

Science Textbook Correlation Matrices
Grade Six Standards of Learning
Publisher: Glencoe/McGraw-Hill

**Text/Instructional Material Title: Glencoe Science: An Introduction to Life, Earth,
and Physical Science ©2003**

Science Standard	Correlation By Page Numbers Make all correlations using the teacher text. Identify only <i>significant</i> areas of correlation. Use each bullet of the standard in the context of the stem. Please consult the 2003 Science Curriculum Framework for further information about each standard.
6.1 The student will plan and conduct investigations in which	
a) observations are made involving fine discrimination between similar objects and organisms;	46, 71, 75, 154, 226, 239, 273, 411, 444, 472
b) a classification system is developed based on multiple attributes;	48, 411
c) precise and approximate measures are recorded;	94–95, 139, 150, 267, 271, 273, 326, 330–331, 444, 450–451
d) scale models are used to estimate distance, volume, and quantity;	139, 377, 444
e) hypotheses are stated in ways that identify the independent (manipulated) and dependent (responding) variables;	40, 94–95, 160–161, 330, 356–357, 418, 472
f) a method is devised to test the validity of predictions and inferences;	78–79, 94–95, 127, 160–161, 220–221, 247, 303, 331, 357, 418–419, 473, 509
g) one variable is manipulated over time with many repeated trials;	94–95, 160–161, 326, 418–419, 451
h) data are collected, recorded, analyzed, and reported using appropriate metric measurement;	94–95, 139, 326, 331, 444, 451
i) data are organized and communicated through graphical representation (graphs, charts, and diagrams);	48, 71, 94–95, 127, 161, 309, 331, 357
j) models are designed to explain a sequence; and	302–303, 326, 352, 381, 444, 478
k) an understanding of the nature of science is developed and reinforced.	This objective is addressed throughout. See for example: 48, 104–105, 154, 196, 247, 302–303, 348, 390–391, 444, 501

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6.2 The student will investigate and understand basic sources of energy, their origins, transformations, and uses. Key concepts include	
a) potential and kinetic energy;	322–323, 324, 325, 326
b) the role of the sun in the formation of most energy sources on Earth;	155
c) nonrenewable energy sources (fossil fuels, including petroleum, natural gas, and coal);	182, 184, 338
d) renewable energy sources (wood, wind, hydro, geothermal, tidal, and solar); and	181, 338–339, 367
e) energy transformations (heat/light to mechanical, chemical, and electrical energy).	320–321, 322, 346–348

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6.3 The student will investigate and understand the role of solar energy in driving most natural processes within the atmosphere, the hydrosphere, and on the Earth’s surface. Key concepts include	
a) the Earth’s energy budget;	182, 338–339
b) the role of radiation and convection in the distribution of energy;	334, 336–337
c) the motion of the atmosphere and the oceans;	482–483, 486–487, 504, 505, 506
d) cloud formation; and	468–469
e) the role of heat energy in weather-related phenomena including thunderstorms and hurricanes.	504, 505–506, 507, 510–511

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6.4 The student will investigate and understand that all matter is made up of atoms. Key concepts include	
a) atoms are made up of electrons, protons, and neutrons;	218, 219, 220–221, 222
b) atoms of any element are alike but are different from atoms of other elements;	216, 223
c) elements may be represented by chemical symbols;	224
d) two or more atoms may be chemically combined;	223, 225, 227
e) compounds may be represented by chemical formulas;	227
f) chemical equations can be used to model chemical changes; and	The opportunity to address this objective is available. See the following: 227, 255–256, 257
g) a limited number of elements comprise the largest portion of the solid Earth, living matter, the oceans, and the atmosphere.	223, 255

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6.5 The student will investigate and understand the unique properties and characteristics of water and its roles in the natural and human-made environment. Key concepts include	
a) water as the universal solvent;	The opportunity to address this objective is available. See the following: 255–256
b) the properties of water in all three states;	250, 253
c) the action of water in physical and chemical weathering;	254–255
d) the ability of large bodies of water to store heat and moderate climate;	483, 515
e) the origin and occurrence of water on Earth;	468–469, 471
f) the importance of water for agriculture, power generation, and public health; and	322, 470–471, 474
g) the importance of protecting and maintaining water resources.	183, 190–191

