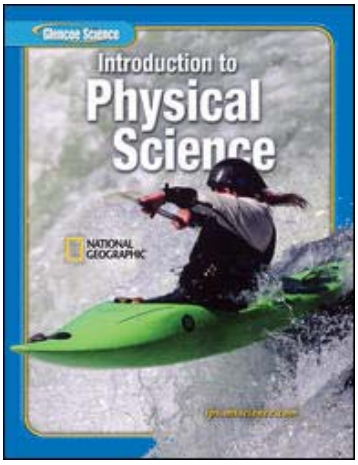
Glencoe

Essential Academic
Learning Requirements
Grade Level Expectations 6/7/8

Washington



Introduction to Physical Science

STANDARDS	PAGE REFERENCES
EALR 1 — SYSTEMS: The student knows and applies scientific concepts and principles to understand the properties, structures, and changes in physical, earth/space, and living systems.	
Component 1.1 Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects and how characteristics are used to categorize living things.	
Physical Systems	
1.1.1 Properties of Substances	
Understand how to use physical and chemical properties to sort and identify substances. W	**Student Edition:** 89-90, 134-142 *Design Your Own Lab* 150-151 *Lab* 92-93 *Launch Lab* 133 *Section Review* 138 #4 **Teacher Wraparound Edition:** A 91; DI 89, 140; QD 90
1.1.2 Motion of Objects	
Understand the positions, relative speeds, and changes in speed of objects. W	**Student Edition:** 282-286 *Design Your Own Lab* 300-301 *MiniLab* 285 *Section Review* 287 #2 **Teacher Wraparound Edition:** A 283, 287; DI 286; R 287

Codes used for Teacher Wraparound Edition pages are the initial caps of headings on that page.

STANDARDS	PAGE REFERENCES
1.1.3 Wave Behavior	
Understand sound waves, water waves, and light waves using wave properties, including amplitude, wavelength, and speed. Understand wave behaviors, including reflection, refraction, transmission, and absorption. W	**Student Edition:** 462-471, 473-475, 490-494, 550-552 *Design Your Own Lab* 480-481 *Lab* 500, 534 **Teacher Wraparound Edition:** A 479; QD 470; R 499
1.1.4 Forms of Energy	
Understand that energy is a property of matter, objects, and systems and comes in many forms (i.e., heat [thermal] energy, sound energy, light energy, electrical energy, kinetic energy, potential energy, and chemical energy). W	**Student Edition:** 107-108, 196-199, 374-378, 490-491, 520 *Lab* 386 **Teacher Wraparound Edition:** IL 375; LD 492; R 385; SJ 377
EALR 1 — SYSTEMS: The student knows and applies scientific concepts and principles to understand the properties, structures, and changes in physical, earth/space, and living systems.	
Component 1.2 Structures: Understand how components, structures, organizations, and interconnections describe systems.	
Systems Structure	
1.2.1 Structure of Physical Earth/Space and Living Systems	
Analyze how the parts of a system interconnect and influence each other. W	**Student Edition:** 8-9 *Design Your Own Lab* 424-425 *Lab* 632-633, 648 *Science Online* 358 **Teacher Wraparound Edition:** A 447, 657; AIL 604; QD 8; R 423
1.2.2 Energy Transfer and Transformation	
Understand how various factors affect energy transfers and that energy can be transformed from one form of energy to another. W	**Student Edition:** 379-385, 438-442 *Design Your Own Lab* 450-451 *Lab* 386 *MiniLab* 381 **Teacher Wraparound Edition:** D 383; LD 380; MM 442; QD 381; SJ 198

STANDARDS	PAGE REFERENCES
1.2.3 Structure of Matter	
Understand that all matter is made of particles called atoms and that atoms may combine to form molecules and that atoms and molecules can form mixtures. W	**Student Edition:** 72-74, 87-91, 173-174, 218-220 *Lab* 92-93 *MiniLab* 173 **Teacher Wraparound Edition:** A 79, 90; D 89; QD 220
Component 1.3 Changes: Understand how interactions within and among systems cause changes in matter and energy.	
Physical Systems	
1.3.1 Nature of Force	
Understand factors that affect the strength and direction of forces. W	**Student Edition:** 310-319, 348-354, 406-407 *Lab* 355 **Teacher Wraparound Edition:** A 312, 359; D 353; QD 312; VL 318
1.3.2 Forces to Explain Motion	
Understand how balanced and unbalanced forces can change the motion of objects. W	**Student Edition:** 311, 348-349 *Section Review* 315 #5 **Teacher Wraparound Edition:** CC 311; CU 315; TPK 348
1.3.3 Conservation of Matter and Energy	
Understand that matter is conserved during physical and chemical changes. W	**Student Edition:** 74, 194 *MiniLab* 194 *Section Review* 79 #5, 199 #3 **Teacher Wraparound Edition:** DI 195; LD 75

STANDARDS	PAGE REFERENCES
EALR 2 — INQUIRY: The student knows and applies the skills, processes, and nature of scientific inquiry.	
Component 2.1 Investigating Systems: Develop the knowledge and skills necessary to do scientific inquiry.	
Investigating Systems	
2.1.1 Questioning	
Understand how to generate a question that can be answered through scientific investigation. W	**Student Edition:** 12-15 *Chapter Review* 335 #29 *Design Your Own Lab* 124-125, 450-451 *Section Review* 11 #5 **Teacher Wraparound Edition:** A 588; AIL 208, 632; IL 17, 344
2.1.2 Planning and Conducting Safe Investigations	
Understand how to plan and conduct scientific investigations. W	**Student Edition:** 12-18 *Design Your Own Lab* 150-151, 330-331, 450-451 *Lab* 32-33 **Teacher Wraparound Edition:** A 23; AIL 208; IL 17, 344; QD 18
2.1.3 Explaining	
Apply understanding of how to construct a scientific explanation using evidence and inferential logic. W	**Student Edition:** 16 *Applying Science* 111, 352 *Design Your Own Lab* 450-451, 540-541 *Lab* 31, 32-33 **Teacher Wraparound Edition:** A 297, 603; CYD 331
2.1.4 Modeling	
Analyze how models are used to investigate objects, events, systems, and processes. W	**Student Edition:** 21-26, 74-79 *Lab* 411, 604-605 *MiniLab* 254 *Model and Invent Lab* 180-181 **Teacher Wraparound Edition:** D 75; IL 77; MM 597, 646

