

HPISD CURRICULUM
(MATH, GRADE 8)

EST. NUMBER OF DAYS: 14

| UNIT NAME | UNIT 5: SLOPE | |
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| Unit Overview | Students extend their understanding of proportionality to include representations on a coordinate plane and applications, including slopes of lines. | |
| Generalizations/Enduring Understandings | <p>Slope can be determined multiple ways and has many names. It can be determined by finding the constant rate of change, rise over run, or change in y over change in x.</p> <p>The slope of a line can also be positive, negative, zero, or undefined.</p> <p>Slope can also be determined by using similar triangles on a graph.</p> <p>A single point where two lines intersect can simultaneously satisfy two linear equations.</p> | |
| Concepts | <p>Slope: Slope can also be called m, rate of change, rise over run, and change in y over change in x. Slope can be positive, negative or 0. You can also use similar triangles to show that the slope of a line is constant.</p> <p>Systems of equations: Identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y=mx+b$ from the intersections of the graphed equations.</p> | |
| Guiding/Essential Questions | <p>How can you determine slope given a line, graph, or table?</p> <p>How do you write an equation to model a linear relationship given a graph or a description?</p> <p>Explain what the m in the equation $y=mx+b$ tell you about the graph of the line with the equation.</p> <p>How can you solve a system of equations by graphing? When you graph a system of linear equations, why does the intersection of the two lines represent the solution of the system?</p> | |
| | <i>Performance Levels</i> | <i>Learning Progression (***) Decision Point)</i> |
| Learning Targets | LEVEL 4: <u>LEVEL 3:</u> LEVEL 2: | |

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| | LEVEL 4: <u>LEVEL 3:</u> LEVEL 2: | |
| Formative Assessments | <i>Title</i> | |
| Summative Assessments | <i>Title</i> | |
| | TEKS | |
| TEKS | TEKS: Readiness Standards | TEKS: Supporting Standards |
| | 8.5I Write an equation in the form of $y=mx+b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations | 8.4A use similar right triangles to develop an understanding that slope, m , given as the rate comparing the change in y -values to the change in x -values, $(y_2-y_1)/(x_2-x_1)$, is the same for any two points (x_1,y_1) and (x_2, y_2) on the same line 8.9A identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y=mx+b$ from the intersections of the graphed equations |
| | TEKS Process Standards | |
| | 8.1(A) apply mathematics to problems arising in everyday life, society, and the workplace 8.1(B) 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 8.1(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as | |

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| | <p>appropriate, to solve problems</p> <p>8.1(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate</p> <p>8.1(E) create and use representations to organize, record, and communicate mathematical ideas</p> <p>8.1(F) analyze mathematical relationships to connect and communicate mathematical ideas</p> <p>8.1(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication</p> |
| Processes and Skills | <p>Students construct triangles between two points on a line and compare the sides to understand that the slope is the same between any two points on a line. Students must determine the slope from a verbal, numerical, tabular and graphical representation.</p> <p>Students identify and verify the values of x and y that simultaneously satisfy two linear equations in the form $y=mx+b$ from the intersections of the graphed equations</p> <p>That the intersection of two lines is a point that satisfies both equations.</p> <p>That when you are referring to the intersection of two lines it also called a system of equations or a solution.</p> <p>Students must be able to determine the slope of a line from any situation and be able to graph the equation.</p> |
| Topics | <p>Independent and dependent variables</p> <p>Slope</p> <p>Slope from two points</p> <p>Slope intercept form</p> <p>System of equations</p> |
| Language of Instruction | <p>negative</p> <p>positive</p> <p>undefined slope</p> <p>slope intercept form</p> <p>solutions</p> <p>systems of equations/intersection lines</p> <p>zero</p> |
| State Assessment Connections | |

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| National Assessment Connections | |
| Resources | |