Englewood Public School District
Mathematics
Grade 4
Third Marking Period

Unit – Angles, Lines and Shapes

Overview: During this unit, students will learn about angles, perpendicular and parallel line segments, and squares and rectangles.

Time Frame: Chapter 9 - 12 days, Chapter 10 – 9 days, Chapter 11 – 13 days
(Pacing includes 1 day for Chapter Opener pages if needed.)

Enduring Understandings:
Angles can be seen and measured when two rays or sides of a shape meet.
Line segments can go up and down, from side to side, and in every direction.
Squares and rectangles are four-sided figures with special properties.

Essential Questions:
Where do you see angles in everyday life?
How do basic geometric objects relate to angles?
How do angles relate to a circle?
How are angles classified and measured?
How are geometric attributes (properties) used to solve problems in everyday life?
Where do you see parallel lines, perpendicular lines, horizontal lines, and vertical lines in real life?
Where do you see squares and rectangles in real life?
What is the difference between a square and a rectangle?

Standards	Topics and Objectives	Activities	Resources	Assessments
Chapter 9				
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.	**Topics** Understanding that angles can be seen and measured when two rays or sides of a shape meet.	Students will brainstorm ways that geometry is used in our everyday lives, including future careers. (9.2.4.A.4) 4.G.A.1 The Geometry of	**SE-4B:** 85-104 **Workbook 4B:** 45-60 **Common Core Focus Lesson Appendix** **Think Central**: Online	**Unit 3 Benchmark Assessments:** • Common Formative Assessment • Exact Path

4.MD.C.5. 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 1/360 of a circle is called a "one-degree angle," and can be used to measure angles.

b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.

4.MD.C.6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

4.MD.C.7. 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

Twenty-First Century Themes and Skills include:

- Creativity and Innovation
- Critical Thinking and Problem Solving
- Communication and Collaboration

Objectives

The students will be able to:

- Estimate and measure angles with a protractor.
- Estimate whether the measure of an angle is less than or greater than a right angle.
- Use a protractor to draw acute and obtuse angles.
- Relate ¼, ½, ¾, and full turns to the number of right angles.
- Understand that an angle that turns through 1/360 of a circle is called a "one-degree angle".
- Find unknown angles using addition and subtraction.
- Solve addition and subtraction problems to find unknown angles on a diagram in real-world problems.

Letters

4.G.A.1 What's the Point?

4.MD.C.6, 4.MD.C.7, 4.G.A.1 Measuring Angles

4.MD.C.7, 4.G.A.2 Finding an unknown angle

Math Playground
http://www.mathplayground.com/

Math Coach – Fact Fluency
http://schoolwires.henry.k12.ga.us/Page/21865

Math Wire – Basic Facts Link
http://mathwire.com/numbersense/bfactslinks.html

Math Fact Practice
http://www.playkidsgames.com/games/mathfact/mathFact.htm

Critical Thinking and Problem Solving p.101: Put on Your Thinking Cap!

Attack angle:
http://www.xpmath.com/f

access to all Math in Focus materials listed above and Virtual Manipulatives

Professional Resources:
The Model Method from the Ministry of Education Singapore and Bar Modeling: A Bar Modeling Tool by Yeap Ban Har, PhD.

Lesson and Component Walkthrough:
www.hmhelearning.com

Technology Resources

- Math in Focus eBooks
- Math in Focus Teacher Resources CD

Arizona Flip Book – Gr 4
http://www.tusd1.org/resources/curriculum/math/4flipbookedited.pdf

North Carolina Dept of Ed. Wikispaces:
http://maccss.ncdpi.wikispaces.net/Elementary

Standards Solution Lessons:

- **CCSS Lesson Plan:** Coordinate Connections
- **CCSS Lesson Plan:** Scavenger Hunt
- **CCSS Prescriptive Lesson Plan:** Angle

Formative Assessments:

