**7th Grade Intensive**

**Instructional Plan 2014-2015**

**Mathematics Instructional Plan Writing Committee**

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We would like to express our appreciation for the time, effort and expertise contributed to the writing of the secondary Mathematics Instructional Plans by our team of Seminole County math teachers.

**Purpose:**

The purpose of the Seminole County Public Schools Instructional Plan is to present an organized, responsible strategy of Benchmark presentation that incorporates the Florida Standards (MAFS) while using the Connected Mathematics Project 2 Textbook. This document will serve as a guide for teachers of mathematics. Latitude in the execution of this document shall be determined by a school rather than by an individual teacher.

\*Covering and Surrounding comes from the 6th grade CMP2 text. Students will either need access to the student texts or electronic/printed copies of the text (found on Blackboard).

**Goals:**

* **To establish a classroom environment that values mathematical student discourse**
* **To engage students in cognitively challenging mathematical tasks**
* **To promote discussions that focus on student thinking, reasoning, problem solving and student presentation**
* **Employ questioning techniques that require students to justify, defend and support their ideas**
* **For all students to be able to reason and communicate proficiently in mathematics**

In pursuit of the stated goals, teachers are encouraged to develop a classroom atmosphere that **promotes inquiry, discussion of mathematics, justification of thinking and a joy for exploring.** Concurrently, teachers should strive to develop:

* **respect** in the classroom
* **academic excellence and rigor**
* student **success**
* student **confidence**
* a **“safe place”** to share/collaborate/question

**Instructional Plan Caveats:**

* The **purpose of Week 1** in each Instructional Plan is to establish “social norms”: establish procedures and expectations that will lead to daily classroom success (how to work in partners and groups, how to explain/justify, focus on academic rigor, etc.); all grades will use the problem solving exercises posted on SCPS Blackboard. **During Week 2,** continue to establish social norms while beginning to use math content.
* Suggested ACE problems can be used after each individual lesson or after an entire investigation based on teacher preference.
* Limited or no homework should be prescribed in the intensive classes.
* Descriptions of the Mathematical Practices can be found on pages 3 – 4. Teachers are encouraged to embed the Questions to Develop Mathematical Thinking (located on pages 5 – 6) in their daily lessons.
* **No assessment or assignment will receive a score of less than 50%**
* **Tests and quizzes will count for no more than 20%** of the entire nine-week grade
* The **remaining 80%** of the nine-week grade should be a collaborative decision within the PLC and may include classwork, participation, notebook/journal, projects, etc.
* Common Unit Assessments are available on SCPS Blackboard; in addition, there is a Unit Test Item Bank available for “chunking” the assessments throughout each unit or authentic tasks such as the Amplify Projects can be used. PLC’s should determine the school decision.
* It is essential that teachers do the Required TE Reading in preparation for successful presentation of each problem
* Teachers will need to access the 6th grade book for the *Covering and Surrounding* unit. All pages are available on Blackboard and can be displayed on the Elmo.
* Learning goals and scales can be accessed through the hyperlinks within the Instructional Plan.
* Extended time has been allocated for authentic assessment tasks. Recommendations are made within the instructional plan to include summative assessments and review, authentic assessments, as well as culminating tasks (Amplify projects). District training will be provided on successful implementation of the Amplify projects throughout the year.

**Test Items Specifications:** [fsassessments.org](http://fsassessments.org/)

**STANDARDS FOR MATHEMATICAL PRACTICE**

**1. (MAFS.K12.MP.1.1) Make sense of problems and persevere in solving them.**

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

**2. (MAFS.K12.MP.2.1) Reason abstractly and quantitatively.**

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

**3. (MAFS.K12.MP.3.1) Construct viable arguments and critique the reasoning of others.**

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

**4. (MAFS.K12.MP.4.1) Model with mathematics.**

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

**5. (MAFS.K12.MP.5.1) Use appropriate tools strategically.**

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

**6. (MAFS.K12.MP.6.1) Attend to precision.**

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, student’s give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

**7. (MAFS.K12.MP.7.1) Look for and make use of structure.**

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7 × 8 equals the well-remembered 7 × 5 + 7 × 3, in preparation for learning about the distributive property. In the expression *x*2 + 9*x* + 14, older students can see the 14 as 2 × 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see 5 – 3(*x* – *y*) 2 as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers *x* and *y*.

