Carnegie Learning Math Solution (2018) - Grade 8

Carnegie Learning | Eighth Grade

Alignment: Overall Summary

The instructional materials for Carnegie Learning Math Solution (2018) Course 3 meet the expectation for alignment to the CCSS. In Gateway 1, the instructional materials meet the expectations for focus by assessing grade-level content and spending at least 65% of class time on the major clusters of the grade, and they are coherent and consistent with the Standards. In Gateway 2, the instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, and they connect the Standards for Mathematical Content and the Standards for Mathematical Practice.

The Report

Gateway One
Focus & Coherence

Meets Expectations

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The instructional materials for Middle School Math Solution Course 3 meet the expectations for Gateway 1. These materials do not assess above-grade-level content and spend the majority of the time on the major clusters of each grade level. Teachers using these materials as designed will use supporting clusters to enhance the major work of the grade. These materials are consistent with the mathematical progression in the standards, and students are offered extensive work with grade-level problems. Connections are made between clusters and domains where appropriate. Overall, the materials meet the expectations for focusing on the major work of the grade, and the materials also meet the expectations for coherence.

CRITERION 1A

Materials do not **assess** topics **before** the grade level in which the topic should be introduced.

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The instructional materials for Middle School Math Solution Course 3 meet the expectation for not assessing topics before the grade-level in which the topic should be introduced. The materials did not include any assessment questions that were above grade-level.

INDICATOR 1A

The instructional material **assesses** the grade-level content **and, if applicable**, content from earlier grades. Content from future grades may be introduced but students should not be held accountable on assessments for future expectations.

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The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations that they assess grade-level content.

The assessments are aligned to grade-level standards. The instructional materials reviewed for this indicator were the Post-Tests, which are the same assessments as the Pre-Tests, both Form A and Form B End of Topic Tests, Standardized Practice Test, and the Topic Level Performance Task.

For example:

- Module 1, Topic 1, Standardized Test Practice, 8.G.2 & 3: Students use understanding of congruence in translations to determine the length of a side in an image. Question 2 states, "Blake drew square ABCD. Then, he drew the image of it, square A'B'C'D', 2 centimeters to the right of the original figure. Line segment BC is 3 centimeters. How long is B'C'?"

- Module 2, Performance Task, 8.SP.1-4: Student create scatter plots and lines of best fit to investigate relationships between age and height. For example, in Patterns in Bivariate Data: Growing Tall: "The average height of girls from age 8 to 15 is plotted below. The second plot shows the heights of professional players on a WNBA team. Two graphs are displayed with data. Describe the pattern of each data set. What do the patterns indicate about the connection between the age and height? Explain. Estimate lines of best fit and use them to make predictions if possible. What would you expect to be the average height of an 18 year old? A 40 year old? Your work should include: Description of patterns of data and an explanation of the connections; Equations for approximate lines of best fit; A description of the slope and y-intercept for each line; Use of the lines of best fit to predict a future value."

- Module 2, Topic 1, End of Topic Test Form A, 8.EE.5 & 6: Students compare proportional relationships represented in different ways (situation, equation, and graph) to find the best deal. Question 9 states, "During the week, Azim bought gas at 3 different gas stations. He bought 15 gallons at Joe's for $41.85. The cost per gallon of gas at ZoomGas is

given by the equation $y=5+2.71x$, where y is the total cost and x is the number of gallons of gas bought. The table shows the amount spent at Corner Gas. Which of the gas station provides the best deal for gas? Explain your reasoning."

- Module 4, Topic 1, End of Topic Test Form A, 8.NS.1: Students justify understanding of rational numbers. Question 5 states, "Tell whether each statement about number sets is true or false. If false, provide a counterexample: a. Every terminating decimal is a rational number. b. The set of natural numbers contains the set of integers. c. Zero is an integer. d. A square root is sometimes a rational number."

CRITERION 1B

Students and teachers using the materials as designed devote the large majority of class time in each grade K-8 to the major work of the grade.

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 meet the expectations for having students and teachers using the materials as designed, devoting the large majority of class time to the major work of the grade. Overall, the materials devote at least 65 percent of class time to major work.

INDICATOR 1B

Instructional material spends the majority of class time on the major cluster of each grade.

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Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations for spending a majority of instructional time on major work of the grade.

To determine the amount of time spent on major work, the number of topics, the number of lessons, and the number of days were examined. Review and assessment days were also included in the evidence.

- The approximate number of topics devoted to major work of the grade (including assessments and supporting work connected to the major work) is 10 out of 13, which is approximately 77 percent.

- The number of lessons devoted to major work of the grade (including assessments and supporting work connected to the major work) is 43 out of 54, which is approximately 77 percent.

- The number of days devoted to major work (including assessments and supporting work connected to the major work) is 113 out of 137, which is approximately 82.5 percent.

The approximate number of days is most representative of the instructional materials because it most closely reflects the actual amount of time that students are interacting with major work of the grade. As a result, approximately 82.5 percent of the instructional materials focus on major work of the grade.

CRITERION 1C - 1F

Coherence: Each grade's instructional materials are coherent and consistent with the Standards.

8/8

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 meet the expectations for being coherent and consistent with the standards. Supporting work is connected to the major work of the grade, and the amount of content for one grade level is viable for one school year and fosters coherence between the grades. Content from prior or future grades is clearly identified, and the materials explicitly relate grade-level concepts to prior knowledge from earlier grades. The objectives for the materials are shaped by the

CCSSM cluster headings, and they also incorporate natural connections that will prepare a student for upcoming grades.

INDICATOR 1C

Supporting content enhances focus and coherence simultaneously by engaging students in the major work of the grade.

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Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations that supporting work enhances focus and coherence simultaneously by engaging students in the major work of the grade.

Supporting standards/clusters are connected to the major standards/clusters of the grade.

For example:

- In Module 2, Topic 4, Lessons 2, 3, & 4 Lines of Best Fit: Students determine the equation for the line of best fit scatterplot (8.SP.3) to analyze data, make predictions, and interpret the linear function in terms of the situation it models (8.F.4).

- In Module 4, Topic 1, Lesson 3, Activity 3.2 & 3.3: What are Those!? The Real Numbers: Students estimate the value of the square root of a number that is not a perfect square by using the two closest perfect squares and a number line (8.NS.2) then use estimation to determine cube roots when the radicands are not perfect cubes and determine the volumes of cubes generating a list of numbers that are perfect cubes. (8.EE.2).

- In Module 5, Topic 2 Volume Problems with Cylinders, Cones, and Spheres: Students calculate volume (8.G.9) with measurements given in decimals and fractions which supports 8.EE.7b, solving linear equations with rational number coefficients.

INDICATOR 1D

The amount of content designated for one grade level is viable for one school year in order to foster coherence between grades.

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 Indicator Rating Details

Instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the amount of content designated for one grade-level is viable for one year. The suggested amount of time and expectations for teachers and students of the materials are viable for one school year as written and would not require significant modifications.

Carnegie Learning provides explicit pacing information in several places:

- The most concise is the Content Map on page FM-15 in the Teacher's Implementation Guide in both Volumes 1 and 2. There are 135 days of instructional material. This document also provides the information that one day is 50 minutes, facilitator notes offer suggestions for changing the pacing if appropriate, and that allowing 25 assessment days would bring the total to 160 days.

- The Course 3 Standards Overview on pages FM-18 and 19 in the Teacher Implementation Guide provides a chart of all standards covered in each lesson indicating that students would be able to master all grade-level standards within one school year. All of the standards for each grade-level are taught at least once in the curriculum, and most are addressed more than once.

INDICATOR 1E

Materials are consistent with the progressions in the Standards i. Materials develop according to the grade-by-grade progressions in the Standards. If there is content from prior or future grades, that content is clearly identified and related to grade-level work ii. Materials give all students extensive work with grade-level problems iii. Materials relate grade level concepts explicitly to prior knowledge from earlier grades.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations for the materials being consistent with the progressions in the Standards.

The instructional materials clearly identify content from prior and future grade levels and use it to support the progressions of the grade-level standards. The content is explicitly related to prior knowledge to help students scaffold new concepts. Content from other grade levels is clearly identified in multiple places throughout the materials.

Examples include:

- A chart in the Overview shows the sequence of concepts taught within the three grade levels of the series (FM-15).

- The Family Guide (included in the student book) presents an overview of each Module with sections that look at "Where have we been?" and "Where are we going?" which address the progression of knowledge.

- The Teacher Guide provides a detailed Module Overview which includes two sections titled, "How is _____ connected to prior learning?" and "When will students use knowledge from ___ in future learning?"
  - Module 1 Overview- How is Transforming Geometric Objects connected to prior learning? (M1-1B): "Transforming Geometric Objects builds on students' long-developing geometric knowledge. In Kindergarten, students learned that an object's name is not dependent on orientation or size, setting the foundation for similarity. Later, in grade 4, students identified lines of symmetry, lighting the way for the study of reflections and congruence. In this module, students also build on the grade 7 standards of operations with rational numbers, proportionality, scale drawings, uniqueness of triangles, and angles formed when two lines intersect. Students

will use their knowledge of operations with rational numbers to determine the effects on coordinates of figures after transformations."

