

**Math-in-CTE Curriculum Map:
STEM (Physics With Technology)**

CTE Course/Unit	CTE Concepts	Math Concepts	Common Core Math Standards Middle School	Common Core Math Standards High School
Energy	Electricity (Ohms law); Using ohmmeters and amp meters; Parallel circuits; Potential and kinetic; $W=VA$; Energy, mass, and weight; $F = ma$ (Newton's 2 nd law); Action and reaction (Newton's 3 rd law); Energy transformation; Energy conservation	Rational expressions; Formulas; Measurement; Vectors; Fractions, ratios, and percentages; Exponents; Equations; Variables; Graphing	6.NS.2; 6.NS.3; 7.NS.1; 7.EE.3; 6.EE.2; 7.EE.1; 7.EE.2; 6.NS.1; 7.NS.2; 7.NS.3; 6.RP.2; 6.RP.3; 7.EE.2; 6.RP.1; 7.RP.1; 7.RP.2; 7.RP.3; 6.EE.1; 8.EE.1; 8.EE.2; 8.EE.3	A.APR.1; A.APR.7; N.RN.3; N.Q.1; A.REI.1; A.REI.2; N.VM.3; N.VM.4; N.VM.5; N.Q.1; N.Q.2; G.MG.3; F.BF.5; S.ID.6; F.LE.2; F.LE.3
Work	Pulley systems; Cranes; Trebuchets; Ramps; Levels; Engines-horsepower calculations	Formulas; Right triangle; Trigonometry; Ratios and proportions; Percentages; Vectors; Unit conversion; Graphing	6.NS.2; 6.NS.3; 7.NS.1; 7.EE.3; 6.EE.2; 7.EE.1; 7.EE.2; 6.RP.2; 6.RP.3; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 6.EE.3; 6.SP.4; 6.SP.5;	A.APR.1; A.APR.7; N.RN.3; N.Q.1; A.REI.1; A.REI.2; N.VM.3; N.VM.4; N.VM.5; N.Q.1; N.Q.2; G.MG.3; G.SRT.6; G.SRT.8; G.SRT.9;

			7.SP.2; 7.SP.3; 7.SP.4; 8.SP.3; 8.SP.4	G.SRT.10; G.SRT.11; F.TF.3; F.TF.5; F.TF.7; S.IC.1; S.IC.2; S.IC.3; S.IC.4; S.IC.5; S.IC.6; S.ID.1
Motion	Determine speed of a spinning fly wheel; Determine velocity of a race car/bullet; Acceleration; Rocket design	Slope; Use of formulas; Unit conversion; Rates; Graphs; Direct and indirect proportionality; Measurement; Manipulating equations; Order of operations; Quadratics; Accumulation of rates	6.NS.2; 6.NS.3; 7.NS.1; 7.EE.3; 6.EE.2; 7.EE.1; 7.EE.2; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 8.G.6; 8.G.7; 8.G.8; 6.EE.2; 6.EE.3; 6.SP.4; 6.SP.5; 7.SP.2; 7.SP.3; 7.SP.4; 8.SP.3; 8.SP.4; 7.EE.3	A.APR.1; A.APR.7; N.RN.3; N.Q.1; A.REI.1; A.REI.2; G.MG.3; G.SRT.6; G.SRT.8; F.IF.8; S.IC.1; S.IC.2; S.IC.3; S.IC.4; S.IC.5; S.IC.6; S.ID.1; A.CED.4; N.CN.7; A.REI.4; F.LE.1; F.LE.2; F.LE.5; F.IF.7; F.IF.8; S.ID.6; F.BF.1
Waves	Reading an oscilloscope; Sound systems; Doppler radar; Optics; EM technology; Lasers; Blu ray; Radio; Cell phone; Microwaves; AC current; Wave interference; Sound cancellation	Exponents ; Scientific notation; Amplitude, frequency and period; Inverse relations; Graphs; Periodic functions; Ratios; Measurement; Imaginary numbers; Angles; Radians and degrees;	6.NS.2; 6.NS.3; 7.NS.1; 7.EE.3; 6.EE.2; 7.EE.1; 7.EE.2; 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 6.EE.1; 8.EE.1; 8.EE.2; 8.EE.3; 8.EE.4; 6.EE.2; 6.EE.3; 6.SP.4; 6.SP.5; 7.SP.2; 7.SP.3; 7.SP.4; 8.SP.3; 8.SP.4	A.APR.1; A.APR.7; N.RN.3; N.Q.1; A.REI.1; A.REI.2; G.MG.3; F.BF.5; S.ID.6; F.LE.2; F.LE.3; S.IC.1; S.IC.2; S.IC.3; S.IC.4; S.IC.5; S.IC.6; S.ID.1

		Formulas		
Force	Using a spring scale; Torque wrench; Drag car; Rockets; Voltage; Measuring pressure; Collisions; Static electricity-coulombs law; Hydraulics; Pneumatics; Temperature; Gravitational forces; Gear ratios; Gin pole	Formulas; Ratios; Inverse; Squares; Proportions; Conversions; Graphing; Vectors; Pythagorean theorem; Measurement (using protractors)	6.NS.2; 6.NS.3; 7.NS.1; 7.EE.3; 6.EE.2; 7.EE.1; 7.EE.2 6.RP.1; 6.RP.2; 6.RP.3; 7.RP.1; 7.RP.2; 7.RP.3; 6.EE.2; 6.EE.3; 6.SP.4; 6.SP.5; 7.SP.2; 7.SP.3; 7.SP.4; 8.SP.3; 8.SP.4; 8.G.6; 8.G.7; 8.G.8	A.APR.1; A.APR.7; N.RN.3; N.Q.1; A.REI.1; A.REI.2; N.VM.3; N.VM.4; N.VM.5; N.Q.1; N.Q.2; G.MG.3; S.IC.1; S.IC.2; S.IC.3; S.IC.4; S.IC.5; S.IC.6; S.ID.1; G.SRT.6; G.SRT.8; F.IF.8