**8. (MAFS.K12.MP.8.1) Look for and express regularity in repeated reasoning.**

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation (*y* – 2)/(*x* – 1) = 3. Noticing the regularity in the way terms cancel when expanding (*x* – 1)(*x* + 1), (*x* – 1)(*x*2 + *x* + 1), and (*x* – 1)(*x*3 + *x*2 + *x* + 1) might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

| **Summary of Standards for Mathematical Practice** | **Questions to Develop Mathematical Thinking** |
| --- | --- |
| **1. Make sense of problems and persevere in solving them.** |
| * Interpret and make meaning of the problem to find a starting point. Analyze what is given in order to explain to them the meaning of the problem.
* Plan a solution pathway instead of jumping to a solution.
* Monitor their progress and change the approach if necessary.
* See relationships between various representations.
* Relate current situations to concepts or skills previously learned and connect mathematical ideas to one another.
* Continually ask them, “Does this make sense?” Can understand various approaches to solutions.
 | * How would you describe the problem in your own words?
* How would you describe what you are trying to find?
* What do you notice about...?
* What information is given in the problem?
* Describe the relationship between the quantities.
* Describe what you have already tried. What might you change?
* Talk me through the steps you’ve used to this point.
* What steps in the process are you most confident about?
* What are some other strategies you might try?
* What are some other problems that are similar to this one?
* How might you use one of your previous problems to help you begin?
* How else might you organize...represent... show...?
 |
| **2. Reason abstractly and quantitatively.** |
| * Make sense of quantities and their relationships.
* Decontextualize (represent a situation symbolically and manipulate the symbols) and contextualize (make meaning of the symbols in a problem) quantitative relationships.
* Understand the meaning of quantities and are flexible in the use of operations and their properties.
* Create a logical representation of the problem.
* Attends to the meaning of quantities, not just how to compute them.
 | * What do the numbers used in the problem represent?
* What is the relationship of the quantities?
* How is \_\_\_\_\_\_\_ related to \_\_\_\_\_\_\_\_?
* What is the relationship between \_\_\_\_\_\_and \_\_\_\_\_\_?
* What does\_\_\_\_\_\_\_mean to you? (e.g. symbol, quantity, diagram)
* What properties might we use to find a solution?
* How did you decide in this task that you needed to use...?
* Could we have used another operation or property to solve this task? Why or why not?
 |
| **3. Construct viable arguments and critique the reasoning of others.** |
| * Analyze problems and use stated mathematical assumptions, definitions, and established results in constructing arguments.
* Justify conclusions with mathematical ideas.
* Listen to the arguments of others and ask useful questions to determine if an argument makes sense.
* Ask clarifying questions or suggest ideas to improve/revise the argument.
* Compare two arguments and determine correct or flawed logic.
 | * What mathematical evidence would support your solution?
* How can we be sure that...? / How could you prove that...?
* Will it still work if...?
* What were you considering when...?
* How did you decide to try that strategy?
* How did you test whether your approach worked?
* How did you decide what the problem was asking you to find? (What was unknown?)
* Did you try a method that did not work? Why didn’t it work? Would it ever work? Why or why not?
* What is the same and what is different about...?
* How could you demonstrate a counter-example?
 |
| **4. Model with mathematics.** |
| * Understand this is a way to reason quantitatively and abstractly (able to decontextualize and contextualize).
* Apply the mathematics they know to solve everyday problems.
* Are able to simplify a complex problem and identify important quantities to look at relationships.
* Represent mathematics to describe a situation either with an equation or a diagram and interpret the results of a mathematical situation.
* Reflect on whether the results make sense, possibly improving/revising the model.
* Ask them, “How can I represent this mathematically?”
 | * What number model could you construct to represent the problem?
* What are some ways to represent the quantities?
* What is an equation or expression that matches the diagram, number line..., chart..., table..?
* Where did you see one of the quantities in the task in your equation or expression?
* How would it help to create a diagram, graph, and table...?
* What are some ways to visually represent...?
* What formula might apply in this situation?
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| **5. Use appropriate tools strategically.** |
| * Use available tools recognizing the strengths and limitations of each unit.
* Use estimation and other mathematical knowledge to detect possible errors.
* Identify relevant external mathematical resources to pose and solve problems.
* Use technological tools to deepen their understanding of mathematics.
 | * What mathematical tools could we use to visualize and represent the situation?
* What information do you have?
* What do you know that is not stated in the problem?
* What approach are you considering trying first?
* What estimate did you make for the solution?
* In this situation would it be helpful to use...a graph..., number line..., ruler..., diagram..., calculator..., manipulative?
* Why was it helpful to use...?
* What can using a \_\_\_\_\_\_ show us that \_\_\_\_\_may not?
* In what situations might it be more informative or helpful to use...?
 |
| **6. Attend to precision.** |
| * Communicate precisely with others and try to use clear mathematical language when discussing their reasoning.
* Understand the meanings of symbols used in mathematics and can label quantities appropriately.
* Express numerical answers with a degree of precision appropriate for the problem context.
* Calculate efficiently and accurately.
 | * What mathematical terms apply in this situation?
* How did you know your solution was reasonable?
* Explain how you might show that your solution answers the problem.
* What would be a more efficient strategy?
* How are you showing the meaning of the quantities?
* What symbols or mathematical notations are important in this problem?
* What mathematical language...,definitions..., properties can you use to explain...?
* How could you test your solution to see if it answers the problem?
 |
| **7. Look for and make use of structure.** |
| * Apply general mathematical rules to specific situations.
* Look for the overall structure and patterns in mathematics.
* See complicated things as single objects or as being composed of several objects.
 | * What observations do you make about...?
* What do you notice when...?
* What parts of the problem might you eliminate.., simplify..?
* What patterns do you find in...?
* How do you know if something is a pattern?
* What ideas that we have learned before were useful in solving this problem?
* What are some other problems that are similar to this one?
* How does this relate to...?
* In what ways does this problem connect to other mathematical concepts?
 |
| **8. Look for and express regularity in repeated reasoning.** |
| * See repeated calculations and look for generalizations and shortcuts.
* See the overall process of the problem and still attend to the details.
* Understand the broader application of patterns and see the structure in similar situations.
* Continually evaluate the reasonableness of their intermediate results
 | * Explain how this strategy works in other situations?
* Is this always true, sometimes true or never true?
* How would we prove that...?
* What do you notice about...?
* What is happening in this situation?
* What would happen if...?
* Is there a mathematical rule for...?
* What predictions or generalizations can this pattern support?
* What mathematical consistencies do you notice?
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| **FIRST QUARTER (August 11 – October 9)** | **42 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Approximate # of Days** |
| Problem Solving / Classroom Norms |  | 5 |
| Comparing and Scaling |  | 37 |
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| **SECOND QUARTER (October 13 – December 18)**  | **46 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Approximate # of Days** |
| Authentic Assessment/Spiral Review or Amplify Project: *Sal’s Pizzeria* |  | 5 |
| Stretching and Shrinking |  | 36 |
| Semester Exams (3 days) /Authentic Assessment or Amplify Project: *Putting Things in Perspective* |  | 5 |
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| **THIRD QUARTER (January 6 – March 12)** | **46 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Approximate # of Days** |
| Covering and Surrounding |  | 7 |
| Filling and Wrapping |  | 29 |
| Integers: A Financial Approach |  | 9 |
| Writing Assessment (1 day TBA by district) |  | 1 |
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| **FOURTH QUARTER (March 23 – May 27)**  | **46 DAYS** |
| **Topic/Assessment** | **Dates Covered** | **Approximate # of Days** |
| Integers: A Financial Approach |  | 15 |
| Test Taking Strategies and Review During Testing Schedule  |  | 15 |
| Supplemental Integer Word Problems for Application |  | 5 |
| MARS Exploration: Using Positive and Negative Numbers in Context |  | 3 |
| MARS Exploration: *Steps to Solving Equations*  |  | 3 |
| Semester Exams (3 days) /Authentic Assessment or Amplify Project: *Make That Money* |  | 5 |