- o Module 3 Overview- When will students use knowledge from Modeling with Linear Equations in future learning? (M3-1B): "As students learn in Modeling with Linear Equations, there is often more than one correct way to solve an equation. Throughout their study of algebra, students are expected to construct, solve, and graph equations to represent relationships between two quantities. This module provides students with opportunities to develop strategies focused solely on linear equations. As they continue on their mathematical journeys, they will encounter literal equations, polynomial equations, and trigonometric equations."

- At the beginning of each Topic in a Module, there is a Topic Overview which includes sections entitled "What is the entry point for students?" and "Why is ____ important?"
    - o Module 4, Topic 2- Pythagorean Theorem (M4-51A) - What is the entry point for students?: "Pythagorean Theorem begins by reviewing basic knowledge of right triangles and exponents. Students first studied right angles and right triangles in grade 4 (4.G.1, 4.G.2) and evaluated numeric expressions with whole-number exponents in grade 6 (6.EE.1)."
    - o Module 5, Topic 1- Exponents and Scientific Notation (M5-3B) - Why are Exponents and Scientific Notation important?: "Scientific notation, an application of exponents, will arise in students' science courses in middle school and high school, particularly in the study of chemistry.

- The Topic Overview also contains a table called "Learning Together" that identifies the standards reviewed from previous lessons and grades called "Spaced Review."

- Each "Lesson Resource" has scaffolded practice for the students to utilize with reminders of concepts taught previously.

The design of the materials concentrates on the mathematics of the grade. Each lesson has three sections (Engage, Develop, and Demonstrate) which contain grade-level problems. Each topic also includes a performance task.

- In the Engage section, the students complete one activity that will "activate student thinking by tapping into prior knowledge and real-world experiences and provide an introduction that generates curiosity and plants the seeds for deeper learning." For example, in Module 5, Topic 1, Lesson 3 (M5-43), students calculate the number of times they have blinked in their lifetimes. The large numbers generated motivate the need to write large numbers with a more efficient notation. (8.EE.3, 4)

- In the Develop section, the students do multiple activities that "build a deep understanding of mathematics through a variety of activities—real-world problems, sorting activities, worked examples, and peer analysis—in an environment where collaboration, conversations, and questioning are routine practices." For example, Module 5, Topic 1, Lesson 4, Activity 4.4 (M5-72) has students answer questions about numbers written in scientific notation and standard form. They choose appropriate units, compare relative sizes, and operate on numbers in different forms. (8.EE.3, 4)

- In the Demonstrate section, the students "reflect on and evaluate what was learned." An example of this is Module 5, Topic 2, Lesson 4 (M5-123), where students "determine the volumes of two figures composed of two solids: a cone and a cylinder and a half-sphere and a cylinder." (8.G.9)

The end of each lesson in the student book includes Practice, Stretch, and Review problems. These problems engage students with grade-level content. Practice problems address the lesson goals. Stretch problems expand and deepen student thinking. Review problems connect to specific, previously-learned standards. All problems, especially Practice and Review, are expected be assigned to all students.

After the lessons are complete, the students work individually with the MATHia software and/or on Skills Practice that is included.

- MATHia - Module 1, Topic 3 (M1-1D): Approximately two days is spent in MATHia software, and students identify and classify angle pairs in a given figure containing lines cut by transversals. They use the Angle-Angle Similarity Theorem to verify that images are similar.

- Skills Practice - Module 2, Topic 1 (M2-1D): For approximately three days, students work on problem sets such as determining linear expressions with integer coefficients that represent real-world contexts. They use these expressions to solve problems.

INDICATOR 1F

Materials foster coherence through connections at a single grade, where appropriate and required by the Standards i. Materials include learning objectives that are visibly shaped by CCSSM cluster headings. ii. Materials include problems and activities that serve to connect two or more clusters in a domain, or two or more domains in a grade, in cases where these connections are natural and important.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations that materials foster coherence through connections at a single grade, where appropriate and required by the Standards.

Materials include learning objectives that are visibly shaped by CCSSM cluster headings, including:

8.EE.C Analyze and solve linear equations and pairs of simultaneous linear equations.

- In Module 3, Topic 1, Lesson 2, the Lesson Overview states, "Students write algebraic expressions within the context of different situations. They then use the expressions to write equations and solve the equations for

unknown values. Students interpret solutions and determine when equations have one solution, no solutions, or infinite solutions."

8.EE.A Expressions and equations work with radicals and integer exponents.

- In Module 5, Topic 1, Lesson 1, the Lesson Overview states, "The terms power, base of a power, and exponent of a power are defined. Students write and evaluate expressions with positive integer exponents. They begin with a context using the power with a base of 2. Students then investigate positive and negative integer bases where the negative sign may or may not be raised to a power depending on the placement of parentheses. Some expressions also contain variables."

8.G.A Understand congruence and similarity using physical models, transparencies, or geometry software.

- In Module 1, Topic 2, Lesson 3, the Lesson Overview states, "Students determine if figures are similar through transformations. They explore what is meant by "same shape" when referring to similar figures. Students determine similarity using a single dilation and verify similarity of a variety of figures through a sequence of transformations. They then explore the relationship between images of a common pre-image under different conditions and the relationship between figures similar to congruent figures. Finally, students summarize the relationships between transformations and congruent and similar figures."

Materials include problems and activities that connect two or more clusters in a domain, or two or more domains in a grade, in cases where these connections are natural and important. For example:

- In Module 2, Topic 1, Lesson 4, students apply geometric transformations (8.G.A) to the basic function, $y = x$ (8.EE.B).

- Module 2, Topic 2, Lesson 1 U.S. Shirts: Using Tables, Graphs, and Equations, students construct a function to model a linear relationship between two quantities (8.F.B) and compare two different proportional relationships represented in different ways (8.EE.B). They then write a

response that compares the pricing plans for the two companies and predict how the pricing affects businesses.

- In Module 2, Topic 3, Lesson 4, students interpret the equation $y = mx + b$ as defining a linear function (8.F.A) to analyze the graphical behavior of linear and nonlinear functions (8.F.B).

- In Module 4, Topic 2, Lesson 3, students use square roots (8.EE.B) and the Pythagorean Theorem to determine the length of a three-dimensional diagonal of a rectangular solid (8.G.B).

Gateway Two
Rigor & Mathematical Practices
Meets Expectations

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 Gateway Two Details

The instructional materials for Middle School Math Solution Course 3 meet the expectation for aligning with the CCSS expectations for rigor and mathematical practices. The instructional materials attend to each of the three aspects of rigor individually, and they also attend to the balance among the three aspects. The instructional materials emphasize mathematical reasoning, identify the Mathematical Practices (MPs), and attend to the full meaning of each practice standard.

CRITERION 2A - 2D

Rigor and Balance: Each grade's instructional materials reflect the balances in the Standards and help students meet the Standards' rigorous expectations, by helping students develop conceptual understanding, procedural skill and fluency, and application.

8/8

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 meet the expectations for rigor and balance. The materials meet the expectations for rigor as they help students develop conceptual understanding, procedural skill and fluency, and application with a balance of all three aspects of rigor.

INDICATOR 2A

Attention to conceptual understanding: Materials develop conceptual understanding of key mathematical concepts, especially where called for in specific content standards or cluster headings.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the materials develop conceptual understanding of key mathematical concepts, especially where called for in specific standards or cluster headings.

Materials include problems and questions that develop conceptual understanding throughout the grade level. Students develop understanding throughout "Engage" and "Develop" activities, which typically activate prior knowledge and use manipulatives to introduce and build understanding of a concept. Students also have the opportunity to independently demonstrate their understanding in the "Demonstrate" questions at the end of each lesson where they attempt to synthesize their learning.

- In Module 1, Topic 1, Lesson 4, students gain an understanding of translations, reflections, and rotations by manipulating two-dimensional figures on a coordinate plane. In Activity 4.1 Mirror, Mirror, students see an image of an ambulance appearing backward like it would in a mirror. Students discuss why the image looks as it does and write their name in a similar manner. Students then use patty paper to reflect pre-images across the *x*-axis and *y*-axis and explore how the reflection affects the coordinates. (8.G.A)

- In Module 2, Topic 1, Lessons 1, students explore slope and similar triangles to understand the slope-intercept form for the equation of a line.

