Instructional Focus Document
Grade 6 Mathematics

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

UNIT OVERVIEW

Introduction

This unit bundles student expectations that address two-variable algebraic relationships, including additive and multiplicative relationships, in the form of verbal descriptions, tables, graphs and equations in the form $y = kx$ or $y = x + b$. According to the Texas Education Agency, mathematical process standards including application, a problem-solving model, tools and techniques, communication, representations, relationships, and justifications should be integrated (when applicable) with content knowledge and skills so that students are prepared to use mathematics in everyday life, society, and the workplace. The introduction to the grade level standards state, “While the use of all types of technology is important, the emphasis on algebra readiness skills necessitates the implementation of graphing technology."

Prior to this Unit

In Grade 5, students generated a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph. Students recognized the difference between additive and multiplicative numerical patterns given in a table or graph. Students described the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0), and ordered pairs within the coordinate plane, defining the x coordinate as the first number in the ordered pair with movement parallel to the x-axis starting at the origin and the y coordinate as the second number in the ordered pair with movement parallel to the y-axis starting at the origin. They also described the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane and graphed in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.

During this Unit

Students extend previous knowledge of graphing positive rational numbers on the coordinate plane to graphing both positive and negative rational numbers in all four quadrants of the coordinate plane. This skill is foundational for the other algebraic concepts in this unit. Although students have recognized the differences between additive and numerical patterns in tables and graphs and generated numerical patterns when given a rule in the form $y = ax$ or $y = x + a$, students are now expected to compare two rules verbally, graphically, or symbolically in order to differentiate between additive and multiplicative relationships and explain their reasoning. Students should recognize the characteristics of an additive or multiplicative relationship when given a verbal description, graph, or equation. Relationships within a graph are examined as students identify independent and dependent relationships and quantities. Within this unit, students represent a given situation using verbal descriptions, tables, graphs, and equations, as well as demonstrate understanding that each representation models the same data. Also, given one representation, students should be able to create one or all of the different representations for the problem situation. For this grade level, problem situations for additive relationships may include both positive and negative rational numbers, whereas multiplicative relationships may only include integers or positive fractions or decimals.

Other considerations: Reference the Mathematics COVID-19 Gap Implementation Tool Grade 6

After this Unit

In Grade 7, students will represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic

representations, including $d = rt$. They will determine the constant of proportionality ($k = \frac{y}{x}$) within mathematical and real-world problems. Students will represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$. In Grade 8, students will use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation. They will also explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation.

Additional Notes

In Grade 6, comparing two rules verbally, numerically, graphically, and symbolically in the form of $y = ax$ or $y = x + a$ in order to differentiate between additive and multiplicative relationships is STAAR Supporting Standard 6.4A. This standard is part of the Grade 6 *Texas Response to Curriculum Focal Points* (TxRCFP): Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships. Identifying independent and dependent quantities from tables and graphs and writing an equation that represents the relationship between independent and dependent quantities from a table are STAAR Supporting Standards 6.6A and 6.6B. Representing a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$ is identified as STAAR Readiness Standard 6.6C. These three standards are subsumed under the Grade 6 Focal Point: Using expressions and equations to represent relationships in a variety of contexts (TxRCFP). STAAR Supporting Standard 6.6A is also within the Grade 6 Focal Point: Understanding data representation (TxRCFP). All of these standards are part of Grade 6 Reporting Category 2: Computations and Algebraic Relationships. Graphing points in all four quadrants using ordered pairs of rational numbers is STAAR Readiness Standard 6.11A and is subsumed within the Grade 6 Focal Point: Grade Level Connections (TxRCFP) and Grade 6 STAAR Reporting Category 3: Geometry and Measurement. This unit is supporting the development of the *Texas College and Career Readiness Standards* (TxCCRS): I. Numeric Reasoning B1; II. Algebraic Reasoning D1, D2; V. Statistical Reasoning A1, C2; VI. Functions A2, B1, C2; VII. Problem Solving and Reasoning A1, A2, A3, A4, A5, B1, C1, D1, D2; VIII. Communication and Representation A1, A2, A3, B1, B2, C1, C2, C3; IX. Connections A1, A2, B1, B2, B3.

Research

According to Van de Walle, Karp, and Bay-Williams (2010), “students must understand the connections between context, tables, graphs, equations, and verbal descriptions; it is not enough just to teach each one separately (Hackbarth & Wilsman, 2008)” (p. 252). The National Council of Teachers of Mathematics (2001) states that “explorations that develop from problems that can be solved by using tables, graphs, verbal descriptions, concrete or pictorial representations, or algebraic symbols offer opportunities for students to build their understandings of mathematical functions” (p. v).