*\*Please note that the suggested number of instructional days per unit and quarter are designed to be a guide. Teachers are encouraged to work within their schools and their PLCs to make the most appropriate timing decisions for their students.\**

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| **Unit 1: Comparing and Scaling**  |
| **Code** | **Mathematics Florida Standard** | **SMP** |
| 7.RP.1.1 | Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. | 1, 2, 3, 4, 5, 8 |
| 7.RP.1.2 | Recognize and represent proportional relationships between quantities. 1. 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.
2. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
3. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*
4. 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.
 | 1, 2,3, 4, 5, 8 |
| **Learning Goal and Scale** | **Instructional Strategies & Misconceptions** |
| [**701:** Analyze proportional relationships and use them to solve real-world and mathematical problems.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/701.docx)  | * Ensure students use labels for all ratios and proportions.
* Use rate tables to stress the multiplicative nature of scaling up and scaling down.
* Students may confuse part to part ratios and part to whole ratios.
* Students may fail to understand the difference between the two rates (ie. $ per donut and donuts per $)
 |
| **Math Practices for Unit** | **Unit Connections** | **Instructional Resources** |
| 1. Make sense of problems and persevere in solving them. | 5. Use appropriate tools strategically. | **6th Grade Standards: Ratio and Proportional Relationships** * Understand the concept of a ratio and ratio terminology.
* Understand the concept of unit rates associated with ratios.
* Use ratio and rate reasoning to find equivalent ratios.
* Use tables to compare ratios and rates.
* Solve unit rate problems involving unit pricing and constant speed.
 | Grid Paper Chart PaperMarkers/Colored Pencils |  |
| 2. Reason abstractly and quantitatively. | 6. Attend to precision. |
| 3. Construct viable arguments & critique reasoning of others. | 7. Look for and make use of structure. |
| 4. Model with mathematics. | 8. Look for and express regularity in repeated reasoning. |

