**Teacher(s):** Mrs. Breazeale & Ms. DeBLanc  **Subject/Grade:** 7th /Grade Math **Week of: Jan 22, 2024**

**Domain:** Geometry **Lesson Plan Title:** Circles & Review

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|  | **MATHEMATICS - Mississippi College and Career Readiness Standards for 7th Grade**  |
| **Numbers & Operations** | **7.NS. 1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.** |
| **Ratios & Proportions** | **7.RP Analyze proportional relationships and use them to solve real-world and mathematical problems.** |
| **Expressions & Equations** | **7.EE Solve real-life and mathematical problems using numerical and algebraic expressions and equations.** |
| **Geometry** | **7.G.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.****7.G.5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.** **7.G.1 Solve problems involving geometric figures, including actual lengths and area of a scale drawing.** |
| **Statistics & Probability** | **7.SP.4 Use measures of center and measures of variability (i.e. inter-quartile range) for numerical data from random samples to draw informal comparative inferences about two populations****7.SP.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple ...** |

**ACROSS CURRICULUM STANDARDS**

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| **ELA - Mississippi College and Career Readiness Standards for 7th Grade**  |
| **Reading Informational Text****CCR.R.10** Read and comprehend complex literary and informational texts independently and proficiently.**RI.7.10** By the end of the year, read and comprehend literary nonfiction in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range. **Writing****CCR.W.2**: Write informative /explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.**W.7.2b** Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.**W.7.2c** Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.**W.7.2d** Use precise language and domain-specific vocabulary to inform about or explain the topic. **W.7.2e** Establish and maintain a formal style.**W.7.10** Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.**Speaking & Listening****SL.7.6** Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.**Language** **CCR.L.1:** Demonstrate command of the conventions of standard English grammar and usage when writing (printing, cursive, or keyboarding) or speaking.**CCR.L.2:** Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.**L.7.2b** Spell correctly.**CCR.L.4:** Determine or clarify the meaning of unknown or multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate. **L.7.4b** Use common, grade appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., belligerent, bellicose, rebel).**L.7.4c** Consult general and specialized 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.**L.7.4d** Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).**CCR.L.6:** Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. **L.7.6** Acquire and use accurately grade-appropriate general academic and domain specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression. |

**Bottom 25%**: Students will be placed in groups based on ability. The general education teacher and the inclusion teacher will review their MPT. The general education teacher and the inclusion teacher will review their MPT and clear up any misconceptions on Tuesday and Thursday.

**Top 25%:** Students will work through problems on math prodigy while the teacher pulls students that scored below 70% on their current MPT.

**Bubbles**: Students will be placed in groups based on their ability. Some with higher performing students and some with lower performing students. The students in the higher performing group will learn from their peers and the students in the lower performing groups will act as a tutor to their peers. The general education teacher and the inclusion teacher will review their MPT and clear up any misconceptions on Tuesday and Thursday.

**ESSENTIAL QUESTION(S):** How will I memorize the formulas for the area and circumference of a circle and use them to solve problems?

