Perris Union High School District
Course of Study

A. COURSE INFORMATION

Course Title:
Math 8 Support
- ❑ New
- x Revised

Transcript Title/Abbreviation:
(To be assigned by Educational Services)

Transcript Course Code/Number:
(To be assigned by Educational Services)

Subject Area:
- ❑ Social Science
- ❑ English
- x Mathematics
- ❑ Laboratory Science
- ❑ World Languages
- ❑ Visual or Performing Arts
- ❑ College Prep Elective
- ❑ Other

Is this classified as a Career Technical Education course?
- ❑ Yes
- x No

Grade Level
- ❑ MS
- ❑ HS
- ❑ 5
- ❑ 6
- ❑ 7
- x 8
- ❑ 9
- ❑ 10
- ❑ 11
- ❑ 12

Required for Graduation:
- ❑ Yes
- ❑ No

Meets UC/CSU Requirements?
- ❑ Yes
- x No

Was this course *previously approved by UC* for PUHSD?
- ❑ Yes
- x No

(Will be verified by Ed Services)

Meets "AP" Requirements?
- ❑ Yes
- x No

Submitted by: Amanda Darton
Site: SSC
Date: 4/28/17

Credential Required to teach this course:
Mathematics

To be completed by Human Resources only.

Signature 5/3/17 Date

Meets "Honors" Requirements?
- ❑ Yes
- x No

Unit Value/Length of Course:
- ❑ 0.5 (half year or semester equivalent)
- x 1.0 (one year equivalent)
- ❑ 2.0 (two year equivalent)
- ❑ Other:

Approvals	Name/Signature	Date
Director of Curriculum & Instruction		5/1/17
Asst. Superintendent of Educational Services		5.4.17
Governing Board		

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Asst. Superintendent of Educational Services		
Governing Board		

Prerequisite(s) (REQUIRED):
None
Corequisite(s) (REQUIRED):
None
Brief Course Description (REQUIRED):
In Math 8 Essentials, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

B. COURSE CONTENT

Course Purpose (REQUIRED):
What is the purpose of this course? Please provide a brief description of the goals and expected outcomes. Note: More specificity than a simple recitation of the State Standards is needed.

In grade 8, instructional time should focus on three critical areas: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations; (2) grasping the concept of a function and using functions to describe quantitative relationships; (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem.

(1) Students use linear equations and systems of linear equations to represent, analyze, and solve a variety of problems. Students recognize equations for proportions ($y/x = m$ or $y = mx$) as special linear equations ($y = mx + b$), understanding that the constant of proportionality (m) is the slope, and the graphs are lines through the origin. They understand that the slope (m) of a line is a constant rate of change, so that if the input or x-coordinate changes by an amount A, the output or y-coordinate changes by the amount m . A. Students also use a linear equation to describe the association between two quantities in bivariate data (such as arm span versus height for students in a classroom). At this grade, fitting the model and assessing its fit to the data are done informally. Interpreting the model in the context of the data requires students to express a relationship between the two quantities in question and to interpret

components of the relationship (such as slope and y-intercept) in terms of the situation. Students strategically choose and efficiently implement procedures to solve linear equations in one variable, understanding that when they use the properties of equality and the concept of logical equivalence, they maintain the solutions of the original equation. Students solve systems of two linear equations in two variables and relate the systems to pairs of lines in the plane; these intersect, are parallel, or are the same line. Students use linear equations, systems of linear equations, linear functions, and their understanding of slope of a line to analyze situations and solve problems.

(2) Students grasp the concept of a function as a rule that assigns to each input exactly one output. They understand that functions describe situations where one quantity determines another. They can translate among representations and partial representations of functions (noting that tabular and graphical representations may be partial representations), and they describe how aspects of the function are reflected in the different representations.

(3) Students use ideas about distance and angles, how they behave under translations, rotations, reflections, and dilations, and ideas about congruence and similarity to describe and analyze two-dimensional figures and to solve problems. Students show that the sum of the angles in a triangle is the angle formed by a straight line, and that various configurations of lines give rise to similar triangles because of the angles created when a transversal cuts parallel lines. Students understand the statement of the Pythagorean Theorem and its converse, and can explain why the Pythagorean Theorem holds, for example, by decomposing a square in two different ways. They apply the Pythagorean Theorem to find distances between points on the coordinate plane, to find lengths, and to analyze polygons. Students complete their work on volume by solving problems involving cones, cylinders, and spheres.

