HPISD Curriculum: Pre Calculus Pre-AP

Title	Estimated Duration	6 Weeks					
Unit 6: Vectors and Parametric Equations	11 days	1	2	**3**	4	5	6

Unit Overview

Vectors and Parametric Equations.

Generalizations/Enduring Understandings

The student will understand that:	• Vectors are extremely useful in describing and solving real life applications. • Parametric equations model horizontal and vertical distance as a function of time.

Concepts	Guiding/Essential Questions
• Direction • Relationship	• How can a vector be used to model real life situations? • Why is it beneficial to be able to describe two directions (2 variables) as a function of time (3rd variable)?

Learning Targets

- Students will utilize vector equations and/or parametric equations to solve quantitative problems.

Formative Assessments	Summative Assessments

TEKS:	Processes and Skills: What students should be able to DO	Facts: What students should KNOW
Graph a set of parametric equations. **P.3.A** Convert parametric equations into rectangular relations and convert rectangular relations into parametric equations. **P.3.B** Use parametric equations to model and solve mathematical and real-world problems. **P.3.C** Use vectors to model situations involving magnitude and direction. **P.4.I** Represent the addition of vectors and the multiplication of a vector by a scalar geometrically and symbolically. **P.4.J** Apply vector addition and multiplication of a vector by a scalar in mathematical and real-world problems. **P.4.K**	• Perform basic operations (addition, subtraction, and scalar multiplication) on vectors. • Calculate the magnitude of a vector and represent the resultant vector as the sum of two component vectors. • Convert between parametric equations and vector equations. • Use parametric and vector equations to solve real-life situations.	• A vector has direction and magnitude. • Two vectors are equal if and only if they have the same direction and magnitude. • Parametric equations can be used to simulate motion.

Topics
Vectors and Parametric Equations

Language of Instruction
Cartesian equation component form direction, magnitude parametric equation resultant vector vector equation

State Assessment Connections	National Assessment Connections

Resources