(8th) Unit 3: Angles & Triangles

Content Area: **Math**
Course(s): **Math**
Time Period: **November**
Length: **3 weeks**
Status: **Published**

Unit Overview

In this unit, students will learn about the following topics:

- Parallel lines & transversals

- Angle pair relationships

- Triangle angle sum formula

- Exterior angle formula for triangles

- Angle sum in polygons

- Using similar triangles to solve for unknown side lengths

- Proving similarity between two triangles

Enduring Understandings

SWBAT:

- Identify angle pair relationships created by parallel lines and transversals

- Solve for unknown values in angles created by parallel lines and transversals

- Create and solve equations modeled by parallel lines and transversals

- Create and solve equations modeled by angles inside/outside triangles

- Find the angle sum of an n-sided polygon

- Use the angle sum to find the measure of one interior angle in a polygon or a regular polygon

- Use angle pair relationships to identify two similar triangles

- Use angle measures to identify two similar triangles

- Use proportions to solve for missing side lengths in similar triangles

Essential Questions

How can we:

- identify congruent angles when a transversal intersects parallel lines?
- find angle measures when a transversal intersects parallel lines?
- identify two angles that are:
    - supplementary?
    - complementary?
    - alternate interior angles?
    - alternate exterior angles?
    - same-side interior angles?
    - corresponding angles?
    - vertical angles?

How can we:

- prove the angle sum formula for a triangle?
- use equations to find missing angle measures of triangles?
- use interior and exterior angles of a triangle to solve real-world problems?

How can we:

- prove the angle sum formula for a polygon using triangles?
- use an equation to find an interior angle measure of a polygon?
- find the interior angle measures of a regular polygon?

How can we:

- use angle measures to determine whether triangles are similar?
- use similar triangles to solve real-world problems?
- solve proportions to find a missing side length in one of two similar triangles?

Instructional Strategies & Learning Activities

- Guided Practice
- Daily Do Now
- Extra Practice & Puzzle Time (Resources)
- Scavenger Hunts
- Coloring Activities
- Task Cards (Around the World)
- Maze Activities
- Quizizz Online Assignments
- Kahoot! Online Games
- GimKit Online Games

Integration of 21st Century Themes and Skills

P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
9.4.8.CT.3	Compare past problem-solving solutions to local, national, or global issues and analyze the factors that led to a positive or negative outcome.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP11.1	Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

Technology & Design Integration

8.1.8.AP.6	Refine a solution that meets users' needs by incorporating feedback from team members and users.
8.1.8.AP.8	Systematically test and refine programs using a range of test cases and users.
TECH.8.1.8.F	Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.
TECH.8.2.8.D.CS1	Apply the design process.

Interdisciplinary Connections

L.KL.8.2.A	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases.
L.KL.8.2.B	Gather vocabulary knowledge when selecting a word or phrase important to comprehension or expression.
L.VL.8.3.A	Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.
L.VL.8.3.B	Analyze the impact of specific word choices on meaning and tone.
L.VL.8.3.C	Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., precede, recede, secede).

L.VL.8.3.D	Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.
VPA.1.3.P.D.2	Create two and three-dimensional works of art while exploring color, line, shape, form, texture, and space.

Differentiation

Definitions of Differentiation Components:

- Content – the specific information that is to be taught in the lesson/unit/course of instruction.
- Process – how the student will acquire the content information.
- Product – how the student will demonstrate understanding of the content.
- Learning Environment – the environment where learning is taking place including physical location and/or student grouping

Differentiation occurring in this unit:

- High-achieving students will assist low-achieving students in mixed ability groupings for games and activities.
- High-achieving students can complete sudoku puzzles and logic puzzles as extension activities.
- Limit number/difficulty of problems for low-achieving students to demonstrate mastery.
- Narrow down problem choice to core concepts for low-achieving students.
- Leveled group-based activities, determined by formative assessment.

Modifications & Accommodations

- High-achieving students will assist low-achieving students in mixed ability groupings for games and activities.
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Benchmark Assessments

Schoolwide Benchmark assessments:

- Linkit Benchmarks (Form A in September, Form B in January, Form C in June): Linked to NJSLA standards

Additional Benchmarks used in this unit:

- IXL Diagnostic + continued practice during IXL periods

Formative Assessments

Formative Assessments used in this unit:

- Kahoot! Games

- Quizizz Games

- Homework

- Q & A

- Scavenger Hunts

- Coloring Activities

- Task Cards

- Partner Activities

Summative Assessments

Summative assessments for this unit:

- Chapter Test
- Quizzes

Instructional Materials

1. Big Ideas Math: Math & You 6th Grade Textbook
2. Quizizz
3. Kahoot!
4. Scavenger Hunts
5. Task Cards
6. Coloring Activities
7. GimKit

Standards

8.G.A.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.