	able to interpret quantities and the associated units to interpret values in the context of a real-world problem	
A	● Review with students concepts for upcoming test	
A	● Students take a test on finding unit rate, determining proportionality from ratios and tables, solving a proportion, identifying the constant of proportionality, writing diverse variation equations, and scale drawings.	
A	● Conclude the unit with the return and discussion of the test, clarify any misunderstandings	

Unit 5: Percents

ESTABLISHED GOALS:

CCSS.MATH.CONTENT.7.EE.A.2

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*

CCSS.MATH.CONTENT.7.EE.B.3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9*

Transfer

Students will be able to independently use their learning to extend their understanding and application of percents.

Meaning

UNDERSTANDINGS

- Percentages can be used to understand the relationship between parts of quantities and the whole quantity.
- Percentages can also be used to understand how quantities change in relation to their starting amounts.
- Percentages can be used to model many real world applications such as price changes and simple interest.

ESSENTIAL QUESTIONS

- How are percentages used to help solve real world application problems?
- What are the different ways percent problems are represented?

Acquisition

Students will know…

- corresponding
- commission
- percent increase/percent decrease
- markup/markdown
- discount
- tax
- tip
- simple interest
- measurement error
- percent error

Students will be skilled at…

- Defining percent and converting between fractions, decimals, and percentages. Solve percent problems mentally with benchmark percentages.
- Finding percent of a number when given percent and the whole.
- Finding the whole given a part and percent.
- Finding the percent given a part and the whole.
- Finding a new amount given the original and a percent increase or decrease.
- Finding the original amount given a new amount after a given percent increase or decrease.
- Finding the percent of increase or decrease given

inches from each edge; this estimate can be used as a check on the exact computation. **CCSS.MATH.CONTENT.7.RP.A.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.* **CCSS.MATH.CONTENT.7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers. *Computations with rational numbers extend the rules for manipulating fractions to complex fractions.*		the original and new amounts. - Solving percent problems fluently, including percent increase and decrease. - Solving percent applications involving discount, tax, and tip. - Solving percent applications involving simple interest, commissions, and other fees. - Solving percent applications involving measurement and percent error.

Code	Evaluative Criteria	Assessment Evidence
T,M,A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts to solve problems involving operations with rational numbers. 3 - Explanation shows substantial understanding of mathematical concepts to solve problems involving operations with rational numbers. 2 - Explanation shows some understanding of mathematical concepts to solve problems involving operations with rational numbers. 1 - Explanation shows very limited understanding of mathematical concepts to solve problems involving operations with rational numbers OR is not written. **Strategy/Procedure:** 4 - Uses an efficient and effective strategy to solve the operations with rational numbers. 3 - Uses an effective strategy to solve the operations with rational numbers. 2 - Sometimes uses an effective strategy to solve the operations with rational numbers, but does not do it consistently. 1 - Rarely uses an effective strategy to solve the operations with rational numbers. **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:** 4 - All problems are completed.	PERFORMANCE TASK(S): **Title:** Buying a Car **Goal:** This task challenges a student to use knowledge of simple interest and percentages to compare different car buying scenarios. **Role:** Car financer **Audience:** Teacher **Situation:** The students are buying a new car. The students are to determine the better value for each car based on interest and total balance. They are then deciding which bank would have the best interest rate (mark up) for your purchase. **Product or Performance:** Detailed responses, showing all work. **Standards for Success:** A scoring rubric is shared with students at the onset of the project.

	3 - 75% of all problems are completed. 2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
	T,M,A M,A M,A T,M,A	OTHER EVIDENCE: **Embedded Assessment 1:** Percent, decimal, and fractions **Skill Check**: Daily warm-ups **Prompt**: What role do percentage increases and decreases play in our everyday lives? **Homework:** Almost daily

