Dear CY1 Teacher:

The following Scope and Sequence document should be used to help with the pacing and planning of your Compacted Mathematics Year 1 instruction. This document was developed as a result of the sudden switch to online learning for our students in the Spring of 2020, recognizing the need to address potential inequities in learning that may have occurred. For this reason, you will note that there may be some significant changes to this Scope and Sequence in comparison to previous years.

This document shows an emphasis on Social Emotional Learning that aligns with the Mathematical Practices. This is an important part of our integrating competencies with the Common Core Mathematical Practices. This alignment document of the SEL competencies with the Mathematical Practices was developed by the Dana Center at the University of Texas at Austin. The inclusion of Social Emotional Learning during mathematics instruction is essential in supporting the development of students' mathematical identities. This is especially critical for our BIPOC (Black, Indigenous, and Persons of Color), Special Education (SPED), and Emergent Bilingual (EB) students.

After careful consideration from many experts, nationally and locally (including PPS teachers), the following 2020-2021 CY1 Scope and Sequence was developed.

The number of days listed for each unit are the suggested days. Please use professional judgement for your students and skills to determine whether to shorten or lengthen units as needed.

General notes on reading the document:

- The yellow highlights refer to particular notes to pay attention to around a specific topic or standard. Many of the yellow highlights refer to an increase or decrease amount of time for particular standards as well as suggestions on emphasis or integrating certain standards.

- The strikethroughs reference those standards that have been recommended to not be emphasized this year as a result of interrupted learning in the Spring of 2020 from Student Achievement Partners.
- The resources used to support this work come from the Student Achievement Partners, The New Teacher Project (TNTP), The Dana Center at the University of Texas in Austin, and feedback from PPS Teachers.
- Examples and current report card language for each standard have been added to this document.
- Unit 0 is setting the culture for learning in the mathematics classroom. The suggested resources identified in ATLAS come from Jo Boaler's work around Growth Mindset.
- The number of days in each unit allows time for Social Emotional Learning, flex days, and assessment.

The following document should be used to help with the pacing and planning of your Compacted Mathematics Year 1 class. Please make sure all of the following units are completed during the year so that students are on track and ready for their Year 2 class. It is important that all units are covered to ensure students do not have any gaps in their learning. Some units might have what seems to be an overwhelming set of concepts to learn. Please do not be intimidated by this as many of them are repetitive or overlap.

This document should be used in conjunction with the Unit Planning Organizer documents. You will see that the suggested number of days may not match those documents. Students in Compacted Mathematics are expected to be able to move faster with most content. Again use your professional judgement to decide which topics (lessons) can be eliminated, shortened, and/or merged together to meet the shorter timeline and the needs of your students. Thank you for all that you do and best wishes for the success of your students.

Here are some particular notes about the Compacted Mathematics Year 1 pacing:

- The 8th Grade unit on Geometric Transformations has been added to the 7th grade year to leave room for the high school standards needed to complete in Compacted Year 2.

PORTLAND PUBLIC SCHOOLS

**Compacted Mathematics Year 1**
**2020-2021 Scope & Sequence**

# CY1 Year-at-a-glance (dates are approximations)

| Unit 0 Developing Mathematical Mindset | Unit 1 Rational Operations | Unit 2 Rational Operations (Multiplication and Division) | Unit 3 Ratios and Proportions | Unit 4 Simplifying Expressions | Unit 5 Equations and Inequalities (7th + Linear Relationships 8th) | Unit 6 Probability | Unit 7 Geometric Relationships | Unit 8 Sampling and Variability (7th + Data and Modeling 8th) | Unit 9 Geometric Transformations & Angles (8th) |
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| Week 3 | Weeks 4 - 6 MAP Growth | Weeks 7 - 9 | Weeks 10 - 12 (Winter Break) | Weeks 13 - 15 | Weeks 16 - 22 MAP Growth | Weeks 23 - 25 | Weeks 26 - 29 | Weeks 30 - 33 Spring Break | Weeks 34 - 37 MAP Growth |

| Unit Name Suggested Pacing | Priority and Supporting Standards | Connecting the CCSS Math Practices and Social Emotional Learning (SEL) Competencies<br>The Charles A. Dana Center at The University of Texas at Austin and the Collaborative for Academic, Social, and Emotional Learning (2016) | |
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| **0. Developing Mathematical Mindset**<br><br>**3 Block Days**<br><br>***Establish routines such as Dot/Number Talks, How is Each One Unique, and Would You Rather** | **Priority Standards:**<br>MP.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.<br><br>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. | **Self-awareness:**<br>Be aware of their strengths and what they know<br><br>**Self-management:** Resist impulses and regulate their thoughts and behaviors<br><br>**Self-management:** Manage their time and energy toward a goal while appraising their work<br><br>**Social awareness:** Take on others' perspectives |
| | MP.2 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, | **Self-management:**<br>Self-regulate and think metacognitively |