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| **FIRST QUARTER** |
| **Unit 1: Comparing and Scaling** |
| **Learning Goal** | [**701:** Analyze proportional relationships and use them to solve real-world and mathematical problems.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/701.docx) | **Suggested # of Days** | **42** |
| **Approx. # of Day(s)** | **MAFS** | **Lesson Objective (Instructional Resources)** | **Suggested ACE Questions** | **TE Pages /****Ancillary Materials** |
| 5 | 7.RP.1.2 | Building Social Norms Through Problem Solving |  | **(Problems on** [**Blackboard**](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/cmp2_problem_solving.doc)**)**[Problem Solving](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/problem_solving_poster.docx)/[Norms](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/norms_poster.doc) |
| 1 | * 1. Ads that Sell/Exploring Ratios and Rates
 | 1-3, 11-14, 34 | p. 15-18 |
| 1 | 1.2 Targeting an Audience/Analyzing Comparison Statements | 4-5, 6-7, 20-21, 35 | p. 19-22 |
| 2 | 1.3 American Records/Writing Comparison Statements | 8-10, 36-40 | p. 23-26 |
| 3 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 3 | 7.RP.1.2 | 2.1 Mixing Juice/Developing Comparison Strategies | 1-3, 9-11 | p. 2-7p. 32-38 |
| 1 | 2.2 Sharing Pizza/More Comparison Strategies | 4, 5, 14-17, 22 | p. 39-42 |
| 2 | 2.3 Finding Equivalent Ratios/Scaling Ratios | 6-8, 19-21 24 | p. 43-46 |
| 4 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 1 | 7.RP.1.1 7.RP.1.2 | 3.1 Technology on Sale/Making and Using a Rate Table | 1-3, 33 | p. 51-56 |
| 1.5 | 3.2 Time, Rate, and Distance/Finding Rates | 4-8 (\*7 is a must, due to the concept of speed)  | p. 57-60 |
| 1 | 3.3 Comparing CD Prices/Unit Rates and Equations | 11, 26, 34 | p. 61-64 |
| 1.5 | 3.4 Two Different Rates | 12, 27-31 | p. 65-68 |
| 4 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 1.5 | 4.1 Setting Up and Solving Proportions \*Part D can be solved now or held off until after Stretching and Shrinking. | 1, 2, 15-17 | p. 73-78 |
| 1 | 4.2 Everyday Use of Proportions/Applications of Proportions | 3-5, 19 | p. 79-82 |
| 2 | 4.3 Developing Strategies for Solving Proportions | 6-14 | p. 83-88 |
| 3.5 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 1.5 | Investigation 4 ACE #18 |  |  |
| 1.5 | Investigation 3 ACE # 9 & 10 |  |  |

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| **Unit 2: Stretching and Shrinking** |
| **Code** | **Mathematics Florida Standard** | **SMP** |
| 7.G.1.1 | Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.  | 1, 2, 3, 4, 5 |
| **Learning Goal and Scale** | **Instructional Strategies & Misconceptions** |
| [**706:** Solve problems involving scale drawings of geometric figures.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/706.docx) | * Use manipulatives to demonstrate figure enlargements and reductions.
* Students confuse corresponding sides when the orientation of the two figures is different.
* Ensure students use labels for their ratios and proportions.
* Students confuse the x and y coordinate when graphing ordered pairs.
* Students may not utilize the original x and y coordinates when scaling figures up or down.
* Failure to recognize scale factor when moving from a larger shape to a smaller shape being less than one.
* Within nested triangles, students fail to find the full length of the larger triangle.
* Deconstruct the various parts of nested triangles to reinforce how to solve for each element.
* Students use inconsistent units of measure when determining side lengths.
* Color code corresponding sides and angles.
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| **Math Practices for Unit** | **Unit Connections** | **Instructional Resources** |
| 1. Make sense of problems and persevere in solving them. | 5. Use appropriate tools strategically. | **6th Grade Standards: Ratio and Proportional Relationships** * Understand the concept of a ratio and ratio terminology.
* Use ratio and rate reasoning to find equivalent ratios.
* Use tables to compare ratios and rates.
* Solve unit rate problems involving unit pricing and constant speed.