In Activity 1.4 Comparing Depth of Color, using concrete visual representations, students develop connections between tables, graphs, and expressions for a given situation. (8.EE.6)

- In Module 2, Topic 3, Lesson 3, students demonstrate an understanding of a function when they create an input/output table and an *x/y* table. In Activity 3.1 Functions as Mappings from One Set to Another, students see examples of mapping ordered pairs and look at the relationship of *x* and *y* coordinates. Students write the ordered pairs shown by mapping, create their own mapping and then represent the numbers in an input/output table and an *x/y* table to visualize the relationships between them. (8.F.A)

- In Module 4, Topic 2, Lesson 1, students develop an understanding of the Pythagorean Theorem through visual models. In Getting Started and Activity 1.1 Introducing the Pythagorean Theorem, students square the length of each side of a right triangle and describe patterns they see. They summarize the patterns to discover that, in a right triangle, the hypotenuse must be opposite the right angle. (8.EE.2, 8.G.6, 8.G.7)

- In Module 4, Topic 2, Lesson 1, students develop an understanding of the Pythagorean Theorem when using manipulatives to create a proof. In Activity 1.2, Proving the Pythagorean Theorem, students use manipulatives (grid paper, cut-outs) to create a geometric proof of the Pythagorean Theorem three different ways. (8.EE.2, 8.G.6, 8.G.7)

Materials provide opportunities for students to independently demonstrate conceptual understanding throughout the grade.

- In Module 1, Topic 2, Lesson 3, students demonstrate an understanding of similarity by justifying their answer with a rationale. In Talk the Talk - Summing Up Similar Figures, students determine if statements about similarity are always, sometimes, or never true and justify their answer based on prior learning. (8.G.A) For example, "The same order for a sequence of transformations can be used to map between two similar figures, regardless of which figure is used as the pre-image."

- In Module 2, Topic 1, Lesson 2, students demonstrate an understanding of proportional relationships when providing examples of connections between concepts. In Talk the Talk - A Web of Connections, students summarize what they have learned by connecting the steepness of a line to the concepts of slope, rate of change, unit rate, and the constant of proportionality. Students provide illustrations and examples showing the connections among these concepts. (8.EE.5 &.6)

- In Module 2, Topic 3, Lesson 3, students create various representations of a function to demonstrate their understanding. In Talk the Talk - Function Organizer, students represent a function in different ways (problem, situations, graph, and ordered pairs) in a graphic organizer. (8.F.A)

- In Module 3, Topic 2, Lesson 4, students demonstrate an understanding of proportional relationships when solving real-world problems. In Practice Questions, students are given situations and use their prior knowledge to choose a strategy that best represents the information, solve it using that method, and explain their solution. (8.EE.B)

INDICATOR 2B

Attention to Procedural Skill and Fluency: Materials give attention throughout the year to individual standards that set an expectation of procedural skill and fluency.

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 Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations that they attend to those standards that set an expectation of procedural skill and fluency.

The instructional materials develop procedural skill throughout the grade level. They also provide opportunities to independently demonstrate procedural skill throughout the grade level. This is primarily found in two aspects of the materials: first, in the "Develop" portion of the lesson where students work

through activities that help them deepen understanding and practice procedural skill; second, in the MATHia Software, which targets each student's area of need until they demonstrate proficiency.

The instructional materials develop procedural skill and fluency throughout the grade level.

- In Module 1, Topic 1, Lesson 4, students develop procedural skill when determining coordinates of the vertices of two-dimensional figures. In Activity 4.2, Reflecting Any Points on the Coordinate Plane, students reflect a point across the *x*-axis and *y*-axis and record the coordinates of the images. Next, they are given the coordinates to graph a triangle which they reflect and record the coordinates of the vertices of the images. Finally, they are given the coordinates of the vertices of a triangle, and without graphing, they determine the coordinates of images resulting from different reflections. (8.G.2 & 3)

- In Module 2, Topic 1, Lesson 1, students develop procedural skill when working with proportional relationships. In Activity 1.2, Comparing Ratios and Graphs, students connect ratios with graphs to show proportional relationships. They draw additional lines of equations with ratios greater than or less than the ratios graphed, comparing ratio magnitude with steepness of the lines. (8.EE.5)

- In Module 2, Topic 3, Lesson 3, students develop procedural skill when they use an equation to generate a table. In Getting Started, What's My Rule?, students are given tables with ordered pairs and determine the equation that generated those ordered pairs. Then students create their own table of ordered pairs based on an equation they generate and give it to a partner to determine the equation. (8.F.2)

The instructional materials provide opportunities to independently demonstrate procedural skill and fluency throughout the grade level.

- In Module 3, Topic 1, Lesson 2, students demonstrate procedural skill when solving and writing algebraic expressions. In MP3s and DVDs, Analyzing and Solving Linear Equations, given situations, students write

algebraic expressions then use the expressions to write and solve equations. Students determine when equations have one solution, no solutions, or infinitely many solutions. Finally, students write their own equations: one that has one solution, one that has no solutions, and one that has infinite solutions. (8.EE.7a)

- In Module 3, Topic 2, Lesson 2, students demonstrate procedural skill when analyzing and writing systems of linear equations. In The Road Less Traveled, Systems of Linear Equations, students write and analyze systems of linear equations. They informally calculate the solutions to systems of linear equations and then graph the systems of equations. Students conclude when parallel lines comprise the system the lines will never intersect, so there is no solution to the system. (8.EE.8a)

- In Module 5, Topic 1, Lesson 1, students demonstrate procedural skill when solving expressions with exponents. In Activity 1.3, Multiplying and Dividing Powers, given information about megabytes, and kilobytes, students calculate the storage capacity of eBooks and jump drives, providing opportunities for students to perform multiplication and division on expressions with exponents. (8.EE.1)

- In Module 5, Topic 2, students demonstrate procedural skill when calculating the volume of three-dimensional figures. In the MATHia Software, students have multiple opportunities to determine the volume of cylinders, cones, and spheres and use the volume of a cylinder or sphere to determine its radius. (8.G.9)

INDICATOR 2C

Attention to Applications: Materials are designed so that teachers and students spend sufficient time working with engaging applications of the mathematics, without losing focus on the major work of each grade

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the materials are designed so that teachers and students spend sufficient time working with engaging applications of the mathematics. Engaging applications include single and multi-step problems, routine and non-routine, presented in a context in which the mathematics is applied.

The instructional materials include multiple opportunities for students to engage in routine and non-routine application of mathematical skills and knowledge of the grade level. The instructional materials provide opportunities for students to independently demonstrate the use of mathematics flexibly in a variety of contexts. This is primarily found in two aspects of the materials: first, in the "Demonstrate" portion of the lesson where students apply what they have learned in a variety of activities, often in the "Talk the Talk" section of the lesson; second, in the Topic Performance Tasks where students apply and extend learning in more non-routine situations.

The instructional materials include multiple opportunities for students to engage in routine and non-routine application of mathematical skills and knowledge of the grade level.

- In Module 2, Topic 3, Lesson 3, students engage in the application of mathematical skills when using linear functions to solve real-world problems. In Activity 3.4, students construct linear functions and analyze the graphical behavior of linear and nonlinear functions in situations such as Little Red Riding Hood's journey, climbing cliffs, plant growth, bank accounts, etc. (8.F.5)

- In Module 2, Topic 3, Lesson 5, students engage in the application of comparing functions to solve real-world problems. In Activities 5.1 & 5.2, students compare functions presented in different ways, such as tables, graphs, equations, and context, to explore the rate of change in real-world situations. (8.F.2)

The instructional materials provide opportunities for students to independently demonstrate the use of mathematics flexibly in a variety of contexts.

- In Module 1, Topic 1, students independently demonstrate the use of mathematics when working with transformations to solve real-world problems. In the Performance task, students are given a piece of a pattern. Students use transformations to create an original complete pattern. This work is done within the context of creating a quilt. (8.G.2 &.3)

- In Module 3, Topic 1, students independently demonstrate the use of mathematics when analyzing and writing equations to solve real-world problems. In the Performance Task, given pricing data for five party venues, students generate equations and determine the best value for various numbers of guests. (8.EE.7)

- In Module 5, Topic 1, Lesson 2, students independently demonstrate the use of mathematics when using exponents to solve real-world problems. In Talk the Talk - Organize the Properties, students organize their learning regarding six rules for exponents. For each rule, they write a definition, list facts and characteristics, develop and solve example problems, and then write a generalized rule for each property. (8.EE.1)

INDICATOR 2D

Balance: The three aspects of rigor are not always treated together and are not always treated separately. There is a balance of the 3 aspects of rigor within the grade.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the three aspects of rigor are not always treated together and are not always treated separately.

Within each topic, students develop conceptual understanding by building upon prior knowledge and completing activities that demonstrate the underlying mathematics. Throughout the series of lessons in the topic, students have ample opportunity to practice new skills in relevant problems, both with teacher guidance and independently. Students also have

opportunities to apply their knowledge in a variety of ways that let them show their understanding (graphic organizers, error analysis, real-world application, etc.). In general, the three aspects of rigor are fluidly interwoven. For example:

- In Module 1, Topic 3 Overview, "In Line and Angle Relationships, students use their knowledge of transformations, congruence, and similarity to establish the Triangle Sum Theorem, the Exterior Angle Theorem, relationships between angles formed when parallel lines are cut by a transversal, and the Angle-Angle Similarity Theorem for similarity of triangles. Students use hands-on tools to make and justify conjectures about the sum of the interior angles of a triangle, the relationship between triangle side and angle measures, and the value of exterior angles of triangles. They then apply their results to new problems. Next, students use patty paper and translations to form parallel lines cut by a transversal and use their drawings and real-world scenarios to identify transversals and special pairs of angles. They determine and informally prove the relationships between the special angle pairs formed when parallel lines are cut by a transversal and use these relationships to solve mathematical problems, including writing and solving equations. Finally, students use parallel line relationships and tools to establish the Angle-Angle Similarity Theorem and use the theorem to determine if triangles in complex diagrams are similar."