Course Outline (REQUIRED):
Detailed description of topics covered. All historical knowledge is expected to be empirically based, give examples. Show examples of how the text is incorporated into the topics covered.

Students will work on the following concepts from the Math 8 course:

- Real Numbers
    - Rational and Irrational Numbers
    - Square Roots and Cube Roots
    - Integer Exponents and Scientific Notation
- Analyze and Solve Linear Equations
    - Solve Linear Equations
    - Proportional Relationships
    - Represent Linear Equations
- Use Functions to Model Relationships
    - Relations and Functions
    - Compare Properties of Functions
    - Construct Functions to Model Linear Relationships
    - Describe Behaviors of Functions Qualitatively
- Investigate Bivariate Data
    - Paired Data
    - Linear Associations and Models
    - Two-Way Frequency Tables
- Analyze and Solve Systems of Linear Equations
    - Solve Systems of Linear Equations Graphically

    - Solve Systems of Linear Equations Algebraically
- Congruence and Similarity
    - Transformations
    - Congruent and Similar Figures
    - Lines and Angles
- Understand and Apply the Pythagorean Theorem
    - Pythagorean Theorem Concepts
    - Apply the Pythagorean Theorem
- Solve Problems Involving Surface Area and Volume
    - Surface Area
    - Volume

Students will also be reviewing topics needed as a prerequisite. These topics will include:

- Identify the constant of proportionality in tables, graphs, diagrams, and descriptions of proportional relationships.
- Use equations to represent proportional relationships.
- Use proportional relationships to solve real-world and mathematical problems involving ratio and percent. Apply and extend your previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers.
- Convert a rational number to a decimal number using long division.
- Use variables to represent quantities in a real-world or mathematical problem and write simple expressions, equations, or inequalities to solve the problem.
- Use properties of operations to rewrite linear expressions in different forms.
- Solve problems that involve scale drawings of geometric figures.
- Construct geometric shapes with traditional tools and with technology to satisfy given conditions.
- Solve real-world and mathematical problems involving angle measure, area, surface area, and volume.
- Use data from a random sample to draw inferences about a population.
- Compare two populations using their measures of center and measures of variability.
- Understand that probability is a measure of the likelihood that a chance event will occur.
- Compare expected probability to relative frequency and explain any discrepancies.
- Find the probability of a compound event by identifying all the possible outcomes surrounding the event.
- Design and use a simulation to generate frequencies for compound events.

Writing Assignments (REQUIRED):
Give examples of the writing assignments and the use of critical analysis within the writing assignments.

Writing assignments will include:

- Justifications and/or Explanations
- Cornell Notes
- Assessments
- Projects/Performance Tasks
- Journals/Learning Logs – Reflections/Summaries
- Writing Prompts
- Other CFUs (i.e.Warm ups and Tickets out the Door)

INSTRUCTIONAL MATERIALS (REQUIRED)	
Textbook #1	
Title: envision Math 2.0	Edition:First
Author: Berry, Champagne, Milou, Schielack, Wray, Charles and Fennell	ISBN: 9780328896271
Publisher: Pearson	Publication Date: 2016
Usage: ✓ Primary Text ❑ Read in entirety or near	
Textbook #2	
Title:	Edition:
Author:	ISBN:
Publisher:	Publication Date:
Usage: ❑ Primary Text ❑ Read in entirety or near	
Supplemental Instructional Materials *Please include online, and open source resources if any.*	
9780328896455 ENVISION MATH 2.0 EXAMVIEW CD-ROM GRADE 8 COPYRIGHT 2017 $128.97 9780328881130 ENVISION MATH 2.0 TEACHER RESOURCE MASTERS PACKAGE GR. 8 COPYRIGHT 2017 $ 149.97 9780328880980 ENVISION MATH 2.0 COMMON CORE TEACHER EDITION PACKAGE GR. 8 COPYRIGHT 2017 $530.47 Edmentum	
Estimated costs for classroom materials and supplies (REQUIRED). *Please describe in detail.* If more space is needed than what is provided, please attach backup as applicable.	
Cost for class set of textbooks: $ 3742.92	Description of Additional Costs: All Supplemental materials. Per contract all Teacher Resources are free.
Additional costs:$ 530.47	
Total cost per class set of instructional materials:	$4273.39

Key Assignments (REQUIRED):

Please provide a detailed description of the Key Assignments including tests, and quizzes, which should incorporate not only short answers but essay questions also. How do assignments incorporate topics? Include all major assessments that students will be required to complete

Key Assignments will include:

- End of Unit Assessments
- Edmentum Assignments
- Cornell Notes

Instructional Methods and/or Strategies (REQUIRED):

Please list specific instructional methods that will be use.

