Trimester	Unit Title	Recommended Instructional Days
3	**Measuring Angles**	**8-10 days**
Domain: Geometry; Measurement		

Strand:

 **4.G.A.1** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

 **4.G.A.2** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

 **4.M.B.4** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$*th* of a circle is called a "one degree angle," and can be used to measure angles.

 **4.M.B.4** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.
b. An angle that turns through n one-degree angles is said to have an angle measure of *n* degrees.

 **4.M.B.5** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

 **4.M.B.6** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

Key:

 **Major Cluster**  **Supporting Cluster**  **Additional Cluster**  **Climate Change Opportunity**

Progress Indicator: ◊ Tests ◊ Homework / Classwork ◊ Projects ◊ Formative assessments ◊ Summative assessments ◊ Performance assessments

Mathematical Practices:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reason of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CLKS within Unit

Essential Questions:
Lesson 15.1: How do we relate angles and fractional parts of a circle?
Lesson 15.2: How can we estimate angle measurements using benchmarks?
Lesson 15.3: How can we use a protractor to measure and draw angles?
Lesson 15.4: How can we determine the measure of an angle separated into parts?
Lesson 15.5: How can we solve real-world problems involving unknown whole-number angle measures using a variety of strategies?

Essential Understandings:
Lesson 15.1: Relating angles to fractional parts of a circle helps us understand how angles represent portions of a circle.

Lesson 15.2: Estimating angle measurements using benchmarks, such as right angles and straight angles, helps us develop a sense of angle sizes and improve our ability to make quick, reasonable estimates.
Lesson 15.3: Using a protractor to measure and draw angles allows us to accurately determine the size of angles and create precise geometric drawings.
Lesson 15.4: Determining the measure of an angle separated into parts involves understanding that the sum of the parts equals the whole.
Lesson 15.5: Solving real-world problems involving unknown whole-number angle measures using various strategies allows us to apply our understanding of angles to practical situations, enhancing our problem-solving skills and ability to use geometry in everyday contexts.

Vocabulary

- clockwise
- counterclockwise
- degrees
- benchmark angles
- protractor

Suggested Activity Description:
Waggle, On the Spot Videos, Tier 2 and 3 Intervention Resources, Vocabulary Activities, Grab and Go Differentiation Kit, Explore and Guided/Independent Practice related to the NJSLS, Essential Question Discussion and Check-In, Share and Show, Basic Skills Review, Manipulative Activity, Reteach Activity, Reading Strategies Activity, Making Connections, Multilingual Support, Performance Task, Enrich Activity, Exit Ticket

Interdisciplinary Connections:
Language Arts:

1. Problem #8 on TB page 613.
2. Problem #10 on TB page 631.
3. Problem #3 on TB page 637.

Science:

1. Connect to Science on TB page 624.
2. See Cross-Curricular box on Teacher Edition page 637.

Social Studies:

1. See Cross-Curricular box on Teacher Edition page 637.

Physical Education:

1. Problem #14 on TB page 620.

Spot Light On: *Use random response strategies.*

Social and Emotional Learning: *Competencies*	**Social and Emotional Learning: *Sub-Competencies***
SEL Competencies: • Self- awareness • Social Awareness • Self- Management • Relationship Skills • Responsible Decision-Making	• Recognizing the importance of self-confidence in handling daily tasks and challenges. • Demonstrate an awareness of the expectations for social interactions in a variety of ways. • Demonstrate an understanding of the need for mutual respect when viewpoints differ. • Identify and apply ways to persevere through alternative methods to achieve goals. • Utilize positive communication and social skills to interact effectively with others. •Develop, implement, and model effective problem solving and critical thinking skills.
Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
<u>Formative Assessments:</u> • Teacher Observations • Exit Tickets • Quizzes • Self Assessments • Math Journals • Homework/Classwork • Teacher created assessments	**<u>Benchmarks & Summative Assessments:</u>** Chapter/Unit Assessments • Standardized Tests • Project-based Assessments

Differentiated Student Access to Content: **Teaching and Learning *<u>Resources/Materials</u>***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
Go Math Workbook, Interactive Student Edition, ST MATH 60 minutes a week, Waggle, Math on the Spot Videos, iReady, Khan Academy, Illustrative Mathematics, Learn360, TeacherTube, BrainPOP, Freckle, LearnZillion, MobyMax, Achieve the Core, Desmos, RTI	Reteaching worksheets, Skill building workbook, Math manipulatives, iTools, Leveled practice worksheets	Multilingual glossary, eGlossary, Multilingual Activities on ED, Vocabulary Cards, Success for English Learners worksheets, Leveled Strategies for English Learners, Linguistic Support	ST MATH special projects, Enrichment worksheets, Art of Problem Solving, Leveled assessments

Supplemental Resources			
Technology: • Chromebooks • Online math manipulatives **Other:** • Google Classroom, Google Meets, Schoology, Interactive Workbooks • Illustrative Mathematics • insidemathematics.org • National Library of Virtual Manipulatives			
Differentiated Student Access to Content: **Recommended *Strategies & Techniques***			
Core Resources	**Alternate Core Resources** *IEP/504/At-Risk/ESL*	**ELL Core Resources**	**Gifted & Talented Core**
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat	Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.	Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of an online bilingual dictionary, and modified assessment and/or rubric.	Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect student to related

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept(s):** Work Productively in Teams	
	Core Ideas:	The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.
	Performance Expectation/s:	**9.4.5.CT.1**: Identify and gather relevant data that will aid in the problem-solving process.

	Career Readiness, Life Literacies, & Key Skills Practices
	Act as a responsible and contributing community member and employee. **Attend to financial well-being.** **Consider the environmental, social and economic impacts of decisions.** **Demonstrate creativity and innovation.** **Utilize critical thinking to make sense of problems and persevere in solving them.** **Model integrity, ethical leadership and effective management.** **Plan education and career paths aligned to personal goals.** **Use technology to enhance productivity, increase collaboration and communicate effectively.** **Work productively in teams while using cultural/global competence.**

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*	**X**	Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*