

# Unit 5 Ratios and Rates

Content Area: **Math**  
Course(s): **Accelerated Math 6**  
Time Period: **Marking Period 1**  
Length: **3**  
Status: **Published**

## Course Pacing Guide

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Unit	MP/Trimester	Weeks
Numerical Expressions and Factors	1	3
Fractions and Decimals	1	5
Algebraic Expressions and Properties	2	3
Areas of Polygons	2	3
<b>Ratios and Rates</b>	2	4
Integers and Coordinate Plane	3	4
Equations and Inequalities	3	4
Surface Area and Volume	3	4
Statistical Measures	4	3
Data Displays	4	3

## Unit Overview

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This unit allows students to focus on finding areas of triangles, special quadrilaterals, and polygons; finding the distance between points with the same x- or y-coordinate; drawing polygons in the coordinate plane given vertices and finding lengths of sides.

## Enduring Understandings

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1. Two and three dimensional shapes have properties and relationships similar to each other.
2. Coordinate geometry can be used to describe spatial relationships and location.
3. The study of transformations and symmetry provides a deeper understanding of physical change.

## Essential Questions

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- How can you derive a formula for the area of a parallelogram?
- How can you derive a formula for the area of a triangle?
- How can you derive a formula for the area of a trapezoid?

- How can you find the lengths of line segments in a coordinate plane?

## **New Jersey Student Learning Standards (No CCS)**

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MA.6.G.A.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
MA.6.G.A.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

## **Interdisciplinary Connections**

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**EDIT**

## **Technology Standards**

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TECH.8.1.12.D.CS3	Exhibit leadership for digital citizenship.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.1.12.E.CS4	Process data and report results.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.2.12.C.CS2	The application of engineering design.
TECH.8.1.12.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.

## **21st Century Themes/Careers**

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CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.

## Financial Literacy Integration

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PFL.9.1.8.A.2	Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.
PFL.9.1.8.A.6	Explain how income affects spending decisions.
PFL.9.1.8.B.9	Determine the most appropriate use of various financial products and services (e.g., ATM, debit cards, credit cards, check books).
PFL.9.1.8.D.1	Determine how saving contributes to financial well-being.
PFL.9.1.8.D.5	Explain the economic principle of supply and demand.
PFL.9.1.8.E.1	Explain what it means to be a responsible consumer and the factors to consider when making consumer decisions.
PFL.9.1.8.F.3	Relate the impact of business, government, and consumer fiscal responsibility to the economy and to personal finance.

## Instructional Strategies & Learning Activities

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- “What You Learned Before” pg. 151
- For each lesson:
  - inquiry-based activity
  - direct instruction lesson
  - guided practice & problem solving exercises
  - independent practice & problem solving exercises mini-assessment
- Chapter Review
- Cooperative learning
- Direct instruction
- Graphic organizers
- Multiple representations (visuals, modeling, acting out, etc.)
- Games & Puzzles
- Differentiated Instruction:
  - selected partner or group activities

- leveled practice sheets
- leveled assignment guides

## **Differentiated Instruction**

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- Inquiry/Problem-Based Learning
- Learning preferences integration (visual, auditory, kinesthetic)
- Tiered Learning Targets
- Meaningful Student Voice & Choice
- Relationship-Building & Team-Building
- Self-Directed Learning
- Debate
- Student Data Inventories
- Game-Based Learning
- Grouping
- Rubrics
- Jigsaws
- Learning Through Workstations
- Concept Attainment
- Flipped Classroom
- Mentoring
- Assessment Design & Backwards Planning

## **Formative Assessments**

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- Prior knowledge checks
- Notebook & practice problem checks
- Homework checks
- Lesson mini-assessments

- Exit tickets
- Review games
- Skills Packets for each Marking Period that focuses on practicing topics from the previous MP

## **Summative Assessment**

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- Mid-chapter quiz
- End-of-chapter quiz
- Chapter tests
  - Open-ended in A or B forms
  - Standards assessment with gridded, short, and extended responses
  - Alternative assessment & rubric
- End of Year Activity/Project: Students will create a “Flocabulary” video using a specific mini-lesson or unit that was taught throughout the year. They will create their own song/rap, record it, and present it to the class, and be graded by rubric for participation, and effort.
- Crime Scene Investigation Packets that correspond with each particular unit that requires the students to solve riddles and puzzle
- House Floor Plan: Students will draw a scale model of the first floor of their house using ratios to make sure it is scaled appropriately/accurately. At the conclusion of Unit 5, Rates and Ratios, the students will revisit Unit 4 in order to find the area of their scale drawing.
- Parallelogram Project: Students will create a drawing using 15 or more parallelograms, and then find the area of each parallelogram in order to find the total area.