- Do Now
- Exit Ticket
- Math Journal Entries (CRP4)
- Math notebook (NJSLSA.W2.)
- Calendar skills
- Observations
- Discussions: in groups, have students explain different ways of solving problems (CRP4)
- Multiple choice / short answer assessments

Summative Assessments:

Math in Focus Assessments

Chapter Review/Test – pp 103-104

Assessments 4 – pp. 72-75

ExamView Assessment Suite – Test and Practice Generator

Alternative Assessments:
Learning centers: each learning center focuses on a different type of problem

angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure. ***Mathematical Practices*** **MP.1, MP.2, MP.3, MP.5, MP.6**		orums/arcade.php?do=play&gameid=74 (8.1.5.A.1) **Angles and robots:** https://www.topmarks.co.uk/Flash.aspx?a=activity16 (8.1.5.A.1, RI.4.7) **20 fun angle activities:** https://www.teachstarter.com/blog/20-fun-angles-activities-resources/ (RI.4.7, NJSLSA.R1) **Children's books:** https://www.the-best-childrens-books.org/math-for-kids.html **More additional texts:** www.newsela.com www.readworks.org www.commonlit.org	Measurement **4th grade worksheets:** https://www.k5learning.com/free-math-worksheets/fourth-grade-4 (CRP2, CRP4, CRP8, 8.1.5.A.1) **4th grade worksheets, games, lessons, activities, online exercises:** https://www.education.com/resources/fourth-grade/ (CRP2, CRP4, CRP8, 8.1.5.A.1) **4th grade videos, games interactive, assessments, lessons, homework and audio (select from drop down menu):** https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment (CRP2, CRP4, CRP8, 8.1.5.A.1) **4th grade Common Core worksheets:** https://www.ixl.com/math/grade-4 (CRP2, CRP4, CRP8, 8.1.5.A.1) **Khan Academy – videos, lessons, assessments**	Have students find the measure of all the angles in the letters of their names when written in block letters (on graph paper) (CRP2)

			www.khanacademy.org (8.1.5.A.1)	

Chapter 10				
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.** ***Mathematical Practices*** **MP.1, MP.3, MP.5, MP.6**	**Topics** Understanding that line segments can go up and down, from side to side, and in every direction. Twenty-First Century Themes and Skills include: • Creativity and Innovation • Critical Thinking and Problem Solving • Communication and Collaboration **Objectives** The students will be able to: • Draw perpendicular line segments. • Draw parallel line segments. • Identify horizontal and vertical lines.	**4.G.A.2 Are these right?** **4.G.A.2 Defining Attributes of Rectangles and Parallelograms** **Math Playground** **http://www.mathplayground.com/** **Math Coach – Fact Fluency** **http://schoolwires.henry.k12.ga.us/Page/21865** **Math Wire – Basic Facts Link** **http://mathwire.com/numbersense/bfactslinks.html** **Math Fact Practice** **http://www.playkidsgames.com/games/mathfact/mathFact.htm** **Critical Thinking and Problem Solving p.121: Put on Your Thinking Cap!**	**SE-4B:** 111-124 **Workbook 4B:** 61-72 **Common Core Focus Lesson Appendix** **Think Central**: Online access to all Math in Focus materials listed above and Virtual Manipulatives **Professional Resources:** The Model Method from the Ministry of Education Singapore and Bar Modeling: A Bar Modeling Tool by Yeap Ban Har, PhD. **Lesson and Component Walkthrough:** www.hmhelearning.com **Technology Resources** • Math in Focus eBooks • Math in Focus Teacher Resources CD **Arizona Flip Book – Gr 4** http://www.tusd1.org/resources/curriculum/math/4flipboo	**Formative Assessments:** • Do Now • Exit Ticket • Math Journal Entries (CRP4) • Math notebook (NJSLSA.W2.) • Calendar skills • Observations • Discussions: in groups, have students explain different ways of solving problems (CRP4) • Multiple choice / short answer assessments **Summative Assessments:** **Math in Focus Assessments** Chapter Review/Test – pp 123-124 Assessments 4 – pp.80-85 ExamView Assessment