Code	***Pre-Assessment*** - Equations CFA - Rational Number Operations - Ratios and Proportions Assessment	
T,M,A	Summary of Key Learning Events and Instruction	Progress Monitoring
T	● Opening Activity: The teacher will break students into groups of four. The teacher will project the following statement at the front of the room: “Kyle is at the mall with some of his friends shopping for a new shirt to wear to the Mississippi State Fair tomorrow. While in Abercrombie and Fitch he notices a $50 shirt on the 35% off rack. The problem is, the calculator on Kyle’s phone does not have a percent key. How can Kyle use his cell phone calculator to determine the discounted sale price ?” In each group, one student will be designated as the reader and another student as the recorder. The “reader” from each group will re-read the problem given to the class. Students will take turns commenting aloud on the problem. The “recorder” will write the common mathematical ideas that the group agrees upon. A group in the center of the Wheel. One member from each group will come to the front of the room and write their group’s perspective on a poster for the class to review. After the class discussion, the teacher will explain to the students that in this unit they will discover exactly how percentages play a role in our everyday lives.	- IXL - Homework - Exit Tickets
T/M	● The teacher will present a lesson on converting between fractions, decimals, and percents. Students will participate in a “crack the code” activity where students are placed in groups and practice with models, real-world situations all while trying to uncover the meaning of a ransom note left to find their teacher. Students will work through ten activities to where each reveals another clue. Students will work collaboratively with assigned roles in order to effectively and accurately solve the clues in a timed manner.	
A	● Assess students with a quiz.	
A	● The teacher will present a lesson on the percent proportions. Students will discover the rule for solving percent proportions through the prompt: If percent means “out of 100”, what percent of students like math best if one in every 5 students say they prefer math class? Students will work through this example and	

A A T M	other similar ones in groups of 4. The teacher will facilitate the learning by reminding them to think back to proportions and the different methods used to find the missing portions. ● The teacher will present a lesson on the percent equation. The teacher will display the problem $\frac{part}{whole} = percent$on the board. The teacher will ask the whole class how we could rewrite this equation so that there is no longer a fraction in it. The teacher will remind students of when they cleared fractions in their equation unit and what that entailed. Students will discover the percent equation format from the classroom discussion and will work together to use the equation with percent problems. The students will then work in pairs on independent practice where they do the problem alone and then discuss their answers with their partner. ● The teacher will present a lesson on percent increases and decreases. The students must make sense of the quantities in each problem, how they are related, what they mean in context, etc., and then determine what strategy or approach they will use to solve. The students will complete two rounds of a "Sprint" exercise included at the end of this lesson (Percent More or Less) that focuses on finding the part, the whole, and the percent more or percent less. Sprints are designed to develop fluency where the students are competing against time and themselves. One Sprint has two parts with closely-related problems on each. Students complete the two parts of the Sprint in quick succession with the goal of improving on the second part, even if only by one more. Between each part, students are given a question session to ask for clarification on any concepts they did not fully understand. ● The teacher will present a lesson on discounts and markups. Students will build on their prior knowledge of percent proportions and percent equations to discover how to find totals given a discount or a markup. Students will work in pairs playing the role of a store manager for a local department store and correct errors of two staff members. Students also apply the concept of calculating discount percentages using four advertisements found in the newspaper and neatly displaying their calculations on construction paper. ● The teacher will present a lesson on simple interest. After learning the formula, the students will partake in station activities (5 stations) where they must work collaboratively to figure out the	

T	simple interest for multiple real world scenarios. Students will need to use their prior knowledge of solving proportion equations as well. Students will assess and then review their work with their groups. ● Performance task: This task challenges a student to use knowledge of simple interest and percentages to compare different car buying scenarios.	

Revision

Unit 6: Probability and Statistics

ESTABLISHED GOALS:

CCSS.MATH.CONTENT.7.SP.A.1

- Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

CCSS.MATH.CONTENT.7.SP.A.2

- Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*

CCSS.MATH.CONTENT.7.SP.C.5

- Understand that the probability of a chance event is a number

Transfer

Students will be able to independently use their learning to extend their understanding and application of statistics and probability.

Meaning

UNDERSTANDINGS

- The probability of an event or combination of events occurring is determined by the number of desired or favorable outcomes divided by the total number of outcomes possible. This value ranges from 0, where the event is impossible, to 1, where the event is certain to occur, with various levels of likelihood in between.
- Experimental or theoretical probabilities can be used to estimate or predict long-run frequencies.
- Real-world situations can be simulated using various probability models in order to test hypotheses or make predictions based on data.
- Studying sample statistics is a way to reasonably understand and make predictions about larger population characteristics.
- Random samples tend to produce the most representative samples of populations. The larger the sample size, the more accurate and less variable the data tends to be.
- Sample data can be used to compare characteristics of interest between two or more populations. The mean and mean absolute deviation can shed light on differences between populations and how meaningful these differences are compared to

