learning Centers</td>
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<tr>
<td>Discussion</td>
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<tr>
<td>Providing opportunities for practice</td>
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<td>Teacher-directed Questions and Answers</td>
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<tr>
<td>Hands-on experiences</td>
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<td>Direct Instruction</td>
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<td>Modeling</td>
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<td>Presentation</td>
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<tr>
<td>Testing</td>
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<tr>
<td>Other: Math6.org</td>
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<tr>
<td>Suggested brain-based learning activities promoting the above Instructional Practices</td>
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<tr>
<td><strong>Think-Pair-Share</strong></td>
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<tr>
<td><strong>Instructional Games</strong></td>
<td>✓</td>
<td>Music/Rhyme/Rhythm/Rap</td>
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<tr>
<td><strong>Thinking Maps</strong></td>
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<td>Student Facilitators</td>
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<tr>
<td><strong>Technology Integration</strong></td>
<td>✓</td>
<td>Storytelling</td>
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<tr>
<td><strong>Use of visuals</strong></td>
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<td>Humor</td>
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<tr>
<td><strong>Metaphor/Simile/Analogy</strong></td>
<td>✓</td>
<td>Field Trips(Virtual)</td>
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<tr>
<td><strong>Peer/Self Assessment</strong></td>
<td>✓</td>
<td>Reciprocal Teaching</td>
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<tr>
<td><strong>Writing/Reflecting/Journals</strong></td>
<td>✓</td>
<td>Simulations/Role Play</td>
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<tr>
<td><strong>Movement</strong></td>
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<td>Other:</td>
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<tr>
<td><strong>Project/Problem- Based Learning</strong></td>
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<td>Other:</td>
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<tr>
<td><strong>Technology Integration</strong></td>
<td></td>
<td>Storytelling</td>
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<tr>
<td><strong>Draw or illustrating</strong></td>
<td>✓</td>
<td>Other:</td>
<td></td>
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<td><strong>Simulations/Role Play</strong></td>
<td>✓</td>
<td>Other:</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Type(s) of Grouping Used:</th>
</tr>
</thead>
<tbody>
<tr>
<td>___ small group ___ student pairs ___ whole group ___ individual</td>
</tr>
</tbody>
</table>

**Explain, Explore, Elaborate**

**Content Chunks: How will you divide and teach the content?**
- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

**Evaluate (Feedback/Closure)**
- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Create a flow map (complete with example boxes) to model the process of addition or subtraction of decimals.

**Describe, Analyze, Reflect:**
- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Adding and Subtracting Decimals

Essential Question: Students A and B are excellent students and get virtually all of their solutions correct. When adding or subtracting decimals, student A adds the zeros to make a box (as the teacher has instructed), while student B believes this is a waste of time and pencil lead. You must choose to support student B or the teacher. Can you explain to student B why he must add zeros to make a box or explain to the teacher why she must allow student B to use his alternate style?

Objective(s) Numbers: 1.04b, 1.04c, 1.04d, 5.02
Outcomes:
- Describe the effect of operations on size;
- Estimate the results of computations;
- Judge the reasonableness of solutions;
- Use and evaluate algebraic expressions.

Materials:
Textbook pages 102-105

Anticipatory Set: Today we will learn how to add and subtract decimals.

During the Lesson

Presentation of Information:
- Writing (sequencing)
- Reading (vocabulary, problem solving, analyzing expectation)

Integration of Other Subjects:
- Reading for information and interpretation.
- Computer, Projector, PowerPoint, Internet

Modeling:
Adding and Subtracting Decimals is just as easy as working with whole numbers. The only difference is the need line up the decimals and add zeros. Does putting the decimals in a line sound challenging?

Differentiation:
504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice:
Use a 4x4. Model Addition and Subtraction of Decimals using 1. Line Up the Decimals 2. Add Zeros to Make a Box 3. Compute 4. Check. \{10.2 - 9.28 = ; 925.6 + 82.87 = ; 12-0.64 = ; 271.2 + 43 = \}

After the Lesson

Independent Practice
Text page 104 - 105 (1, 2, 11, 12, 25–27, 37, 39, 43–50)
AIG: {2, 12, 25–27, 38–41, 43–50}
Assign workbook page 3.3

Closure / Assessment:
Create a flow map (complete with example boxes) to model the process of addition or subtraction of decimals.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are 7 activities connected with this lesson
Add and Subtract Decimals Lesson
Add and Subtract Decimals Guided Practice
**Banking Basics
Math Objectives

2.01
Estimate and measure length, perimeter, area, angles, weight, and mass of two- and three-dimensional figures using appropriate tools.
Essential Question

Many years ago, the nations of the world switched to the metric system and the United States is one of the last nations in the world that still uses the customary system of measurements. The USA thought about switching to the metric system, but has apparently abandoned the plan. Do you support the sovereign right of the USA to hold onto the customary system of measurement? (Explain)
Wayne County Schools 21st Century Instructional Lesson Plan
Decimals and Metric Measurement

<table>
<thead>
<tr>
<th>NAME:</th>
<th>Subject: Math</th>
</tr>
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<tbody>
<tr>
<td>Date:</td>
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</tbody>
</table>

**Standards/Objectives Addressed (NCSCOS)**

2.01
Estimate and measure length, perimeter, area, angles, weight, and mass of two- and three-dimensional figures using appropriate tools.

**Essential Question(s) (In student-friendly terms)**

Many years ago, the nations of the world switched to the metric system and the United States is one of the last nations in the world that still uses the customary system of measurements. The USA thought about switching to the metric system, but has apparently abandoned the plan. Do you support the sovereign right of the USA to hold onto the customary system of measurement? (Explain)

**Assess** (Look at student data to plan. Use formative and/or summative assessments.)

Examine students’ comfort with multiplication by powers of 10 and movement of the decimal to created smaller and greater numbers.

**High Yield Instructional Strategies (check all that apply to the lesson)**

<table>
<thead>
<tr>
<th>Identifying similarities and differences</th>
<th>Reinforcing effort and providing recognition</th>
<th>Nonlinguistic representation</th>
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</table>

**Learner Diversity**

- How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

**Engage (Anticipatory Set)**

- Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Today we will be learning how to multiply and divide with powers of 10. This will enable us to manipulate metric measurements.