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| | | 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. | |
| | **MP.3** Construct viable arguments and critique the reasoning of other | 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**. | **Social awareness:** To anticipate how students' own arguments may be interpreted and received, take on the perspectives of others<br><br>**Self-management:** Think metacognitively and organize their own thoughts with given information<br><br>**Social awareness:** Understand others' perspectives to effectively interpret their arguments<br><br>**Relationship skills:** Listen actively to further explore the arguments of others |
| | **MP.4** 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. | **Self-awareness:** Be aware of their own strengths and limitations<br><br>**Self-management:** Self-reflect and self-motivate by recognizing the need to improve and work toward goals |
| | **MP.5** Use appropriate | 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 | **Self-management:** Think metacognitively to identify when |

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| | tools strategically. | 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.** | to use what tool; motivate themselves to deepen their current understanding<br><br>**Self-management:**<br>Motivate themselves to deepen their current understanding |
| | **MP.6** 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, students **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. | **Social awareness**<br>**Relationship skills:**<br>Take on the perspective of others and be aware of others' thoughts and feelings in order to strengthen the effectiveness of Communication<br><br>**Self-management:**<br>Self-regulate thoughts and behaviors |
| | **MP.7** 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<br>x2 + 9x + 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. | **Self-awareness:**<br>Understand their strengths and possess confidence or optimism about their ability to look for and make use of structure<br><br>**Self-management:**<br>Motivate themselves, persist, and regulate<br>against impulses to give up when a pattern or structure is not immediately apparent<br><br>**Self-management:**<br>Manage their own progress |
| | **MP.8** Look for and express | 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 | **Self-management:**<br>Regulate their thoughts to know when |

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| | regularity in repeated reasoning. | 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)(x2 +x + 1), and (x – 1)(x3 + x2 + 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.** | organizational strategies are needed (e.g., writing key facts or organizing information on paper)<br><br>**Self-awareness:**<br>Have a well-grounded and accurate appraisal of their own abilities and work |

| Unit Name | Priority and Supporting Standards | Suggested Pacing |
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| **Unit 0 - Developing a Mathematical Mindset** | **MP 1**: Make sense of problems and persevere in solving them<br>**MP 2**: Reason abstractly and quantitatively<br>**MP 3**: Construct viable arguments and critique the reasoning of others.<br>**MP 7**: Look for and make use of structure | ***5 days*** |
| **1. Rational Operations (Add & Subtract) (7th)** | **Priority Standards:**<br>**(Incorporate foundational work on understandings of rational numbers (6.NS.C.5, 6, 7) to build towards operations with rational numbers (7.NS.A), as detailed by the cluster.)**<br>7.NS.A.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.<br><br>7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.[1]<br><br>**Supporting Standards:**<br>7.NS.A.1.A Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged*.<br><br>7.NS.A.1.B 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.<br><br>7.NS.A.1.C 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. | ***16 days*** |

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| | 7.NS.A.1.D Apply properties of operations as strategies to add and subtract rational numbers. | |
| **2. Rational Operations (Multiplication and Division) (7th)** | **Priority Standards:**<br>**(Incorporate foundational work on understandings of rational numbers (6.NS.C.5, 6, 7) to build towards operations with rational numbers (7.NS.A), as detailed by the cluster.)**<br>7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.<br><br>7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.[1]<br><br>**Supporting Standards:**<br>7.NS.A.2.A 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.<br><br>7.NS.A.2.B 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.<br><br>7.NS.A.2.C Apply properties of operations as strategies to multiply and divide rational numbers.<br><br>7.NS.A.2.D 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. | ***16 days*** |
| **3. Ratios and Proportions (7th)** | **Priority Standards:**<br>7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction 1/2/1/4 miles per hour, equivalently 2 miles per hour*.<br><br>7.RP.A.2 Recognize and represent proportional relationships between quantities.<br><br>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. | ***20 days***<br><br>***Time spent on Instruction and Practice Should Not be Reduced for 7.RP (SAP)*** |

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| | 7.G.A.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. (Reduce time spent on scale drawings by hand).<br><br>**Supporting Standards:**<br>7.RP.A.2.A 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.<br><br>7.RP.A.2.B Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.<br><br>7.RP.A.2.C 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*.<br><br>7.RP.A.2.D 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. | ***Reduce time spent on 7.G.A.1:*** |
| **4. Simplifying Expressions (7th)** | **Priority Standards:**<br>**(Incorporate foundational work on writing and transforming linear expressions from grade 6 (6.EE.A) into the work of using properties to generate equivalent expressions, as detailed by the cluster (7.EE.A).**<br>7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.<br><br>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 inches from each edge; this estimate can be used as a check on the exact computation*.<br><br>**Supporting Standards:** | ***10 days***<br><br>***7.EE.B.3 SAP: Priority Standard- Time Spent on Instruction Should not be Reduced*** |