ESSENTIAL QUESTIONS

- How can you investigate chance processes, and develop, use, and evaluate probability models?
- How are tables, lists, tree diagrams, or simulations used to find the probability of an event?
- How is probability used to find the frequency of an event?
- How can sampling be used to draw inferences about one or more populations?
- What are the different types of sampling and how and/or what would they represent?

between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. **CCSS.MATH.CONTENT.7.SP.C.6** ● Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.* **CCSS.MATH.CONTENT.7.SP.C.7** ● Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. **CCSS.MATH.CONTENT.7.SP.C.8** ● Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	sampling variability.	
	Acquisition	
	Students will know… - distribution - population characteristic - statistical question - population - sample population - sample statistic - sample proportion - representative sample - random sample - measure of center - mean absolute deviation (MAD) - population proportion - mean (average) - range - interquartile range - tree diagram - experimental probability - likelihood - probability - sample space - outcome - theoretical probability - simulation - simple event - compound event	*Students will be skilled at…* - Understanding the probability of an event happening is a number between 0 and 1, ranging from impossible to certain. - Defining probability and sample space. Estimate probabilities from experimental data. - Determining the probability of events. - Using probability to predict long-run frequencies. - Designing and conducting simulations to model real-world situations. - Conducting simulations with multiple events to determine probabilities. - Listing the sample space for compound events using organized lists, tables, or tree diagrams. - Determining the probability of compound events. - Designing and conducting simulations to model real-world situations for compound events. - Understanding and identifying populations and samples populations for statistical questions. - Describing sampling methods that result in representative samples. - Generating a random sample for a statistical question. - Analyzing data sets using measures of center and interquartile range. - Understanding and determining mean absolute deviation (MAD) as a measure of variability of a data set. - Determining the impact of sample size on variability and prediction accuracy. - Estimating population proportions using sample data. - Comparing different populations using sample data. - Identifying meaningful differences between populations using the mean and mean absolute

		deviation (MAD) of samples.

Code	Evaluative Criteria	Assessment Evidence
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts to solve problems involving operations with rational numbers. 3 - Explanation shows substantial understanding of mathematical concepts to solve problems involving operations with rational numbers. 2 - Explanation shows some understanding of mathematical concepts to solve problems involving operations with rational numbers. 1 - Explanation shows very limited understanding of mathematical concepts to solve problems involving operations with rational numbers OR is not written. **Strategy/Procedure:** 4 - Uses an efficient and effective strategy to solve the operations with rational numbers. 3 - Uses an effective strategy to solve the operations with rational numbers. 2 - Sometimes uses an effective strategy to solve the operations with rational numbers, but does not do it consistently. 1 - Rarely uses an effective strategy to solve the operations with rational numbers. **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:**	PERFORMANCE TASK(S): **Title:** Design You Own Amusement Park **Goal:** This task challenges a student to use knowledge on probability of simple events, theoretical vs. experimental probability, probability of compound events, and tree diagrams in order to complete tasks required for creating a real life amusement park. **Role:** Designer **Audience:** Teacher, classmates **Situation:** The students want to design their own amusement park. The design must include the essentials; name, top attractions, operation times, policies, roller coaster design, games, food, and the gift shop. **Product or Performance:** Detailed responses, showing all work. **Standards for Success:** A scoring rubric is shared with students at the onset of the project.

	4 - All problems are completed. 3 - 75% of all problems are completed. 2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
T,M,A T,M,A M,A M,A T,M,A		OTHER EVIDENCE: **Embedded Assessment 1:** Identifying outcomes, Determining likelihood, Using relative frequencies, and Theoretical and Experimental Probability **Common Unit Test:** Samples, Population, Random samples to describe populations, and Comparing populations including random samples. **Skill Check:** Daily warm-up **Prompt:** What are the chances that someone has your birthday in the entire 7th grade? **Prompt:** How are statistics used to mislead? **Homework:** Almost daily