There are areas where an aspect of rigor is treated more independently, such as developing procedural skill and fluency in the MATHia software and Skills Practice or in the Performance Task were students work primarily with Application.

CRITERION 2E - 2G.III

Practice-Content Connections: Materials meaningfully connect the Standards for Mathematical Content and the Standards for Mathematical Practice

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 meet the expectations for practice–content connections. The materials identify and use the MPs to enrich the content, attend to the full meaning of each MP, support the Standards' emphasis on mathematical reasoning, and attend to the specialized language of mathematics.

INDICATOR 2E

The Standards for Mathematical Practice are identified and used to enrich mathematics content within and throughout each applicable grade.

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Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the Standards for Mathematical Practice are identified and used to enrich mathematics content within and throughout the grade level.

Standards for Mathematical Practice are referred to as Habits of Mind in this program. The Habits of Mind are identified in all lessons in both the teacher and student workbooks using an icon. There are four icons, only one represents a single MP, "attend to precision," while the other three represent pairs of MPs, though generally one MP is the focus of the lesson. No icon is used for MP1, and it is stated in the Teacher's Implementation Guide (TIG): "This practice is evident every day in every lesson. No icon used." Each activity shows the practice or pair of practices being developed. Questions to facilitate the development of Habits of Mind are listed for both students and teachers throughout the program. The Habits are identified in the Overview in the Student and Teacher Editions, but not in the Family Guide that comes with the Topics. The icon appears within each lesson with questions listed in the Teacher Guide to facilitate the learning where they occur. Generally, lessons are developed with activities that require students to make sense of mathematics and to demonstrate their reasoning through problem solving, writing, discussing, and presenting. Overall, the materials clearly identify the MPs and incorporate them into the lessons. All the MPs are represented and attended to multiple times throughout the year. With the inclusion of the

"Questions to Ask" in the Teacher Guide and the corresponding Facilitation Notes in each lesson, MPs are used to enrich the content and are not taught as a separate lesson.

MP1 - Make sense of problems and persevere in solving them.

- In Module 4, Topic 1, Lesson 2, students have to make sense of a set of numbers and the size of that set of numbers in order to answer the following three questions. "The first set of numbers that you learned when you were very young was the set of counting numbers, or natural numbers. Natural numbers consists of the numbers that you use to count objects: {1, 2, 3, …}. Consider the set of natural numbers: a. Why do you think this set of numbers is sometimes referred to as the set of counting numbers? b. How many natural numbers are there? c. Does it make sense to ask which natural number is the greatest? Explain why or why not."

MP2 - Reason abstractly and quantitatively.

- In Module 3, Topic 1, Lesson 2, Activity 2.2, students reason abstractly and quantitatively when they create equations from word problems, solve the equations, and then give their answers within the context of the original problem.

MP3- Construct viable arguments and critique the reasoning of others.

- In Module 4, Topic 1, Lesson 3, students critique the reasoning of others when choosing which solution is correct. In Activity 3.1, students are asked to decide which student's reasoning is correct when determining the square root of 144, 14.4, 1.44, 1,440, and 14,400, and to explain their reasoning why.

MP7 - Look for and make use of structure.

- In Module 4, Topic 1, Lesson 1, students look for and make use of structure when sorting numbers into different groups. "Searching for patterns and sorting objects into different groups can provide valuable

insights. Cut out the 30 number cards located at the end of the lesson. Then, analyze and sort the numbers into different groups. You may group the numbers in any way you feel is appropriate. However, you must sort the numbers into more than one group. In the space provided, record the information for each of your groups; Name each group of numbers; List the numbers in each group; Provide a rationale for why you created each group."

MP8 - Look for and express regularity in repeated reasoning.

- In Module 1, Topic 1, Lesson 3, students look for regularity in repeated reasoning when performing translations of figures. In Activity 3.1, students copy figures and the coordinates of their vertices onto patty paper and perform translations of the figures. They record the coordinates of the original and translated figures and explore how the translation affected the coordinates of the pre-image. Students make a general conjecture about the effect of a horizontal or vertical translation on an ordered pair.

INDICATOR 2F

Materials carefully attend to the full meaning of each practice standard

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 Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the instructional materials carefully attend to the full meaning of each practice standard.

Each activity asserts that a pair of practices are being developed, so there is some interpretation on the teacher's part about which is the focus. In addition, what is labeled may not be the best example; i.e., using appropriate tools strategically (MP5) is sometimes weak where it's labeled, but student choice is evident in Talk the Talk and Performance Tasks, which are not identified as MP5. Over the course of the year, the materials do attend to the full meaning of each mathematical practice.

MP1 - Make sense of problems and persevere in solving them.

- In Module 4, Topic 1, Lesson 2, students make sense of a set of integers. "Another set of numbers is the set of integers, which is a set that includes all of the whole numbers and their additive inverses. What is the additive inverse of a number? Represent the set of integers. Use set notation and remember to use three dots to show that the numbers go on without end in both directions. Does it make sense to ask which integer is the least or which integer is the greatest? Explain why or why not."

MP2 - Reason abstractly and quantitatively.

- In Module 1, Topic 1, Lesson 1, students learn about the processes of conjecture, investigate, and justify by deciding which figures are congruent to other provided figures. Students make conjectures, investigate with patty paper, and then explain how they could slide, flip, or spin the original figure to obtain each congruent figure.

- In Module 2, Topic 4, Lesson 4, students reason about lines of best fit from data they collected in an experiment. "Interpret the meaning of the y-intercept in this situation. 1. Compare your results for the matching lists to the results for the non-matching lists. Do your results seem reasonable? Explain your reasoning. 2. Revisit the statistical question you asked at the beginning of the lesson. How did the results of the experiment help to answer this question? Explain your reasoning. 3. What conclusions do you think a cognitive psychologist might draw from your experiment results?"

MP3 - Construct viable arguments and critique the reasoning of others.

- In Module 5, Topic 1, Lesson 1, problems 9 and 10, students explain their reasoning when choosing a correct solution from several given solutions. This is practiced through "thumbs up and down" problems. "Who is Correct" allows students to construct an argument as well as critique the reasoning of others when choosing a correct solution.

MP4 - Model with mathematics.

- In Module 3, Topic 2, Lesson 3, students model situations with equations. "Janet was helping her mother make potato salad for the county fair and was asked to go to the market to buy fresh potatoes and onions. Sweet onions cost $1.25 per pound, and potatoes cost $1.05 per pound. Her mother told her to use the $30 she gave her to buy these two items. 1) Write an equation in standard form that relates the number of pounds of potatoes and the number of pounds of onions that Janet can buy for $30. Use x to represent the number of pounds of onions, and y to represent the number of pounds of potatoes that Janet can buy. 2) Janet's mother told her that the number of pounds of potatoes should be eight times greater than the number of pounds of onions in the salad. Write an equation in x and y that represents this situation."

- In Module 5, Topic 5, Lesson 1, students complete a tree diagram detailing the puppy's lineage back seven generations. They express the number of sires and dams for each generation in expanded notation and power notation and answer related questions.

MP5 - Use appropriate tools strategically.

- In Module 3, Topic 2, Lesson 4, students create a system of equations and solve it. Students use a table, a graph, and algebraically solve their equations. They are reminded that "You can use a variety of strategies and representations to solve a system of linear equations. Inspection, table, graph, substitution." Question 9 says, "Explain the advantages and disadvantages of using each strategy. Table, graph, substitution."

- In Module 5, Topic 1, Lesson 4, students choose a method to calculate each sum or difference. In Activity 4.3, problem 6 reads, "Calculate each sum or difference using any method. a. 3.7105 + 2.1106."

INDICATOR 2G

Emphasis on Mathematical Reasoning: Materials support the Standards' emphasis on mathematical reasoning by:

INDICATOR 2G.I

Materials prompt students to construct viable arguments and analyze the arguments of others concerning key grade-level mathematics detailed in the content standards.

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Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the instructional materials prompt students to construct viable arguments and analyze the arguments of others concerning key grade-level mathematics.

Students are consistently asked to verify their work, find mistakes, and look for patterns or similarities. The materials use a thumbs up and thumbs down icon on their "Who's Correct" activities, where students question the strategy or determine if the solution is correct or incorrect and explain why. These situations have students critique work or answers that are presented to them.

Examples of students constructing viable arguments and/or analyzing the arguments of others include:

- In Module 2, Topic 3, Lesson 4, "You and your friends are rock climbing a vertical cliff that is 108 feet tall along a beach. You have been climbing for a while and are currently 36 feet above the beach when you stop on a ledge to have a snack. You then begin climbing again. You can climb about 12 feet in height each hour. Does this situation represent a function? Explain your reasoning."

