

## New York Standards Correlation

*Learning Standards for Mathematics, Science and Technology* - New York State Board of Regents  
**Standard 4: Science, Commencement**  
*Physical Setting*

This correlation does not include the standards which are not part of a traditional physics curriculum (e.g. chemistry topics), unless they are covered in the textbook.

	<b>Physics for Scientists and Engineers</b>	<b>Principles of Physics</b>	<b>Conceptual Physics</b>
1. The Earth and celestial phenomena can be described by principles of relative motion and perspective.			
• explain complex phenomena, such as tides, variations in day length, solar insolation, apparent motion of the planets, and annual traverse of the constellations	Chapter 13, 35.11 - 35.12	Chapter 13, 34.8 - 34.9	Chapter 12, 30.6
3. Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.			
• use kinetic molecular theory to explain rates of reactions and the relationships among temperature, pressure, and volume of a substance	Chapter 20	Chapter 20	Chapter 19
4. Energy exists in many forms, and when these forms change energy is conserved.			
• observe and describe transmission of various forms of energy	Chapter 7, 16.1, 16.19, 19.25 - 19.30, 27.18, 33.4, 35.9 - 35.10	Chapter 7, 16.1, 19.22 - 19.27, 27.13, 34.6 - 34.7	Chapter 6, 15.1, 18.17 - 18.20, 25.11
• explain heat in terms of kinetic molecular theory	20.10	20.10	19.9
• explain variations in wavelength and frequency in terms of the source of the vibrations that produce them, e.g., molecules, electrons, and nuclear particles	17.1, 35.1, 42.12	17.1, 34.1, 41.11	16.1, 30.1, 36.9
• explain the uses and hazards of radioactivity	35.1, 44.19 - 44.20	34.1, 43.19 - 43.20	30.1
5. Energy and matter interact through forces that result in changes in motion.			
• explain and predict different patterns of motion of objects (e.g., linear and angular motion, velocity and acceleration, momentum and inertia)	Chapters 2, 4, 5, 6, 8, 9, 10 & 11	Chapters 2, 4, 5, 6, 8, 9, 10 & 11	Chapters 2, 4, 5, 7, 8, 9, & 10
• compare energy relationships within an atom's nucleus to those outside the nucleus	Chapter 44	Chapter 43	Chapter 38