Code	***Pre-Assessment***	
	- Equations CFA - Rational Number Operations CFA - Probability and Statistics Pre-assessment	
T, M, A	Summary of Key Learning Events and Instruction	Progress Monitoring
M	● Opening Activity: The teacher will have four students stand at the front of the classroom. The teacher will pose the question to all students, “How many different ways can these students stand in a line?” The teacher will record all the possible line ups on the board. The teacher will then pose the question, “How many chances are there that student #1 is at the front of the line?” The teacher will then explain how these chances tie into the unit on probability and statistics.	- IXL - Homework - Exit Tickets
A/M	● The teacher will present a lesson on identifying outcomes, determining likelihood and using relative frequencies. Students will play a game to collect data about what is inside bags and then make a decision based on the information they have collected. The process of using previous results from repeated trials to inform the likelihood of future events is one way to estimate probabilities that will be revisited later.	
A/M	● The teacher will present a lesson on experimental and theoretical probability. Students will explore the meaning of theoretical and experimental probability by viewing interactive websites. A lab activity will be performed using cooperative learning groups to allow the students to determine experimental and theoretical probability. The activity is done using 3 pennies where students perform coin tosses to find the experimental probability and determine the theoretical probability given the potential tosses that could happen.	
A	● Assess students with a quiz.	
A	● The teacher will present a lesson on sample space and the probability of compound events. The students will practice their learning through a 1 on 1 game. Each pair gets a game board (start space plus ten forward spaces) and game piece. Students will roll one die. Based on the first roll students will guess “low” or “high” low is a total of both dice (high is total greater than	

	seven, low is total less than seven). If they guess correctly, they move forward one space. If not, they do not move. A total of seven is "wild" and if it is rolled the student moves forward one space regardless of guess. First to the finish wins. Play twice, rotate opponents. Students will calculate the probability of each compound event.	
A/T	● The teacher will present a lesson on simulations. This lesson should ease students into simulation by defining the real outcomes of an experiment and specifying a device to simulate the outcome. Then, students are carefully led to define how an outcome of the device represents the real outcome, define a trial for the simulation, and identify what is meant by a trial resulting in a success or failure. Students should see how a device that may have many outcomes can be used to simulate a situation that has only two outcomes, for example, how a number cube can be used to represent a boy's birth (e.g., even outcome, prime number outcome, or any three of its digits). Students will model this by creating their own simulation for real world events. Students will use various tools (spinners, coins, blocks, dice) to help them design experiments and draw conclusions.	
T	● Performance task: This task challenges a student to use knowledge of probability of simple events, theoretical vs experimental probability, probability of compound events, and tree diagrams in order to complete tasks required for creating a real life amusement park.	
A	● The teacher will present a lesson on samples and population. In this lesson students work through class discussions and activities to identify populations and samples, as well as gain an understanding of the importance of selecting reliable random samples to gain information about a population. Students work in pairs to gather information using a biased sample and random sample to compare data and reflect on possible misconceptions that a biased sample could produce.	
A	● The teacher will present a lesson on using random sampling to describe the population. The lesson engages students in two activities that investigate random samples and how random samples vary. The first investigation (Sampling Pennies) looks at the ages of pennies based on the dates in which they were made or minted. Students select random samples of pennies and	

	examine the age distributions of several samples. Based on the data distributions, students think about what the age distribution of all of the pennies in the population might look like. In the second investigation, students examine the statistical question, "Do store owners price the groceries with cents that are closer to a higher value or to a lower value?" Students select random samples of the prices from a population of grocery items and indicate how the samples might represent the population of all grocery items. In this lesson, students begin to see sampling variability and how it must be considered when using sample data to learn about a population.	
A	● The teacher will present a lesson on comparing populations including random sampling. The students will look at different samples from the same population to see that their means are relatively close based on the MADs of the samples. This concept can be reversed to say that if two samples have means that are *not* very close, then the samples likely came from populations that are quite different. A general rule is given to determine whether two populations are meaningfully different based on the mean and MAD from a sample of each.	
A	● Review with students concepts for upcoming test	
A	● Students take a test on samples, populations, random samples to describe populations, and comparing populations including random samples.	
A	● Conclude the unit with the return and discussion of the test, clarify any misunderstandings	

ESTABLISHED GOALS:

CCSS.MATH.CONTENT.7.G.A.2

Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

CCSS.MATH.CONTENT.7.G.A.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.

CCSS.MATH.CONTENT.7.G.B.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.

CCSS.MATH.CONTENT.7.G.B.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.

CCSS.MATH.CONTENT.7.G.B.6

Solve real-world and

Transfer

Students will be able to independently use their learning to extend their understanding and application of two and three dimensional figures.

