

Regents Physics		2005-06	2006-07	2007-08	Total
4. 4.1-Trans. of Energy	4.1a All energy transfers are governed by the law of conservation of energy.	CR63			1
	4.1c Potential energy is the energy an object possesses by virtue of its position or condition. . .	MC13 CR61	MC43 CR66 CR67	MC18 CR53 CR70	8
	4.1d Kinetic energy is the energy an object possesses by virtue of its	MC16	MC11	CR54	3
	4.1e In an ideal mechanical system, the sum of the macroscopic kinetic and potential energies. . .	MC14 MC15 CR62	MC12 CR54	MC45	6
	4.1g When work is done on or by a system, there is a change in the total energy of the system.	MC45		MC17 MC44	3
	4.1h Work done against friction results in an increase in the internal energy of the system.	MC12			1
	4.1i Power is the time-rate at which work is done or energy is expended.	CR60	MC13 MC44	MC19	4
	4.1j Energy may be stored in electric* or magnetic fields. This energy may	MC17		MC23	2
	4.1k Moving electric charges produce magnetic fields. The relative motion between. . .		MC15		1
	4.1l All materials display a range of conductivity. At constant temperature. . .	MC19 CR72	MC16 MC19	MC24 MC46 CR67	7
	4.1m The factors affecting resistance in a conductor are length, cross-sectional area, . . .	MC18 MC43	MC17	CR59 CR60	5

	4.1n A circuit has a closed path in which current can exist.		MC18		1
	4.1o Circuit components may be connected in series or in parallel. . .	MC20 MC21 MC24	CR58	MC20 CR65 CR66	7
	4.1p Electrical power and energy can be determined for electric circuits. . .	MC22 MC23	MC20	MC21 MC47	5
4. 4.3-Wavelength and Freq.	4.3c The model of a wave incorporates the characteristics of amplitude, wavelength. . .	MC25 MC48 CR54 CR70 CR71	MC22 MC23 MC24 MC25 CR49 CR50 CR51	MC25 MC26 MC27 CR61	16
	4.3d Mechanical waves require a material medium through which to		MC27		1
	4.3e Waves are categorized by the direction in which particles in a medium vibrate.	MC33		MC48	2
	4.3f Resonance occurs when energy is transferred to a system at its natural frequency.	MC31	MC28		2
	4.3g Electromagnetic radiation exhibits wave characteristics. . .	MC27 MC49	MC26		3
	4.3h When a wave strikes a boundary between two media, reflection, transmission. . .	MC28			1
	4.3i When a wave moves from one medium into another, the wave may refract due. . .	MC29 CR53	CR68 CR69 CR70 CR71	MC28 CR72 CR73 CR74	10

	4.3j The absolute index of refraction is inversely proportional to the speed of a wave.	MC30 CR52	MC21	MC29	4
	4.3l Diffraction occurs when waves pass by obstacles or through openings. . .		MC29		1
	4.3m When waves of a similar nature meet, the resulting interference may be explained. . .	MC32 MC46	MC30	MC30 MC31	5
	4.3n When a wave source and an observer are in relative motion, the observed frequency. . .		MC31	MC32	2
5. 5.1-Patterns of Motion	5.1a Measured quantities can be classified as either vector or scalar.	CR55	MC01	MC01 MC37 CR55	5
	5.1b A vector may be resolved into perpendicular components.		CR52	MC11 CR57 CR62	4
	5.1c The resultant of two or more vectors, acting at any angle, is determined by vector addition.	MC03 MC04 MC06	MC05 MC06 CR63	MC39 CR56	8
	5.1d An object in linear motion may travel with a constant velocity or with acceleration.	MC01 MC26 CR64 CR65 CR66	MC38 MC39 MC40	MC04 MC07 CR52	11
	5.1e An object in free fall accelerates due to the force of gravity. . .	MC37	MC02	MC02 MC05 CR63	5
	5.1f The path of a projectile is the result of the simultaneous effect of the horizontal and . . .		CR55	CR64	2

5.1g A projectile's time of flight is dependent upon the vertical component of its motion.	MC02 MC44	MC41 CR56	MC06	5
5.1h The horizontal displacement of a projectile is dependent upon. . .		CR57		1
5.1i According to Newton's First Law, the inertia of an object is directly proportional. . .		MC37 CR64 CR65	MC03	4
5.1j When the net force on a system is zero, the system is in equilibrium.			MC09 MC41	2
5.1k According to Newton's Second Law, an unbalanced force causes a mass to accelerate.	MC05		MC08 MC40	3
5.1l Weight is the gravitational force with which a planet attracts a mass.		MC03		1
5.1m The elongation or compression of a spring depends upon the nature of the spring. . .	MC39	MC07	CR68 CR69 CR71	5
5.1n Centripetal force is the net force which produces centripetal acceleration. . .	MC07 MC08	MC04 MC08	MC10 MC13 MC42	7
5.1o Kinetic friction is a force that opposes motion.	CR56	CR53 CR62	MC12	4
5.1p The impulse imparted to an object causes a change in its momentum.	MC09 MC38 MC41		MC14	4
5.1q According to Newton's Third Law, forces occur in action/reaction pairs. .		MC10 CR61	MC15	3
5.1r Momentum is conserved in a closed system.	MC40	MC09 MC42	MC43	4

	5.1s Field strength and direction are determined using a suitable test particle. . .		CR47 CR48		2
	5.1s Field strength and direction are determined using a suitable test particle. . .	MC11 MC42	CR59	MC22 CR58	5
	5.1t Gravitational forces are only attractive, whereas electrical and magnetic forces can. . .	MC10		MC38	2
	5.1u The inverse square law applies to electrical and gravitational fields. . .	MC47 CR68 CR69	MC14	MC16	5
5. 5.3-Energy Relationships	5.3a States of matter and energy are restricted to discrete values	MC50	CR74		2
	5.3b Charge is quantized on two levels. On the atomic level. . .		MC32 MC33	MC33	3
	5.3d The energy of a photon is proportional to its frequency.	MC35 CR57	MC46 CR72	MC49	5
	5.3e On the atomic level, energy and matter exhibit the characteristics of both waves and particles.		MC34		1
	5.3f Among other things, mass-energy and charge are conserved at all levels.			CR75	1
	5.3g The Standard Model of Particle Physics has evolved. . .	MC34 MC51	MC45	MC50 MC51	5
	5.3h Behaviors and characteristics of matter, from the microscopic to the cosmic levels. . .			MC34	1
	5.3i The total of the fundamental interactions is responsible for the appearance. . .	CR67			1

	5.3j The fundamental source of all energy in the universe is the conversion of mass into energy.	CR58	MC35 CR60	MC35 CR76	5
I. Standard 6	I3.2 Extend their use of powers of ten notation to understanding the exponential	MC36	MC36	MC36	3
M. Standard 1	M1.1 Use algebraic and geometric representations to describe and compare data.		CR73		1
S. Standard 1	S3.1 Use various means of representing and organizing observations. . .	CR59			1

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