Unit 6: Understand and Use Percents

Content Area: **Mathematics**
Course(s):
Time Period: **March**
Length: **3-4 weeks**
Status: **Published**

Essential Questions

- How can I convert between fractions, decimals, and percents?
- How can I use percents to find the part or the whole of a number?

Enduring Understandings

- A percent is a rate in which the first term is compared to 100. The present the the number of hundredths that represent the part of the whole.
- Fractions, decimals, and percents are three ways to show parts of a whole.
- A percent greater than 100 is equivalent to more that the whole. A percent less that 1 is equivalent to less than 1/100 of a whole.
- Equivalent fractions and compatible numbers can be used to estimate the percent of a number.
- Finding the percent of a whole is like finding the fractional part of a whole.
- Models and equations can be used to find the whole amount when the percent and a part are known.

Critical Knowledge and Skills

Vocabulary :

Percent

Equivalent

Decimal

Part

Whole

Estimate

Learning Objectives

- 6-1: Understand Percent
    - Represent the percent of a whole
    - Find the percent of a whole

- 6-2: Relate Fractions, Decimals, and Percents
    - Write equivalent value as fractions, decimals, and percents.
    - Write fractions as decimals and percents when the denominator of the fraction is not 100.
- 6-3: Represent Percents Greater Than 100 of Less Than 1
    - Write percents that are greater than 100 and less than 1.
- 6-4: Estimate to Find Percent
    - Estimate the percent of a number
- 6-5: Find Percent of a Number
    - Use the decimal form of a percent to find the percent of a number
    - Write an equation to solve percent problems
- 6-6: Find the Whole Given a Part and the Percent
    - Find the whole amount when given a part and the percent.

Resources

- Lesson Resources
    - Student Edition
    - Additional Practice Workbook
    - Teaching Resources
        - Reteach to Build Understanding, Additional Vocabulary Support, Build Mathematical Literacy, Enrichment
    - Digital Lesson Courseware
        - Today's Challenge, Visual Learning Animation Plus, Key Concepts, Additional Examples, 3-Act Mathematical Modeling, Online Practice powered by MathXL for School, Virtual Nerd Video Tutorials, Animated Glossary, Digital Math Tools, Online Math Games
- Topic Resources
    - Student's Edition
        - Review What You Know, Build Literacy in Mathematics, Mid-Topic Checkpoint and Performance Task, Topic Review, Fluency Practice Activity, STEM Project
    - Digital Topic Support for Students
        - Math Practice Animations, STEM Project, 3-Act Mathematical Modeling Lesson

Standards for Mathematical Practice and Content

CCSS.Math.Practice.MP1	Make sense of problems and persevere in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.
MA.6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
CCSS.Math.Practice.MP2	Reason abstractly and quantitatively.
CCSS.Math.Practice.MP3	Construct viable arguments and critique the reasoning of others.
CCSS.Math.Practice.MP4	Model with mathematics.
CCSS.Math.Practice.MP5	Use appropriate tools strategically.
CCSS.Math.Practice.MP6	Attend to precision.
MA.6.RP.A.3c	Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
CCSS.Math.Practice.MP7	Look for and make use of structure.
CCSS.Math.Practice.MP8	Look for and express regularity in repeated reasoning.

Interdisciplinary Connections

NJSLS Companion Standards Grades 6-8

RST.6-8.3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

RST.6-8.7. Integrate quantitative or technical information expressed in words in a text with a version of that

information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

NJSLSA.W4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Career Readiness, Life Literacies, & Key Skills (CLKS)

Career Readiness, Life Literacies, and Key Skills Practices describe the habits of the mind that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. These practices should be taught and reinforced in all content areas with increasingly higher levels of complexity and expectation as a student advances through a program of study.

Practices:

Act as a responsible and contributing community members and employee

Attend to financial well-being

Demonstrate creativity and innovation

Utilize critical thinking to make sense of problems and persevere in solving them

Model integrity, ethical leadership and effective management

Use technology to enhance productivity increase collaboration and communicate effectively

Work productively in teams while using cultural/global competence

9.4.8.CT.2: Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option

9.4.8.GCA.2: Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.

9.4.8.IML.2: Identify specific examples of distortion, exaggeration, or misrepresentation of information.

9.4.8.IML.3: Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b). • 9.4.8.IML.4: Ask insightful questions to organize different types of data and create meaningful visualizations.

9.4.8.TL.3: Select appropriate tools to organize and present information digitally

Computer Science & Design Thinking (CS & DT)

Computing Systems

Troubleshooting a problem is more effective when knowledge of the specific device along with a systematic process is used to identify the source of a problem.

Data & Analysis

People use digital devices and tools to automate the collection, use, and transformation of data.

8.1.8.CS.1: Recommend improvements to computing devices in order to improve the ways users interact with the devices.

8.2.8.NT.1: Examine a malfunctioning tool, product, or system and propose solutions to the problem.