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| **Date** | **Objective** | **Focus Question** | **I will…** |
| **1/22****M** | **CENTER 1: (Vocabulary & Writing): TSWBAT**  analyze and plan the best route for completing a two-dimensional obstacle course before writing a process essay using 10 out of 19 given vocabulary words. **[7.G.3]****CENTER 2 (Teacher’s Choice):** TSWBAT cogitate what they already know about angles and their measures in order to connect this knowledge to understanding the differences between complementary angles, supplementary angles, vertical angles, and adjacent angles. **[7.G.5]****CENTER 3 (W.I.N):** TSWBAT examine, analyze, and correct their current mixed practice test (MPT) by reviewing resources provided by the teacher, consulting with peers, and/or asking the teacher for help with 100% accuracy by the end of the lesson.**[MIxed Practice]****CENTER 4 (Fluency):** TSWBAT use what they know about angle relationships to complete a maze with 70% accuracy. **[7.G.5]** | **CENTER 1: (Vocabulary & Writing):** How can I use mathematical vocabulary to describe a process in writing? **[7.G.3]****CENTER 2: (Teacher’s Choice):**1) How will I differentiate between complementary angles, supplementary angles, vertical angles, and adjacent angles? 2)How do I use knowledge of angle relationships to find missing angles? **[7.G.5]****CENTER 3 (W.I.N):** How do mathematicians analyze and correct their graded tests in order to reflect on knowledge needed to master 7th grade math standards?**[MIxed Practice]****CENTER 4 (Fluency):** How will I use what I know about angle relationships and simple equations to determine the value of unknown angle measures?  **[7.G.5]** | **CENTER 1: (Vocabulary & Writing):**-Analyze an obstacle course before deciding the best route to the finish line. -Use mathematical vocabulary to describe the least dangerous path to complete the obstacle course safely.  **[7.G.3] & [ELA : 👀{CCR.R.10, RI.7.10,} 👀 {CCR.W.2, W.7.2b, W.7.2c, W.7.2d, W.7.2e, W.7.10,}👀 {CCR.L.1, CCR.L.2, L.7.2b, CCR.L.4, L.7.4b, L.7.4c, L.7.4d, CCR.L.6, L.7.6}👀****CENTER 2: (Teacher’s Choice):**-Differentiate between complementary angles, supplementary angles, vertical angles, and adjacent angles. -Use knowledge of angle relationships to find missing angles.-Discuss angle relationships observed in real-world scenarios within a small group. **[7.G.5] & [ELA : 👀{CCR.R.10, RI.7.10,} 👀 {W.7.2d, W.7.10,}👀{ SL.7.6,} 👀 {CCR.L.1, CCR.L.2, L.7.2b, CCR.L.4, L.7.4b, L.7.4c, L.7.4d, CCR.L.6, L.7.6}👀****CENTER 3 (W.I.N):**-Differentiate between silly mistakes and lack of knowledge.-In writing, explain the silly mistake and rework the problems that contain silly mistakes.-Use resources to help correct mistakes where mastery is not yet obtained.**[MIxed Practice] & [ELA : 👀{W.7.10,}👀 {SL.7.6,} 👀 {CCR.L.1, CCR.L.2, L.7.2b}👀****CENTER 4 (Fluency):** -Use an arithmetic or algebraic approach to calculate the value of unknown angles. **[7.G.5]** |
| **1/23****T** | TSWBAT complete “Understand Area and Circumference of a Circle” iReady math lesson by taking notes on key vocabulary and at least three example problems with 80% accuracy by the end of the lesson. | 1)How do mathematicians use iReady to enhance their mathematical skills?2)How will I use formulas for circumference and area of a circle to find unknown values? | 1)Use iReady to enhance my mathematical skills.2)Use formulas for circumference and area of a circle to find unknown values. |
| **1/24****W** | TSWBAT examine, analyze, and correct their current mixed practice test (MPT) by reviewing resources provided by the teacher, consulting with peers, and/or asking the teacher for help with 100% accuracy by the end of the lesson. | How do mathematicians analyze and correct their graded tests in order to reflect on knowledge needed to master 7th grade math standards? | -Differentiate between silly mistakes and lack of knowledge.-In writing, explain the silly mistake and rework the problems that contain silly mistakes.-Use resources to help correct mistakes where mastery is not yet obtained. |
| **1/25****R** | TBA based on MPT data. |  |  |
| **1/26****F** | TSWBAT use formulas to calculate the area and circumference of a circle by completing 20 problems on Math prodigy. | How can I use the circumference formula to solve real-world problems? | Calculate the circumference of a circle in order to solve real-world problems. |

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| **MONDAY\_ Jan 22, 2024 (Day 2)****PRE-CLASS:** *The student will* collect the center work packet, sit, and write their name on their paper. Review the work ahead of them. The teacher will explain the expectations of each station. **(5 minutes)****CENTER 1: Vocabulary/Writing [7.G.5]** **(10 minutes)****[ELA : 👀{CCR.R.10, RI.7.10,} 👀 {CCR.W.2, W.7.2b, W.7.2c, W.7.2d, W.7.2e, W.7.10,}👀 {CCR.L.1, CCR.L.2, L.7.2b, CCR.L.4, L.7.4b, L.7.4c, L.7.4d, CCR.L.6, L.7.6}👀****Focus Question:** How can I use mathematical vocabulary to describe a process in writing?*The student will …** Choose a champion (paper doll) and slide it across a 2D obstacle course (Similar to Early Mario Brothers Games - Side Scroller)
* Describe in writing using 60% of the given vocabulary words how to get through the obstacle course safety.
* **EARLY FINISHERS:** Design their own obstacle course and challenge group members to describe in words using 50% of the given vocabulary words.