**Instructional Practices Used in this Lesson**

<table>
<thead>
<tr>
<th>Coaching</th>
<th>Providing Directions/ Instructions</th>
<th>Learning Centers</th>
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<tbody>
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<td></td>
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<td>Testing</td>
<td>Other: Math6.org</td>
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</tbody>
</table>
### Suggested brain-based learning activities promoting the above Instructional Practices

| Think-Pair-Share | Instructional Games | Music/Rhyme/Rhythm/Rap | ✓ |
| Thinking Maps   | ✓ Student Facilitators | Movement |   |
| Technology Integration | ✓ Storytelling | Humor |   |
| Use of visuals | ✓ Field Trips(Virtual) | Project/Problem- Based Learning |   |
| Metaphor/Simile/Analogy | ✓ Reciprocal Teaching | Mnemonics | ✓ |
| Peer/Self Assessment | ✓ Drawing or illustrating | Other: |   |
| Writing/Reflecting/Journals | ✓ Simulations/Role Play | Other: |   |

**Type(s) of Grouping Used:**
- ✓ small group
- ✓ student pairs
- ✓ whole group
- ✓ individual

### Explain, Explore, Elaborate

**Content Chunks: How will you divide and teach the content?**
- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

### Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Many people use mnemonic devices to memorize things. My Very Eager Mother Just Served Us Nine Pizzas is a famous mnemonic device to assist with the order of the planets. Please Excuse My Dear Aunt Sally will help you to remember the order of operations. Make up a mnemonic device for the Metric roots. (don't steal - King Henry Died By Drinking Chocolate Milk!)

### Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Decimals and Metric Measurement

Essential Question: Many years ago, the nations of the world switched to the metric system and the United States is one of the last nations in the world that still uses the customary system of measurements. The USA thought about switching to the metric system, but has apparently abandoned the plan. Do you support the sovereign right of the USA to hold onto the customary system of measurement? (Explain)

Objective (s) Numbers: 2.01
Outcomes: Estimate and measure length, perimeter, area, angles, weight, and mass of two- and three-dimensional figures using appropriate tools.

Materials: Textbook pages 106-113

Anticipatory Set: Today we will be learning how to multiply and divide with powers of 10. This will enable us to manipulate metric measurements.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (poetry)
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Since the metric system is a base 10 system, working in metrics is simply a matter of moving the decimal in relation to the root and operation. Multiplication moves to the right and division moves to the left.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4. Model multiplying and dividing by powers of 10. {3.875*10,000 ; 248 ÷ 100 ; 27.3÷1000 ; 47*100} Have the students copy the metric roots table. Make sure to remind them that memorization help is available at Math6.org. Model converting Metric Measurements using the same process as the powers of 10. {40 cm = _________ mm ; 0.7 km = _________ m ; 4.9 m = _________ km ; 0.7 km = _________ cm}

After the Lesson

Independent Practice Text page 108 - 109 {1–7, 12–22, 42–50}
AIG: {3, 7, 12–20 even, 28–32, 38–50}
Assign workbook page 3.4

Closure / Assessment: Many people use mnemonic devices to memorize things. My Very Eager Mother Just Served Us Nine Pizzas is a famous mnemonic device to assist with the order of the planets. Please Excuse My Dear Aunt Sally will help you to remember the order of operations. Make up a mnemonic device for the Metric roots. (don't steal - King Henry Died By Drinking Chocolate Milk!)

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are 9 activities connected with this lesson
Metric Roots Matching Metric Ladder Guided Practice
Powers of 10 Guided Practice **Metric Zoo
Powers of 10 Quiz
Choose the best answer.

Write each number in standard form.

1. $0.08 + 0.006 + 0.0003$
   - A 0.863
   - B 0.0863

2. fourteen and thirty-four hundredths
   - A 14.034
   - B 3.414

3. Order the decimals from least to greatest. 8.7, 8.47, 8.67.
   - A 8.7, 8.47, 8.67
   - B 8.47, 8.67, 8.7
   - C 8.67, 8.47, 8.7
   - D 8.47, 8.7, 8.67

4. Estimate $8.234 \times 4.62$.
   - A 30
   - B 32

5. Evaluate $8.43 - x$ for $x = 2.3$.
   - A 6.13
   - B 16

   - A 5.15
   - B 8.66

7. Marie ran a 10K race. About how many meters did she run?
   - A 10
   - B 100
   - C 1,000
   - D 10,000

8. A door is about 3 ____ high.
   - A centimeters
   - B meters
   - C kilometers
   - D grams
Choose the best answer.

Write each number in standard form.

1. \(0.08 + 0.006 + 0.0003\)
   - A 0.863
   - B 0.0863
   - C 863
   - D 0.836

2. fourteen and thirty-four hundredths
   - A 14.034
   - B 3,414
   - C 14.34
   - D 1.434

3. Order the decimals from least to greatest. 8.7, 8.47, 8.67.
   - A 8.7, 8.47, 8.67
   - B 8.47, 8.67, 8.7
   - C 8.67, 8.47, 8.7
   - D 8.47, 8.7, 8.67

4. Estimate \(8.234 \times 4.62\).
   - A 30
   - B 32
   - C 40
   - D 45

5. Evaluate \(8.43 - x\) for \(x = 2.3\).
   - A 6.13
   - B 6.13
   - C 8
   - D 16

6. Find \(4.76 + 3.9\).
   - A 5.15
   - B 8.66
   - C 5.05
   - D 43.76

7. Marie ran a 10K race. About how many meters did she run?
   - A 10
   - B 100
   - C 1,000
   - D 10,000

8. A door is about 3 _____ high.
   - A centimeters
   - B meters
   - C kilometers
   - D grams
Math Objectives

1.06
Use exponential, scientific, and calculator notation to write very large and very small numbers.
Essential Question

How does writing numbers using Scientific Notation make it easier to compare and order very large and very small numbers?

(action plan)
NAME: 

Subject: Math

Date: 

Grade Level (s): 6

Standards/Objectives Addressed (NCSCOS)

1.06
Use exponential, scientific, and calculator notation to write very large and very small numbers.

Essential Question(s) (In student-friendly terms)

How does writing numbers using Scientific Notation makes it easier to compare and order very large and very small numbers? (action plan)

Assess (Look at student data to plan. Use formative and/or summative assessments.)

Review students’ comfort with multiplication by powers of 10 and movement of the decimal to created smaller and greater numbers.

High Yield Instructional Strategies (check all that apply to the lesson)

| Identifying similarities and differences | Reinforcing effort and providing recognition | Nonlinguistic representation | Setting objectives and providing feedback | ✓ |
| Questions, cues, and advance organizers | ✓ Summarizing and note taking | ✓ Cooperative learning | ✓ Generating and testing hypotheses |
| Homework and practice | ✓ | ✓ | ✓ |

Learner Diversity

• How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)

• Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Today we will learn how to represent very large numbers using scientific notation. This will enable us to manipulate metric measurements.

Instructional Practices Used in this Lesson

<p>| Coaching | ✓ Providing Directions/ Instructions | ✓ Learning Centers | |
| Discussion | ✓ Providing opportunities for practice | ✓ Teacher-directed Questions and Answers | ✓ |
| Hands-on experiences | Direct Instruction | ✓ Modeling | ✓ |
| Presentation | ✓ Testing | Other: Math6.org | ✓ |</p>
<table>
<thead>
<tr>
<th>Suggested brain-based learning activities promoting the above Instructional Practices</th>
<th>Instructional Games</th>
<th>Music/Rhyme/Rhythm/Rap</th>
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<tr>
<td>Think-Pair-Share</td>
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<tr>
<td>Thinking Maps</td>
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<tr>
<th>Type(s) of Grouping Used:</th>
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<tbody>
<tr>
<td><em>small group</em></td>
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<tr>
<th>Explain, Explore, Elaborate</th>
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<td>Content Chunks: How will you divide and teach the content?</td>
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See next page for instructional detail.