National Council of Teachers of Mathematics. (2001). *Principles and Standards for School Mathematics, Navigations Series: Navigating through Algebra in Grades 6 – 8.* Reston, VA: NCTM

Texas Education Agency & Texas Higher Education Coordinating Board. (2009). *Texas college and career readiness standards.* Retrieved from http://www.thecb.state.tx.us/institutional-resources-programs/public-community-technical-state-colleges/texas-college-and-career-readiness-standards/

Texas Education Agency. (2013). *Texas response to curriculum focal points for kindergarten through grade 8 mathematics.* Retrieved from

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

https://www.texasgateway.org/resource/txrcfp-texas-response-curriculum-focal-points-k-8-mathematics-revised-2013
Van de Walle, J., Karp, K., & Bay-Williams, J. (2010). *Elementary and middle school mathematics: Teaching developmentally*. Boston, MA: Pearson Education, Inc.

OVERARCHING UNDERSTANDINGS AND QUESTIONS

Quantitative relationships model problem situations efficiently and can be used to make generalizations, predictions, and critical judgements in everyday life.

- What patterns exist within different types of quantitative relationships and where are they found in everyday life?
- Why is the ability to model quantitative relationships in a variety of ways essential to solving problems in everyday life?

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)

Understanding how two quantities vary together (covariation) in situations involving invariant (constant) relationships builds flexible algebraic reasoning in order to make predictions and critical judgements about the	Proportionality
	• Relationships and Generalizations
	  • Additive
	  • Multiplicative
		Mathematics Grade 6 Unit 08 PA 01
		Click on the PA title to view related rubric.
		Provide students with a copy of a four quadrant coordinate

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
relationship. • What are the characteristics of a(n) … ◦ additive ◦ multiplicative … numerical relationship in a(n) … ◦ verbal description? ◦ table? ◦ graph? ◦ equation? • What is the process for determining if a numerical relationship is additive or multiplicative when given a(n) … ◦ verbal description? ◦ table? ◦ graph? ◦ equation? Equations can be modeled, written, and solved using various methods to gain insight into the context of the situation and make critical judgments about algebraic relationships and efficient strategies. • How can independent and dependent quantities be identified in a … ◦ graph? ◦ table? • How can the relationship between independent and dependent quantities in a table be represented	• Representations Expressions, Equation, and Relationships • Algebraic Relationships • Independent and dependent quantities • Numeric and Algebraic Representations • Expressions • Equations • Equivalence • Representations Measurement and Data • Coordinate Plane • Ordered pairs • Location <u>Associated Mathematical Processes</u> • Application • Problem Solving Model • Tools and Techniques • Communication • Representations • Relationships • Justification	*plane.* Analyze the problem situation(s) described below. Organize and record your work for each of the following tasks. Using precise mathematical language, justify and explain each solution process. 1. Luis invented a new tool that he wants to sell to hardware stores. He sent the set of ordered pairs shown below to a plastics designer, so a prototype of the tool can be cut from a sheet of plastic. (0, –4.5) (–3, –3) (–7.5, –3) (–3.25, 0) (–6.25, 2.5) (–1, 2.5) (–1, 5.75) (–8.5, 4) (–8.5, 6.5) (–1, 8.25) (1, 8.25) (8.5, 6.5) (8.5, 4) (1, 5.75) (1, 2.5) (6.25, 2.5) (3.25, 0) (7.5, –3) (3, –3) (0, –4.5)

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)

symbolically?

- What is the process for writing an equation to represent the relationship between independent and dependent quantities in a table?
- What are the similarities and differences between representing a problem situation using a table, graph, or equation in the form $y = kx$ or $y = x + b$?

Understanding how to graph points (ordered pairs) on a coordinate plane leads to the development of algebraic relational thinking of shapes and figures.

- How are the quadrants referenced on the coordinate grid?
- How can the axes be used when plotting points on a coordinate plane?
- What does the first number in an ordered pair represent?
- What does the second number in an ordered pair represent?
- How can the numbers of an ordered pair aid in the graphing of a point on the coordinate plane?
- What is the relationship between the origin and location of an ordered pair on the coordinate plane?
- What is the process for graphing an ordered pair whose coordinates have negative values?
- What is the process for identifying a point on a

a. Graph and connect each of the ordered pairs on a coordinate plane to create a template for Luis' tool.

2. Josh works at a manufacturing plant that offers college savings incentives for their employees. The company contributes a flat amount towards any money Josh chooses to place in a college savings account from his paycheck. The table below displays the amount of money Josh chose to deposit in a college savings account and the actual amount of money deposited into his college savings account after his employer's contribution.

Amount Josh Contributes (dollars)	Total Deposit Inclusive of Employee and Company Contributions (dollars)
$22.99	$38.74
$34.74	$50.49
$46.83	$62.58
$104.09	$119.84

a. Consider the situation and identify the independent and dependent quantities in the table.

b. Write an equation that represents the relationship between the independent and dependent quantities from the table.

