NATIONAL STANDARDS AND BENCHMARKS



NATIONAL STANDARDS	BENCHMARKS	1	2	3
Understands the composition and structure of the universe and the earth's place in it	e Grades 6-8			
	Knows that the planet Earth and our solar system appear to be somewhat unique, although similar systems might yet be discovered in the universe	•		
	Grades 9–12			
	Knows ways in which technology has increased our understanding of the universe	٠	٠	
	Knows that although the origin of the universe remains one of the greatest questions in science, current scientific evidence supports the Big Bang theory	•		
Understands the sources and properties of ener			_	
	Knows that energy is a property of many substances	•	•	
	Grades 9–12			
	Knows that all energy can be considered to be either kinetic energy (energy of motion), potential energy (depends on relative position), or energy contained by a field (electromagnetic waves)		•	
Understands forces in motion	Grades 6-8			
	Knows that an object's motion can be described and represented graphically according to its position, direction of motion, and speed		•	,
	Grades 9–12			
	Knows that laws of motion can be used to determine the effects of forces on the motion of objects		•	1
MATH Uses a variety of strategies in the problem-solvir	Ig Grades 6-8			
process	Understands the role of written symbols in representing mathematical ideas and the use of precise language in			
	conjunction with the special symbols of mathematics			
	Grades 9–12			
Understands and applies basic and advanced co	Understands the components of mathematical modeling Oncepts Grades 6–8			-
of statistics and data analysis				
	Organizes and displays data using tables, graphs, frequency distributions, and plots		•	
	Uses data and statistical measures for a variety of purposes		•	
	Grades 9–12 Selects and uses the best method of representing and describing a set of data		•	
	Understands how the reader's bias, measurement error, and display distortion can affect the interpretation of data			
Understands and applies basic and advanced pr				
of the concepts of measurement			_	
	Selects and uses appropriate units and tools, depending on degree of accuracy required, to find measurements for real-world problems			
	Grades 9-12			
	Solves problems involving rate as a measure (e.g., speed, density)			
TECHNOLOGY	Grades 6-8			
TECHNOLOGY Understands the relationships among science, technology, society, and the individual	Grades 6-8			
Understands the relationships among science,	Knows ways in which technology and society influence one another	•		
Understands the relationships among science,	Knows ways in which technology and society influence one another Grades 9–12			
Understands the relationships among science, technology, society, and the individual	Knows ways in which technology and society influence one another Grades 9–12 Knows examples of advanced and emerging technologies and how they could have an impact on society	•		
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Sources: NCTE (National Council of Teachers of English), IRA (International Reading Association), McREL (Mid-Continent Research for Education and Learning)