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You are an advertising executive. The owners of Scientific Notation want more people to use Scientific Notation and have asked you to create a 30 second commercial to accomplish this goal.

<table>
<thead>
<tr>
<th>Describe, Analyze, Reflect:</th>
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<tr>
<td>• How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.</td>
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<td>• What caused the lesson to go well? What challenges did you encounter?</td>
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<td>• What learning did you take from this lesson to apply to future lessons? What would you do differently next time?</td>
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</table>
**Scientific Notation**

**Essential Question:** How does writing numbers using Scientific Notation makes it easier to compare and order very large and very small numbers? (action plan)

**Objective (s) Numbers:**

**Outcomes:**
1.06

Use exponential, scientific, and calculator notation to write very large and very small numbers.

**Materials:**
Textbook pages 114-119

**Anticipatory Set:** Today we will learn how to represent very large numbers using scientific notation.

**During the Lesson**

**Presentation of Information:**

**Integration of Other Subjects:** Writing (persuasion)
Reading (vocabulary, problem solving, analyzing expectation)

**Integration of Reading:**
Reading for information and interpretation.

**Integration of Technology:**
Computer, Projector, PowerPoint, Internet

**Modeling:**
Scientific notation is used to show extremely large and very small numbers. Our galaxy is about 586,000,000,000,000,000 miles in diameter. 586 quadrillion is easier to record if you use scientific notation. \(5.86 \times 10^{17}\). Notice there are 17 places of value to the right of the 5.

**Differentiation:**
504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

**Guided Practice:**
Use a 4x4. In box one record the steps for recording a number using scientific notation. 1. Count the number of places to the right of the first digit. 2. Rewrite the number as a decimal with one place to the left. 3. Multiply by 10 to the power counted in step 1. Practice \(\{34,000; 165,000,000,000; 654,321,987\}\) **Part 2** Use a 4x4. In box one record the steps for converting a number from scientific notation to standard form. 1. Move the decimal to the right the number of places indicated by the exponent. 2. Practice using \(\{1.64 \times 10^5; 9.0 \times 10^6; 8.234 \times 10^3\}\)

**After the Lesson**

**Independent Practice**
Text page 116 - 117 \{1–36, 40–42, 51–52, 58–63\}
**AIG:** \{16–63\}
Assign workbook page 3.5

**Closure / Assessment:**
You are an advertising executive. The owners of Scientific Notation want more people to use Scientific Notation and have asked you to create a 30 second commercial to accomplish this goal.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

**Related Math6.org Activities:** There are 6 activities connected with this lesson

**Scientific Notation Guided Practice**

**The Universe**
Math Objectives

1.04b, 1.04c, 1.04d, 1.07

Describe the effect of operations on size; Estimate the results of computations; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.
Essential Question

Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Over the next 3 lessons, you will be learning and practicing some of the most challenging computation skills. After you have mastered these skills, you will be asked to decide: Should computation skills be continued or discontinued in all grade levels? (Explain)
NAME: Subject: Math

Date: Grade Level(s): 6

Standards/Objectives Addressed (NCSCOS)
1.04b, 1.04c, 1.04d, 1.07

Describe the effect of operations on size; Estimate the results of computations; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

Essential Question(s) (In student-friendly terms)
Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Over the next 3 lessons, you will be learning and practicing some of the most challenging computation skills. After you have mastered these skills, you will be asked to decide: Should computation skills be continued or discontinued in all grade levels? (Explain)

Assess (Look at student data to plan. Use formative and/or summative assessments.)
Assess students’ competence with multiplying whole numbers.

High Yield Instructional Strategies (check all that apply to the lesson)

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Learner Diversity
- How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)
- Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Present Scientific Notation Commercials. Today we will review and remediate the process of multiplying decimals.

Instructional Practices Used in this Lesson

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<td>Testing</td>
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<td>Movement</td>
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<tr>
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<td></td>
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Type(s) of Grouping Used:

___ small group   ✓ student pairs   ✓ whole group   ✓ individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?
- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Multiplying Decimals is a simple process, but it must be memorized. Create a flow map to show and model the process of multiplying decimals.

Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Multiplying Decimals

Essential Question: Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Over the next 3 lessons, you will be learning and practicing some of the most challenging computation skills. After you have mastered these skills, you will be asked to decide: Should computation skills be continued or discontinued in all grade levels? (Explain)

1.04b, 1.04c, 1.04d, 1.07

Outcomes: Describe the effect of operations on size; Estimate the results of computations; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

Materials: Textbook pages 120-123

Anticipatory Set: Today we will learn the process of multiplying decimals.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (sequencing)
Integration of Reading: Reading (vocabulary, problem solving, analyzing expectation)
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Model multiplying decimals using grid paper. Help the students to see that the product of a decimal multiplication problem gets smaller.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4. In box one record the steps for multiplying by decimals. 1. Count the total number of decimal places in both factors. 2. Drop the decimals and multiply as though they were whole numbers. 3. Return the total number of decimal places counted in step 1. \( \{3.14 \times 10.1\} \quad \{37.3 \times 0.5\} \quad \{4.222 \times 1.3\} \)

After the Lesson

Independent Practice Text page 122 -123 \( \{1–25, 38–39, 45–50\} \)
AIG: \( \{18–50\} \)
Assign workbook page 3.6

Closure / Assessment: Multiplying Decimals is a simple process, but it must be memorized. Create a flow map to show and model the process of multiplying decimals.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are 8 activities connected with this lesson
Counting Decimal Places Practice
Multiply Decimals Lesson
Multiply Decimals Guided Practice
**Financial News
Math Objectives

1.04b, 1.04d, 1.07
Describe the effect of operations on size; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.
Essential Question

Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Over the next 3 lessons, you will be learning and practicing some of the most challenging computation skills. After you have mastered these skills, you will be asked to decide: Should computation skills be continued or discontinued in all grade levels? (Explain)
Dividing Decimals by Whole Numbers

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Grade Level (s): 6</td>
</tr>
</tbody>
</table>

### Standards/Objectives Addressed (NCSCOS)

1.04b, 1.04c, 1.04d, 1.07

- Describe the effect of operations on size
- Estimate the results of computations
- Judge the reasonableness of solutions
- Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

### Essential Question(s) (In student-friendly terms)

Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Over the next 3 lessons, you will be learning and practicing some of the most challenging computation skills. After you have mastered these skills, you will be asked to decide: Should computation skills be continued or discontinued in all grade levels? (Explain)

### Assess (Look at student data to plan. Use formative and/or summative assessments.)

Assess students’ competence with dividing with whole numbers.

### High Yield Instructional Strategies (check all that apply to the lesson)

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### Learner Diversity

- How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

### Engage (Anticipatory Set)

- Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Present Multiplying Decimals flow maps. Today we will learn about decimals in the dividend.