**CENTER 2: Teacher’s Choice** **[7.G.5]** **(10 minutes)** **[ELA : 👀{CCR.R.10, RI.7.10,} 👀 {W.7.2d, W.7.10,}👀{ SL.7.6,} 👀 {CCR.L.1, CCR.L.2, L.7.2b, CCR.L.4, L.7.4b, L.7.4c, L.7.4d, CCR.L.6, L.7.6}👀****Focus Questions:** 1. How will I differentiate between complementary angles, supplementary angles, vertical angles, and adjacent angles?
2. How do I use knowledge of angle relationships to find missing angles?

*The student will …** Read and annotate the family letter on page 607.
* Complete the activity on page 608 with their group members and recording answers to where we see the angle relationships in everyday life.
* Complete pages 611 & 612.
* Use the glossary in the back of the book to look up unknown words.

**CENTER 3: W.I.N. [Mixed Practice]**  **(10 minutes)** **[ELA : 👀{W.7.10,}👀 {SL.7.6,} 👀 {CCR.L.1, CCR.L.2, L.7.2b}👀****Focus Question:** How do mathematicians analyze and correct their graded tests in order to reflect on knowledge needed to master 7th grade math standards?*The student will …** Differentiate between silly mistakes and lack of knowledge.
* In writing, explain the silly mistake and rework the problems that contain silly mistakes.
* Use resources to help correct mistakes where mastery is not yet obtained.

*The teacher will …** Observe students as they correct their tests.
* Ask questions about students’ thought process.
* Clear up any misconceptions students might have.

**CENTER 4: Fluency**  **[7.G.3]** **(10 minutes)****Focus Question:** How will I use what I know about angle relationships and simple equations to determine the value of unknown angle measures?*The student will …** Quickly review notes on angle relationships.
* Work out problems on white board on the north wall of the classroom and record answers on the activity sheet.
* Write down any questions they might have on their paper for the teachers’ further review.

 **STUDENT REFLECTION/EXIT TICKET:** TTW briefly summarize each center. Ask students from different groups questions about each center.(**Question 1**: How are complementary and supplementary angles alike? Different? **Question 2:** How are vertical angles different from complementary and supplementary angles? **Question 3:** Tell me about a silly mistake you made on MPT 3.1 that you will not make again? **Question 4:** Summarize, using the mathematical vocabulary, how to complete the obstacle course? **(5 minutes)****MATERIALS:**  exit tickets, seating chart for centers, materials for each center, graded MPTs, dry erase markers, pencils, calculators**ASSESSMENT(S**): Teacher observation, exit tickets |

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| **TUESDAY\_ Jan 24, 2024****WARM-UP/HOOK:** *The student will*  login to iReady and choose **Understand Area and Circumference of a Circle** **(7.G.4).** Take notes on lesson vocabulary and lesson goals.  **(5 minutes)****TEACHER INPUT: ( 5 minutes)***The teacher will …* * Present the lesson objectives.
* Review the requirements to receive help on the lesson quiz - all vocabulary with definitions must be written down, at least 3 examples recorded from the lesson, and I need to see evidence that the students attempted to work out the current problem on paper.

**INDEPENDENT PRACTICE: ( 30 minutes)***The student will …* * Listen and complete the assigned lesson to the best of their ability.
* Complete the lesson quiz with 80% or higher accuracy.
* Complete a second lesson on their path (if they are not currently on 7th grade level for iReady Math.)