**7th Grade Standards: Ratio and Proportional Relationships*** Link the rate of change concept to scale factor
 | Shape SetGrid PaperRulersProtractorsRubber BandsMeter SticksRulersMirrors | Lab Sheet 1.2 A & BLab Sheet 1.3Lab Sheet 2.1 A & BLab Sheet 2.2 A & BLab Sheet 2.3 |
| 2. Reason abstractly and quantitatively. | 6. Attend to precision. |
| 3. Construct viable arguments & critique reasoning of others. | 7. Look for and make use of structure. |
| 4. Model with mathematics. | 8. Look for and express regularity in repeated reasoning. |

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| **SECOND QUARTER** |
| **Unit 2: Stretching and Shrinking** |
| **Learning Goal** | [**706:** Solve problems involving scale drawings of geometric figures.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/706.docx) | **Suggested # of Days** | 46 |
| **Approx. # of Day(s)** | **MAFS** | **Lesson Objective (Instructional Resources)** | **Suggested ACE Questions** | **TE Pages /****Ancillary Materials** |
| 5 | 7.RP.1.17.RP.1.2 | Authentic Assessment/Spiral Review AND/OR Amplify Project: *Sal’s Pizzeria*  |  | **Resources found on Amplify website** |
| 1 | 7.G.1.1 | 1.1 Solving a Mystery/Introduction to Similarity & 1.2 Stretching a Figure/Comparing Similar Figures (Use the picture to set the story for 1.2 and introduce the concept of similarity.) | 1-2, 8-12, 14-18 | 2-7, 14-24 |
| 2 | 1.3 Scaling Up and Down/Corresponding Sides and Angles | 5-7 | 25-28 |
| 2 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 2 | 7.G.1.1 | 2.1 Drawing Wumps/ Making Similar Figures | 1, 14, 15 | 32-38 |
| 2 | 2.2 Hats Off to Wumps/ Changing a Figure’s Size and Location  | 3, 13, 16-18, 31 | 39-42 |
| 1 | 2.3 Mouthing Off and Nosing Around/ Scale Factors | 5-7, 12, 19, 28, 32 | 43-48 |
| 3 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 2 | 3.1 Rep-tile Quadrilaterals/Forming Rep-Tiles with Similar Quadrilaterals | 1-3, 22-25\* (22-24 are required to support a standard) | 54-60 |
| 1 | 3.2 Rep-tile Triangles/Forming Rep-Tiles with similar Triangles | 4, 26-31 | 61-64 |
| 1 | 3.3 Scale Factors and Similar Shapes | 9-18, 19, 32 38-40 | 65-68 |
| 3 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 2 | 4.1 Ratios Within Similar Parallelograms | 1, 15-20 | 74-78 |
| 1 | 4.2 Ratios Within Similar Triangles | 2, 38 | 79-82 |
| 2 | 4.3 Finding Missing Parts/Using Similarity to Find Measurements | 5-11, 13, 34  | 83-86 |
| 3 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 1.5 | 5.1 Using Shadows to Find Heights | 1, 2, 6-21 | 90-94 |
| 1.5 | 5.2 Using Mirrors to Find Heights | 3, 4, 23-24, 26 | 95-98 |
| 2 | 5.3 Finding Lengths with Similar Triangles | 5, 27, 32 | 99-102 |
| 3 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 5 | Authentic Assessment AND/ORAmplify: *Putting Things Into Perspective* |  | **Resources found on Amplify website** |

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| **Unit 3: Covering and Surrounding**  |
| **Code** | **Mathematics Florida Standard** | **SMP** |
| 7.G.2.4 | 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 the area of a circle. | 1, 2, 5, 6 |
| **Learning Goal and Scale** | **Instructional Strategies & Misconceptions** |
| [**708:** Use the formulas for the area and circumference of a circle to solve problems of two-dimensional shapes.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/708.docx) | * Students often fail to notice the map’s scale.
* Students fail to understand that part of a square is not always one half.
* Provide extra copies and scissors for students that wish to cut and reconstruct new figures.
* Students confuse radius and diameter of circles.
* Students confuse r2 with r x 2 or 2r.
* Students misunderstand the relationship of circumference & area, thinking they change at the same rate.
 |
| **Math Practices for Unit** | **Unit Connections** | **Instructional Resources** |
| 1. Make sense of problems and persevere in solving them. | 5. Use appropriate tools strategically. | **6th Grade Standards: Ratio and Proportions** * Understand the concept of pi as the ratio of the circumference of a circle to its diameter.

**6th Grade Standards: Geometry*** Use knowledge of coordinate geometry and decompose figures into rectangles.
 | String/YarnScissorsGlueRulerCentimeter Cubes | Lab sheet 5.1Lab sheet 5.3 A & BLab sheet 5.4 Grid Paper (helps to have a different  color than lab sheet 5.4 for contrast)Lab sheet 5ACE Exercises 1 & 2 |
| 2. Reason abstractly and quantitatively. | 6. Attend to precision. |
| 3. Construct viable arguments & critique reasoning of others. | 7. Look for and make use of structure. |
| 4. Model with mathematics. | 8. Look for and express regularity in repeated reasoning. |