- In Module 3, Topic 1, Lesson 1, "Sandy and Sara each divided both sides of their equations by a factor and then solved. a. Explain the reasoning used by each. b. Do you think this solution strategy will work for any equation? Explain your reasoning."

- In Module 4, Topic 2, Lesson 2, "Orville and Jerri want to put a custom-made, round table in their dining room. The tabletop is made of glass with a diameter of 85 inches. The front door is 36 inches wide and 80 inches

tall. Orville thinks the table top will fit through the door, but Jerri does not. Who is correct and why?"

- In Module 5, Topic 1, Lesson 3, "Kanye, Corinne, Brock, and Daniel each tried to write the number 16,000,000,000 in scientific notation. Analyze each student's reasoning."

INDICATOR 2G.II

Materials assist teachers in engaging students in constructing viable arguments and analyzing the arguments of others concerning key grade-level mathematics detailed in the content standards.

2/2

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[Indicator Rating Details](#)

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations that the instructional materials assist teachers in engaging students to construct viable arguments and analyze the arguments of others concerning key grade-level mathematics. Throughout the teacher materials, there is extensive guidance with question prompts, especially for constructing viable arguments.

- In Module 1, Topic 3, Lesson 1, teachers are prompted to ask, "Is there another way to arrange your three angles? Do you get the same result? Is the sum of the interior three angles the same for everyone's triangle?"

- In Module 2, Topic 3, Lesson 4, teachers are prompted to ask, "Does the time elapsed depend on the distance climbed, or does the distance climbed depend on the time elapsed? What is another way to write the equation? Does one equation make more sense than the other? If so, why? Are there points located between the points plotted on the graph? What is their relevance to the problem situation? Does the relation shown on the graph pass the vertical line test? What does this imply? If the graph is extended, will it pass through the origin? What does this imply?"

- In Module 3, Topic 1, Lesson 1, students critique the reasoning of others when analyzing different solutions to a problem involving variables. Teachers are prompted to ask, "What is the first step in Sandy's solution? Why did Sandy decide to divide both sides of the equation by three first? What is the first step in Sara's solution? Why did Sara decide to divide both sides of the equation by 21 first? How do you know when it is a good idea to use Sara's method? Which student(s) subtracted the smaller x-value from both sides of the equation?"

- In Module 5, Topic 1, Lesson 2, teachers are prompted to ask, "What changed from the previous step to this step? What operation must have been performed in order to have this result? What property must have been used to justify that mathematical operation? How did you decide what mathematical operation to perform? What property justified you to perform that mathematical operation? Is there another way to solve the problem? Did anyone solve the problem another way?"

INDICATOR 2G.III

Materials explicitly attend to the specialized language of mathematics.

2/2

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Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 meet expectations that materials attend to the specialized language of mathematics.

Each Topic has a "Topic Summary" with vocabulary given with both definitions and examples (problems, pictures, etc.) for each lesson. There is consistency with meaning, examples, and accuracy of the terms.

The materials provide explicit instruction in how to communicate mathematical thinking using words, diagrams, and symbols.

- In Module 1 Topic 1, Lesson 6, Talk the Talk, students justify their answer by using the term transformation. "Suppose a point (x, y) undergoes a

rigid motion transformation. The possible new coordinates of the point are shown. Assume *c* is a positive rational number. (*y,-x*) (*x,y - c*) (*x,-y*) (*x+c,y*) (*x-c,y*) (*-y,x*) (*-x,-y*) (*-x,y*) (*x,y+c*) 1. Record each set of new coordinates in the appropriate section of the table, and then write a verbal description of the transformation. Be as specific as possible. 2. Describe a single transformation that could be created from a sequence of at least two transformations. Use the coordinates to justify your answer."

- In Module 4, Topic 1, Lesson 2, the term *bar notation* is defined for students. "A repeating decimal is a decimal with digits that repeat in sets of one or more. You can use two different notations to represent repeating decimals. One notation shows one set of digits that repeats with a bar over the repeating digits. This is called bar notation." Students are also shown how to write repeating decimals as a fraction or with ellipses.

The materials use precise and accurate terminology and definitions when describing mathematics and include support for students to use them.

- In Module 2, Topic 3, Lesson 1, the teacher guide provides detailed definitions to help with explanations. "A sequence is a pattern involving an ordered arrangement of numbers, geometric figures, letters, or other objects. A term in a sequence is an individual number, figure, or letter in the sequence."

- In Module 3, Topic 2, Lesson 1, students describe how to determine a point of intersection using a table alone. They then compare this process with the process using a graph and equations. Students conclude that in all three representations, the point of intersection is the common solution to the linear equations, represented by a single ordered pair.

Gateway Three
Usability
Meets Expectations

CRITERION 3A - 3E

Use and design facilitate student learning: Materials are well designed and take into account effective lesson structure and pacing.

8/8

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 meet the expectations for being well designed and taking into account effective lesson structure and pacing. The instructional materials distinguish between problems and exercises, have exercises that are given in intentional sequences, have a variety in what students are asked to produce, and include manipulatives that are faithful representations of the mathematical objects they represent.

INDICATOR 3A

The underlying design of the materials distinguishes between problems and exercises. In essence, the difference is that in solving problems, students learn new mathematics, whereas in working exercises, students apply what they have already learned to build mastery. Each problem or exercise has a purpose.

2/2

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that the underlying design of the materials distinguishes between problems and exercises.

The course has five modules with each module broken into topics. Each topic has a set of three to six lessons/activities. Each lesson consists of several sections, which may include Warm Up, Getting Started, Activities, Talk the Talk, and an Assignment. The Warm Up and Getting Started sections activate students' prior knowledge and engage students in non-routine problem solving. The Activities develop students' understanding of concepts by exploring problems through both individual and whole group instruction. The students demonstrate their understanding of concepts by applying their

knowledge to real-world problems in the Talk the Talk section. The Assignment includes five mini-sections that reinforce understanding of the new mathematical concept. Each lesson has a coordinating practice set called Skills Practice with exercises for students to solve using their new learning. MATHia (online) provides additional personalized exercises for students to show their understanding of the activity/lesson.

INDICATOR 3B

Design of assignments is not haphazard: exercises are given in intentional sequences.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that the design of assignments is not haphazard; exercises are given in intentional sequences.

LLessons follow a consistent format that intentionally sequences assignments:

- "Warm Up" - exercises that activate students' prior knowledge.
- "Getting Started/Engage" - students solve/think/share and notice other's work/thinking, usually for a non-routine problem.
- "Develop/Activities" - new learning takes place; students explore 5-10 problems that engage them with examples and explanations of the targeted skill. These are typically problems to solve together as a class with instructor guidance. Each Activity includes verbiage describing how the new knowledge relates to previous understanding.
- "Demonstrate/Talk the Talk" - students reflect on and connect what was learned.
- "Assignment" - five sections that review the lesson: Write - reviewing rules or vocabulary, Remember - summary of one to two key points, Practice - problems related to the activities, Stretch - an extension, and Review - looping in previous skills.

Students practice with "Learn Individually" lessons using the MATHia software or, if technology is not accessible, students use the Skills Practice workbooks.

Overall, each topic is sequenced to begin with prior knowledge and build upon that knowledge to develop conceptual understanding and procedural skill.

INDICATOR 3C

There is variety in what students are asked to produce. For example, students are asked to produce answers and solutions, but also, in a grade-appropriate way, arguments and explanations, diagrams, mathematical models, etc.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that there is a variety in what students are asked to produce. Students are asked to produce a variety of products in digital and written form.

Some of these products include:

- Multiple representations through writing equations and expressions, drawing models, creating arrays, drawing and placing numbers on number lines, etc.

- In Module 2, Topic 3, Lesson 5 Talk the Talk, students analyze a table of values, create a situation that represents the data in the table, create a new equation with a slope that is less steep, compare the slopes, then explain how they created their linear function and compared the slopes.

- Justification of their thinking and others', critiquing others' work, explaining why answers given are correct.

- Writing, reviewing, practicing, and stretching activities in each assignment given at the end of each lesson, such as creating a Venn diagram showing the relationship between the six sets of numbers shown. (Module 5, Topic 1, Lesson 3 Talk the Talk)

Finally, each module includes a real-world connection where students produce solutions in a variety of ways to demonstrate their knowledge, such

as listening to classmates, then clearing up misunderstanding about concepts or proving the Pythagorean Theorem.

INDICATOR 3D

Manipulatives are faithful representations of the mathematical objects they represent and when appropriate are connected to written methods.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that manipulatives are faithful representations of the mathematical objects they represent and are appropriately connected to written methods.

Manipulatives are embedded in activities and the MATHia Independent Digital Lessons. Number lines, patty paper, equivalency cards, etc. are used throughout the year in connection to the mathematics being presented and are faithful representations. For example, students work with a city map of Washington, DC to identify and explain transversal lines and the angles formed. (Module 1, Topic 3, Lesson 2)

INDICATOR 3E

The visual design (whether in print or online) is not distracting or chaotic, but supports students in engaging thoughtfully with the subject.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that the visual design is not distracting or chaotic and supports students in engaging thoughtfully with the subject.