### Instructional Practices Used in this Lesson

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See next page for instructional detail.

**Evaluate (Feedback/Closure)**
- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Write a "How To" paragraph that explains how a person could discover the thickness of one page in your text book.

**Describe, Analyze, Reflect:**
- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
**Dividing Decimals by Whole Numbers**

**Essential Question:** Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Over the next 2 lessons, you will be learning and practicing the most challenging computation skills. After you have mastered these skills, you will be asked to decide: Should computation skills be continued or discontinued in all grade levels? (Explain)

**Objective(s) Numbers:** 1.04b, 1.04d, 1.07

**Outcomes:** Describe the effect of operations on size; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

**Materials:** Textbook pages 124-126

**Anticipatory Set:** Today we will learn about decimals in the dividend.

---

**During the Lesson**

**Presentation of Information:**

**Integration of Other Subjects:**
- Writing (How To)
- Reading (vocabulary, problem solving, analyzing expectation)
- Reading for information and interpretation.
- Computer, Projector, PowerPoint, Internet

**Integration of Technology:**

**Modeling:** Dividing Decimals by Whole Numbers is all about keeping your places of value in proper lines.

**Differentiation:** 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

**Guided Practice:** Use a 4x4. In box one record the steps for solving equations involving addition. 1. Bring the decimal straight up into the quotient. 2. Divide normally. 3. Add 0's if necessary. In boxes 2-4 model solutions for \(26.6 \div 14\); \(89.76 \div 8\); \(12 \div 5\)

---

**After the Lesson**

**Independent Practice**
- Text page 125-126 \{1–8, 10–17, 27, 30, 34–39\}
- **AIG:** \{14–17, 19–28, 31–39\}
- Assign workbook page 3.7

**Closure / Assessment:** Write a "How To" paragraph that explains how a person could discover the thickness of one page in your text book.

---

**Integration with School-wide Focus:** Improve mathematics computation and problem solving.

**Related Math6.org Activities:** There are 7 activities connected with this lesson
- Decimal Dividends Lesson
- Decimal Dividends Guided Practice
- **Split the Bill**
Math Objectives

1.04b, 1.04d, 1.07

Describe the effect of operations on size; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.
Essential Question

Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Over the next 3 lessons, you will be learning and practicing some of the most challenging computation skills. After you have mastered these skills, you will be asked to decide: Should computation skills be continued or discontinued in all grade levels? (Explain)
Wayne County Schools 21st Century Instructional Lesson Plan
Dividing by Decimals

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**Standards/Objectives Addressed (NCSCOS)**

1.04b, 1.04c, 1.04d, 1.07

Describe the effect of operations on size; Estimate the results of computations; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

**Essential Question(s) (In student-friendly terms)**

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**Assess** (Look at student data to plan. Use formative and/or summative assessments.)

Assess students’ competence with dividing with whole numbers.

**High Yield Instructional Strategies (check all that apply to the lesson)**

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**Learner Diversity**

- How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

**Engage (Anticipatory Set)**

- Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Review Multiplying Decimals flow maps and pay special attention to decimal movement steps. Today we will learn how to divide by decimals. (decimal divisors)

**Instructional Practices Used in this Lesson**

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<td></td>
<td><strong>Other:</strong></td>
</tr>
</tbody>
</table>

### Type(s) of Grouping Used:

- __small group__
- __student pairs__
- __whole group__
- __individual__

### Explain, Explore, Elaborate

#### Content Chunks: How will you divide and teach the content?

- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

### Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

### Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Dividing by Decimals

Essential Question: Current educational philosophies no longer believe that computation skills (by hand) are important. The eighth grade test is 100% calculator active! Should computation skills be continued or discontinued in all grade levels? (Explain)

Objective (s) Numbers: 1.04b, 1.04d, 1.07

Outcomes: Describe the effect of operations on size; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

Materials: Textbook pages 127-130

Anticipatory Set: Today we will learn how to divide by decimals. (decimal divisors)

During the Lesson

Presentation of Information:

Integration of Other Subjects:
Reading (vocabulary, problem solving, analyzing expectation)

Integration of Reading:
Reading for information and interpretation.

Integration of Technology:
Computer, Projector, PowerPoint, Internet

Modeling:
You can not divide by a fraction! When the divisor is a decimal, it must be changed into a whole number. Simply use the powers of 10 to change the divisor to a whole number. Then multiply the dividend by the same power of 10 to keep the problem balanced.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4 to model the process with \( \{29 \div 0.4 ; 4.05 \div 0.9 ; 2.25 \div 1.8\} \)

After the Lesson

Independent Practice
Text page 129-130 \{1–6, 9–17, 21–23, 45–54\}
AIG: \{15–17, 21–30, 42–54\}
Assign workbook page 3.8

Closure / Assessment: No Entry - Complete Lesson Quiz

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are 7 activities connected with this lesson

Decimal Divisors Lesson
Decimal Divisors Guided Practice
**Real World Work
Math Objectives

1.04b, 1.04d, 1.07
Describe the effect of operations on size; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.
Essential Question
Can you establish a set of rules that will enable my students to always know whether to keep the remainder, round the remainder up or round it down?

(action plan)
Interpret the Quotient

NAME:  
Subject: Math

Date:  
Grade Level (s): 6

Standards/Objectives Addressed (NCSCOS)
1.04b, 1.04c, 1.04d, 1.07
Describe the effect of operations on size; Estimate the results of computations; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

Essential Question(s) (In student-friendly terms)
Can you establish a set of rules that will enable my students to always know whether to keep the remainder, round the remainder up or round it down? (action plan)

Assess (Look at student data to plan. Use formative and/or summative assessments.)
Assess students’ compliance with step one and two of the problem solving method. Are my students reading and visualizing the problems? Will they draw pictures as needed?

High Yield Instructional Strategies (check all that apply to the lesson)
Identifying similarities and differences  
Reinforcing effort and providing recognition  
Nonlinguistic representation  
Setting objectives and providing feedback
Questions, cues, and advance organizers  
Summarizing and note taking  
Cooperative learning  
Generating and testing hypotheses
Homework and practice

Learner Diversity
• How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)
• Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Review steps for problem solving strategies. Encourage students to illustrate problems for better understanding. Today we will examine word problems to interpret the quotient.

Instructional Practices Used in this Lesson
Coaching  
Providing Directions/Instructions  
Learning Centers
Discussion  
Providing opportunities for practice  
Teacher-directed Questions and Answers
Hands-on experiences  
Direct Instruction  
Modeling
Presentation  
Testing  
Other: Math6.org
### Suggested brain-based learning activities promoting the above Instructional Practices

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<th>Think-Pair-Share</th>
<th>Instructional Games</th>
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**Type(s) of Grouping Used:**

- small group
- ✓ student pairs
- ✓ whole group
- ✓ individual

### Explain, Explore, Elaborate

#### Content Chunks: How will you divide and teach the content?

- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

### Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Create a word problem that requires the solution to be rounded up to the next whole number.

### Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
**Interpret the Quotient**

**Essential Question:** Can you establish a set of rules that will enable my students to always know whether to keep the remainder, round the remainder up or round it down? (action plan)

**Objective (s) Numbers:** 1.04b, 1.04d, 1.07

**Outcomes:** Describe the effect of operations on size; Judge the reasonableness of solutions; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

**Materials:** Textbook pages 131-133; Reteaching 3.9

**Anticipatory Set:** Today we will examine word problems to interpret the quotient.

**During the Lesson**

**Presentation of Information:**

**Integration of Other Subjects:** Writing (narratives)

Reading (vocabulary, problem solving, analyzing expectation)

**Integration of Reading:** Reading for information and interpretation.

**Integration of Technology:** Computer, Projector, PowerPoint, Internet

**Modeling:** When you divide, sometimes you need to interpret the quotient to decide what to do with the remainder. If you are planning to put 67 children on busses, you can not leave some behind. To interpret the quotient, you must decide what the question is asking.

If the problem asks for an exact number – use the entire quotient.

If the problem asks for a number whole groups – drop the remainder.

**Differentiation:** 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

**Guided Practice:** Use Reteaching 3.9 to model this skill.

**After the Lesson**

**Independent Practice** Text page 132-133 {1, 4, 8, 13–18}

**AIG:** {4, 8, 10, 13–18}

Assign workbook page 3.9

**Closure / Assessment:** Create a word problem that requires the solution to be rounded up to the next whole number.

**Integration with School-wide Focus:** Improve mathematics computation and problem solving.

**Related Math6.org Activities:** There are 5 activities connected with this lesson

**Party Time!**
There are three ways the decimal part of a quotient can be interpreted when you solve a problem.

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the question asks for an exact number, use the entire quotient.</td>
<td></td>
</tr>
<tr>
<td>If the question asks how many whole groups are needed to put the dividend into a group, round the quotient up to the next whole number.</td>
<td></td>
</tr>
<tr>
<td>If the question asks how many whole groups can be made when you divide, drop the decimal part of the quotient.</td>
<td></td>
</tr>
</tbody>
</table>

To interpret the quotient, decide what the question is asking.

In the school library, there are tables that seat 4 students each. If there are 30 students in a class, how many tables are needed to seat all of the students?

To solve, divide 30 by 4.

\[ 30 \div 4 = 7.5 \]

The question is asking how many tables (whole groups) are needed to put all of the students in the class (dividend) into a group.

So, round 7.5 up to the next whole number.

8 tables are needed to seat all of the students.

**Interpret the quotient to solve each problem.**

1. A recipe that serves 6 requires 9 cups of milk. How much milk is needed for each serving?

2. A storage case holds 24 model cars. Marla has 84 model cars. How many storage cases does she need to store all of her cars?

3. Kenny has $4.25 to spend at the school carnival. If game tickets are $0.50 each, how many games can Kenny play?
Math Objectives

2.02, 5.02
Solve problems involving perimeter/circumference and area of plane figures; Use and evaluate algebraic expressions.
Essential Question

About a month ago, you spent several days learning to solve equations with Whole Numbers. Now, you have spent another day learning to solve equations with Decimals. If your teacher had waited for you to master Decimal Computation to teach Equations, you could have saved a day of instruction. Do you support your teacher's decision to break this skill into 2 lessons or do you think she should have combined these and saved the day to teach you something else?
Wayne County Schools 21st Century Instructional Lesson Plan
Solving Decimal Equations

NAME: Subject: Math
Date: Grade Level (s): 6

Standards/Objectives Addressed (NCSCOS)
2.02, 5.02
Solve problems involving perimeter/circumference and area of plane figures; Use and evaluate algebraic expressions.

Essential Question(s) (In student-friendly terms)
About a month ago, you spent several days learning to solve equations with Whole Numbers. Now, you have spent another day learning to solve equations with Decimals. If your teacher had waited for you to master Decimal Computation to teach Equations, you could have saved a day of instruction. Do you support your teacher's decision to break this skill into 2 lessons or do you think she should have combined these and saved the day to teach you something else? (Explain)

Assess (Look at student data to plan. Use formative and/or summative assessments.)
Review student understanding of inverse operations and inverting the order of operations.

High Yield Instructional Strategies (check all that apply to the lesson)
Identifying similarities and differences ✓ Reinforcing effort and providing recognition ✓ Nonlinguistic representation ✓ Setting objectives and providing feedback ✓
Questions, cues, and advance organizers ✓ Summarizing and note taking ✓ Cooperative learning ✓ Generating and testing hypotheses
Homework and practice ✓

Learner Diversity
• How will you differentiate to meet the needs of all learners in your class?
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.

Engage (Anticipatory Set)
• Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Draw equation balances. Today we will work with solving equations that involve decimal constants.

Instructional Practices Used in this Lesson
Coaching ✓ Providing Directions/Instructions ✓ Learning Centers

Discussion ✓ Providing opportunities for practice ✓ Teacher-directed Questions and Answers ✓

Hands-on experiences Direct Instruction ✓ Modeling ✓
Presentation ✓ Testing Other: Math6.org ✓
Suggested brain-based learning activities promoting the above Instructional Practices

<table>
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<td>Humor</td>
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**Type(s) of Grouping Used:**

- __small group__
- ✓ student pairs
- ✓ whole group
- ✓ individual

**Explain, Explore, Elaborate**

**Content Chunks: How will you divide and teach the content?**

- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

**Evaluate (Feedback/Closure)**

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

**Cheerleading:** Keeping the problem balanced while using inverse operations is the part of the process that most students fail to maintain. Create a poem, song or cheer to encourage your classmates to consider keeping a problem balanced.

**Describe, Analyze, Reflect:**

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Solving Decimal Equations

Essential Question: About a month ago, you spent several days learning to solve equations with Whole Numbers. Now, you have spent another day learning to solve equations with Decimals. If your teacher had waited for you to master Decimal Computation to teach Equations, you could have saved a day of instruction. Do you support your teacher's decision to break this skill into 2 lessons or do you think she should have combined these and saved the day to teach you something else? (Explain)

Objective (s) Numbers: 2.02, 5.02
Outcomes: Solve problems involving perimeter/circumference and area of plane figures; Use and evaluate algebraic expressions.

Materials: Textbook pages 134-138

Anticipatory Set: Today we will work with solving equations that involve decimal constants.

During the Lesson

Presentation of Information:
Integration of Other Subjects:
  Writing (poetry)
  Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:
  Reading for information and interpretation.
Integration of Technology:
  Computer, Projector, PowerPoint, Internet
Modeling:
  Solving equations with decimals uses the same process as the other algebra that you have studied this year.
  1. Simplify anything that can be simplified.
  2. Use inverse operations to get the variable alone. (Keep the problem balanced!)
  3. Use substitution to check your answer.