## **Benchmark Assessments**

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Students will take NJSLA grade 6 Benchmark A

## **Alternate Assessments**

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- Modified homework
- Modified quizzes
- Modified tests
- Modified projects

## **Resources & Technology**

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- BIG Ideas Math Textbook
- Record and Practice Journal
- Google Docs, Spreadsheets, and Slides
- ST Math- Class Path and Personalized Path
- Promethean Board
- Chromebooks
- Google Classroom
- Games and Manipulatives
- Websites: Flocabulary, IXL Math

## **BOE Approved Texts**

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Big Ideas Math (Larson/Boswell)

ISBN: 978-1-60840-456-8

## **Closure**

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- Low-Stakes Quizzes - Give a short quiz using technologies like Kahoot or a Google form.
- Have students write down three quiz questions (to ask at the beginning of the next class).
- Have students dramatize a real-life application of a skill.
- Ask a question. Give students ten seconds to confer with peers before you call on a random student to answer. Repeat.
- Have kids orally describe a concept, procedure, or skill in terms so simple that a child in first grade would get it.
- Direct kids to raise their hands if they can answer your questions. Classmates agree (thumbs up) or

disagree (thumbs down) with the response.

- Have kids create a cheat sheet of information that would be useful for a quiz on the day's topic.
- Kids write notes to peers describing what they learned from them during class discussions.
- Have students fill out a checklist with the objectives for the day.
- Have students complete an exit ticket without putting their name on it. Hand back exit tickets the next day in class and have students correct as a warm up.
- Ask students to write what they learned, and any lingering questions on an "exit ticket". Before they leave class, have them put their exit tickets in a folder or bin labeled either "Got It," "More Practice, Please," or "I Need Some Help!"
- After writing down the learning outcome, ask students to take a card, circle one of the following options, and return the card to you before they leave: "Stop (I'm totally confused. Go (I'm ready to move on.)" or "Proceed with caution (I could use some clarification on . . .)"

## **ELL**

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- Alternate Responses
- Advance Notes
- Extended Time
- Teacher Modeling
- Simplified Written and Verbal Instructions
- Frequent Breaks
- E-Dictionaries
- Google Translate

## **Special Education**

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- Shorten assignments to focus on mastery of key concepts.
- Specify and list exactly what the student will need to learn to pass.
- Evaluate the classroom structure against the student's needs (flexible structure, firm limits, etc.).

- Keep workspaces clear of unrelated materials.
- Keep the classroom quiet during intense learning times.
- Reduce visual distractions in the classroom (mobiles, etc.).
- Provide a computer for written work.
- Seat the student close to the teacher or a positive role model.
- Provide an unobstructed view of the whiteboard, teacher, movie screen, etc.
- Keep extra supplies of classroom materials (pencils, books) on hand.
- Maintain adequate space between desks.
- Give directions in small steps and in as few words as possible.
- Number and sequence the steps in a task.
- Have student repeat the directions for a task.
- Provide visual aids.
- Go over directions orally.
- Provide a vocabulary list with definitions.
- Permit as much time as needed to finish tests.
- Allow tests to be taken in a room with few distractions (e.g., the library).
- Have test materials read to the student, and allow oral responses.
- Divide tests into small sections of similar questions or problems.
- Allow the student to complete an independent project as an alternative test.
- Allow take-home or open-book tests.
- Show a model of the end product of directions (e.g., a completed math problem or finished quiz).
- Stand near the student when giving directions or presenting a lesson.
- Mark the correct answers rather than the incorrect ones.
- Permit a student to rework missed problems for an additional credit grade.
- Average grades out when assignments are reworked, or grade on corrected work.



- preferential seating
- extended time on tests and assignments
- reduced homework or classwork
- verbal, visual, or technology aids
- modified textbooks or audio-video materials
- behavior management support
- adjusted class schedules or grading
- verbal testing
- excused lateness, absence, or missed classwork
- pre-approved nurse's office visits and accompaniment to visits
- occupational or physical therapy

**At Risk**

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- Have student restate information
- Provision of notes or outlines
- Concrete examples
- Assistance in maintaining uncluttered space
- Weekly home-school communication tools (notebook, daily log, phone calls or email messages)
- Peer or scribe note-taking
- Lab and math sheets with highlighted instructions
- Graph paper to assist in organizing or lining up math problems
- Use of manipulatives
- No penalty for spelling errors or sloppy handwriting
- Follow a routine/schedule
- Teach time management skills

- Verbal and visual cues regarding directions and staying on task
- Adjusted assignment timelines
- Visual daily schedule
- Immediate feedback
- Work-in-progress check
- Pace long-term projects
- Preview test procedures
- Cue/model expected behavior
- Use peer supports and mentoring
- Chart progress and maintain data

## **Gifted and Talented**

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