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| **THIRD QUARTER** |
| **Unit 3: Covering and Surrounding (6th Grade CMP2 Text)** |
| **Learning Goal** | [**708:** Use the formulas for the area and circumference of a circle to solve problems of two-dimensional shapes.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/708.docx) | **Suggested # of Days** | 7 |
| **Approx. # of Day(s)** | **MAFS** | **Lesson Objective (Instructional Resources)** | **Suggested ACE Questions** | **TE Pages /****Ancillary Materials** |
| 1 | 7.G.2.4 | 5.1 Measuring Lakes | 2 | p. 109-114 |
| 1 | 5.2 Surrounding a Circle | 5-9, 12 | p. 115-118 |
| 1 | 5.3 Pricing Pizzas | 15 | p. 119-122 |
| 2 | 5.4 “Squaring” a Circle  | 36, 37 | p. 123-128 |
| 2 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |

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| **Unit 4: Filling and Wrapping**  |
| **Code** | **Mathematics Florida Standard** | **SMP** |
| 7.G.1.3 | Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.  | 1, 2, 4, 7 |
| 7.G.2.6 | Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. | 1, 2, 4, 7 |
| **Learning Goal and Scale** | **Instructional Strategies & Misconceptions** |
| [**709:** Solve real-world and mathematical problems involving the surface area of 3D shapes composed of triangles, polygons.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/709.docx)[**710:** Solve real-world and mathematical problems involving the volume of 3D shapes composed of cubes and right prisms.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/710.docx) | * Stress labeling using the correct unit (squared or cubed).
* Students confuse surface area and volume.
* Student confusion with the term base and what it refers to on a figure.
* Review how to use a ruler to measure sections for the paper folding lesson.
* Review how to read fractional increments on a ruler.
 |
| **Math Practices for Unit** | **Unit Connections** | **Instructional Resources** |
| 1. Make sense of problems and persevere in solving them. | 5. Use appropriate tools strategically. | **6th Grade Standards: Geometry** * Find the area of triangles, other triangles, special quadrilaterals, and polygons by composing them into rectangles or decomposing them into triangles and other shapes.
* Find the volume of right rectangular prisms.
* Utilize nets to find the surface area of three dimensional figures.
 | Grid PaperCentimeter CubesInch Cubes GeoShapes with NetsScissorsTapeBoxes | Copy PaperPopcorn/Rice/Beans Lab Sheet 1.3 (Use Blackboard Copy - TE has error)Lab Sheet 3.3ALab Sheet 5.2 |
| 2. Reason abstractly and quantitatively. | 6. Attend to precision. |
| 3. Construct viable arguments & critique reasoning of others. | 7. Look for and make use of structure. |
| 4. Model with mathematics. | 8. Look for and express regularity in repeated reasoning. |

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| **THIRD QUARTER** |
| **Unit 4: Filling and Wrapping** |
| **Learning Goal** | [**709:** Solve real-world and mathematical problems involving the surface area of 3D shapes composed of triangles, polygons.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/709.docx)[**710:** Solve real-world and mathematical problems involving the volume of 3D shapes composed of cubes and right prisms.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/710.docx) | **Suggested # of Days** | 29 |
| **Approx. # of Day(s)** | **MAFS** | **Lesson Objective (Instructional Resources)** | **Suggested ACE Questions** | **TE Pages /****Ancillary Materials** |
| 1 | 7.G.1.37.G.2.6 | 1.1 Making Cubic BoxesUse the concept of nets of a cube to Launch 1.21.2 Making Rectangular Boxes | 1-4, 15-18 32, 5-7, 19-24 | 13-22 |
| 1.5 | 1.3 Testing Nets/Rectangular Prisms**\*to save time, have the nets pre-cut also, you may have them work in partners each folding two of the four boxes** | 8, 9, 25-27 31 | 23-26Use [**Blackboard**](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/fw_labsheet_1.3.doc) Lab sheet due to error in the book. |
| 1.5 | 1.4 Flattening a Box/Surface Area of a Rectangular Prism | 10-14, 28-30 | 27-30 |
| 3 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 2 | 2.1 Packaging Blocks/Finding Surface Area  | 1-3, 20-22 | 36-42 |
| 1 | 2.2 Saving Trees/Finding the Least Surface Area | 4-6 23-24, 28 | 43-46 |
| 1.5 | 2.3 Filling Rectangular Boxes/Finding the Volume of a Rectangular Prism | 7-19 25-27, 29 | 47-50 |
| 3.5 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 2 | 3.1 Filling Fancy Boxes/Finding the Volume of Other Prisms | 13a, 15, 25,  | p. 55-60 |
| 1.5 | 3.3 Making Cylinders and Prisms from Nets/ Finding the Surface Area of Cylinders \* Can exclude the cylinder portion | 16, 19, 27a, 31 | p. 65-68 |
| 3.5 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |
| 1 | 5.1 Building a Bigger Box/Doubling the Volume of a Rectangular Prism | 2-4, 20-23, 26 | p. 95-100 |
| 2 | 5.2 Scaling Up the Compost Box/Applying Scale Factor to Rectangular Prisms | 8, 12-15, 17 | p. 101-102 |
| 1 | 5.3 Building Model Ships/Similarity and Scale Factors \*Can omit part C | 18, 29, 30-32, 34 | p. 105-108 |
| 3 | Time Allotted for ACE and Additional Practice ProblemsMathematical Reflections and Assessment |  |  |