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| | 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."*<br><br>~~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 inches from each edge; this estimate can be used as a check on the exact computation.*~~ | |
| **5. Equations and Inequalities (7th + Linear Relationships 8th)** | **Priority Standards:**<br>**(Emphasize equations relative to inequalities. Incorporate foundational work of reasoning about and solving one-variable equations (6.EE.B) to support students' work on constructing equations to solve problems, as detailed by the standard (7.EE.B.4).**<br><br>7.EE.B.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.<br><br>**8.EE.B.5** Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.<br><br>**8.F.B.4** Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (*x, y*) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.<br><br>**Supporting Standards:**<br>7.EE.B.4.A 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?*<br><br>7.EE.B.4.B 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. | ***18 days***<br><br>***Time Spent on 7.EE.B.4 Should NOT be Reduced (SAP)***<br><br>***Time Spent on 8.EE.B Should NOT be Reduced (SAP)*** |

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| | *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*.<br><br>**8.EE.B.6** Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation *y = mx + b* for a line intercepting the vertical axis at *b*.<br><br>**8.F.B.5** Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally. | |
| **6. Probability (7th)** | **Priority Standards:**<br>**(Combine lessons on developing using and evaluating probability models in order to emphasize foundational concepts and reduce the amount of time spent on this topic (7.SP.C)**<br>7.SP.C.5 Understand that the probability of a chance event is a number 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.<br><br>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*.<br><br>~~7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.~~ **~~(Eliminate)~~**<br><br>**Supporting Standards:**<br>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.<br><br>7.SP.C.7.A Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected*. | ***15 days***<br><br>***Limit the amount of time spent on 7.SP.C (SAP)*** |

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| | 7.SP.C.7.B Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*<br><br>7.SP.C.8.A Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.<br><br>7.SP.C.8.B Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.<br><br>7.SP.C.8.C Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?* | |
| **7. Geometric Relationships (7th)** | **Priority Standards:**<br>**(7.G.B.4: Combine lessons on knowing and using formulas for the area and circumference of a circle in order to reduce the amount of time spent on this topic).**<br><br>**(7.G.B.5 and 7.G.B.6: Combine lessons to address key concepts and skills of unknown angles, area, volume, and surface area). Incorporate conceptual understanding of finding the area of polygons and the volume of right rectangular prisms (6.G.A.1, 6.G.A.2) in teaching real-life and mathematical problems involving area, volume, surface area of two and three dimensional objects (7.G.B.6) Do not require students to draw nets to determine surface area.**<br>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.<br><br>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.<br><br>7.G.B.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.<br><br>**Supporting Standards:**<br>***(Eliminate lessons on drawing and constructing triangles as detailed in 7.G.A.2).**<br>***(Eliminate lessons on analyzing figures that result from slicing three-dimensional figures as detailed in 7.G.A.3)** | ***20 days***<br><br>***Reduce the amount of time spent on 7.G.B.4 (SAP)*** |

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| | ~~7.G.A.2 Draw (freehand, with a 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.~~<br><br>~~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.~~ | |
| **8. Sampling and Variability (7th + Data and Modeling 8th)** | **Priority Standards:**<br>**(7.SP.A and 7.SP.B: Combine lessons on using random sampling to draw inferences about a population and using measures of center and variability to draw comparative inferences about two populations in order to reduce the amount of time spent on this topic. Incorporate students' grade 6 understanding of statistical variability (6.SP.A).**<br>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.<br><br>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*.<br><br>7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book*.<br><br>**8.SP.A: Emphasize using linear functions to model association in bivariate measurement data that suggest a linear association, using the functions to answer questions about the data (8.SP.A.3). Combine lessons for 8.SP.A.1, 2 and reduce the amount of required student practice.**<br>**8.SP.A.1** Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association. | ***15 days***<br><br>***Limit the amount of time spent on student practice on 7.SP.A and 7.SP.B (SAP)*** |

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| | 8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.<br><br>8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height*.<br><br>**Supporting Standards:**<br>8.SP.A.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?* | |
| **9. Geometric Transformations & Angles (8th)** | **Priority Standards:**<br>**8.G.A: Combine lessons to address key concepts in congruence and combine lessons to address key concepts in similarity of two-dimensional figures in order to reduce the amount of time on this topic.**<br>8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations.<br><br>8.G.A.2 Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them.<br><br>8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.<br><br>8.G.A.4 Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.<br><br>8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so. | ***20 days***<br><br>***Reduce amount of time spent on 8.G.A (SAP)*** |

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| | **Supporting Standards:**<br>**8.G.A.1.A** Lines are taken to lines, and line segments to line segments of the same length.<br><br>**8.G.A.1.B** Angles are taken to angles of the same measure.<br><br>**8.G.A.1.C** Parallel lines are taken to parallel lines. | |

155 Days of Instruction