The student materials are clear and consistent between modules within a grade level as well as across grade levels. The black and white design of the program is not distracting or chaotic. The text is supported by graphic elements that enhance the lesson, such as a highlighted worked example or

various visual models to help with conceptual understanding. Both the textual and graphic elements complement each other and do not crowd the page or overwhelm the student with too much information.

Side bars complement the lesson and highlight important information. The informational side bars can include reminders of procedural steps, hints as to what strategies may need to be used to solve a problem, new vocabulary definitions, as well as reflective questions to students about their thinking. The program is logically organized with appropriate readability levels. Lesson numbers and activities are labeled in a consistent and orderly fashion. Each question in the student book is followed with a large open space for the student to write in, making the appearance uncluttered and easy to read and write.

CRITERION 3F - 3L

Teacher Planning and Learning for Success with CCSS: Materials support teacher learning and understanding of the Standards.

6/8

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 partially meet the expectations for supporting teacher learning and understanding of the Standards. The instructional materials support: planning and providing learning experiences with quality questions; contain ample and useful notations and suggestions on how to present the content; and contain explanations of the grade-level mathematics in the context of the overall mathematics curriculum. However, the materials do not contain full, adult-level explanations and examples of the more advanced mathematics concepts.

INDICATOR 3F

Materials support teachers in planning and providing effective learning experiences by providing quality questions to help guide students' mathematical development.

2/2

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The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that the materials support teachers in planning and providing effective learning experiences by providing quality questions to help guide students' mathematical development.

In the Teacher Edition, facilitator notes for each activity include questions for the teacher to guide students' mathematical development and to elicit students' understanding. The material indicates that questions provided are intended to provoke thinking and provide facilitation through the MPs as well as getting the students to think through their work. The Note provided on page FM-21 of the Teacher's Implementation Guide Volume 1 reads, "When you are facilitating each lesson, listen carefully and value diversity of thought, redirect students' questions with guiding questions, provide additional support with those struggling with a task, and hold students accountable for an end product. When students share their work, make your expectations clear, require that students defend and talk about their solutions, and monitor student progress by checking for understanding."

Each lesson guide in the Teacher Edition provides quality questions to help guide students' mathematical development.

For example:

- "How does the length of side AB compare to the length of side A'B'?"
- "How does angle A compare to angle A'?"
- "Are all of the corresponding sides congruent?"
- "Are all of the corresponding angles congruent?"
- "How does the x-coordinate for point A compare to the x-coordinate for point A'? Is this true for all of the x-coordinates of the corresponding vertices?"

INDICATOR 3G

Materials contain a teacher's edition with ample and useful annotations and suggestions on how to present the content in the student edition and in the ancillary materials. Where applicable, materials include teacher guidance for the use of embedded technology to support and enhance student learning.

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 Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that the materials contain a teacher edition with ample and useful annotations and suggestions on how to present the content in the student edition and in the ancillary materials. Where applicable, materials include teacher guidance for the use of embedded technology to support and enhance student learning such as how to use and read data in the MATHia software.

In the Lesson Resources, the teacher guide provides information including a lesson overview, lesson structure and pacing facilitation notes, questions to ask, connections to standards, a materials list, essential ideas, facilitation notes, what to look for when students are working, and a summary of the lesson.

As part of the blended learning approach, there is Learning Individually with MATHia software. There is ample support for students and teachers to engage with this software such as the Getting Started guide, a table of contents, an RTI table of contents, and MATHia system requirements.

INDICATOR 3H

Materials contain a teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials) that contains full, adult-level explanations and examples of the more advanced mathematics concepts in the lessons so that teachers can improve their own knowledge of the subject, as necessary.

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 Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 do not meet the expectation that materials contain a teacher edition (in print or clearly distinguished/accessible as a teacher edition in digital

materials) that contains full, adult-level explanations and examples of the more advanced mathematical concepts in the lessons so that teachers can improve their own knowledge of the subject, as necessary.

- There are no adult-level explanations or examples for teachers to enhance their own knowledge of the content.
- Teachers are not provided any content beyond what the student sees in the student resources.
- The materials provide extensive information about how the content fits into the curriculum, but do not provide adult-level explanations or examples for teachers to understand the mathematics.

INDICATOR 3I

Materials contain a teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials) that explains the role of the specific grade-level mathematics in the context of the overall mathematics curriculum for kindergarten through grade twelve.

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[Indicator Rating Details](#)

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that materials contain a teacher edition (in print or clearly distinguished/accessible as a teacher edition in digital materials) that explains the role of the specific grade-level mathematics in the context of the overall mathematics curriculum for Kindergarten through Grade 12.

- The Module Overview includes information for the teacher with explanations that build the teacher's understanding of how the lesson content fits into the curriculum. It tells why the module is named, what mathematics is in the module, and how the module connects to prior and future learning.

- Each Topic Overview provides information on the mathematical content in the lessons as well as where it fits in the scope of mathematics from

Kindergarten through Grade 12. Knowledge required from prior chapters and/or grades is explicitly called out in this section.

- The Topic Overview also has Spaced Reviews listed which links each lesson to standards from a previous grade. These reviews are embedded into each lesson.

- The Topic Overview describes the entry point or prior experience with the mathematical concept for students, why what is being learned is important, and how the activities in the topic promote student expertise in the MPs.

INDICATOR 3J

Materials provide a list of lessons in the teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials), cross-referencing the standards covered and providing an estimated instructional time for each lesson, chapter and unit (i.e., pacing guide).

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<u>Indicator Rating Details</u>

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 provide a list of lessons in the teacher's edition (in print or clearly distinguished/accessible as a teacher's edition in digital materials), cross-referencing the standards covered and providing an estimated instructional time for each lesson, chapter, and unit (i.e., pacing guide).

- Each course in this series contains a Scope and Sequence/Table of Contents categorizing by Module, Topic, and Lesson and includes the standard, pacing, summary, and the essential ideas of the mathematics.

INDICATOR 3K

Materials contain strategies for informing parents or caregivers about the mathematics program and suggestions for how they can help support student progress and achievement.

Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 contain strategies for informing parents or caregivers about the mathematics program and suggestions for how they can help support student progress and achievement.

- The Family Guide for each topic is available in PDF file that can be downloaded. The manual contains general topic information, what the students have learned in the past, what they will be learning, talking points, myths about math, keys for student success, vocabulary, content explanations, examples, and practice problems with answers aligned by topic and chapter.

- Families are also provided with generic tips about how to facilitate success:
  - "To further nurture your child's mathematical growth, attend to the learning environment. You can think of it as providing a nutritious mathematical diet that includes: discussing math in the real world, offering encouragement, being available to answer questions, allowing your student to struggle with difficult concepts, and providing space for plenty of practice."
  - "You can further support your student's learning by asking questions about the work they do in class or at home."
    - How does this problem look like something you did in class?
    - Can you show me the strategy you used to solve this problem?
    - Do you know another way to solve it?
    - Does your answer make sense? Why?
    - Is there anything you don't understand?
    - How can you use today's lesson to help?

INDICATOR 3L

Materials contain explanations of the instructional approaches of the program and identification of the research-based strategies.

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The instructional materials for Carnegie Learning Middle School Math Solution Course 3 contain explanations of the instructional approaches of the program and identification of the research-based strategies.

The Middle School Math Solution Teacher's Implementation Guide contains both the research based strategies and the instructional approaches for the program.

- The instructional approach to learning is described as: "Carnegie Learning's instructional approach is based upon the collective knowledge of our researchers, instructional designers, cognitive learning scientists, and master practitioners. It is based on a scientific understanding of how people learn and a real-world understanding of how to apply that science to mathematics instructional materials. At its core, our instructional approach is based on three simple yet critical components: Engage, Develop, and Demonstrate." Each of these components is provided in detail. (FM-11,12)

- The components of the blended learning program are described in detail as well as giving a website to learn more about the approach. (FM-12)

CRITERION 3M - 3Q

Assessment: Materials offer teachers resources and tools to collect ongoing data about student progress on the Standards.

8/10

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The instructional materials for Middle School Math Solution Course 3 partially meet the expectations for offering teachers resources and tools to collect ongoing data about student progress on the Standards. The instructional materials provide opportunities to collect information about students' prior knowledge but lack strategies for about how to utilize the information in the classroom. The materials provide opportunities for identifying and addressing common student errors and misconceptions, ongoing review and practice with feedback, and assessments with standards clearly noted in most cases. The assessments contain detailed rubrics and answer keys, but there is no guidance for interpreting student performance or suggestions for follow-up.

INDICATOR 3M

Materials provide strategies for gathering information about students' prior knowledge within and across grade levels.

2/2

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that materials provide strategies for gathering information about students' prior knowledge within and across grade levels.

- There is a pretest for every topic in each module that addresses standards that will be taught. The post-test for the topic is the same test.

- The Topic Overview provides a list of Prerequisite Skills needed for the topic, which creates an indirect opportunity for teachers to gather information about students' prior knowledge although there is no direct guidance provided to the teacher about how to use the information.

- The MATHia software is used as an assessment and progress monitoring tool, providing personalized data about where a student stands on various skills.