Instructional Strategies will include:

- Direct Instruction
- Small Group Instruction
- Targeted Feedback
- Reciprocal Teaching
- Collaboration
- Adapting to learning styles and multiple intelligences
- Realia
- Modeling
- Guided and Independent practice
- Partner/ Group work
- Spiraling
- Questioning strategies that look for participation and content understanding

Assessment Methods and/or Tools (REQUIRED):

Please list different methods of assessments that will be used.

Assessment Methods will include:

- Type of Questions include:
    - Open Response
    - Multiple Choice
    - Performance Assessment\
    - Multiple Choice
- Self-assessment
- Whiteboards
- Portfolios/"Notebooks"

Platforms include: Pearson, Eadms, Haiku, Desmos and Edmentum

COURSE PACING GUIDE AND OBJECTIVES (REQUIRED)				
Day(s)	**Objective**	**Standard(s)**	**Chapter(s)**	**Reference**
31	**Unit 1: Ratios and Proportional Relationships** Summary: In this unit, you will compute unit rates associated with ratios of fractions. You will also recognize and represent proportional relationships between quantities and identify the constant of proportionality using various methods. Using proportional relationships, you will be able solve multistep ratio and percentage problems	7.RP	Semester A: Unit 1	

Day	Activity/Objective
1	**Syllabus and Plato Student Orientation** Review the Plato Student Orientation and Course Syllabus at the beginning of this course.
2-5	**Unit Rates** Compute unit rates related to ratios of fractions.
6-9	**Recognizing Proportional Relationships** Decide whether two quantities are in a proportional relationship.
10-13	**Constants of Proportionality** Identify the constant of proportionality in tables, graphs, diagrams, and descriptions of proportional relationships
14-17	**Representing Proportional Relationships with Equations** Use equations to represent proportional relationships.

	<table><tr><td>18-21</td><td>Graphing Proportional Relationships Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation.</td></tr><tr><td>22-25</td><td>Applications of Ratio and Percent Use proportional relationships to solve ratio and percent problems.</td></tr><tr><td>26-30</td><td>Unit Activity and Threaded Discussion—Unit 1</td></tr><tr><td>31</td><td>Post Test-Unit 1</td></tr></table>			
31	**Unit 2: Rational Numbers** Summary: In this unit, you will apply and extend your previous understandings of addition, subtraction, multiplication, and division to add, subtract, multiply, and divide rational numbers. You will represent addition and subtraction on a horizontal or vertical number line and convert a rational number to a decimal number using long division. Using these skills, you will solve real-world and mathematical problems involving the four operations with rational numbers. <table><tr><th>Day</th><th>Activity/Objective</th></tr><tr><td>32-35</td><td>Adding Rational Numbers Find the sums of rational numbers</td></tr><tr><td>36-39</td><td>Subtracting Rational Numbers Find the differences of rational numbers.</td></tr><tr><td>40-43</td><td>Multiplying Rational Numbers Find the products of rational numbers</td></tr><tr><td>44-47</td><td>Dividing Rational Numbers Find the quotients of rational numbers.</td></tr><tr><td>48-52</td><td>Expressing Rational Numbers as</td></tr></table>	7.NS	Semester A: Unit 2	

	Decimal Numbers Convert a rational number to a decimal number using long division.
53-56	**Add, Subtract, Multiply, and Divide Rational Numbers to Solve Real-World Problems** Use the four operations to solve real-world and mathematical problems that contain rational numbers.
57-61	**Unit Activity and Threaded Discussion—Unit 2**
62	**Post test—Unit 2**

	Unit 3: Expressions and Equations Involving Rational Numbers Summary: In this unit, you will apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. You will solve multi-step real-life and mathematical problems that include positive and negative rational numbers in any form. You will use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems involving the quantities.	7.EE	Semester A: Unit 3	

Day	Activity/Objective
63-66	**Linear Expressions with Rational Coefficients** Use properties of operations to add, subtract, factor, and expand linear expressions that have rational coefficients
67-70	**Equivalent Expressions** Rewrite expressions in different forms to show how quantities are related.
71-74	**Solving Real-World Problems**