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6.6 The student will investigate and understand the properties of air and the structure and dynamics of the Earth’s atmosphere. Key concepts include	
a) air as a mixture of gaseous elements and compounds;	228, 496
b) air pressure, temperature, and humidity;	499–500, 501, 504, 515
c) how the atmosphere changes with altitude;	498, 499
d) natural and human-caused changes to the atmosphere;	496–497, 498, 503, 504, 505–506
e) the relationship of atmospheric measures and weather conditions;	512–513
f) basic information from weather maps including fronts, systems, and basic measurements; and	The opportunity to address this objective is available. See the following: 505–506, 512–513
g) the importance of protecting and maintaining air quality.	192, 193, 496–497, 498

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6.7 The student will investigate and understand the natural processes and human interactions that affect watershed systems. Key concepts include	
a) the health of ecosystems and the abiotic factors of a watershed;	150, 152, 153, 154–155, 156
b) the location and structure of Virginia’s regional watershed systems;	The opportunity to address this objective is available. See the following: 148–149, 152–155
c) divides, tributaries, river systems, and river and stream processes;	476, 477, 479–480
d) wetlands;	The opportunity to address this objective is available. See the following: 148–149, 152–155
e) estuaries;	The opportunity to address this objective is available. See the following: 476–477
f) major conservation, health, and safety issues associated with watersheds; and	183, 191, 202
g) water monitoring and analysis using field equipment including hand-held technology.	This objective falls outside the scope of <i>Glencoe Science: An Introduction to the Life, Earth and Physical Sciences</i> .

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6.8 The student will investigate and understand the organization of the solar system and the relationships among the various bodies that comprise it. Key concepts include	
a) the, sun, moon, Earth, other planets and their moons, meteors, asteroids, and comets;	378–379, 380, 381, 382–383, 384–385, 386, 387–388, 389, 392
b) relative size of and distance between planets;	384–385, 386
c) the role of gravity;	The opportunity to address this objective is available. See the following: 378, 379
d) revolution and rotation;	378, 379
e) the mechanics of day and night and phases of the moon;	378, 380, 381
f) the unique properties of Earth as a planet;	389
g) the relationship of the Earth’s tilt and seasons;	379
h) the cause of tides; and	486–487
i) the history and technology of space exploration.	394, 398

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6.9 The student will investigate and understand public policy decisions relating to the environment. Key concepts include	
a) management of renewable resources (water, air, soil, plant life, animal life);	98, 134, 166, 191, 193, 424–425
b) management of nonrenewable resources (coal, oil, natural gas, nuclear power, mineral resources);	The opportunity to address this objective is available. See the following: 182, 338–339
c) the mitigation of land-use and environmental hazards through preventive measures; and	The opportunity to address this objective is available. See the following: 186–187, 190–191, 192–194, 195–199
d) cost/benefit tradeoffs in conservation policies.	The opportunity to address this objective is available. See the following: 185, 338–339

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Additional Criteria	Evidence Please provide information that will assist the reviewers in identifying support for the following criterion indicators.
<p>1. Safe use of materials and equipment is encouraged.</p>	<p>Emphasis on safety begins inside the front cover with a chart of safety symbols and their meanings. All Explore Activities, MiniLABs, and Activities contain safety symbols and safety precautions as needed. Pages 22-23 and Appendix C provide additional instruction. In the teacher’s edition, laboratory safety and chemical storage and disposal are discussed on pages 44T-45T.</p>
<p>2. Materials emphasize the use of effective instructional practices and learning theories.</p> <ul style="list-style-type: none"> • Students are guided through different approaches such as the learning cycle. • Students are provided the opportunity to conduct scientific inquiry appropriate for their age, grade, and maturity. • Concepts are introduced through concrete experiences. • Students are required to use manipulative materials during investigations and activities. • Multiple opportunities are provided for students to apply concepts. • Learning activities offer opportunities for students to revise their prior knowledge and create new knowledge. • Students are encouraged to pose questions and to identify problems, as well as propose multiple solutions and design and conduct tests of inference. • Students collect and interpret data through a variety of technologies and draw conclusions based on that data. 	<p>The teacher wraparound edition is organized around Prepare and a four-step learning cycle—1. Motivate, 2. Teach, 3. Assess, and 4. Close.</p> <p>All chapters and activities are reviewed by teachers for grade-level appropriateness.</p> <p>The Explore Activity at the beginning of each chapter introduces the lesson and ensuing content.</p> <p>MiniLABs and Activities introduce or reinforce content using a wide variety of materials and equipment.</p> <p>Students apply concepts in MiniLABs, Activities, Problem Solving (such as pages 47 and 105), and in the Thinking Critically questions in Section Wrap Ups and Chapter Reviews.</p> <p>Design Your Own Experiment Activities (such as pages 220-221) provide opportunities to use prior knowledge and newly acquired information in order to pose questions, form hypotheses, and design investigations. Data collection and analysis allow students to draw conclusions, create new knowledge, and revise prior knowledge.</p>