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

UNIT UNDERSTANDINGS AND QUESTIONS	OVERARCHING CONCEPTS AND UNIT CONCEPTS	PERFORMANCE ASSESSMENT(S)
coordinate plane? • How can the ordered pairs be generalized for each quadrant of the coordinate plane?		c. Describe whether the situation represents an additive or multiplicative relationship. Explain your reasoning. 3. Shannon makes handmade crafts and sells them online. In order to make a profit, she uses the equation $y = 2.75x$ to calculate the online selling price for her craft, y, after determining the amount of money she invested to make the craft, x. a. Represent the situation using a table and graph. b. Use the table to identify the independent and dependent quantities in the situation. c. Describe whether the situation represents an additive or multiplicative relationship. Explain your reasoning. Standard(s): 6.1A, 6.1B, 6.1C, 6.1D, 6.1E, 6.1F, 6.1G, 6.4A, 6.6A, 6.6B, 6.6C, 6.11A, ELPS.c.1A, ELPS.c.2D, ELPS.c.2E, ELPS.c.3C, ELPS.c.3D, ELPS.c.3H, ELPS.c.4D, ELPS.c.4F, ELPS.c.4H, ELPS.c.5B, ELPS.c.5F, ELPS.c.5G

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

MISCONCEPTIONS / UNDERDEVELOPED CONCEPTS

Misconceptions:

- Some students may confuse the independent and dependent quantities in tables and graphs.
- Students may write an equation that expresses *x* in terms of *y* instead of *y* in terms of *x*.
- Students may not correctly connect a plotted point on a line based on the problem situation.
- Some students may graph an ordered pair incorrectly by going up or down first and then moving to the left or right.

Underdeveloped Concepts:

- Some students may confuse an additive pattern with a multiplicative pattern by considering the changes within only the input or only the output values rather than considering the change between the input value and its related output value.
- Some students may reverse the names of the axes rather than always calling the horizontal axis the *x*-axis and the vertical axis the *y*-axis.
- Some students may not recognize the ordered pair (0, 0) with the special name of origin.
- Some students may think they can use either number in an ordered pair to graph a point on coordinate plane rather than always associating the first number in an ordered pair to the *x*-axis and the second number to the *y*-axis.

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

UNIT VOCABULARY

- **Additive relationship** – when a constant non-zero value is added to an input value to determine the output value ($y = x + a$)
- **Axes** – the vertical and horizontal lines that act as a reference when plotting points on a coordinate plane
- **Coefficient** – a number that is multiplied by a variable(s)
- **Constant** – a fixed value that does not appear with a variable(s)
- **Coordinate plane (coordinate grid)** – a two-dimensional plane on which to plot points, lines, and curves
- **Dependent variable** – the variable in an equation or rule which represents the output value
- **Independent variable** – the variable in an equation or rule which represents the input value
- **Intersecting lines** – lines that meet or cross at a point
- **Multiplicative relationship** – when a constant non-zero value is multiplied by an input value to determine the output value ($y = ax$)
- **Origin** – the starting point in locating points on a coordinate plane
- **Quadrants** – any of the four areas created by dividing a plane with an *x*-axis and *y*-axis
- **Rational numbers** – the set of numbers that can be expressed as a fraction $\frac{a}{b}$, where *a* and *b* are integers and b ≠ 0. The set of rational numbers is denoted by the symbol Q.

Related Vocabulary:

- Equation
- Graph
- Horizontal
- Integer
- Input
- Ordered pair
- Output
- Quadrant I
- Quadrant II
- Quadrant III
- Quadrant IV
- Quantity
- Scale
- Scale factor
- Unit
- Variable
- Vertical
- *x*-axis
- *x* coordinate
- *x*-value
- *y*-axis
- *y* coordinate
- *y*-value

UNIT ASSESSMENT ITEMS	SYSTEM RESOURCES	OTHER RESOURCES
Unit Assessment Items that have been published by	Mathematics Concepts Charts	Texas Higher Education Coordinating Board – Texas

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships

SUGGESTED DURATION : 12 days

your district may be accessed through **Search All Components** in the District Resources tab. Assessment items may also be found using the Assessment Center if your district has granted access to that tool.	**Mathematics COVID-19 Gap Implementation Tool Grade 6** **Mathematics COVID-19 Gap Implementation Tool Instructions** **Mathematics Grade 6 Backward Design Document** **Mathematics Grade 6 Enhanced TEKS Clarification** **Mathematics Grade 6 Focal Points with Aligned Standards and TEKS Introduction** **Mathematics Grade 6 STAAR Analysis Resources** **Mathematics Grade 6 STAAR Blueprint and Item Percentages** **Mathematics Grade 6 STAAR Enhanced Blueprint** **Mathematics Grade 6 Vertical Alignment** **Mathematics Grade 6_Unit 08_TEKS System STAAR Analysis** **Mathematics K-HS Overarching Understandings and Questions** **Mathematics Long Term Transfer Goals** **Mathematics Suggested Basic Manipulatives by**	**College and Career Readiness Standards** Texas Education Agency – **Texas Response to Curriculum Focal Points for K-8 Mathematics Revised 2013** Texas Education Agency – **Mathematics Curriculum** Texas Education Agency – **STAAR Mathematics Resources** Texas Education Agency Texas Gateway – **Revised Mathematics TEKS: Vertical Alignment Charts** Texas Education Agency Texas Gateway – **Mathematics TEKS: Supporting Information** Texas Education Agency Texas Gateway – **Interactive Mathematics Glossary** Texas Education Agency Texas Gateway – **Resources Aligned to Grade 6 Mathematics TEKS** Texas Instruments – **Graphing Calculator Tutorials**

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

	Grade Level **Mathematics Suggested Engaging Literature** **Mathematics Texas Education Agency Grade 6 TEKS Supporting Information (with TEKS Resource System Comments)** **Mathematics Vertical Quick Guide**	

Instructional Focus Document
Grade 6 Mathematics

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TAUGHT DIRECTLY TEKS

TEKS INTENDED TO BE EXPLICITLY TAUGHT IN THIS UNIT.