	<table><tr><td></td><td>Involving Rational Numbers Solve real-world and mathematical problems that contain positive and negative rational numbers.</td></tr><tr><td>75-78</td><td>Building Equations to Solve Real-World Problems Use variables to represent quantities in a real-world or mathematical problem and write simple equations to solve the problem</td></tr><tr><td>79-82</td><td>Building Inequalities to Solve Real-World Problems Use variables to represent quantities in a real-world or mathematical problem and write simple inequalities to solve the problem.</td></tr><tr><td>83-87</td><td>Unit Activity and Threaded Discussion—Unit 3</td></tr><tr><td>88</td><td>Posttest—Unit 3</td></tr><tr><td>89</td><td>Semester Review</td></tr><tr><td>90</td><td>End-of-Semester Test</td></tr></table>			
31	**Unit 1: Geometry** Summary: In this unit, you will solve problems involving scale drawings of geometric figures and draw geometric shapes from a set of given conditions. You will use formulas for area, surface area, and volume of two- and three-dimensional objects to solve real-world problems <table><tr><th>Day</th><th>Activity/Objective</th></tr><tr><td>1</td><td>Syllabus and Plato Student Orientation Review the Plato Student Orientation and Course Syllabus at the beginning of this course.</td></tr></table>	7.G	Semester B: Unit 1	

	<table><tr><td>2-5</td><td>**Scale Drawings** Solve problems that involve scale drawings of geometric figures.</td></tr><tr><td>6-9</td><td>**Geometric Constructions** Draw geometric shapes freehand with a ruler and a protractor and also with technology.</td></tr><tr><td>10-13</td><td>**Cross Sections of Three-Dimensional Objects** Describe two-dimensional figures that result from slicing threedimensional figures</td></tr><tr><td>14-17</td><td>**Area and Circumference of a Circle** Study the formulas for the area and circumference of a circle and use them to solve problems.</td></tr><tr><td>18-21</td><td>**Angle Relationships** Use facts about angles to write and solve simple equations for a figure's unknown angle.</td></tr><tr><td>22-25</td><td>**Applications of Area, Surface Area, and Volume** Solve real-world and mathematical problems that involve area, volume, and surface area of two- and three-dimensional objects.</td></tr><tr><td>26-30</td><td>**Unit Activity and Threaded Discussion—Unit 1**</td></tr><tr><td>31</td><td>**Posttest—Unit 1**</td></tr></table>			
22	**Unit 2: Statistics** Summary: In this unit, you will explore how statistics can be used to gain information about a population by examining a sample of the population. You will also use data from a random sample to draw inferences about the characteristics of a population. Finally, you will understand and use measures of center and	7.SP	Semester B: Unit 2	

	measures of variability to compare two populations. **Day** / **Activity/Objective** 32-35 — **Sampling Populations** Learn about a population by using statistics to study a sample of the population. 36-39 — **Making Predictions Based on Random Samples** Use data from a random sample to draw conclusions about a population. 40-43 — **Comparing Data Distributions** Determine the amount of overlap for two data distributions that have similar variabilities. 44-47 — **Using Measures of Center and Measures of Variability** Use measures of center and measures of variability to compare two populations. 48-52 — **Unit Activity and Threaded Discussion—Unit 2** 53 — **Posttest—Unit 2**			
37	**Unit 3: Probability** Summary: In this unit, you'll learn that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. You will compare expected probability to experimental probability, also called relative frequency. You'll also find the probability of a compound event by identifying and organizing all the possible outcomes surrounding the event. Finally, you'll use a simulation to generate possible outcomes for a compound event.	7.SP	Semester B: Unit 3	

Day	Activity/Objective
54-57	**Introduction to Probability** Understand that the likelihood that a chance event will occur can be expressed as a number between 0 and 1.
58-61	**Making Predictions Based on Probabilities** Predict the probability of a chance event based on collected data and predict a relative frequency given the probability.
62-65	**Simulations and Probability** Use simulations to generate frequencies for real-world events
66-69	**Comparing Probability and Relative Frequency** Compare expected probability to relative frequency and explain any discrepancies
70-73	**Sample Spaces for Compound Events** Show possible outcomes for compound events in organized lists, tables, and tree diagrams.
74-78	**Probability of Compound Events** Understand that the probability of a compound event occurring is a fraction of all possible outcomes.
79-82	**Simulations for Compound Events** Design and use a simulation to generate frequencies for compound events.
83-87	**Unit Activity and Threaded Discussion—Unit 3**
88	**Posttest—Unit 3**
89	**Semester Review**

	90 End-of-Semester Test			

C. HONORS COURSES ONLY
Indicate how much this honors course is different from the standard course.

D. BACKGROUND INFORMATION
Context for course (optional)
History of Course Development (optional)