Meaning

UNDERSTANDINGS

- When two lines intersect, a pair of congruent vertical angles are created. This angle relationship, along with complementary and supplementary angle relationships, can be used to determine missing angle measures in diagrams.
- A circle is a closed shape that is defined by the set of points that are the same distance from the center of the circle. The distance from the center to any point on the circle is called the radius, and the distance across the circle through the center is called the diameter. The measurement around a circle is called the circumference and is proportional to the diameter of the circle with a constant of proportionality equivalent to π. The area of a circle can be found using the formula $A = \pi r^2$.
- In any triangle, the sum of any two side lengths must be longer than the measure of the third side. Given different conditions about the side and angle measures of a triangle, one unique triangle may be formed, more than one triangle may be formed, or no triangle may be formed.

ESSENTIAL QUESTIONS

- How can you draw shapes that satisfy given conditions?
- How can you identify cross sections of three-dimensional figures?
- How can you use angle pairs to solve problems?
- How can you find the circumference of a circle?
- How do you find the area of a circle?
- How do you find the area of composite figures?
- How do you find the surface area of a figure made of prisms?
- How do you find the volume of a figure made up of cubes and prisms?

Acquisition

Students will know…

Students will be skilled at…

mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	- supplementary angles - surface area - adjacent angles - vertical angles - radius - diameter - circumference - complementary angles - triangle inequality theorem - cross-section - volume	- Identifying and determining values of angles in complementary and supplementary relationships. - Using vertical, complementary, and supplementary angle relationships to find missing angles. - Using equations to solve for unknown angles**.** - Defining a circle and identifying the measurements radius, diameter, and circumference. - Determining the relationship between the circumference and diameter of a circle and using it to solve problems. - Solving real-world and mathematical problems using the relationship between the circumference of a circle and its diameter. - Determining the relationship between the area and radius of a circle and using it to solve problems. - Solving real-world and mathematical problems using the relationship between the area of a circle and its radius. - Solving problems involving area and circumference of two-dimensional figures**.** - Drawing two-dimensional geometric shapes using rulers, protractors, and compasses. - Determining if three side lengths will create a unique triangle or no triangle. - Identify unique and identical triangles. - Determining if conditions describe a unique triangle, no triangle, or more than one triangle. - Identifying and describing two-dimensional figures that result from slicing three-dimensional figures. - Finding the surface area of right prisms. - Finding the surface area of right pyramids. - Finding the volume of right prisms and pyramids. - Solving real-world and mathematical problems involving volume. - Distinguishing between and solving real-world

		problems involving volume and surface area.

Code	Evaluative Criteria	Assessment Evidence
T, M, A	Rubric Criteria: **Mathematical Concepts:** 4 - Explanation shows complete understanding of mathematical concepts to solve problems involving operations with rational numbers. 3 - Explanation shows substantial understanding of mathematical concepts to solve problems involving operations with rational numbers. 2 - Explanation shows some understanding of mathematical concepts to solve problems involving operations with rational numbers. 1 - Explanation shows very limited understanding of mathematical concepts to solve problems involving operations with rational numbers OR is not written. **Strategy/Procedure:** 4 - Uses an efficient and effective strategy to solve the operations with rational numbers. 3 - Uses an effective strategy to solve the operations with rational numbers. 2 - Sometimes uses an effective strategy to solve the operations with rational numbers, but does not do it consistently. 1 - Rarely uses an effective strategy to solve the operations with rational numbers. **Mathematical Errors:** 4 - 90-100% of the steps and solutions have no mathematical errors. 3 - Almost all (85-89%) of the steps and solutions have no mathematical errors. 2 - Most (75-84%) of the steps and solutions have no mathematical errors. 1 - More than 75% of the steps and solutions have mathematical errors. **Completion:**	PERFORMANCE TASK(S): **Title:** Yum Yum Cereal **Goal:** This task challenges students to solve some constructed response questions involving areas of 2-dimensional figures. Additionally, students will solve for surface area and volume of 3-dimensional figures. **Role:** Designer **Audience:** Teacher, classmates **Situation:** The performance task requires students to design a cereal box that is cost efficient and space saving. **Product or Performance:** Detailed responses, showing all work. **Standards for Success:** A scoring rubric is shared with students at the onset of the project.

