

MARLBORO CENTRAL SCHOOL DISTRICT-CURRICULUM MAP

Subject: Physics

Grade 11-12

Title or Topics (Unit organizing idea)	Concepts (understandings)	Skills (What students actually do)	Major Assessments (Tests, projects, etc.)	Time Frame (Number of weeks)
September Kinematics (5.1a,d,e)	S.I units Frame of reference Linear motion Freefall Graphing motion	Learn experiment/lab design Graph position, velocity and acceleration versus time Black box concept lab Mathematical analysis	Homework Papers Labs Tests & quizzes	4
October Forces (5.1i,j,k,l,m,o,q,t,u)	Newton's laws Friction Gravitation Hooke's Law	Determine coefficients of friction Verify centripetal force Determine force resolution Analyze static and dynamic	Homework Papers Labs Tests & quizzes	4
November 2-D motion (5.1b,c,f,g,h,n,p,r)	Vectors Periodic motion Momentum Centripetal motion Projectile motion	Determine vectors by graph algebraically & components Employ Unit analysis and formula manipulation predict and graph 2-d motion	Homework Papers Labs Tests & quizzes	3 2
December Energy/work/power (4.1a,b,c,d,e,f,g,h,i)	Potential energy Kinetic energy Potential of spring Work in Physics Energy conservation Pendulums Power in Physics	Use the Work/energy relation Determine Hooke's law Employ the Energy/mass relation Determine spring constants Factors in pendulum period	Homework Papers Labs Tests & quizzes	5
January Electricity (4.1j,k,m,n,o,p)	Static electricity Circuits(series/parallel) Ohm's law Kirchoff's laws Current theory Resistance and resistors	Construct parallel and series circuits Determine resistance in circuits Understand factors affecting resistance Graph voltage versus current Draw circuits with resistors and test motors	Homework Papers Labs Tests & quizzes	5

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February Magnetism (4.1,k)(51.s)	Right hand rules (3) Ampere's law Lenz's law Faradays law	Explore the concepts of magnetism Learn the relationships involving current and magnetic fields Map magnetic fields	Homework Papers Labs Tests & quizzes	4
March Waves (4.3a,b,c,d,e,h,i)	Types of waves Reflection /refraction Diffraction Standing waves Superposition	Learn Wave components and wave characteristics Draw wave phenomena Understand Superposition Identify nodes and antinodes in standing waves	Homework Papers Labs Tests & quizzes	4
April Sound Light (4.3g,h,j,k,l,m,n)	Effect of medium on waves Light ray diagrams for: Concave/convex mirrors Convex and concave lenses Snell's Law	Determine the speed of sound Determine the speed of light in glass Determine the index of refraction Draw the path of light rays as they reflect or refract in mirrors and lenses	Homework Papers Labs Tests & quizzes	4
May Modern physics (5.3a,b,c,d,e,f,g,h,i,j)	Standard model Dual nature of light Photoelectric effect Quantum physics Einstein's Special Relativity Particle Physics	Develop an understanding of the problems in Physics at the end of the 1800's Examine the experiments that led to today's concepts Become aware of what is not known	Homework Papers Labs Tests & quizzes	4
June Final material Review Regent's test	Wrap up syllabus material Review course.	Physics overview Learn test taking skills	Worksheets practice	3