TEKS/SE Legend:

- ***Knowledge and Skills Statements (TEKS) identified by TEA are in italicized, bolded, black text.***
- **Student Expectations (TEKS) identified by TEA are in bolded, black text.**
- ***Student Expectations (TEKS) are labeled Readiness as identified by TEA of the assessed curriculum.***
- ***Student Expectations (TEKS) are labeled Supporting as identified by TEA of the assessed curriculum.***
- ***Student Expectations (TEKS) are labeled Process standards as identified by TEA of the assessed curriculum.***
- Portions of the Student Expectations (TEKS) that are not included in this unit but are taught in previous or future units are indicated by a ~~strike-through~~.

Specificity Legend:

- Supporting information / clarifications (specificity) written by TEKS Resource System are in blue text.
- *Unit-specific clarifications are in italicized, blue text.*
- Information from Texas Education Agency (TEA), Texas College and Career Readiness Standards (TxCCRS), Texas Response to Curriculum Focal Points (TxRCFP) is labeled.
- A Partial Specificity label indicates that a portion of the specificity not aligned to this unit has been removed.

TEKS# / SE#	TEKS	SPECIFICITY
6.1	***Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:***	
6.1A	**Apply mathematics to problems arising in everyday life, society, and the workplace.** ***Process Standard***	Apply MATHEMATICS TO PROBLEMS ARISING IN EVERYDAY LIFE, SOCIETY, AND THE WORKPLACE

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY

		Including, but not limited to:
		• Mathematical problem situations within and between disciplines
		  ◦ Everyday life
		  ◦ Society
		  ◦ Workplace
		Note(s):
		• The mathematical process standards may be applied to all content standards as appropriate.
		• TxRCFP:
		  ◦ Using operations with integers and positive rational numbers to solve problems
		  ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships
		  ◦ Using expressions and equations to represent relationships in a variety of contexts
		  ◦ Understanding data representation
		• TxCCRS:
		  ◦ VII.D. Problem Solving and Reasoning – Real-world problem solving
		  • VII.D.1. Interpret results of the mathematical problem in terms of the original real-world situation.
		  ◦ IX.A. Connections – Connections among the strands of mathematics
		  • IX.A.1. Connect and use multiple key concepts of mathematics in situations and problems.
		  • IX.A.2. Connect mathematics to the study of other disciplines.
		  ◦ IX.B. Connections – Connections of mathematics to nature, real-world situations, and everyday life
		  • IX.B.1. Use multiple representations to demonstrate links between mathematical and real-world situations.
		  • IX.B.2. Understand and use appropriate mathematical models in the natural,

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		physical, and social sciences. • IX.B.3. Know and understand the use of mathematics in a variety of careers and professions.

6.1B	**Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.** ***Process Standard***	Use
		
		A PROBLEM-SOLVING MODEL THAT INCORPORATES ANALYZING GIVEN INFORMATION, FORMULATING A PLAN OR STRATEGY, DETERMINING A SOLUTION, JUSTIFYING THE SOLUTION, AND EVALUATING THE PROBLEM-SOLVING PROCESS AND THE REASONABLENESS OF THE SOLUTION
		
		Including, but not limited to:
		
		• Problem-solving model
		  ◦ Analyze given information
		  ◦ Formulate a plan or strategy
		  ◦ Determine a solution
		  ◦ Justify the solution
		  ◦ Evaluate the problem-solving process and the reasonableness of the solution
		
		Note(s):
		
		• The mathematical process standards may be applied to all content standards as appropriate.
		• TxRCFP:
		  ◦ Using operations with integers and positive rational numbers to solve problems
		  ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships
		  ◦ Using expressions and equations to represent relationships in a variety of contexts
		  ◦ Understanding data representation

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		• TxCCRS: ◦ I.B. Numeric Reasoning – Number sense and number concepts • I.B.1. Use estimation to check for errors and reasonableness of solutions. ◦ V.A. Statistical Reasoning – Design a study • V.A.1. Formulate a statistical question, plan an investigation, and collect data. ◦ VII.A. Problem Solving and Reasoning – Mathematical problem solving • VII.A.1. Analyze given information. • VII.A.2. Formulate a plan or strategy. • VII.A.3. Determine a solution. • VII.A.4. Justify the solution. • VII.A.5. Evaluate the problem-solving process. ◦ VII.D. Problem Solving and Reasoning – Real-world problem solving • VII.D.2. Evaluate the problem-solving process.
6.1C	**Select tools, including ~~real objects,~~ ~~manipulatives,~~ paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.** ***Process Standard***	Partial Specificity Select TOOLS, INCLUDING PAPER AND PENCIL AND TECHNOLOGY AS APPROPRIATE, AND TECHNIQUES, INCLUDING MENTAL MATH, ESTIMATION, AND NUMBER SENSE AS APPROPRIATE, TO SOLVE PROBLEMS Including, but not limited to: • Appropriate selection of tool(s) and techniques to apply in order to solve problems ◦ Tools • Paper and pencil • Technology ◦ Techniques • Mental math • Estimation