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Additional Criteria	Evidence Please provide information that will assist the reviewers in identifying support for the following criterion indicators.
<p>3. Materials present content in an accurate, unbiased manner, and are based on sound science.</p> <ul style="list-style-type: none"> • Materials do not contain content errors (omissions of current content, out-of-date content, overgeneralizations, etc.). • Materials do not contain production errors (misspelled words, word omissions, incorrect answers). • Diverse groups (racial, ethnic, cultural, linguistic), males and females, people with disabilities, and people of all ages are represented appropriately. • The materials are free of non-scientific explanation. 	<p>All Glencoe student and teacher editions are written and edited by content experts. The chapters are verified by fact-checkers. In addition, the books are reviewed and critiqued by teachers of the appropriate grade level, safety consultants, post-secondary level content consultants, and other specialists.</p> <p>All materials are checked for production errors by experienced proofers and production editors.</p> <p>Art and photos reflect diversity according to percentages based on US Census data. Inclusion Strategies in the teacher edition provide alternatives for meeting individual needs. Cultural Diversity features within the teacher edition broaden student awareness. People and Science features in the student edition highlight individuals from diverse cultures and ethnic backgrounds.</p> <p>Explanations are based in scientific fact.</p>

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<p>4. Materials promote student assessment as an integral part of the instructional process.</p> <ul style="list-style-type: none"> • Assessment suggestions and scoring criteria for student performances on work such as lab practicals or tasks, concept maps, research projects, observation checklists, etc., are provided. • Assessment items include multiple-choice, short answer, essay and open-ended questions with charts, graphs, and diagrams imbedded within the items. • Options include techniques for assessing students' prior knowledge. • Assessment items reflect the rigor and the intent of the standards. For example, they require students to use higher order thinking skills to apply, analyze, synthesize, evaluate, and make judgments or recommendations. 	<p>The student and teacher edition contain numerous opportunities for assessment. Student edition: Science Journal, MiniLAB analysis, Conclude and Apply in Activities, Section Wrap-up, Problem Solving, Skill Builder Applying the Skill, caption questions, and end of chapter Review and Skill Review. Teacher edition: ✓ Assessment (authentic, portfolio, and performance), Discussion, Check for Understanding, and Mini-Quiz. The teacher's edition contains teaching strategies, sample data, and answers to aid teachers in scoring student performance.</p> <p>Chapter Reviews contain a variety of assessment items. For examples see pages 28-29, 58-59, 86-87, and 235.</p> <p>Correlations to the National Science Standards are presented on teacher edition pages 10T-11T. Students develop and apply higher order thinking skills throughout. For examples, see pages 26, 28-29, 83, 86-87, 173, and 234-235.</p>

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<p>5. Materials are presented in an organized, logical manner and are appropriate for the age, grade, and maturity of the students.</p> <ul style="list-style-type: none"> • Materials are organized appropriately within and among units of study. • Format design includes titles, subheadings, and appropriate cross-referencing for ease of use. • Writing style, length of sentences, and vocabulary are appropriate. • Graphics and illustrations are appropriate. • Level of abstraction is appropriate, and real life examples, including careers are provided. • Sufficient applications are provided to promote depth of understanding. 	<p>Student edition is reviewed by teachers for grade-level appropriateness. Four major themes of energy, systems and interactions, scale and structure, and stability and change are developed in the student edition and discussed throughout the teacher edition. See page 15T in the teacher edition.</p> <p>Each chapter is divided into two to four sections. Each section is organized by titles and subheads that help students outline the main ideas.</p> <p>All chapters were checked for grade-level readability by Swinburne Readability Laboratory.</p> <p>Graphics and illustrations provide age-appropriate information that helps students visualize the abstract (pages 65, 66-67, 168-169, 252-253), connect their everyday lives to science (151, 252, 256, 267) and careers (286, 311, 490), and demonstrate applications (274, 276-277, 282).</p>