Grade 4 supplement, parallel, perpendicular and intersecting lines:
https://bridges1.mathlearningcenter.org/files/media/Bridges_Gr4_OnlineSupplement/B4SUP-C1_GeomParallel_0409.pdf
(NJSLSA.R1, RI.4.4, RI.4.5, RI.4.7, CRP6)

Children's books:
https://www.the-best-childrens-books.org/math-for-kids.html

More additional texts:
www.newsela.com
www.readworks.org
www.commonlit.org

kedited.pdf

North Carolina Dept of Ed. Wikispaces:
http://maccss.ncdpi.wikispaces.net/Elementary

Standards Solution Lessons:

- **PARCC Lesson 17 –** Practice PARCC Type I Geometry
- **CCSS Lesson Plan:** Classifying Two-dimensional figures
- **CCSS Prescriptive Lesson Plan:** Lines and Angles
- **CCSS Prescriptive Lesson Plan:** Classifying Two-Dimensional Shapes

4th grade worksheets:
https://www.k5learning.com/free-math-worksheets/fourth-grade-4
(CRP2, CRP4, CRP8, 8.1.5.A.1)

4th grade worksheets, games, lessons, activities, online exercises:
https://www.education.com/resources/fourth-grade/
(CRP2, CRP4, CRP8, 8.1.5.A.1)

Suite – Test and Practice Generator

Alternative Assessments:
Create poster describing the properties parallel, perpendicular, horizontal and vertical lines
(RI.4.7, NJSLSA.W2, SL.4.3, SL.4.6, NJSLSA.L1)

			4th grade videos, games interactive, assessments, lessons, homework and audio (select from drop down menu): https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment (CRP2, CRP4, CRP8, 8.1.5.A.1) **4th grade Common Core worksheets:** https://www.ixl.com/math/grade-4 (CRP2, CRP4, CRP8, 8.1.5.A.1) **Khan Academy – videos, lessons, assessments www.khanacademy.org** 8.1.5.A.1)	

Chapter 11				
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.	**Topics** Understanding properties of squares and rectangles. Twenty-First Century Themes and Skills include: • Creativity and Innovation • Critical Thinking and	**Math Playground** http://www.mathplayground.com/ **Math Coach – Fact Fluency http://schoolwires.henry.k12.ga.us/Page/21865** **Math Wire – Basic Facts**	**SE-4B:** 129-147 **Workbook 4B:** 73-85 **Common Core Focus Lesson Appendix** **Think Central**: Online access to all Math in Focus materials listed above and Virtual Manipulatives	**Formative Assessments:** • Do Now • Exit Ticket • Math Journal Entries (CRP4) • Math notebook (NJSLSA.W2.) • Calendar skills • Observations • Discussions: in

4.MD.A.1. **Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table.** ***For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36).***

4.MD.A.2. **Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.**

Problem Solving
- Communication and Collaboration

Objectives

The students will be able to:
- Understand and apply the properties of squares and rectangles.
- Find unknown angle measures and side lengths of squares and rectangles.

Link
http://mathwire.com/numbersense/bfactslinks.html

Math Fact Practice
http://www.playkidsgames.com/games/mathfact/mathFact.htm

Critical Thinking and Problem Solving p.144: Put on Your Thinking Cap!

Children's books:
https://www.the-best-childrens-books.org/math-for-kids.html

More additional texts:
www.newsela.com
www.readworks.org
www.commonlit.org

Professional Resources:
The Model Method from the Ministry of Education Singapore and Bar Modeling: A Bar Modeling Tool by Yeap Ban Har, PhD.

