

Unit 4: Applications of Percents
Grade 7 Math
24 Class Meetings
Revised May 2026

Essential Questions

- When is it most convenient to use percentages?

Enduring Understandings with Unit Goals

EU 1: Percentages can be used to understand the relationship between parts of quantities and the whole quantity, and how quantities change in relation to their starting values.

- Construct tables, proportions, and percent equations to solve problems.
- Model real-world applications involving price change, simple interest, commissions, and fees using percentages.

Standards

Common Core State Standards:

- **7.RP.A.3:** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.
- **7.NS.A.3:** Solve real-world and mathematical problems involving the four operations with rational numbers.
- **7.EE.2.A:** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.

Competency 2: Speak to diverse audiences in an accountable manner.

Competency 3: Develop the behaviors needed to interact and contribute with others on a team.

Competency 4: Analyze and solve problems independently and collaboratively.

Competency 5: Be responsible, creative, and empathetic members of the community.

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Unit Content Overview

1. Percent, Part, and Whole

- Define the percent of a number
- Solve percent problems mentally with benchmark percentages
- Evaluate percent of a number when given percent and the whole
- Evaluate the whole given a part and a percent
- Evaluate the percent given a part and a whole
- Solve percent problems using proportions, tables and percent equations
- **Vocabulary and Key Terms** – Percent, Part, Whole, Is, Of, Proportion, Ratio, Percent Proportion, Percent Equations, Equivalent

2. Percent Increase and Decrease

- Solve for a new amount given the original amount and a percent increase or decrease.
- Calculate for the original amount given new amount after a given percent increase or decrease.
- Solve percent problems using proportions, tables and percent equations.
- **Vocabulary and Key Terms** – Percent, Proportion, Ratio, Percent of Change Proportion, Percent Equations, Equivalent, Percent increase, Percent decrease, Difference, Change, Original Amount, New Amount

3. Percent Application

- Solve for percent problems involving discounts, tax, and tip
- Calculate percentages involving simple interest, commissions, and other fees
- Solve for percent problems involving measurement and percent error
- Solve percent problems using proportions, tables, and percent equations
- **Vocabulary and Key Terms** – Percent, Part, Whole, Proportion, Ratio, Percent Equations, Equivalent, Difference, Change, Original Amount, New Amount, Discounts, Tax, Tip/Gratuity, Commission, Markup, Simple Interest, Fees, Percent Error, Markdown, Sales Tax, Interest

Interdisciplinary Connection:

- Language Arts – Word Problems
- Science – Word Problems

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Daily Learning Objectives with *TWPS Activities*

Students will be able to...

- Convert and relate fractions, decimals, and percentages
 - *TWPS – Are percentages more useful in real-life than fractions and decimals? Explain using mathematical reasoning.*
- Solve percent problems to find the part, whole, or percent
 - *TWPS – How do you turn a decimal into a percent? Explain using mathematical reasoning.*
- Investigate and explain how percentages can be used to represent increases and decreases in quantities
 - *TWPS – (SBAC) Find the mean, median, and mode of the given data. Explain using mathematical reasoning.*
- Calculate total cost using tax, tip, discount, and commission while using percentages
 - *TWPS – If someone were to ask you how to determine the amount of tip to leave for a waiter/waitress, how would you describe it to them? Explain using mathematical reasoning.*
- Calculate simple interest
 - *TWPS – Which of the three statements is a lie? Fractions, Percents, and Decimals Edition. Explain using mathematical reasoning.*
- Solve for percent error
 - *TWPS – Spinner with Red and Green, Radio Station T-Shirt Giveaway, and Inequality SBAC Questions*
- Apply proportional relationships to solve multi-step percent problems *
 - *TWPS – When solving a problem that involves both a discount and tax, which one should you calculate first? Explain using mathematical reasoning.*
 - *TWPS – A store has two discounts: “20% off” or “Buy one, get one 50% off.” Which is the better deal? Example: A shirt that costs \$40. Explain using mathematical reasoning.*

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Instructional Strategies/Differentiated Instruction

- TWPS
- Whole group instruction
- Guided notes
- Student-led instruction
- Small group instruction
- Independent problem-solving
- Collaborative problem-solving
- Cross-curricular problem solving (independent and collaborative)
- Accountable Talk
- Manipulatives
- Homework
- Highlighted words
- Fill in the blanks
- Access to calculator
- Color coded notes
- Pre-teaching/Reteaching

EL DIFFERENTIATED INSTRUCTION:

- Word Walls with visuals
- TWPS (Think, Write, Pair, Share)
- Pre-reading strategies
- Culturally responsive teaching
- Explicit Modeling
- Key Vocabulary
- Graphic Organizers
- Strategic Grouping
- Non-verbal Assessments

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Assessments

FORMATIVE ASSESSMENTS:

- Warm-ups (SBAC)
- Whiteboards
- Mid-class check-ins
- Exit Slips
- Accountable Talk Discussions
- Do Now
- Student-led instruction
- Homework
- Performance Task – A Day at the Mall
 - Summative Performance Task Assessment Rubric

SUMMATIVE ASSESSMENTS:

- 4.1 – 4.5 Lesson Check (Quiz – EU 1)
- Unit 4 Test – EU 1
- Performance Task – A Day at the Mall

Unit Task

Unit Task Name: A Day at the Mall

Description: Students will use information in this unit about percentages to find the discount price of items, how much sales tax is added to the price, and how much tip to leave at a restaurant (EU 1). Students are shopping at Target with a 15% off coupon, finding sales tax added to items at Best Buy, and eating lunch at T.G.I. Fridays with a deal on entrees (buy one, get one half off). They will also be given the total cost for going to a restaurant and asked to figure out how much to leave for a 20% tip.

Evaluation: Summative Performance Task Assessment Rubric

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Unit Resources
• Worksheets • Calculator • Laptops • SBAC Prep Online • Pear Assessment • Individual Whiteboards • 2 Truths & One Lie • State Common Core Standards Transition Tasks • Online resources