**EARLY FINISHERS:** *The student will …* * Login to math prodigy and complete practice problems on cross sections.

**STUDENT REFLECTION/EXIT TICKET:** *The student will*  complete the reflection section of their iReady guided notes. **(5 minutes)****MATERIALS:**  notebook paper or “iReady Notes template,” computers, projector, exit tickets**ASSESSMENT(S**): Teacher observation, exit tickets, iReady lesson quiz results |

**MPT 3.2 Results**

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| **Class** | **0% - 49% (Critical)**[Rubies] | **50% - 69% (Emerging)**[Ambers] | **70% - 84% (Proficient)**[Emeralds] | **85% - 100% (Advanced**[Sapphires] |
| **1st** |  |  |  |  |
| **3rd** |  |  |  |  |
| **4th** |  |  |  |  |
| **5th** |  |  |  |  |
| **7th** |  |  |  |  |

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| **WEDNESDAY\_ Jan 23, 2024****WARM-UP/HOOK:** *The student will* copy the data set from the board. Find the mean, median. Mode. and range of the data set. TSW then create a dot plot and a box and whisker plot of the data. **(8 minutes)** TTW will invite students to the board to demonstrate each part**. (8 minutes)****TEACHER INPUT: ( 2 minutes)***The teacher will …* * Direct student to mark an “X” on the questions that the students missed.
* Explain that they will use the class set of the test that includes “Teacher Notes” to rework the problems and/or explain what silly mistake they made.

**INDEPENDENT PRACTICE: ( 30 minutes)***The student will …* * Rework problems on their test paper.
* Justify why they missed certain problems.
* Compare their graded test to the teacher’s class set/guided notes and questions.
* Identify careless mistakes and correct them.
* Use the UNRAVEL test taking strategy for math for questions not understood.
* Use the videos under the topic “Helpful Videos” in Google classroom recommended by the teacher for each question not understood.
* Notify the teacher when they think they are finished for feedback/review.
* Staple data analysis sheet to the top of their test.
* Get it signed by their parents or guardian and return the following day

**Meanwhile…****TEACHER CONFERENCES:** The teacher will invite individual students to her desk to discuss their most recent MPT and clear up any misconceptions and offer support. **(30 minutes)****EARLY FINISHERS:** The student will get iReady or Math Prodigy and wait patiently to be called to the teacher’s desk to discuss the test and any misconceptions.**TEACHER INPUT: ( 10 minutes)***The teacher will …* * Review the most missed problems or take any questions the students have.
* Check over student work and provide feedback.
* Choose a student to staple the remainder of the student's paper.
* Explain that it is mandatory to bring their tests back signed by tomorrow.

**STUDENT REFLECTION/EXIT TICKET:** *The student will*  complete an exit ticket based on the most missed question(s). The teacher will use this data to determine which students need extra support.  **(5 minutes)****MATERIALS:**  graded Tuesday tests, test analysis sheets, stapler, staples, exit tickets |

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| **THURSDAY\_ Jan 24, 2024****To Be Announced based on the most recent MPT Math data.**

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| **Most Missed Standard(s)** | **Objective(s)** | **Activity** |
|  | TSWBAT  |  |
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|  | TSWBAT |  |

**Meanwhile…****TEACHER CONFERENCES:** TTW will finish inviting individual students to her desk to discuss their most recent MPT and clear up any misconceptions and offer support. **(30 minutes)** **STUDENT REFLECTION/EXIT TICKET:** *The student will*  complete an exit ticket based on the most missed question(s). The teacher will use this data to determine which students need extra support.  **(5 minutes)****MATERIALS:**  returned Tuesday tests, exit tickets**ASSESSMENT(S**): Teacher observation, exit tickets |