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY

		• Number sense
		
		Note(s):
		
		• The mathematical process standards may be applied to all content standards as appropriate.
		• TxRCFP:
		  ◦ Using operations with integers and positive rational numbers to solve problems
		  ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships
		  ◦ Using expressions and equations to represent relationships in a variety of contexts
		  ◦ Understanding data representation
		• TxCCRS:
		  ◦ I.B. Numeric Reasoning – Number sense and number concepts
		  • I.B.1. Use estimation to check for errors and reasonableness of solutions.
		  ◦ V.C. Statistical Reasoning – Analyze, interpret, and draw conclusions from data
		  • V.C.2. Analyze relationships between paired data using spreadsheets, graphing calculators, or statistical software.

6.1D	**Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.**
	Process Standard
		Communicate
		
		MATHEMATICAL IDEAS, REASONING, AND THEIR IMPLICATIONS USING MULTIPLE REPRESENTATIONS, INCLUDING SYMBOLS, DIAGRAMS, GRAPHS, AND LANGUAGE AS APPROPRIATE
		
		Including, but not limited to:
		
		• Mathematical ideas, reasoning, and their implications
		  ◦ Multiple representations, as appropriate
		  • Symbols

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY

		• Diagrams
		• Graphs
		• Language
		
		Note(s):
		
		• The mathematical process standards may be applied to all content standards as appropriate.
		• TxRCFP:
		  ◦ Using operations with integers and positive rational numbers to solve problems
		  ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships
		  ◦ Using expressions and equations to represent relationships in a variety of contexts
		  ◦ Understanding data representation
		• TxCCRS:
		  ◦ II.D. Algebraic Reasoning – Representing relationships
		  • II.D.1. Interpret multiple representations of equations, inequalities, and relationships.
		  • II.D.2. Convert among multiple representations of equations, inequalities, and relationships.
		  ◦ VIII.A. Communication and Representation – Language, terms, and symbols of mathematics
		  • VIII.A.1. Use mathematical symbols, terminology, and notation to represent given and unknown information in a problem.
		  • VIII.A.2. Use mathematical language to represent and communicate the mathematical concepts in a problem.
		  • VIII.A.3. Use mathematical language for reasoning, problem solving, making connections, and generalizing.
		  ◦ VIII.B. Communication and Representation – Interpretation of mathematical work
		  • VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations.

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		• VIII.B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context. ◦ VIII.C. Communication and Representation – Presentation and representation of mathematical work • VIII.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words. • VIII.C.2. Create and use representations to organize, record, and communicate mathematical ideas. • VIII.C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications. ◦ IX.B. Connections – Connections of mathematics to nature, real-world situations, and everyday life • IX.B.1. Use multiple representations to demonstrate links between mathematical and real-world situations.
6.1E	**Create and use representations to organize, record, and communicate mathematical ideas.** ***Process Standard***	Create, Use REPRESENTATIONS TO ORGANIZE, RECORD, AND COMMUNICATE MATHEMATICAL IDEAS Including, but not limited to: • Representations of mathematical ideas ◦ Organize ◦ Record ◦ Communicate • Evaluation of the effectiveness of representations to ensure clarity of mathematical ideas being communicated • Appropriate mathematical vocabulary and phrasing when communicating mathematical ideas

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		Note(s): • The mathematical process standards may be applied to all content standards as appropriate. • TxRCFP: ◦ Using operations with integers and positive rational numbers to solve problems ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships ◦ Using expressions and equations to represent relationships in a variety of contexts ◦ Understanding data representation • TxCCRS: ◦ VIII.B. Communication and Representation – Interpretation of mathematical work • VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations. • VIII.B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context. ◦ VIII.C. Communication and Representation – Presentation and representation of mathematical work • VIII.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words. • VIII.C.2. Create and use representations to organize, record, and communicate mathematical ideas.
6.1F	**Analyze mathematical relationships to connect and communicate mathematical ideas.** ***Process Standard***	Analyze MATHEMATICAL RELATIONSHIPS TO CONNECT AND COMMUNICATE MATHEMATICAL IDEAS Including, but not limited to: • Mathematical relationships

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		◦ Connect and communicate mathematical ideas • Conjectures and generalizations from sets of examples and non-examples, patterns, etc. • Current knowledge to new learning Note(s): • The mathematical process standards may be applied to all content standards as appropriate. • TxRCFP: ◦ Using operations with integers and positive rational numbers to solve problems ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships ◦ Using expressions and equations to represent relationships in a variety of contexts ◦ Understanding data representation • TxCCRS: ◦ VII.A. Problem Solving and Reasoning – Mathematical problem solving • VII.A.1. Analyze given information. ◦ VIII.A. Communication and Representation – Language, terms, and symbols of mathematics • VIII.A.1. Use mathematical symbols, terminology, and notation to represent given and unknown information in a problem. • VIII.A.2. Use mathematical language to represent and communicate the mathematical concepts in a problem. • VIII.A.3. Use mathematical language for reasoning, problem solving, making connections, and generalizing. ◦ VIII.B. Communication and Representation – Interpretation of mathematical work • VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations. ◦ VIII.C. Communication and Representation – Presentation and representation of mathematical work