Lesson and Component Walkthrough:
www.hmhelearning.com

Technology Resources
- Math in Focus eBooks
- Math in Focus Teacher Resources CD

Arizona Flip Book – Gr 4
http://www.tusd1.org/resources/curriculum/math/4flipbookedited.pdf

North Carolina Dept of Ed. Wikispaces:
http://maccss.ncdpi.wikispaces.net/Elementary

Standards Solution Lessons:
- **CCSS Lesson Plan:** Discovering Systems of Measurement
- **CCSS Lesson Plan:** Measurement Systems
- **CCSS Lesson Plan:** Informative Line Plots
- **CCSS Prescriptive Lesson Plan:** Solving

groups, have students explain different ways of solving problems (CRP4)
- Multiple choice / short answer assessments

Summative Assessments:

Math in Focus Assessments

Chapter Review/Test – pp 146-147

Assessments 4 – pp. 90-94

ExamView Assessment Suite – Test and Practice Generator

Alternative Assessments:
Learning centers: each learning center focuses on a different type of problem

Create poster describing the properties of squares and rectangles (RI.4.7, NJSLSA.W2, SL.4.3, SL.4.6, NJSLSA.L1)

Put together a collage of

4.MD.B.4. Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.* **4.MD.C.7. 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.** **4.OA.A.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these**		Measurement Word Problems **4th grade worksheets:** https://www.k5learning.com/free-math-worksheets/fourth-grade-4 (CRP2, CRP4, CRP8, 8.1.5.A.1) **4th grade worksheets, games, lessons, activities, online exercises:** https://www.education.com/resources/fourth-grade/ (CRP2, CRP4, CRP8, 8.1.5.A.1) **4th grade videos, games interactive, assessments, lessons, homework and audio (select from drop down menu):** https://www.opened.com/search?area=mathematics&grade=4&offset=0&resource_type=interactive-assessment (CRP2, CRP4, CRP8, 8.1.5.A.1) **4th grade Common Core worksheets:** https://www.ixl.com/math/grade-4 (CRP2, CRP4, CRP8, 8.1.5.A.1) **Khan Academy – videos,**	squares and rectangles we see every day (RI.4.7, NJSLSA.W2, SL.4.3, SL.4.6, NJSLSA.L1)

problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. ***Mathematical Practices*** **MP.1, MP.3, MP.5, MP.6**		**lessons, assessments** **www.khanacademy.org** (8.1.5.A.1)

Key Vocabulary:
Chapter 9:
ray, vertex, protractor, degree, inner scale, outer scale, acute angle, obtuse angle, straight angle, turn

Chapter 10:
Perpendicular line segments, drawing triangle, parallel line segments, base, horizontal lines, vertical lines

Chapter 11:
square, right angle, rectangle, parallel

NJ Learning Standards Vocabulary:
4.G.A.1, 2, & 3
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
classify shapes/figures, properties (attributes, features), defining characteristics and non-defining characteristic, point, line, line segment, ray, angle, vertex/vertices, right angle, acute, obtuse, perpendicular, parallel, right triangle, isosceles triangle, equilateral triangle, scalene triangle
From previous grades: polygon, rhombus/rhombi, rectangle, square, triangle, quadrilateral, pentagon, hexagon, cube, trapezoid, half/quarter circle, circle, cone, cylinder, sphere

4.MD.A.1 & 2
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
measure, metric, customary, convert/conversion, relative size, liquid volume, mass, length, distance, kilometer (km), meter (m), centimeter (cm), kilogram (kg), gram (g), liter (L), milliliter (mL), inch (in), foot (ft), yard (yd), mile (mi), ounce (oz), pound (lb), cup (c), pint (pt), quart (qt), gallon (gal), time, a.m., p.m., clockwise, counter clockwise, hour, minute, second, equivalent, operations, add, subtract, multiply, divide, fractions, decimals, area, perimeter