STANDARDS	PAGE REFERENCES
2.1.5 Communicating	
Apply understanding of how to report investigations and explanations of objects, events, systems, and processes. W	**Student Edition:** *Communicating Your Data* 500, 573 *Design Your Own Lab* 60-61, 450-451 *Integrate Career* 13 **Teacher Wraparound Edition:** A 55, 151; CYD 425; DI 28; MM 394
Component 2.2 Nature of Science: Understand the nature of scientific inquiry.	
Nature of Science	
2.2.1 Intellectual Honesty	
Apply curiosity, honesty, skepticism, and openness when considering explanations and conducting investigations. W	**Student Edition:** 14, 27-30 *Communicating Your Data* 425 *MiniLab* 14 **Teacher Wraparound Edition:** A 24, 26; CYD 633; QD 29
2.2.2 Limitations of Science and Technology	
Understand that scientific theories explain facts using inferential logic. W	**Student Edition:** 7 *Section Review* 11 #1 **Teacher Wraparound Edition:** D 7
2.2.3 Evaluating Inconsistent Results	
Analyze inconsistent results from scientific investigations to determine how the results can be explained. W	**Student Edition:** *Communicating Your Data* 151, 209, 271, 451, 481 **Teacher Wraparound Edition:** CYD 541, 648
2.2.4 Evaluating Methods of Investigation	
Understand how to make the results of scientific investigations reliable and how to make the methods of investigation valid. W	**Student Edition:** 28-29, 42-49 *Design Your Own Lab* 60-61 *Lab* 32-33 *MiniLab* 44 **Teacher Wraparound Edition:** D 15, 29; IL 48; R 30, 49

STANDARDS	PAGE REFERENCES
2.2.5 Evolution of Scientific Ideas	
Understand that increased comprehension of systems leads to new inquiry. W	**Student Edition:** 16, 74-79 *Communicating Your Data* 271 **Teacher Wraparound Edition:** AIL 124, 208, 480, 540, 632; IL 141, 526
EALR 3 — APPLICATION: The student knows and applies science concepts and skills to develop solutions to human problems in societal contexts.	
Component 3.1 Designing Solutions: Apply knowledge and skills of science and technology to design solutions to human problems or meet challenges.	
Designing Solutions	
3.1.1 Identifying Problems	
Analyze common problems or challenges in which scientific design can be or has been used to design solutions. W	**Student Edition:** *Design Your Own Lab* 124-125, 300-301 *Lab* 411, 632-633 *Science and Society* 452 *Science Online* 219, 358 **Teacher Wraparound Edition:** AIL 150; DI 382, 446
3.1.2 Designing and Testing Solutions	
Apply the scientific design process to develop and implement solutions to problems or challenges. W	**Student Edition:** *Design Your Own Lab* 124-125, 300-301, 424-425 **Teacher Wraparound Edition:** A 329, 449, 633; DI 390; IL 418; MM 442
3.1.3 Evaluating Potential Solutions	
Analyze multiple solutions to a problem or challenge. W	**Student Edition:** *Applying Science* 89 *Design Your Own Lab* 300-301 *Lab* 31, 411 *Science and History* 94 **Teacher Wraparound Edition:** A 166; AIL 396, 604; MM 442, 597

STANDARDS	PAGE REFERENCES
Component 3.2 Science, Technology, and Society: Analyze how science and technology are human endeavors, interrelated to each other, society, the workplace, and the environment.	
Science, Technology, and Society	
3.2.1 All Peoples Contribute to Science and Technology	
Analyze how science and technology have been developed, used, and affected by many diverse individuals, cultures, and societies throughout human history.	**Student Edition:** 73-79 *Integrate History* 569 *National Geographic* 82 *Science and History* 34, 542 **Teacher Wraparound Edition:** CC 384, 597; CD 448; HS 94; SJ 446
3.2.2 Relationship of Science and Technology	
Analyze scientific inquiry and scientific design and understand how science supports technological development and vice versa. W	**Student Edition:** 11, 356-361, 445-449, 535-539, 567-571, 649-659 *Standardized Test Practice* 39 #15 **Teacher Wraparound Edition:** A 539; DI 446; SJ 656
3.2.3 Careers and Occupations Using Science, Mathematics, and Technology	
Analyze the use of science, mathematics, and technology within occupational/career areas of interest.	**Student Edition:** *Integrate Astronomy* 496 *Integrate Career* 78, 148, 229, 264, 352, 448 *Integrate Life Science* 311 *National Geographic* 532 **Teacher Wraparound Edition:** AIL 424
3.2.4 Environmental and Resource Issues	
Analyze how human societies' use of natural resources affects the quality of life and the health of ecosystems. W	**Student Edition:** 387-395, 443, 530 *National Geographic* 234 *Science and History* 152 *Use the Internet Lab* 396-397 **Teacher Wraparound Edition:** A 234; QD 8