

LEARNING PLAN

<p>Exploratory Activity <i>The Write Tool to Teach Algebra: Strange Steps</i> (p. 31) Synonyms for slope (students generate a list)</p>	<p>Concept Slope</p>
<p>Concept Development Activities Demonstration of slope using geoboards: rise/run <i>Algebra: Themes, Tools, Concepts</i> pp. 293-295 <i>TEXTEAMS Algebra I Institute</i> 2-163 through 2-167 Slope Measurements 2-163 Identifying Slope 2-165 Exploring Slope 2-164, 2-166, 2-167 Slope as rate of change: Match the Graph (CBR or EA 100) Zero, infinite (or undefined or no slope), positive, negative Error message on calculators for infinite slope Explore the concept of slope using a graphing calculator Slope Explorations: Find the steepest stairway in your school Determine acceptable range of slopes for wheelchair ramps Determine the pitch (slope) of a roof <i>Roads and Ramps: Is a hill with a slope of 30° very steep?</i> (p. 1) Applications of slope in the real-world: rate of change of two variable quantities <i>Get It Together: Find the Function I</i></p>	<p>Materials Geoboards Stair steps Yardstick, meter stick, or carpenter's square Graphing calculator & CBR or EA100 Recording paper Cartesian paper <i>TEXTEAMS Algebra I Institute</i> <i>Algebra: Themes, Tools, Concepts</i> <i>Get It Together</i> <i>The Write Tool to Teach Algebra</i> <i>MathScape: Roads and Ramps</i></p>
<p>Basic Facts and Standard Algorithms Formalized Assign problems from <i>Algebra I: Explorations and Applications</i> (Sec. 3.1, 3.2, 3.3) Reading slope from tables and graphs: <i>The Write Tool to Teach Algebra</i> (pp. 32-33) Definition of slope; rate of change</p>	<p>Originality and Creativity <i>Student Products</i></p> <p>Written In your own words, explain slope.</p> <p>Verbal Design and deliver a speech explaining slope from pictures.</p>
<p>Assessment Performance tasks:</p> <ul style="list-style-type: none"> Construct three right triangles on a 5x5 geoboard. Draw each triangle and determine the slope of each hypotenuse. Create segments on a 5x5 geoboard with the following slopes: $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 3, 0, $-\frac{1}{2}$, undefined. Record on dot paper. 	<p>Kinesthetic Build a slope-o-meter and demonstrate its use. Demonstrate slope through dance.</p>
<p>Algebra TEKS c2A, c2B, b2C, c1C, c2G Test Items from Algebra I EOC Spring 2000: 2, 6, 15,18,29,38,40 Spring 2001: 9, 36 Spring 2002: 15</p>	<p>Visual Find pictures depicting slope and calculate the slopes. Design and draw an annotated diagram of the take-off patterns of a commercial airliner, an F-116, and a helicopter. Compare and contrast their slopes.</p>