4.MD.B.4
Represent and interpret data.
data, line plot, length, fractions

4.MD.C.5, 6, & 7
Geometric measurement: understand concepts of angle and measure angles.
measure, point, end point, geometric shapes, ray, angle, circle, fraction, intersect, one-degree angle, protractor, decomposed, addition, subtraction, unknown, obtuse, acute

4.OA.A. 3
Use the four operations with whole numbers to solve problems.
multiplication/multiply, division/divide, dividend, divisor, addition/add, subtraction/subtract, equations, unknown, remainders, reasonableness, mental computation, estimation, rounding

Accommodations and Modifications:

Students with special needs: Support staff will be available to aid students related to IEP specifications. 504 accommodations will also be attended to by all instructional leaders. Modifications, alternative assessments, and scaffolding strategies will be used to support this learning. The use of Universal Design for Learning (UDL) will be considered for all students as teaching strategies are considered. Additional staff should be included so all students can fully participate in the standards associated with this curriculum.

ELL/ESL students: Students will be supported according to the recommendations for "can do's" as outlined by WIDA - https://www.wida.us/standards/CAN_DOs/

Students at risk of school failure: Formative and summative data will be used to monitor student success at first signs of failure. Student work will be reviewed to determine support. This may include parent consultation, basic skills review and differentiation strategies. With considerations to UDL, time may be a factor in overcoming developmental considerations. More time will be made available with a certified instructor to aid students in reaching the standards.

Gifted and Talented Students: Students excelling in mastery of standards will be challenged with complex, high level challenges**.**

English Language Learners:	**Special Education:**	**At-Risk:**	**Gifted and Talented:**
• Simplify directions (verbally and in writing) • Teaching modeling • Peer modeling • Word walls	• Simplify directions (verbally and in writing) • Provide extra time to complete a task when needed	• Use visual demonstrations, illustrations and models • Give directions / instructions verbally and in simple written format	• Students may act as peer support • Allow students to complete an independent project as an alternative

• Give directions in small steps and in as few words as possible • Provide visual aids • Group similar problems together • Repeat directions when necessary • Provide a vocabulary list with definitions	• Utilize modifications & accommodations delineated in the students' IEP • Work with paraprofessional • Work with a partner • Shorten assignments to focus on mastery or key concepts • Maintain adequate space between desks • Keep workspaces clear of unrelated materials • Provide fewer problems to attain passing grades • Tape a number line to the student's desk • Create a math journal that they can use during class, on assignments and (if teacher allows) on assessments • Provide definitions of different graphs / charts with illustrations • Allow tests to be taken in a separate room • Allow students to use a calculator when appropriate • Divide test into small sections of similar questions or problems	• Peer support • Increased one – on – one time • Teachers may modify instructions by modeling what the student is expected to do • Instructions may be printed out in large print and hung up for the students to see during the time of the lesson • Review behavior expectations and make adjustments • Create a math journal that they can use during class, on assignments and (if teacher allows) on assessments • Allow students to complete an independent project as an alternative test	test • Inquiry based instruction • Independent study • Higher order thinking skills • Adjusting the pace of the lessons • Real world scenarios • Student driven instruction

Interdisciplinary Connections: ELA

NJSLSA.R1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
RI.4.4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a *grade 4 topic or subject area*
RI.4.5. Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a

text or part of a text
RI.4.7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears
NJSLSA.W2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content
NJSLSA.L1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking
SL.4.3. Identify the reasons and evidence a speaker provides to support particular points.
SL.4.6. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation.

Integration of Technology Standards NJSLS:

8.1.5.A.1: Select and use the appropriate digital tools and resources to accomplish a variety of tasks including problem solving

21st Century Standards

9.2.4.A.4 Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success.

Career Ready Practices:

CRP2: Apply appropriate academic and technical skills
CRP4: Communicate clearly and effectively and with reason
CRP6: Demonstrate creativity and innovation
CRP8: Utilize critical thinking to make sense of problems and persevere in solving them

Major Supporting Additional (Identified by PARCC Model Content Frameworks)