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		• VIII.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words. • VIII.C.2. Create and use representations to organize, record, and communicate mathematical ideas. • VIII.C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications. ◦ IX.A. Connections – Connections among the strands of mathematics • IX.A.1. Connect and use multiple key concepts of mathematics in situations and problems. • IX.A.2. Connect mathematics to the study of other disciplines.
6.1G	**Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.** ***Process Standard***	Display, Explain, Justify MATHEMATICAL IDEAS AND ARGUMENTS USING PRECISE MATHEMATICAL LANGUAGE IN WRITTEN OR ORAL COMMUNICATION Including, but not limited to: • Mathematical ideas and arguments ◦ Validation of conclusions • Displays to make work visible to others ◦ Diagrams, visual aids, written work, etc. • Explanations and justifications ◦ Precise mathematical language in written or oral communication Note(s): • The mathematical process standards may be applied to all content standards as appropriate. • TxRCFP:

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		◦ Using operations with integers and positive rational numbers to solve problems ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships ◦ Using expressions and equations to represent relationships in a variety of contexts ◦ Understanding data representation • TxCCRS: ◦ VII.A. Problem Solving and Reasoning – Mathematical problem solving • VII.A.4. Justify the solution. ◦ VII.B. Problem Solving and Reasoning – Proportional reasoning • VII.B.1. Use proportional reasoning to solve problems that require fractions, ratios, percentages, decimals, and proportions in a variety of contexts using multiple representations. ◦ VII.C. Problem Solving and Reasoning – Logical reasoning • VII.C.1. Develop and evaluate convincing arguments. ◦ VIII.A. Communication and Representation – Language, terms, and symbols of mathematics • VIII.A.3. Use mathematical language for reasoning, problem solving, making connections, and generalizing. ◦ VIII.B. Communication and Representation – Interpretation of mathematical work • VIII.B.1. Model and interpret mathematical ideas and concepts using multiple representations. • VIII.B.2. Summarize and interpret mathematical information provided orally, visually, or in written form within the given context. ◦ VIII.C. Communication and Representation – Presentation and representation of mathematical work • VIII.C.3. Explain, display, or justify mathematical ideas and arguments using precise mathematical language in written or oral communications.
6.4	***Proportionality. The student applies mathematical***	

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
	process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:	

6.4A	**Compare two rules verbally, numerically, graphically, and symbolically in the form of *y = ax* or *y = x + a* in order to differentiate between additive and multiplicative relationships.** ***Supporting Standard***	Compare
		
		TWO RULES VERBALLY, NUMERICALLY, GRAPHICALLY, AND SYMBOLICALLY IN THE FORM OF *y = ax* OR *y = x + a* IN ORDER TO DIFFERENTIATE BETWEEN ADDITIVE AND MULTIPLICATIVE RELATIONSHIPS
		
		Including, but not limited to:
		
		• Rational numbers – the set of numbers that can be expressed as a fraction $\frac{a}{b}$, where *a* and *b* are integers and $b \neq 0$. The set of rational numbers is denoted by the symbol Q.
		• Various forms of positive and negative rational numbers
		  ◦ Integers
		  ◦ Decimals
		  • Limited to positive decimal values
		  ◦ Fractions
		  • Limited to positive fractional values
		• Additive relationship – when a constant non-zero value is added to an input value to determine the output value (*y = x + a*)
		• Multiplicative relationship – when a constant non-zero value is multiplied by an input value to determine the output value (*y = ax*)
		• Independent variable – the variable in an equation or rule which represents the input value
		• Dependent variable – the variable in an equation or rule which represents the output value
		• Various representations of relationships
		  ◦ Verbally
		  ◦ Numerically

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		◦ Graphically ◦ Symbolically • Relationships between multiple representations of additive and multiplicative relationships Note(s): • Grade Level(s): ◦ Grade 5 generated a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph. ◦ Grade 5 recognized the difference between additive and multiplicative numerical patterns given in a table or graph. ◦ Grade 7 will represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$. ◦ Grade 7 will determine the constant of proportionality ($k = \frac{y}{x}$) within mathematical and real-world problems. ◦ Grade 7 will represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$. ◦ Grade 8 will represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$. ◦ Grade 8 will represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$. ◦ Grade 8 will distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$, or $y = mx + b$, where $b \neq 0$. ◦ Grade 8 will identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems. ◦ Grade 8 will write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations ◦ Various mathematical process standards will be applied to this student expectation as

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY

		appropriate.
		• TxRCFP:
		  ◦ Understanding and applying ratios and rates and using equivalent ratios to represent proportional relationships
		• TxCCRS:
		  ◦ II.D. Algebraic Reasoning – Representing relationships
		  • II.D.1. Interpret multiple representations of equations, inequalities, and relationships.
		  ◦ VI.A. Functions – Recognition and representation of functions
		  • VI.A.2. Recognize and distinguish between different types of functions.