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| **FRIDAY\_ Jan 26, 2024****Focus Question:** How can I use the circumference formula to solve real-world problems?**Bell Ringer:** Students will complete 2 MAAP style questions. **(5 minutes) TTW review.** **Anticipatory Set: (4 minutes)****Hook:** Show students the symbol for pi. Ask students if they know what it is. Discuss. Ask students if they know when we use pi. Discuss. Ask students if they know who invented the symbol of pi. Discuss. Say, “William Jones (1675 – 3 July 1749) was a Welsh mathematician, most noted for his use of the symbol π (the Greek letter Pi) to represent the ratio of the circumference of a circle to its diameter. He was a close friend of Sir Isaac Newton and Sir Edmund Halley. **Introduction:**  Say, “I am going to show you how to find the circumference of a circle so you can solve real-world problems.”**Real World Connection:** Say, “Pizza and cake sizes are determined by the diameter of the pan in which they are baked. Tires of different vehicles can have different radii. The circumference of a ring needs to match the circumference of the finger on which it is worn for a good fit.”**Importance/Relevance**: Say, “Thousands of years ago mathematicians observed a special relationship between the **circumference** and diameter of a circle. This relationship was given a numerical value called Pi. This relationship is very useful for mathematicians because it can be applied to other figures that include circles.”**TEACHER INPUT: ( 30 minutes)***The teacher will …* * Present the lesson objectives.
* Direct students to login to math prodigy and complete 20 problems. **(7.G.4)**

**INDEPENDENT PRACTICE: ( 10 minutes)***The student will …* * Complete the assigned problems on Math Prodigy.
* Work out problems on paper before asking for help.

*The teacher will…** Lap the room checking student work. (Check mark for correct answers and a dot for incorrect answers.)
* Provide constructive feedback.

 **STUDENT REFLECTION/EXIT TICKET:** TTW review the high points of the lesson before aksing students questions from the lesson and completed problems. **(5 minutes)****MATERIALS:**  projector, exit tickets, seating chart for centers**ASSESSMENT(S**): Teacher observation |

**MISSISSIPPI STATE STANDARDS ACROSS CURRICULUM**

**Math Standards**

**Numbers & Operations:**

**7.NS. 1** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

**7.NS.1a** Describe situations in which opposite quantities combine and make 0.

**7.NS.1b** Understand that p + q is the number located a distance from the absolute value of q from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0. Interpret sums of rational numbers by describing real-world contexts.

**7.NS.1c** Understand subtraction of rational numbers as adding the additive inverse. Show that the distance between two rational numbers on a number line is the absolute value of their difference, and apply this principle in real-world contexts.

**7.NS.1d** Apply properties of operations as strategies to add and subtract rational numbers.

**7.NS.2** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

**7.NS.2a** Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

**7.NS.2b** Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then −p/q = (−p)/q = p/(−q). Interpret quotients of rational numbers by describing real-world contexts.

**7.NS.2c** Apply properties of operations as strategies to multiply and divide rational numbers.

**7.NS.2d** Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

**7.NS.3** Solve real-world and mathematical problems involving the four operations with rational numbers.
**Ratios & Proportions:**

**7.RP** Analyze proportional relationships and use them to solve real-world and mathematical problems.

**7.RP.1** Compute unit rates associated with ratios and fractions, including ratios or lengths, areas and other quantities measured in like of different units.

**7.RP.2** Recognize and represent proportional relationships between quantities.

**7.RP.2a** Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

**7.RP.2b**. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

**7.RP.2c**. Represent proportional relationships by equations.

**7.RP.2d** . Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.

**7.RP.3** Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

**Expressions & Equations:**

**7.EE** Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

**7.EE.1**  Apply properties as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

**7.EE.2** Understand that rewriting an expression in different, yet equivalent, forms in a problem can show how the quantities in it are related.

**7.EE.3** Write an expression from a real world context possibly involving sales tax, tip, discount, gratuity, markup, selling price, perimeter, area, and angle measures of a triangle. • Evaluate an expression given a value for the variable. • Translate a verbal expression into an algebraic expression. • Use manipulatives such as algebra tiles to factor expressions.

**7.EE.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

**7.EE.4a**  Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

**7.EE.4b** Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.

**Geometry:**

**7.G** Draw, construct, and describe geometrical figures and describe the relationships between them.

**7.G.3** Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

**7.G.4** Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.

**7.G.5**. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

**Statistics & Probability:**

**7.SP.3** Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability on either team; on a dot plot, the separation between the two distributions of heights is noticeable.

**7.SP.4** Use measures of center and measures of variability (i.e. inter-quartile range) for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.