Introductory Physical Science & Force, Motion, and Energy – Correlation with Ohio Academic Content Standards

Benchmark	Standard	IPS Ch. 1	IPS Ch. 2	IPS Ch. 3	IPS Ch. 4	IPS Ch. 5	IPS Ch. 6	IPS Ch. 7	IPS Ch. 8	IPS Ch. 9	IPS Ch. 10	IPS Ch. 11	IPS Ch. 12	FM&E Ch. 1	FM&E Ch. 2	FM&E Ch. 3	FM&E Ch. 4	FM&E Ch. 5	FM&E Ch. 6	FM&E Ch. 7
Physical	By the end of the 6-8 program:									-										
Science	A. Relate uses, properties and chemical processes to the behavior and/or arrangement of the small particles that compose matter.								X			x	X							
	B. In simple cases, describe the motion of objects and conceptually describe the effects of forces on an object.													Х		Х	Х			
	C. Describe renewable and nonrenewable sources of energy (e.g., solar, wind, fossil fuels, biomass, hydroelectricity, geothermal and nuclear energy) and the management of these sources.																			
	D. Describe that energy takes many forms, some forms represent kinetic energy and some forms represent potential energy; and during energy transformations the total amount of energy remains constant.																		x	х
	By the end of the 9-10 program:																			
	A. Describe that matter is made of minute particles called atoms and atoms are comprised of even smaller components. Explain the structure and properties of atoms.								X	X		x	x							
	B. Explain how atoms react with each other to form other substances and how molecules react with each other or other atoms to form even different substances.								Х	Х		х	x							
	C. Describe the identifiable physical properties of substances (e.g., color, hardness, conductivity, density, concentration, ductility). Explain how changes in these properties can occur without changing the chemical nature of the substance.			x	x															
	D. Explain the movement of objects by applying Newton's three laws of motion.													Х		X	Х			
	E. Demonstrate that energy can be considered to be either kinetic (motion) or potential (stored).																			х

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Science and Technology	By the end of the 6-8 program: A. Give examples of how technological advances, influenced by scientific knowledge, affect the quality of life.				X			x												
	B. Design a solution or product taking into account needs and constraints (e.g., cost, time, trade-offs, properties of Materials, safety, aesthetics).																			
	By the end of the 9-10 program:																			
	A. Explain the ways in which the processes of technological design respond to the needs of society.																			
	B. Explain that science and technology are interdependent; each drives the other.																			
Scientific	By the end of the 6-8 program:																			
Inquiry	A. Explain that there are differing sets of procedures for guiding scientific investigations and procedures are determined by the nature of the investigation, safety considerations and appropriate tools.	x	X	x	X	X	x	x	X	X	x	x	x	X	x	X	X	x	X	X
	B. Analyze and interpret data from scientific investigations using appropriate mathematical skills in order to draw valid conclusions.	х	х	х	X	x	х	x	X	x	х	х	х	X	х	х	х	x	X	х
	By the end of the 9-10 program:																			
	A. Participate in and apply the processes of scientific investigation to create models and to design, conduct, evaluate and communicate the results of these investigations.	x	X	x	X	X	x	x	X	X	x	x	X	X	x	X	x	x	X	x
Scientific	By the end of the 6-8 program:																			
Ways of Knowing	A. Use skills of scientific inquiry processes (e.g., hypothesis, record keeping, description, explanation).	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	B. Explain the importance of reproducibility and reduction of bias in scientific methods.	Х	х	X	X	X	X	X	X	Х	х	Х	X	X	х	X	X	x	X	х
	C. Give examples of how thinking scientifically is helpful in daily life.	Х	х	X	X	X	X	Х	X	X	Х	Х	X	X	X	X	X	х	X	х
	By the end of the 9-10 program:																			
	A. Explain that scientific knowledge must be based on evidence, be predictive, logical, subject to modification and limited to the natural world.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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	B. Explain how scientific inquiry is guided by knowledge, observations, ideas and questions.	X	X	X	X	X	X	X	Х	Х	X	X	X	X	X	X	X	X	X	X
	C. Describe the ethical practices and guidelines in which science operates.	X	X	X	X	X	X	X	Х	X	X	X	х	X	X	X	X	X	X	X
	D. Recognize that scientific literacy is part of being a knowledgeable citizen.	Х	Х	Х	Х	Х	Х	Х	Х	Х	X	X	х	Х	X	Х	Х	X	Х	Х