

National Science Education Standards for Ocean Literacy as Supported by NOAA Teacher at Sea Program

All Cruises Support All Levels (K-12) of These NSES Standard Sub-categories

Systems, Order and Organization
Evidence, Models and Investigation
Change, Constancy and Measurement
Evolution and Equilibrium
Form and Function

NSES Standards by Color

Unifying Concepts and Processes Earth and Space Life Science Physical Science	History of Nature and Science Personal and Social Perspectives Science and Technology Science as Inquiry
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All Cruises	Oceanographic & Atmospheric Cruises	Hydrographic Survey Cruises	Fisheries Research Cruises
Elementary School NSES Standard Sub-categories			
Properties of Earth Materials (1ade; 2ad; 4a; 5ef; 6b; 7c) Organisms and Environments (1acdg; 2ae; 3bcefg; 4ab; 5abdefghi; 6eg; 7bc) Science as a Human Endeavor K-12 (6bcdg; 7abcdef) Types of Resources (1h; 3d; 4a; 6abceg; 7bc) Changes in Environments (1dgh; 2cd; 3cfg; 6defg; 7bcf) Science and Technology in Local Challenges (3ac; 6beg; 7abcdef) Abilities of Technological Design (7ade) Understanding About Science and Technology (All Principles) Abilities Necessary to Do Scientific Inquiry K-12 (7abdf) Understanding About Scientific Inquiry K-12 (All Principles)	Objects in the Sky (3ab) Changes in Earth and Sky (1bd; 2abcde; 6af; 7d) Properties of Objects and Materials (1bdef; 3d) Position and Motion of Objects (1cd)	Objects in the Sky (1d) Changes in Earth and Sky (1bcdefg; 5abcdfg; 6af; 7de) Properties of Objects and Materials (1bd; 2ad) Position and Motion of Objects (1d; 2cd) Characteristics and Changes in Populations (6d)	Characteristics of Organisms (4ab; 5acdfh; 6a; 7a) Life Cycles of Organisms (5bdi)
Middle School NSES Standard Sub-categories			
Structure of the Earth System (1abcdefgh; 2abcde; 3abcdfg; 4a; 5b; 6a; 7abe) Earth's History (1bcdfg; 2abcde; 3cfg; 4ab; 5cef; 6a; 7e) Transfer of Energy (1acde; 2e; 3abcdfg; 4a; 5bdfg) Science as a Human Endeavor K-12 (6bcdg; 7abcdef) Nature of Scientific Knowledge 5-12 (3cf; 6c; 7abdef) History of Science (2e; 6c; 7cf) Populations, Resources and Environments (1h; 6be; 7c) Natural Hazards (1bd; 2cde; 3abcf; 6def; 7ce) Risks and Benefits (6efg; 7bde) Science and Technology in Society (3ac; 6beg; 7abcdef) Abilities of Technological Design (7ade) Understanding About Science and Technology (All Principles) Abilities Necessary to Do Scientific Inquiry K-12 (7abdf) Understanding About Scientific Inquiry K-12 (All Principles)	Earth in the Solar System (1cdf; 3abdf) Properties and Changes of Properties in Matter (1cef) Motions and Forces (1bcg; 3g)	Earth in the Solar System (1d) Motions and Forces (1b; 2bd)	Structure and Function in Living Systems (5ab) Reproduction and Heredity (5bcd) Regulation and Behavior Populations and Ecosystems (5bdefghi; 6abe; 7c) Diversity and Adaptations of Organisms (4b; 5abcdfghi)
High School NSES Standard Sub-categories			
Origin and Evolution of the Earth System (1abcd; 2abce; 3abcdfg; 4ab; 7bdef) Science as a Human Endeavor K-12 (6bcdg; 7abcdef) Nature of Scientific Knowledge 5-12 (3cf; 6c; 7abdef) Historical Perspectives (2e; 5g; 7cf) Personal and Community Health (3c; 6befg) Population Growth (1h; 6bde; 7c) Natural Resources (1h; 6abcde; 7bc) Environmental Quality (1fgh; 3ab; 4a; 5eh; 6abeg; 7bcf) Nature and Human-Induced Hazards (1d; 2cde; 3acf; 6bef; 7abc) Science and Technology in Local, National and Global Challenges (1d; 2cde; 3cf; 6befg; 7abcdef) Abilities of Technological Design (7ade) Understanding About Science and Technology (All Principles) Abilities Necessary to Do Scientific Inquiry K-12 (7abdf) Understanding About Scientific Inquiry K-12 (All Principles)	Energy in the Earth System (1abd; 7bd) Geochemical Cycles (1cef; 3aef; 4a; 7de) Structure and Properties of Matter (1ef; 3e) Chemical Reactions (5g) Motions and Forces (1ce; 2e) Conservation in Energy and Increases in Disorder (1df; 3bcfg) Interactions of Energy and Matter (1bcde)	Energy in the Solar System (1bcd; 3abcdfg; 7bde) Geochemical Cycles (1a; 2a; 7d) Motions and Forces (1ce; 2e) Conservation in Energy and Increases in Disorder (1d) Interactions of Energy and Matter (1bd; 2cde)	Interdependence of Organisms (1h; 4a; 5bdegi; 6eg; 7c) Behavior of Organisms (5d) Matter, Energy and Organization in Living Systems (1h; 5efghi) Biological Evolution (4b; 5abcdfghi; 7a) The Cell (4a; 5b) Chemical Reactions (5g)