	4 - All problems are completed. 3 - 75% of all problems are completed. 2 - 50% of all problems are completed. 1 - 25% or less of problems are completed. **Neatness and Organization:** 4 - The work is presented in a neat, clear, organized fashion that is easy to read. 3 - The work is presented in a neat and organized fashion that is usually easy to read. 2 - The work is presented in an organized fashion but may be hard to read at times. 1 - The work appears sloppy and unorganized. It is hard to know what information goes together	
		OTHER EVIDENCE: **Embedded Assessment 1:** Area and circumference of circles, perimeter and area of composite figures. **Embedded Assessment 2:** Surface area **Common Unit Test:** area, circumference, perimeter, surface area, and volume. **Skill Check:** Body warm-up **Prompt:** How are volume and surface area used in the real world? **Homework:** Almost daily

Code		
	Pre-Assessment - Equations CFA - Rational Number Operations CFA - Pre-assessment	
T, M, A M	Summary of Key Learning Events and Instruction ● Opening Activity: Students will work with a partner on a "Geometric Shapes and Angles" introduction activity. The students will be given a sheet with three polygon shapes on it (one 6 sided, one 8 sided, and one 10 sided) and will be asked to measure the following for each shape: ○ The perimeter of the larger polygon to the nearest millimeter. ○ The diameter of the circle to the nearest millimeter. ○ The perimeter of the smaller polygon to the nearest millimeter. ○ Calculate the value of each of the two previous numbers with the diameter. ○ Take the average of the ratios. This average is the approximation of π. The teacher will ask each group what their ratio averages conclude about π. The teacher will explain how this activity will incorporate into the next topics in the geometric shapes and angles category.	Progress Monitoring - IXL - Homework - Exit Tickets
M A	● The teacher will present a lesson on the area and circumference of circles. The students will take part in a discovery lab activity that will show what area and circumference are in a concrete manner. The students will approximate the area through a coloring activity that involves counting squares/partial squares. They will also approximate circumference through wrapping a string around a contained and measuring. They will make connections to the opening activity and discover the formula used for area and circumference. ● The teacher will present a lesson on finding the perimeter and area of composite figures. Students will discover how to approximate perimeter and area given color tiles and grid paper. The students will then take their approximations and the provided	

	formulas to determine accuracy.	
A	• Assess students with a quiz.	
A	• The teacher will present a lesson on constructing polygons. The students will use tools (protractor and compass) to model their learning through constructing polygons given angles and/or side lengths.	
A	• The teacher will present a lesson on finding unknown angle measures. The students will use their knowledge about supplementary, complementary, vertical and adjacent angles to find the missing measurements. Students will work with partners to review their calculations and discuss plans on how to solve real world applications.	
A	• The teacher will present a lesson on finding the surface area of right prisms. In sixth grade, students found the surface area by finding the area of individual shapes in the net. In this activity students explore more efficient ways to determine surface area. The students make the connection between the length of the long rectangle that wraps around the base and the perimeter of the trapezoid base. This enables students to find the surface area of the prism by finding the area of three shapes (rectangle and two bases) rather than each individual shape.	
A	• The teacher will present a lesson on finding the surface area of right pyramids. The students will use nets to determine the surface area of their given pyramids.	
A	• Assess students with a quiz.	
A	• The teacher will present a lesson on finding the volume of right prisms and pyramids. The students will work in pairs through stations where they use their equation skills to manipulate the volume formula to find missing measurements.	
M	• The teacher will present a lesson on describing cross sections of three-dimensional figures. The students will practice visualizing cross sections in a more abstract way by looking at images of a solid object that has been cut by a plane and matching those images to the shapes created by the cuts (card sorting game). The cuts made in this activity vary from the previous activity in that the cuts are not all parallel to the base of the three-dimensional object. The card sorting game will be done in groups of three. Once each group is done, the groups will do a gallery walk around the room and discuss what they agree/disagree with. The cards	

	have different things in common so different groups of students might have different reasons for grouping certain images together.	
M	• Performance task: This task challenges students to solve some constructed response questions involving areas of 2-dimensional figures. Additionally, students will solve for surface area and volume of 3-dimensional figures.	
A	• Review with students concepts for upcoming test	
A	• Students take a test on area, circumference, perimeter, surface area, and volume.	
A	• Conclude the unit with the return and discussion of the test, clarify any misunderstandings	

Revision