Differentiation:
  504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice:
  Use a 4x4 to model the solutions for \{n + 3.6 = 9.4 ; 4n = 3.2 ; n ÷ 9 = 1.4 ; 3n - 6 = 22\}

After the Lesson

Independent Practice
  Text page 136-137 \{ 1–20, 34, 38, 42–47\}
  **AIG**: \{21–47\}
  Assign workbook page 3.10

Closure / Assessment:
  Cheerleading: Keeping the problem balanced while using inverse operations is the part of the process that most students fail to maintain. Create a poem, song or cheer to encourage your classmates to consider keeping a problem balanced.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities:
  There are 7 activities connected with this lesson
  Decimal Equations Lesson
  Decimal Equations Guided Practice
  **Weight Loss**
Math Objectives

1.03, 1.04b, 1.04d, 1.06, 1.07, 2.02, 5.02;

Compare and order rational numbers; Describe the effect of operations on size; Judge the reasonableness of solutions; Use exponential, scientific, and calculator notation to write very large and very small numbers; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil; Solve problems involving perimeter/circumference and area of plane figures; Use and evaluate algebraic expressions.
Essential Question

What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills?

(action plan)
Wayne County Schools 21st Century Instructional Lesson Plan  
Decimals Concepts Review

<table>
<thead>
<tr>
<th>NAME:</th>
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<tbody>
<tr>
<td>Date:</td>
<td>Grade Level(s): 6</td>
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</tbody>
</table>

**Standards/Objectives Addressed (NCSCOS)**

1.03, 1.04b, 1.04d, 1.06, 1.07, 2.02, 5.02;  
Compare and order rational numbers; Describe the effect of operations on size; Judge the reasonableness of solutions; Use exponential, scientific, and calculator notation to write very large and very small numbers; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil; Solve problems involving perimeter/circumference and area of plane figures; Use and evaluate algebraic expressions.

**Essential Question(s) (In student-friendly terms)**

What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills? (action plan)

**Assess (Look at student data to plan. Use formative and/or summative assessments.)**

Examine student performance on various skill assessments, journals and projects.

**High Yield Instructional Strategies (check all that apply to the lesson)**

<table>
<thead>
<tr>
<th>Identifier similarities and differences</th>
<th>Reinforcing effort and providing recognition</th>
<th>Nonlinguistic representation</th>
<th>Setting objectives and providing feedback</th>
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<td>Questions, cues, and advance organizers</td>
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**Learner Diversity**

- How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes.

**Engage (Anticipatory Set)**

- Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Today we will review the skills that we have been studying during this unit. We will practice test taking skills and remediate those skills about which we don’t feel as comfortable as others.

**Instructional Practices Used in this Lesson**

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- ___small group
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**Explain, Explore, Elaborate**

**Content Chunks: How will you divide and teach the content?**

- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

**Evaluate (Feedback/Closure)**

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Have co-operative learning groups review and discuss their answers before turning their papers in for correction by the teacher.

**Describe, Analyze, Reflect:**

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Decimals Concepts Review

Essential Question: What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills? (action plan)

Objective (s) Numbers: 1.03, 1.04b, 1.04d, 1.06, 1.07, 2.02, 5.02;
Outcomes:
- Compare and order rational numbers;
- Describe the effect of operations on size;
- Judge the reasonableness of solutions;
- Use exponential, scientific, and calculator notation to write very large and very small numbers;
- Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil;
- Solve problems involving perimeter/circumference and area of plane figures;
- Use and evaluate algebraic expressions.

Materials: Textbook pages 144-147; Test Form B

Anticipatory Set: Today we will review the skills that we have been studying during this unit. We will practice test taking skills and remediate those skills about which we don't feel as comfortable as others.

During the Lesson

Presentation of Information:
Integration of Other Subjects:
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:
Reading for information and interpretation.
Integration of Technology:
Computer, Projector, PowerPoint, Internet

Modeling:
Discuss the value of careful review, the process that should occur when errors are made and the importance of reviewing material that students are less comfortable with.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice:
Discuss Instructions for the review on pages 144-146. Have the students review the Headings and address and questions or requests for immediate remediation.

After the Lesson

Independent Practice
Text page 144-146 {1-54}
AIG: {1-54}
Assign Test Form B

Closure / Assessment:
Have co-operative learning groups review and discuss their answers before turning their papers in for correction by the teacher.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are many activities connected with this lesson
Vocabulary Matching Practice
Practice Test
Decimals Quiz Bowl
Decimals Millionaire
Write each in standard form, expanded form, and words.

1. 6.024

2. four and seven thousandths

Order the decimals from least to greatest.

3. 13.6, 13.2, 13.62

4. 3.87, 3.2, 3.45

Estimate. Round to the indicated place value.

5. 36.134 + 7.65; tenths

6. 2.5864 − 2.0356; hundredths

Estimate each product or quotient.

7. 71.825 ÷ 8.01

8. 120.4 × 2.985

Estimate a range for the sum.

9. 9.65 + 30.1 + 5.835

Estimate a range for the sum.

10. 10.435 + 30.4 + 89.0

Find each sum or difference.

11. 11.54 + 17.01

12. 41.8 − 6.7

Evaluate 3.79 + x for each value of x.

13. x = 2.54

14. x = 0.354

Multiply or divide.

15. 4.12 × 1,000

16. 827.5 ÷ 10^5

Use the abbreviation for the most appropriate metric unit.

17. A bathtub holds approximately 106

18. The distance of a long distance race is 6.1

Convert each measure.

19. 0.97 cm = _____ mm

20. 7,000 L = _____ kL
Write each number in scientific notation.
21. 62,000
22. 2,357,000

Write each number in standard form.
23. 7.421 \times 10^6
24. 4.85 \times 10^4

Find each product.
25. 1.72 \times 0.3
26. 8.4 \times 0.003

Evaluate 23x for each value of x.
27. x = 2.55
28. x = 3.612

Find each quotient.
29. 19.5 \div 6
30. 8.88 \div 3

Evaluate the expression 7.2 \div x for each value of x.
31. x = 5
32. x = 0.06

Find each quotient.
33. 7.82 \div 3.4
34. 17.5 \div 0.28

Solve each equation.
35. y - 5.4 = 7.5
36. 6.6j = 26.4
37. \frac{f}{11} = 3.4
38. 23.6 - h = 18.1

39. David bought 1,000 feet of aluminum striping for $220. What did he pay per foot?

40. At $1.25 per dozen how many whole dozens of eggs can be bought for $6.00?
Essential Question

If you could press restart, what would you do differently to prepare for today's exam?

(decision making)
Wayne County Schools 21st Century Instructional Lesson Plan
Whole Numbers Assessment

NAME:  
Subject: Math  
Date:  
Grade Level (s): 6

Standards/Objectives Addressed (NCSCOS)
1.03, 1.04b, 1.04d, 1.06, 1.07, 2.02, 5.02;  
Compare and order rational numbers; Describe the effect of operations on size; Judge the reasonableness of solutions; Use exponential, scientific, and calculator notation to write very large and very small numbers; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil; Solve problems involving perimeter/circumference and area of plane figures; Use and evaluate algebraic expressions.