6.6	***Expressions, equations, and relationships. The student applies mathematical process standards to use multiple representations to describe algebraic relationships. The student is expected to:***	

6.6A	**Identify independent and dependent quantities from tables and graphs.**
	Supporting Standard
		Identify
		
		INDEPENDENT AND DEPENDENT QUANTITIES FROM TABLES AND GRAPHS
		
		Including, but not limited to:
		
		• Independent quantities are represented by the *x* coordinates or the input.
		• Dependent quantities are represented by the *y* coordinates or the output.
		• Identification of independent and dependent quantities
		  ◦ Tables (horizontal/vertical)
		  ◦ Graphs
		
		Note(s):

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY

		• Grade Level(s):
		  ◦ Grade 5 graphed in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table.
		  ◦ Grade 6 introduces identifying independent and dependent quantities from tables and graphs.
		  ◦ Grade 7 will represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$.
		  ◦ Various mathematical process standards will be applied to this student expectation as appropriate.
		• TxRCFP:
		  ◦ Using expressions and equations to represent relationships in a variety of context
		  ◦ Understanding data representation
		• TxCCRS:
		  ◦ VI.B. Functions – Analysis of functions
		  • VI.B.1. Understand and analyze features of functions.

6.6B	**Write an equation that represents the relationship between independent and dependent quantities from a table.** ***Supporting Standard***	Write AN EQUATION THAT REPRESENTS THE RELATIONSHIP BETWEEN INDEPENDENT AND DEPENDENT QUANTITIES FROM A TABLE Including, but not limited to: • Rational numbers – the set of numbers that can be expressed as a fraction $\frac{a}{b}$, where a and b are integers and $b \neq 0$. The set of rational numbers is denoted by the symbol Q. • Independent quantities are represented by the x coordinates or the input. • Dependent quantities are represented by the y coordinates or the output.

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		• Equations from a table of data ◦ In the form $y = kx$ • Coefficient – a number that is multiplied by a variable(s) ◦ Integers • Products of integers limited to an integer multiplied by an integer ◦ Decimals • Limited to positive decimal values ◦ Fractions • Limited to positive fractional values ◦ In the form $y = x + b$ • Constant – a fixed value that does not appear with a variable(s) ◦ Integers ◦ Decimals • Limited to positive decimal values ◦ Fractions • Limited to positive fractional values • Equations from a table of related data pairs, where the *y*-value (output) is dependent upon the *x*-value (input) Note(s) • Grade Level(s): ◦ Grade 5 graphed in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table. ◦ Grade 6 introduces writing an equation that represents the relationship between independent and dependent quantities from a table. ◦ Grade 7 will represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$. ◦ Various mathematical process standards will be applied to this student expectation as

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY

		appropriate.
		• TxRCFP:
		  ◦ Using expressions and equations to represent relationships in a variety of contexts
		• TxCCRS:
		  ◦ II.D. Algebraic Reasoning – Representing relationships
		  • II.D.2. Convert among multiple representations of equations, inequalities, and relationships.

6.6C	**Represent a given situation using verbal descriptions, tables, graphs, and equations in the form *y = kx* or *y = x + b*.**
	Readiness Standard
		Represent
		
		A GIVEN SITUATION USING VERBAL DESCRIPTIONS, TABLES, GRAPHS, AND EQUATIONS IN THE FORM *y = kx* OR *y = x + b*
		
		Including, but not limited to:
		
		• Independent quantities are represented by the *x* coordinates or the input.
		• Dependent quantities are represented by the *y* coordinates or the output.
		• Various representations to describe algebraic relationships
		  ◦ Verbal descriptions
		  ◦ Tables
		  ◦ Graphs
		  ◦ Equations
		  • In the form *y = kx*, where *k* is the non-zero scale factor (constant of proportionality), from multiplicative problem situations
		  ◦ Coefficient – a number that is multiplied by a variable(s)
		  • Integers
		  ◦ Products of integers limited to an integer multiplied by an integer
		  • Decimals

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		◦ Limited to positive decimal values • Fractions ◦ Limited to positive fractional values • In the form $y = x + b$, where b is the constant non-zero addend, from additive problem situations ◦ Constant – a fixed value that does not appear with a variable(s) • Integers • Decimals ◦ Limited to positive decimal values • Fractions ◦ Limited to positive fractional values Note(s): • Grade Level(s): ◦ Grade 6 introduces representing a given situation using verbal descriptions, tables, graphs, and equations in the form $y = kx$ or $y = x + b$. ◦ Grade 7 will represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$. ◦ Grade 8 will represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$. ◦ Grade 8 will represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$, where $b \neq 0$. ◦ Grade 8 will write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations. ◦ Various mathematical process standards will be applied to this student expectation as appropriate. • TxRCFP: ◦ Using expressions and equations to represent relationships in a variety of contexts • TxCCRS:

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		◦ II.D. Algebraic Reasoning – Representing relationships • II.D.2. Convert among multiple representations of equations, inequalities, and relationships. ◦ VI.C. Functions – Model real-world situations with functions • VI.C.2. Develop a function to model a situation. ◦ VIII.C. Communication and Representation – Presentation and representation of mathematical work • VIII.C.1. Communicate mathematical ideas, reasoning, and their implications using symbols, diagrams, models, graphs, and words.
6.11	***Measurement and data. The student applies mathematical process standards to use coordinate geometry to identify locations on a plane. The student is expected to:*** ***Readiness Standard***	
6.11A	**Graph points in all four quadrants using ordered pairs of rational numbers.** ***Readiness Standard***	Graph POINTS IN ALL FOUR QUADRANTS USING ORDERED PAIRS OF RATIONAL NUMBERS Including, but not limited to: • Rational numbers – the set of numbers that can be expressed as a fraction $\frac{a}{b}$, where *a* and *b* are integers and $b \neq 0$. The set of rational numbers is denoted by the symbol Q. • Various forms of positive and negative rational numbers as ordered pairs ◦ Integers ◦ Decimals ◦ Fractions

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		• Coordinate plane (coordinate grid) – a two-dimensional plane on which to plot points, lines, and curves • Axes – the vertical and horizontal lines that act as a reference when plotting points on a coordinate plane • Intersecting lines – lines that meet or cross at a point • Origin – the starting point in locating points on a coordinate plane • Quadrants – any of the four areas created by dividing a plane with an *x*-axis and *y*-axis • Attributes of the coordinate plane ◦ Two number lines intersect perpendicularly to form the axes which are used to locate points on the plane • The horizontal number line is called the *x*-axis. • The vertical number line is called the *y*-axis. ◦ The *x*-axis and the *y*-axis cross at 0 on both number lines and that intersection is called the origin. • The ordered pair of numbers corresponding to the origin is (0, 0). ◦ Four quadrants are formed by the intersection of the *x*-and *y*-axes and are labeled counterclockwise with Roman numerals beginning with Quadrant I that includes the positive *x*- and *y*-values. • Quadrant I (+, +) • Quadrant II (–, +) • Quadrant III (–, –) • Quadrant IV (+, –) ◦ Iterated units are labeled and shown on both axes to show scale. • Intervals may or may not be increments of one. • Intervals may or may not include decimal or fractional amounts. ◦ Relationship between ordered pairs and attributes of the coordinate plane • A pair of ordered numbers names the location of a point on a coordinate plane. • Ordered pairs of numbers are indicated within parentheses and separated by a comma. (*x*, *y*)

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		◦ The first number in the ordered pair represents the parallel movement on the *x*-axis, left or right starting at the origin. ◦ The second number in the ordered pair represents the parallel movement on the *y*-axis, up or down starting at the origin. • Process for graphing ordered pairs of numbers on the coordinate plane ◦ To locate the *x* coordinate, begin at the origin and move to the right or left along the *x*-axis the appropriate number of units according to the *x* coordinate in the ordered pair. ◦ To locate the *y* coordinate, begin at the origin and move up or down along the *y*-axis the appropriate number of units according to the *y* coordinate in the ordered pair. ◦ The point of intersection of both the parallel movements on the *x*-axis and the *y*-axis is the location of the ordered pair. • Plot or select a point on a coordinate plane to satisfy a situation Note(s): • Grade Level(s): ◦ Grade 5 described the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0), the *x* coordinate, the first number in the ordered pair, indicates movement parallel to the *x*-axis starting at the origin, the *y* coordinate, the second number, indicates movement parallel to the *y*-axis starting at the origin. ◦ Grade 5 described the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane. ◦ Grade 5 graphed in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table. ◦ Grade 8 will use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation.

TITLE : Unit 08: Algebraic Representations of Two-Variable Relationships **SUGGESTED DURATION :** 12 days

TEKS# / SE#	TEKS	SPECIFICITY
		◦ Grade 8 will explain the effect of translations, reflections over the *x*- or *y*-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation. ◦ Various mathematical process standards will be applied to this student expectation as appropriate. • TxRCFP: ◦ Grade Level Connections (reinforces previous learning and/or provides development for future learning)

ELPS#	SUBSECTION C: CROSS-CURRICULAR SECOND LANGUAGE ACQUISITION ESSENTIAL KNOWLEDGE AND SKILLS.

The English Language Proficiency Standards (ELPS), as required by 19 Texas Administrative Code, Chapter 74, Subchapter A, §74.4, outline English language proficiency level descriptors and student expectations for English language learners (ELLs). School districts are required to implement ELPS as an integral part of each subject in the required curriculum.

School districts shall provide instruction in the knowledge and skills of the foundation and enrichment curriculum in a manner that is linguistically accommodated commensurate with the student's levels of English language proficiency to ensure that the student learns the knowledge and skills in the required curriculum.

School districts shall provide content-based instruction including the cross-curricular second language acquisition essential knowledge and skills in subsection (c) of the ELPS in a manner that is linguistically accommodated to help the student acquire English language proficiency.
http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#74.4

Choose appropriate ELPS to support instruction.

Last Updated 08/01/2018