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| **Unit 5: Integers: A Financial Approach**  |
| **Code** | **Mathematics Florida Standard** | **SMP** |
| 7.NS.1.1 | 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. 1. Describe situations in which opposite quantities combine to make 0.
2. Understand p + q as the number located a distance |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 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.
3. Understand subtraction of rational numbers as adding the additive inverse, p – q = p + (–q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
4. Apply properties of operations as strategies to add and subtract rational numbers.
 | 1, 2, 3, 4, 5, 8 |
| 7.NS.1.2 | Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. 1. 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.
2. 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.
3. Apply properties of operations as strategies to multiply and divide rational numbers.
4. 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.
 | 1, 2, 3, 4, 5, 8 |
| 7.NS.1.3 | Solve real-world and mathematical problems involving the four operations with rational numbers.  | 1, 2, 3, 4, 5, 8 |
| **Learning Goal and Scale** | **Instructional Strategies & Misconceptions** |
| [**702:** Apply and extend previous understandings of operations to add and subtract rational numbers.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/702.docx)[**703:** Apply and extend previous understandings of operations to multiply and divide rational numbers.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/703.docx) | * Use manipulatives to demonstrate the concepts.
* A strategy to use for subtracting integers is to rewrite the subtraction problem as adding the opposite.
* Strategies for calculating sums and differences include highlighting or circling the signs, and/or using a number line.
* If students continue to forget to write the negative sign in the product or quotient, encourage them to determine the sign of the product or quotient before they solve the problem.
* Students incorrectly assume adding always means increasing and subtraction means decreasing.
* A strategy for understanding adding and subtracting is to have students physically model movement on a number line.
* Some students lack the understanding that – (83) is -1 times 83.
* Students sometimes fail to distribute a negative sign throughout the entire parenthesis.
 |
| **Math Practices for Unit** | **Unit Connections** | **Instructional Resources** |
| 1. Make sense of problems and persevere in solving them. | 5. Use appropriate tools strategically. | **6th Grade Standards: Number Operations** * Understand that positive and negative numbers are used together to describe quantities having opposite directions or values explaining the meaning of 0 in each situation.
* Understand that any rational number is a point on a number line.
* Understand the concept of opposites.
* Plot integers and other rational numbers on vertical and horizontal number lines.
* Apply the concept of absolute value.
 | Student PacketNet Worth of CelebritiesVertical Number LinesCrayons/Colored PencilsSamples of Assets Samples of Debts | [**Student**](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/a_financial_approach_to_integers_student.doc) **and** [**Teacher**](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/a_financial_approach_to_integers_teacher.docx) **Versions found on Blackboard** |
| 2. Reason abstractly and quantitatively. | 6. Attend to precision. |
| 3. Construct viable arguments & critique reasoning of others. | 7. Look for and make use of structure. |
| 4. Model with mathematics. | 8. Look for and express regularity in repeated reasoning. |