Essential Question(s) (In student-friendly terms)
If you could press restart, what would you do differently to prepare for today's exam? (decision making)

Assess (Look at student data to plan. Use formative and/or summative assessments.)
Examine student performance on concepts review.

High Yield Instructional Strategies (check all that apply to the lesson)

| Identifying similarities and differences | Reinforcing effort and providing recognition | ✔ Nonlinguistic representation | Setting objectives and providing feedback | ✔ |
| Questions, cues, and advance organizers | Summarizing and note taking | Cooperative learning | Generating and testing hypotheses |

Homework and practice

Learner Diversity
• How will you differentiate to meet the needs of all learners in your class?

504 modifications ET and RA.

Engage (Anticipatory Set)
• Capture the students’ attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion.

Today we will assess our mastery of Decimals.

Instructional Practices Used in this Lesson

<table>
<thead>
<tr>
<th>Coaching</th>
<th>Providing Directions/Instructions</th>
<th>✔ Learning Centers</th>
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<tr>
<td>Discussion</td>
<td>Providing opportunities for practice</td>
<td>Teacher-directed Questions and Answers</td>
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<td>Hands-on experiences</td>
<td>Direct Instruction</td>
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<td>Presentation</td>
<td>Testing</td>
<td>Other: Math6.org</td>
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### Suggested brain-based learning activities promoting the above Instructional Practices

<table>
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<th>Activity</th>
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<td>Think-Pair-Share</td>
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<td>Thinking Maps</td>
<td>Student Facilitators</td>
<td>Movement</td>
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<td>Technology Integration</td>
<td>✓ Storytelling</td>
<td>Humor</td>
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<tr>
<td>Use of visuals</td>
<td>Field Trips(Virtual)</td>
<td>Project/Problem- Based Learning</td>
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<td>Metaphor/Simile/Analogy</td>
<td>Reciprocal Teaching</td>
<td>Mnemonics</td>
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<td>Peer/Self Assessment</td>
<td>Drawing or illustrating</td>
<td>Other:</td>
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<tr>
<td>Writing/Reflecting/Journals</td>
<td>✓ Simulations/Role Play</td>
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**Type(s) of Grouping Used:**
- small group
- student pairs
- whole group
- individual

### Explain, Explore, Elaborate

**Content Chunks: How will you divide and teach the content?**
- Transitions should be used every 5-15 minutes to keep the students’ brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

### Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Write a paragraph evaluation of your expected performance on this test. What did you do well on? What did you have trouble with? How did you prepare for this test and what would you like to do differently for the next exam?

### Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson’s effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?
Decimals Assessment

Essential Question: If you could press restart, what would you do differently to prepare for today's exam? (decision making)

Objective (s) Numbers: 1.03, 1.04b, 1.04d, 1.06, 1.07, 2.02, 5.02;
Outcomes: Compare and order rational numbers; Describe the effect of operations on size; Judge the reasonableness of solutions; Use exponential, scientific, and calculator notation to write very large and very small numbers; Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil; Solve problems involving perimeter/circumference and area of plane figures; Use and evaluate algebraic expressions.

Materials: Cumulative Assessment (Form B)

Anticipatory Set: Today we will assess our mastery of Decimals.

During the Lesson

Presentation of Information: Writing (evaluation)
Integration of Other Subjects: Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet
Modeling: Review the Practice Test, answer questions and model answers.
Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice: Discuss the Instructions.

After the Lesson

Assign Cumulative Review Test Form B
Closure / Assessment: Write a paragraph evaluation of your expected performance on this test. What did you do well on? What did you have trouble with? How did you prepare for this test and what would you like to do differently for the next exam?
Choose a Journal entry to share with your class.

Reflection:

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are many activities connected with this lesson
Vocabulary Matching Practice
Practice Test
Decimals Quiz Bowl
Decimals Millionaire
Cumulative Test

Form B

Choose the best answer.

1. Which number is the greatest?
   - A \(4,564,321,000\)
   - B \(4,569,435,982\)
   - C \(4,563,761,958\)
   - D \(4,509,438,095\)

2. Which number is eight million, five hundred twelve thousand, forty-two in standard form?
   - A \(8,512,420\)
   - B \(8,512,042\)
   - C \(8,051,242\)
   - D \(8,005,124\)

3. Which number has a 6 in the ten-thousands place?
   - A \(865,943\)
   - B \(507,894\)
   - C \(236,590\)
   - D \(657,321\)

4. County Population
   - Leon \(239,452\)
   - Duval \(778,879\)
   - Polk \(483,924\)
   - Volusia \(443,343\)

   Which lists the counties in order from least to greatest population?
   - A Leon, Duval, Polk, Volusia
   - B Duval, Polk, Leon, Volusia
   - C Leon, Volusia, Duval, Polk
   - D Leon, Volusia, Polk, Duval

5. Estimate by rounding to the place value indicated: \(6,523 - 3,245\); hundreds.
   - A \(6,500 - 3,200 = 3,300\)
   - B \(6,000 - 3,000 = 3,000\)
   - C \(7,000 - 3,000 = 4,000\)
   - D \(6,500 - 3,300 = 3,200\)

6. What is the value of \(6^2 - (9 - 5) \div 4\)?
   - F \(8\)
   - G \(35\)
   - H \(39\)
   - J \(42\)

7. What is the value of \(6^4\)?
   - A \(24\)
   - B \(36\)
   - C \(216\)
   - D \(1,296\)

8. What is \(7 \times 7 \times 7 \times 7\) written in exponential form?
   - A \(7^1\)
   - B \(7^3\)
   - C \(7^4\)
   - D \(7^7\)

9. Use mental math to find the sum of \(18 + 2 + 37 + 3\). 
   - A \(20\)
   - B \(30\)
   - C \(40\)
   - D \(60\)

10. \((12 + 14) + 9 = 9 + (12 + 14)\) is an example of which property?
    - F Associative
    - G Commutative
    - H Distributive
    - J Exponential

11. Meredith works 11 hours per day, 6 days a week. How many hours does she work in a 5-week period?
    - A \(66\) hours
    - B \(132\) hours
    - C \(330\) hours
    - D \(462\) hours

12. Which is a solution to the equation \(\frac{x}{7} = 12\)?
    - A \(x = 19\)
    - B \(x = 60\)
    - C \(x = 72\)
    - D \(x = 84\)

13. Estimate \(7.42 + 15.07\).
    - A \(7 + 15 = 22\)
    - B \(7 + 16 = 23\)
    - C \(6 + 15 = 21\)
    - D \(6 + 14 = 20\)
14. A special camera film costs $8 per roll. If you spent $120 on this film, how many rolls did you buy?
   F 12  H 15
   G 14  J 960

15. Identify the pattern in this sequence: 12, 17, 15, 20, 18, 23...
   A +5, −1  C −2, +5
   B +5, −2  D −1, +6

16. Find the pattern and replace the ? with the missing terms: 9, 11, 13, ?, 17, ?, 21, 23.
   F 15, 19  H 15, 21
   G 17, 21  J 16, 19