- In every assignment in the textbook, there is a Review section. Students practice two questions from the previous lesson, two questions from the previous topic, and two questions that address the fluency standards

outlined in the Standards. This provides teachers information about students' learning gaps as they work through the instructional materials.

While there are opportunities to collect information about students' prior knowledge, the materials do not provide strategies about how to utilize the information in the classroom.

INDICATOR 3N

Materials provide strategies for teachers to identify and address common student errors and misconceptions.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that materials provide strategies for teachers to identify and address common student errors and misconceptions.

- In the Topic Guide, lessons regularly have a section titled "Misconceptions" with suggestions for teachers to identify and address common student errors and misconceptions.
  - Example: "Students sometimes believe that any point (x, y) means that both the values of x and y are positive, and the coordinate pair always lies in Quadrant I. The introductory sentence and questions that follow may somehow validate that misconception. If that is the case, complete a second question as practice, placing (x, y) in a different quadrant and answering Question 2 again, referring to the other quadrants." (M1-39E)

- Teachers are encouraged to engage students in mathematical conversations to address student errors and misconceptions with phrases such as, "Remind the students…, Discuss with students…, Point out that…."

- MATHia software provides a solution pathway to common student misconceptions. "Like a human tutor, MATHia re-phrases questions, re-directs the student, and hones in on the parts of the problem that are

proving difficult for the student. Hints are customized to address the individual student, understanding that there are often multiple ways to do the math correctly."

INDICATOR 3O

Materials provide opportunities for ongoing review and practice, with feedback, for students in learning both concepts and skills.

2/2

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that materials provide opportunities for ongoing review and practice, with feedback, for students in learning both concepts and skills.

The materials provide several opportunities for ongoing review and practice:

- Students practice with "Learn Individually" lessons using the MATHia software or, if technology is not accessible, the Skills Practice workbooks. In the Skills Practice book, odd number answers are provided, so students know if they're solving problems correctly; and in the MATHia software, feedback is continually given for both correct and incorrect answers.

- The MATHia software includes "Hints" which students can select while reviewing and practicing skills. There are three types of "Hints":
    - Just-in-Time Hints automatically appear when a student makes a common error.
    - On-Demand Hints are hints that a student can ask for at any time while working on a problem.
    - Step-by-Step demonstrates how to use the tools in a lesson by guiding step-by-step through a sample math problem.

- Each lesson ends with Talk the Talk, a few questions that capture the learning of all of the activities the students have engaged in with the lesson.

- Each lesson also has a short review section that provides a spiral review of previous concepts.

- Standardized Practice Test that the teacher can use at any time to review and practice concepts and skills learned throughout the course.

- Prior to each lesson there is a Warm-Up that reviews previous topics.

INDICATOR 3P

Materials offer ongoing formative and summative assessments:

INDICATOR 3P.I

Assessments clearly denote which standards are being emphasized.

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Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 3 partially meet the expectation for assessments clearly denoting which standards are being emphasized.

- The series provides five options for assessment for every topic: Pretest, Post test, End of Topic test, Standardized Practice test, and a Performance Task. The Performance Task clearly notes which standards are being assessed.

- The other assessment options address the set of standards included in each topic, but there are no standards specifically attached to the questions or the assessments.

- It is stated in the materials that an assessment bank is also available through Edulastic, which is an optional tool that offers technology-

enhanced items that can be used as-is or modified. However, reviewers did not evaluate this assessment bank

INDICATOR 3P.II

Assessments include aligned rubrics and scoring guidelines that provide sufficient guidance to teachers for interpreting student performance and suggestions for follow-up.

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Indicator Rating Details

The instructional materials reviewed for Carnegie Learning Middle School Math Solution Course 1 partially meet the expectation for assessments including aligned rubrics and scoring guidelines that provide sufficient guidance to teachers for interpreting student performance and suggestions for follow-up.

- The Performance Task includes a detailed scoring rubric.

- All other assessments provide an answer key, but no guidance about scoring.

- MATHia reports provide teachers with detailed information about student performance in relation to progress on standards.

- None of the assessment options provide guidance for teachers to interpret students performance and suggestions for follow-up.

INDICATOR 3Q

Materials encourage students to monitor their own progress.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 encourage students to monitor their own progress.

- MATHia software encourages students to monitor their own progress using strategies such as: Just-in-time hints, On-demand hints, a Progress Bar showing a summary of major skills, and Skill Tracking Behavior.

- There is an review for students at the end of every lesson which includes some spiral review of previous concepts.

- The Family Guide suggests questions for students such as, "Is there anything you don't understand? How can you use today's lesson to help?"

- Within the lessons, students do not monitor their own personal learning growth.

CRITERION 3R - 3Y

Differentiated instruction: Materials support teachers in differentiating instruction for diverse learners within and across grades.

11/12

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 meet the expectations for providing strategies to help teachers sequence or scaffold lessons so that the content is accessible to all learners. The instructional materials provide a balanced portrayal of various demographic and personal characteristics. The instructional materials also consistently provide: tasks with multiple entry-points; support, accommodations, and modifications for English Language Learners and other special populations; and opportunities for teachers to use a variety of grouping strategies. There are opportunities for students to investigate mathematics content at greater depth, but they are intended for all students over the course of the school year, and there are very few tips for teachers to expand or deepen lessons.

INDICATOR 3R

Materials provide strategies to help teachers sequence or scaffold lessons so that the content is accessible to all learners.

2/2

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that materials provide strategies to help teachers sequence or scaffold lessons so that the content is accessible to all learners.

The materials include a detailed Scope and Sequence of the course, including pacing. The lesson summary and the essential ideas provide further information on sequencing of the lessons. There is a chart in the Teacher's Implementation Guide that includes a table with a column entitled, "Connections to Prior Learning," which enhances the opportunity to scaffold instruction by identifying prerequisite skills that students should have.

All lessons include instructional notes and classroom strategies that provide teachers with key math concepts, sample questions, differentiation strategies, discussion questions, possible misconceptions, what to look for from students, and summary points providing structure for the teacher in making content accessible to all learners.

INDICATOR 3S

Materials provide teachers with strategies for meeting the needs of a range of learners.

2/2

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations for providing teachers with strategies for meeting the needs of a range of learners.

A primary strategy for meeting the needs of all learners in this program is MATHia software. MATHia differentiates the learning experience for every learner, adapting the amount of support based on the students answers and path through each problem. This level of support is similar to a one-on-one

tutored experience, where the software is adapting based on everything the student is doing.

Most lessons provide "Differentiation strategies," "Questions to ask," and a "Misconception" section. Most of the suggestions and the questions included in the "Questions to ask" section are intended for all students rather than geared toward helping students who struggle or challenging students ready to go deeper. For example, in Module 4, Topic 1, Lesson 2.1, Questions to ask: "Are natural numbers and counting numbers the same set of numbers? What is an example of a situation that would require you to use the set of natural numbers? What is an additive identity? How is the set of natural numbers different from the set of whole numbers? How is the set of natural numbers similar to the set of whole numbers? What is an example of a situation that would require you to use the set of whole numbers?"

However, in the "Differentiation strategies" section, suggestions are limited but more specific. For example, in Module 4, Topic 2, Lesson 4.2: "For students who struggle, have them concentrate on the structure of each problem first: Circle - Rectangle and Triangle + Semicircle. Provide a list of formulas for reference."

INDICATOR 3T

Materials embed tasks with multiple entry-points that can be solved using a variety of solution strategies or representations.

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 Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet the expectation that materials embed tasks with multiple entry points that can be solved using a variety of solution strategies or representations.

- Each Topic Overview includes a section called, "What is the entry point for students?" Introduction to Functions Overview states: "Throughout elementary school, students described and explained features of patterns (e.g., 4.OA.5). They have also formed ordered pairs with terms of two

sequences and compared the terms (5.OA.3). Therefore, sequences are used as the entry point for Introduction to Functions. Students are introduced to *term*, a key vocabulary word that will later be used to connect sequences to functions. They analyze a variety of sequences, write the sequences, predict next terms, and describe the patterns. This may be a departure from prior experiences when students were given the pattern and determined the terms. Students then compare the types of patterns in the sequences analyzed, searching for similarities in the pattern descriptions. Later, students will connect the term numbers and term values as the inputs and outputs, respectively, of a function."

- Some application tasks, particularly the Performance Task, allow for multiple solution strategies or representations. For example, in Module 1, Topic 1, Lesson 6.3, Talk the Talk 2, students describe a transformation created from a sequence of at least two transformations and use coordinates to justify the answer.

- Some assessment questions allow for multiple entry points. For example, in Module 1, Topic 1, Post-test question 9, students explain how to determine the coordinates of the vertices of the image without using a graph.

- Lesson activities provide limited opportunities for students to create their own solution paths since strategies are often provided.

INDICATOR 3U

Materials suggest support, accommodations, and modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems).

2/2

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Indicator Rating Details
The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations for suggesting support, accommodations, and

modifications for English Language Learners and other special populations that will support their regular and active participation in learning mathematics (e.g., modifying vocabulary words within word problems).

