

HPISD Curriculum: Algebra I						
Title		Estimated Duration	6 Weeks			
Unit 6: Writing Linear Functions in Point Slope Form		3 weeks	1	2	3	4 5 6
Unit Overview						
Students will write equations of lines in various forms. They will graph equations of lines and use their equations to solve real-world problems. They will write and find equations of lines parallel or perpendicular to a given line.						
Enduring Understandings						
The student will understand that:		<ul style="list-style-type: none"> Linear relationships are characterized by a constant rate of change; when a linear relationship is graphed, this rate represented by the slope of the line. Linear functions can be represented verbally, graphically, symbolically, and in tabular form. Changes in linear equations and functions affect their graphs. Every linear equation is related to the equation $y = x$. Graphs of linear equations and functions can be used to solve real-world problems. 				
Concepts	Guiding/Essential Questions					
<ul style="list-style-type: none"> change relationships 	<ul style="list-style-type: none"> What are the common characteristics of all linear relationships? How can the data given in real world situations be interpreted and written as an equation? What is direct variation? How are equations written based on real world direct variation situations and answer questions regarding such? How can an equation of a line in slope-intercept form be written? How can the equation of a line given two points be found? How can two points or the slope and one point be used to write an equation of a line? How can equations be written in point-slope form? How is equation of a real-world situation written and use the equation to answer questions? What is standard form and how to write an equation in standard form? What are the slopes of horizontal and vertical lines? How are equations of parallel and perpendicular lines written? 					
Learning Targets						
Students will write equations of lines given a functional relationship in a variety of ways and demonstrate an understanding of linear functions.						

Formative Assessments	Summative Assessments
homework, quizzes	test
TEKS: Readiness Standards	TEKS: Related Supporting Standards
<p>A.1D Represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities.</p> <p>A.6F Interpret and predict the effects of changing slope and y-intercept in applied situations.</p>	<p>A.1C Foundations for Functions: Describes functional relationships for a given problem situation and writes equations or inequalities to answer questions arising from the situation.</p> <p>A.4C Foundations for Functions: Connects equation notation with function notation.</p> <p>A.5A Determine whether or not given situations can be represented by linear functions.</p> <p>A.6A Develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations.</p> <p>A.6D Linear functions: Graphs and writes equations of lines given various characteristics.</p> <p>A.6G Relate direct variation to linear functions and solve problems involving proportional change.</p> <p>A.7A Analyze situations involving linear functions and formulate linear equations or inequalities to solve problems.</p>
Processes and Skills: What students should be able to DO	Facts: What students should KNOW
<ul style="list-style-type: none"> • Write the equation of a line in slope-intercept form given <ol style="list-style-type: none"> 1. the slope and y-intercept 2. the slope and a point 3. two points on the line 4. a table of points on the line 5. application problems. • Graph a line given: <ul style="list-style-type: none"> ◦ two points ◦ one point and the slope of the line ◦ a table of points on the line 	<ul style="list-style-type: none"> • An equation of a line can be written given: <ul style="list-style-type: none"> ◦ two points ◦ one point and the slope of the line ◦ a table of points on the line ◦ a graph of the line ◦ a description of a real-world linear relationship. • Lines that are parallel lines have the same slopes. • Perpendicular lines have opposite reciprocal slopes. • All horizontal lines have a slope of zero. • All vertical lines have an undefined slope.

<ul style="list-style-type: none"> o a graph of the line o a description of a real-world linear relationship • Interpret real-world meanings of slope and y-intercept. • Interpret data from real world situations and write equations that represent those situations in order to solve problems. • Write equations in standard form and use their equations to solve real-world problems. • Write and find equations of lines parallel or perpendicular to a given lines. • Identify situations that model direct variation, identify the constant of variation, and solve problems using the direct variation model • Write equations of horizontal and vertical lines. 	
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Topics

linear equations	parallel & perpendicular lines	slope
problem solving - application	direct variation	parent function

Language of Instruction

constant of variation	mapping	slope formula
dependent variable	nonlinear equation	slope-intercept form of a line
direct variation	parallel	standard form of a line
domain	perpendicular	Vertical Lines (VUX)
function	point-slope form of a line	vertical line test
Horizontal Lines (HOY)	range	x-intercept
independent variable	rate of change	y-intercept
linear function	relation	

State Assessment Connections	National Assessment Connections
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Resources

<p>McDougal Littell Chapter 5 – Sections 5.1-5.5</p>
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