17. How many more students chose crafts than horseback riding?
   A 4  C 6
   B 5  D 7

18. How many students voted for swimming?
   F 10  H 12
   G 11  J 13

19. Which activity had 3 more votes than horseback riding?
   A canoeing  C swimming
   B crafts      D archery

20. Which is a solution to the equation 12a = 144?
   F a = 9  H a = 11
   G a = 10  J a = 12

21. Which is a solution to the equation w + 134 = 543?
   A w = 109  C w = 409
   B w = 210  D w = 677

22. Which is a solution to the equation y − 38 = 86?
   F y = 48  H y = 134
   G y = 124  J y = 3,268

23. Find the missing value in the table.

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   A 108  C 116
   B 110  D 914

24. Which means “6 times a”?
   F 6 + a  H 6a
   G 6 − a  J 6 ÷ a
25. Which of the following is a phrase for \( \frac{9n}{2} \)?
   A. the product of 9 times \( n \) and 2
   B. the product of 9 minus \( n \) and 2
   C. the quotient of nine times \( n \) and 2
   D. the quotient of \( n \) and 2

26. Evaluate \( 11h - 6 \) for \( h = 6 \).
   F. 60  H. 110  G. 66  J. 116

27. Brigetta’s car will hold 25 cartons of books. What is the least number of trips that she must make in order to deliver 250 cartons?
   A. 5  C. 15  B. 10  D. 20

28. Which value of \( x \) makes the equation true? \( x - 9 = 12 \)
   F. \( x = 3 \)  H. \( x = 21 \)
   G. \( x = 15 \)  J. \( x = 108 \)

29. Which value of \( x \) makes the equation true? \( 7x = 56 \)
   A. \( x = 8 \)  C. \( x = 12 \)
   B. \( x = 10 \)  D. \( x = 49 \)

30. The area of a rectangular patio is 450 square feet. The width is 18 feet. What is its length?
   F. 5 feet  H. 25 feet
   G. 10 feet  J. 45 feet

31. Which of the following has a solution of 18?
   A. \( w + 10 = 9 \)  C. \( y - 18 = 35 \)
   B. \( 18a = 324 \)  D. \( \frac{p}{7} = 3 \)

32. What is the product of \( 0.2 \times 4.25 \)?
   F. 0.85  H. 85
   G. 8.5  J. 850

33. Which number is the greatest?
   A. 20.125  C. 20.250
   B. 20.2  D. 20.24

34. Which is 43,800,000 written in scientific notation?
   F. \( 4.3 \times 10^5 \)  H. \( 4.38 \times 10^6 \)
   G. \( 4.38 \times 5^6 \)  J. \( 4.38 \times 10^7 \)

35. Which measurement is equivalent to 880 cm?
   A. 88 mm  C. 8.8 m
   B. 0.88 km  D. 8,800 km

36. The area of a rectangle is 49.875 cm². Its length is 10.5 cm. Solve \( 10.5w = 49.875 \) to find the width.
   F. 3.75 cm  H. 5 cm
   G. 4.75 cm  J. 0.475 cm

37. Mr. Maro is building a fence. The fencing comes in sections, each 2.5 meters wide. If the fence is to be 30 meters long, how many sections of fencing does he need?
   A. 11  C. 10
   B. 12  D. 9
38. What is 3.204 written in words?
   F three and two hundred four tenths
   G three and two hundred four hundredths
   H three thousand two hundred four
   J three and two hundred four thousandths

39. Which set of decimals is ordered least to greatest?
   A 15.8, 15.08, 15.78
   B 15.08, 15.78, 15.8
   C 15.8, 15.78, 15.08
   D 15.08, 15.8, 15.78

40. What is $4.86 \times 10^4$ written in standard form?
   F 48,600
   G 486,000
   H 4,860,000
   J 48,600,000

41. Lee and two friends went to the circus. They each bought a stuffed tiger. The total bill was $47.97. How much did each tiger cost?
   A $12.99
   B $14.21
   C $15.99
   D $16.23

42. Solve $w - 7.6 = 4.6$.
   F $w = 12.2$
   G $w = 1.122$
   H $w = 3$
   J $w = 2.3$

43. Convert 4,900 mL = _____ L.
   A 490 L
   B 49 L
   C 4.9 L
   D 0.49 L

44. Find $18 - 0.4$.
   F 18.6
   G 18.4
   H 17.6
   J 17.4

45. Solve $8x = 76.8$.
   A $x = 9$
   B $x = 9.6$
   C $x = 10.2$
   D $x = 11.1$

46. A piece of fabric is 25.5 in. wide. How many whole strips, each 2.25 in. wide, can be cut from the fabric?
   F 10
   G 11
   H 12
   J 13

47. A surveyor marks off 15 small adjacent lots each 0.1 mile wide. What is the total width in miles?
   A 1 mile
   B 1.5 miles
   C 1.75 miles
   D 0.15 mile

48. It costs $105.00 to buy 7 pieces of sewer pipe. What is the cost per piece of pipe?
   A $14.00
   B $14.50
   C $15.00
   D $16.00

49. Rwanda had $342.15 in her checking account. She wrote a check to Foodtown for $62.15. How much does she now have in her checking account?
   A $176.15
   B $280.00
   C $317.00
   D $404.30

50. Solve $\frac{x}{9} = 8.4$.
   F $x = 72$
   G $x = 75.6$
   H $x = 78.3$
   J $x = 82.1$
Decimals Assessment

Chapter 3 Assessment

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Chapter 3: 20 100% 19 95% 18 90% 17 85% 16 80% 15 75% 14 70% 13 65% 12 60% 11 55% 10 50% 9 45% 8 40% 7 35% 6 30% 5 25% 4 20% 3 15% 2 10%
Math Assessment Scoring Rubric - Chapter ___

10% Vocabulary 3 column notes
10% Math Journal (2 entries - 1 presented)
20% Cumulative Assessment (curved)
60% Current Chapter Assessment Questions
5% Signed Math6.org Activity Sheet (Extra Credit)

Student ____________________________

_______ Vocabulary 3 column notes
_______ Math Journal (2 entries - 1 presented)
_______ Cumulative Assessment (curved)
_______ Current Chapter Assessment Questions
_______ Signed Math6.org Activity Sheet (Extra Credit)
_______ Total

Total

Math Assessment Scoring Rubric - Chapter ___

10% Vocabulary 3 column notes
10% Math Journal (2 entries - 1 presented)
20% Cumulative Assessment (curved)
60% Current Chapter Assessment Questions
5% Signed Math6.org Activity Sheet (Extra Credit)

Student ____________________________

_______ Vocabulary 3 column notes
_______ Math Journal (2 entries - 1 presented)
_______ Cumulative Assessment (curved)
_______ Current Chapter Assessment Questions
_______ Signed Math6.org Activity Sheet (Extra Credit)
_______ Total

Total