ELL Tips are specifically cited throughout the materials. For example, "ELL Tip: Instruct students to read and take notes on congruent line segments and congruent angles. Provide students with a concept map to support this stage in their note-taking." (M1-86)

Additional differentiation strategies included in the materials are often general, such as providing additional examples, using manipulatives, or using a graphic organizer.

Some suggestions are specific to the lesson, but don't necessarily further knowledge, such as in Module 2, Topic 4, Lesson 1.1: "Differentiation strategy: In order to have all students participate, rotate which students participate in the different-sized human chains."

There are differentiation suggestions that do not include a rationale as to how they would provide support. For example, in Module 3, Topic 2, Lesson 1.3: "Provide students with a set of possible answers so they can check their work as they solve the equations." It is unclear how this suggestion would support a student's understanding - if the answer they calculate isn't given, they still won't know where they went wrong. In addition, it creates an opportunity for "guess and check" substitution rather than solving the equation.

However, there are numerous examples that do support accommodations for special populations such as:

- "Confusion may arise in Question 2 because the vertices to the images are not labeled. To support students who struggle, suggest they use visual tactics by looking at general side lengths and angle measures to determine corresponding angles and/or insert labels for the vertices of the images." (M1-53F)

- "To extend the activity, discuss the meaning of these phrases: a scale factor of two, an image scaled to 200 percent, and a 100 percent increase." (M1-109H)

- "Students may have a hard time visualizing $y=x$ since it does not contain any numbers. Have students rewrite the equation as $y=1x+0$ and plot points on the line provided to make sense of the equation." (M2-53D)

- "As an alternative to using pasta as a movable line, students could draw a line on a sheet of patty paper and use the drawn line as their movable line." (M2-289C)

- "Offer multiplying by -1 as an alternative to Sandy's method." (M3-7E)

- "To support students who struggle, draw right triangles with different orientations and have students practice labeling the legs and hypotenuse. Have them draw an arrow from the right angle to the hypotenuse before labeling each triangle." (M4-55D)

- "To support students who struggle, model for students how to deal with larger exponents when they arise by writing a parallel problem using smaller numbers to create the rule." (M5-7I).

- "To assist students struggling to visualize the cross-sections of the different cylinders, use clay and wire to create the cross-sections." (M5-85J)

INDICATOR 3V

Materials provide opportunities for advanced students to investigate mathematics content at greater depth.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 partially meet the expectation that the materials provide opportunities for advanced students to investigate mathematics content at greater depth.

The problems provided are grade-level work and are intended for all students over the course of the school year. There are very few tips for teachers to expand or deepen the lesson.

- There are "Stretch" questions at the end of a lesson, but they are also designed for all students.

- Some of the differentiation suggestions are for extension but benefit all students such as: "Differentiation strategy: To extend the activity, have students perform a reflection then translation or translation then reflection and compare images." (M1-17G) It is not clear whether these are generic lesson extensions or geared toward advanced students.

INDICATOR 3W

Materials provide a balanced portrayal of various demographic and personal characteristics.

2/2

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 Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 meet expectations for providing a balanced portrayal of various demographic and personal characteristics.

- No examples of bias were found.

- Pictures, names, and situations present a variety of ethnicities and interests.
    - The text is black and white with green as the only color. The people are gray with black hair, but still appear to represent many ethnicities.
    - Problems include a wide span of international settings, as well as situations in urban, suburban, and rural settings.
    - There is a wide variety of names in the problems, from James, Ben, and Haley to Keirstin, Miguel, and Miko, representing a variety of cultures.

INDICATOR 3X

Materials provide opportunities for teachers to use a variety of grouping strategies.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 provide opportunities for teachers to use a variety of grouping strategies. The Blended Learning Model is explained in the Teacher's Implementation Guide (FM-11). "Carnegie Learning delivers a different brand of blended learning: it combines collaborative group learning with focused individual learning. The two components are Learning Together and Learning Individually. Carnegie believes students "learn together" in a collaborative classroom model where they can think critically, reason mathematically, and learn from each other. Consumable textbooks and manipulatives allow them to engage directly with the mathematics as they learn. "Learning individually" offers two models: with or without technology. With MATHia, students learn independently using powerful 1-to-1 tutoring technology that adapts to give them exactly what they need at any given moment. With Skills Practice, students practice the important concepts of each topic to improve their problem-solving abilities and to gain fluency."

Throughout the program, the facilitation guide instructs the teacher to, "Have students work individually to answer," or "Have students work in groups or partners to answer question 2 and 3." There is no explanation of how to form groups based on a skill or topic and/or why certain questions are given to groups or individuals.

INDICATOR 3Y

Materials encourage teachers to draw upon home language and culture to facilitate learning.

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Indicator Rating Details

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 partially encourage teachers to draw upon home language and culture to facilitate learning.

- There is no evidence of teachers drawing upon home language and culture to facilitate learning.

- There is a Family Guide with each Topic that explains the mathematics and provides tips to support learning, but it does not utilize aspects of language and culture.

- Materials are also available in Spanish.

CRITERION 3Z - 3AD

Effective technology use: Materials support effective use of technology to enhance student learning. Digital materials are accessible and available in multiple platforms.

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Criterion Rating Details

The instructional materials for Middle School Math Solution Course 3 integrate technology in ways that engage students in the Mathematical Practices. The digital materials are web-based and compatible with multiple internet browsers, and they include opportunities to assess students' mathematical understandings and knowledge of procedural skills. The instructional materials include opportunities for teachers to personalize learning for all students, and the materials offer opportunities for customized, local use. However, the instructional materials do not include opportunities for teachers and/or students to collaborate with each other.

INDICATOR 3Z

Materials integrate technology such as interactive tools, virtual manipulatives/objects, and/or dynamic mathematics software in ways that engage students in the Mathematical Practices.

 Indicator Rating Details

Online materials for Carnegie Learning Middle School Math Solution Course 3 (MATHia) integrate technology incorporating Mathematical Practices that include:

- Explore Tools to investigate different mathematical concepts, search for patterns, and look for structure

- Animations to watch, pause, and re-watch demonstrations of various mathematical concepts

- Classification Tools to categorize answers based on similarities

- Problem Solving Tools provide students with individualized and self-paced instruction that adapts to their needs

- Worked Examples to allow students to identify their own misconceptions

In MATHia, "Unit goals, based on CCSS and mathematical practices as well as aligned with the print materials, are listed at the beginning of the unit. Students are doing math by being engaged with sample problems and hints (just-in-time and on-demand), system help, a glossary, and a progress bar. Features are included to motivate and engage students like the creation of a personal avatar and tools such as 3D Geometry, Algebra Tiles, Fraction Shapes, and Pattern Blocks."

INDICATOR 3AA

Digital materials (either included as supplementary to a textbook or as part of a digital curriculum) are web-based and compatible with multiple internet browsers (e.g., Internet Explorer, Firefox, Google Chrome, etc.). In addition, materials are "platform neutral" (i.e., are compatible with multiple operating systems such as Windows and Apple and are not proprietary to any single platform) and allow the use of tablets and mobile devices.

Carnegie Learning Middle School Math Solution Course 3 claims that MATHia software will run on:

- Windows Computers with operating systems Windows 7 and 10
- Apple Computers with operating systems Mac OS X 10.11 or higher
- Apple iPads with iOS 10 or higher
- Windows Tablets with operating systems Window 8 or higher
- Android Tablets with Android 4.1 and above
- Chromebooks with ChromeOS 52 or higher
- It is not recommended for phones or small devices.

All of these, except Android tablets, were tested, and all access was successful.

INDICATOR 3AB

Materials include opportunities to assess student mathematical understandings and knowledge of procedural skills using technology.

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 include opportunities to assess student mathematical understandings and knowledge of procedural skills using MATHia's Adaptive Personalized Learning Reports. These reports provide information used for assessing students' learning and adjusting instruction.

INDICATOR 3AC

Materials can be easily customized for individual learners. i. Digital materials include opportunities for teachers to personalize learning for all students, using adaptive or other technological innovations. ii. Materials can be easily customized for local use. For example, materials may provide a range of lessons to draw from on a topic.

Digital materials include opportunities for teachers to personalize learning for all students, using adaptive or other technological innovations. The MATHia software for Carnegie Learning Middle School Math Solution Course 2 is customizable for individual learners users. Teachers can select specific skills and levels for individuals, and it adapts to the learners' needs as they progress.

Materials can be easily customized for local use. For example, materials may provide a range of lessons to draw from on a topic. Within the lessons and assessment sections, the teacher chooses which exercises to assign students. Teachers can assign the lessons in any order; however, the lesson must be completed as provided before moving on. Additionally, these exercises cannot be modified for content or wording from the way in which they are given.

INDICATOR 3AD

Materials include or reference technology that provides opportunities for teachers and/or students to collaborate with each other (e.g. websites, discussion groups, webinars, etc.).

The instructional materials for Carnegie Learning Middle School Math Solution Course 3 do not provide opportunities for teachers and/or students to collaborate with each other online or in any technology-based environment.