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| **THIRD QUARTER** |
| **Unit 5: Integers: A Financial Approach** |
| **Learning Goal** | [**702:** Apply and extend previous understandings of operations to add and subtract rational numbers.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/702.docx)[**703:** Apply and extend previous understandings of operations to multiply and divide rational numbers.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/703.docx) | **Suggested # of Days** | 9 |
| **Approx. # of Day(s)** | **MAFS** | **Lesson Objective (Instructional Resources)** | **Suggested ACE Questions** | **TE Pages /****Ancillary Materials** |
| 1 | 7.NS.1.17.NS.1.27.NS.1.3 | Launch of A Financial Approach Unit – Oprah’s Net Worth | S-1  | Google data on Oprah’snet worthT-5-6 |
| 1 | Net Worth Statements Bobby & Cindy and Brad & Angelina | S-2-3  | T-7-8 |
| 1 | Creating Student Net Worth Statements | S-4  | T-9 |
| 1 | Sponge Bob & Mr. Krabs Net Worth Statements | S-5  | T-10 |
| 1 | Worst Client $$$ | S-6-7  | T-11-12 |
| 1 | Who’s Worth More? *(Can be used as a formal assessment)* | S-8  | T-13 |
| .5 | In the Red!!! | S-9-10  | T-14-15 |
| 1 | Net Worth Comparisons | S-11  | T-16 |
| .5 | Don’t Cry Over Spilled Milk | S-12  | T-17 |
| 1 | Good or Bad Decision | S-13-14  | T-18-19 |
| **FOURTH QUARTER** |
| **Unit 5: Integers: A Financial Approach** |
| **Learning Goal** | [**702:** Apply and extend previous understandings of operations to add and subtract rational numbers.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/702.docx)[**703:** Apply and extend previous understandings of operations to multiply and divide rational numbers.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/703.docx) | **Suggested # of Days** | 23(15) |
| **Approx. # of Day(s)** | **MAFS** | **Lesson Objective (Instructional Resources)** | **Suggested ACE Questions** | **TE Pages /****Ancillary Materials** |
| 1 | 7.NS.1.17.NS.1.27.NS.1.3 | Good or Bad Decision *(Continued from 3rd quarter)* | S-13-14  | T-18-19 |
| 2 | Writing Money Transactions with Symbols | S-15-21  | T-20-26 |
| 4 | Net Worth Tracker | S-22-27  | T-27-32 |
| 1.5 | Oops! Coffee Spill! | S-28-30  | T-33-35 |
| .5 | Robin and Nigel | S-31  | T-36 |
| 2 | Signs, Signs, Everywhere There’re Signs!!! | S-32-34  | T-37-39 |
| 1 | Ryan’s Rules | S-35 |  |
| 2 | Division with Integers – Problem Solving |  |  |
| 1 | Unit Assessment | S-36-39 |  |
| 15 |  | Test Taking Strategies and Review during Testing Schedule |  |  |
| 5 |  | Supplemental Integer Word Problems | **Blackboard Resources** ([WP1](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/integer_word_problems_1.docx), [WP2](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/integer_word_problems_2.docx), [WP3](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/integer_word_problems_3.docx)) |
| 3 |  | MARS Exploration: *Using Positive and Negative Numbers in Context* |  | See [**Blackboard**](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/mars_using_positive_and_negative_numbers_in_context.pdf) |

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| **Unit 6: Expressions and Equations**  |
| **Code** | **Mathematics Florida Standard** | **SMP** |
| 7.EE.1.1 | Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. | 1, 2, 3, 4, 7 |
| 7.EE.1.2 | 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.  | 1, 2, 3, 4, 7 |
| 7.EE.1.3 | 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 inches from each edge; this estimate can be used as a check on the exact computation. | 1, 2, 3, 4, 7 |
| 7.EE.1.4 | 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. 1. 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?
2. 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.
 | 1, 2, 3, 4, 7 |
| **Learning Goal and Scale** | **Instructional Strategies & Misconceptions** |
| [**704:** Use properties of operations to generate equivalent expressions.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/704.docx) [**705**: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/705.docx) | * Use the strategy to match equations to various situations.
* Students apply operations in the wrong order.
* Student does not recognize all equivalent expressions.
* Student fails to distinguish between perimeter and area.
* Students fail to understand what consecutive means.
* Require students to show **ALL** steps when solving equations.
* Students fail to multiply all terms in the brackets.
* Students solve for x, but then fail to apply that result in the context of the problem.
 |
| **Math Practices for Unit** | **Unit Connections** | **Instructional Resources** |
| 1. Make sense of problems and persevere in solving them. | 5. Use appropriate tools strategically. | **6th Grade Standards: Expressions and Equations** * Write and evaluate expressions and one-step equations.
* Apply properties of operations to generate equivalent expressions.
* Identify when two expressions are equivalent.
* Understand that solving an equation is a process of determining what value makes an equation true.
 | Card Sets for MARSChart PaperMarkersGlue  | Express Yourself HandoutAmplify Recording Sheet |
| 2. Reason abstractly and quantitatively. | 6. Attend to precision. |
| 3. Construct viable arguments & critique reasoning of others. | 7. Look for and make use of structure. |
| 4. Model with mathematics. | 8. Look for and express regularity in repeated reasoning. |

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| **FOURTH QUARTER** |
| **Unit 6: Expressions and Equations** |
| **Learning Goal** | [**704:** Use properties of operations to generate equivalent expressions.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/704.docx) [**705**: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/705.docx) | **Suggested # of Days** | 8 |
| **Approx. # of Day(s)** | **MAFS** | **Lesson Objective (Instructional Resources)** | **Suggested ACE Questions** | **TE Pages /****Ancillary Materials** |
| 3 | 7.EE.1.1 7.EE.1.27.EE.2.37.EE.2.4 | MARS Exploration: *Steps to Solving Equations* |  | See [**Blackboard**](http://scpsmath.weebly.com/uploads/2/9/1/7/29174797/mars_steps_to_solving_equations.pdf.gjccs01.partial) |
| 5 | Authentic Assessment AND/OR Amplify Project: *Make That Money* |  | **Resources found on Amplify website** |