

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.
PS.1 The student will plan and conduct investigations in which	
a) chemicals and equipment are used safely;	34T–35T, 27, 81, 99, 216–217, 474–475, 534–535, 594–595, 607, 621, 826
b) length, mass, volume, density, temperature, weight, and force are accurately measured and reported using the International System of Units (SI - metric);	4F, 5, 15–19, 21, 52–53, 68–69, 77–78, 113, 158–159, 179, 489, 504–507, 533, 719–721
c) conversions are made among metric units applying appropriate prefixes;	14–15, 593, 816, 827
d) triple beam and electronic balances, thermometers, metric rulers, graduated cylinders, and spring scales are used to gather data;	5, 15, 17, 20–21, 28–29, 53, 160–161, 215, 365–366, 493, 805–806
e) numbers are expressed in scientific notation where appropriate;	The opportunity to address this objective is available. See the following: 14–21, 28–29, 816–823
f) research skills are utilized using a variety of resources;	7–8, 18, 41, 76, 102, 175, 198, 214, 262, 365, 464, 689, 716, 739, 798
g) independent and dependent variables, constants, controls, and repeated trials are identified;	9–10, 22–23, 802–811
h) data tables showing the independent and dependent variables, derived quantities, and the number of trials are constructed and interpreted;	6–11, 19, 22–27, 802–811
i) data tables for descriptive statistics showing specific measures of central tendency, the range of the data set, and the number of repeated trials are constructed and interpreted;	The opportunity to address this objective is available. See the following: 28–29, 170, 395, 442–443, 786–787, 802–813
j) frequency distributions, scattergrams, line plots, and histograms are constructed and interpreted;	23–24, 806, 809–810, 813–815, 822–823
k) valid conclusions are made after analyzing data;	10, 348–349, 402, 454, 456, 458, 460, 463–464, 727–728, 787
l) research methods are used to investigate practical problems and questions;	4E–4F, 5, 7–10, 28–29, 57–59, 89–91, 106, 116–117, 147–149, 171, 180–181, 208, 216–217, 311, 338, 374, 411, 579
m) experimental results are presented in appropriate written form; and	30–31, 60–61, 218–219, 801, 812–815

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n) an understanding of the nature of science is developed and reinforced.	4E-4F, 4-13, 36E-36F, 66E-66F, 85, 92-93, 98E-98F, 156E-156F, 192E-192F, 224E-224F, 243
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PS.2 The student will investigate and understand the basic nature of matter. Key concepts include	
a) the particle theory of matter;	258–260, 395, 526–529, 542E-549, 551, 834, 838–839
b) elements, compounds, mixtures, acids, bases, and salts;	520–524, 606E-620, 622–627, 638E-648, 764E, 766–769, 777–778
c) solids, liquids, and gases;	294, 489–490, 494, 502–507, 709
d) characteristics of types of matter based on physical and chemical properties;	526–527, 529, 574–575, 608–609, 616–617, 622, 766, 768
e) physical properties (shape, density, solubility, odor, melting point, boiling point, color); and	19, 21, 418E, 425–429, 490–491, 498, 643, 650–651, 704F, 709–710, 712–713, 718–721, 786–787, 809
f) chemical properties (acidity, basicity, combustibility, reactivity).	83, 176, 273–278, 300, 736E-736F, 736–737, 764–775

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PS.3 The student will investigate and understand the modern and historical models of atomic structure. Key concepts include	
a) the contributions of Dalton, Thomson, Rutherford, and Bohr in understanding the atom; and	542E-542F, 544–549, 557–562
b) the modern model of atomic structure.	258–261, 544–549, 799, 828–829

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PS.4 The student will investigate and understand the organization and use of the periodic table of elements to obtain information. Key concepts include	
a) symbols, atomic number, atomic mass, chemical families (groups), and periods;	258, 261, 550–551, 553–565, 606E-606F, 608–620, 622–629, 740, 828–829
b) classification of elements as metals, metalloids, and nonmetals; and	542E-542F, 606E-606F, 606–620, 622
c) simple compounds (formulas and nature of bonding).	572E-572F, 574–578, 580–584, 587–593, 638E-638F, 823–824

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PS.5 The student will investigate and understand changes in matter and the relationship of these changes to the Law of Conservation of Matter and Energy. Key concepts include	
a) physical changes;	98E-98F, 100–105, 107–113, 489–492, 528–529, 532–533
b) nuclear reactions (products of fusion and fission and their effects on human beings and the environment); and	113–114, 256E-256F, 264, 266–267, 273–278, 288E-288F, 300, 302–304, 314–315
c) chemical changes (types of reactions, reactants and products, and balanced equations).	83, 274, 295–296, 300, 529–532, 736–757

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PS.6 The student will investigate and understand states and forms of energy and how energy is transferred and transformed. Key concepts include	
a) potential and kinetic energy;	98E-98F, 102–105, 108–110, 115, 486E-486F, 488
b) mechanical, chemical, and electrical energy; and	101, 107–108, 112–113, 213–215, 290, 296, 750–754
c) heat, light, and sound.	7, 156–181, 288E-288F, 305–306, 363–368, 432–435, 489, 492

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PS.7 The student will investigate and understand temperature scales, heat, and heat transfer. Key concepts include	
a) Celsius and Kelvin temperature scales and absolute zero;	11, 15, 19–21, 158–159, 489, 506, 725
b) phase change, freezing point, melting point, boiling point, vaporization, and condensation;	21, 490–491, 642–643, 650–651, 725–726
c) conduction, convection, radiation, and	164–168, 263–265, 270–272, 389, 399–401
d) applications of heat transfer (heat engines, thermostats, refrigeration, and heat pumps).	159–161, 164–166, 172–179, 492–493, 679

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PS.8 The student will investigate and understand characteristics of sound and technological applications of sound waves. Key concepts include	
a) wavelength, frequency, speed, and amplitude;	324E-324F, 326–329, 331–338, 339–347, 350–351, 358–369, 395, 403
b) resonance;	347, 369, 840, 857
c) the nature of mechanical waves; and	324E-324F, 339–347, 350–351, 356E-356F
d) technological applications of sound.	356E-356F, 369–373, 375–379, 382–383

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PS.9 The student will investigate and understand the nature and technological applications of light. Key concepts include	
a) the wave behavior of light (reflection, refraction, diffraction, and interference);	339–345, 373, 395, 422–424, 418E-418F, 438, 441
b) images formed by lenses and mirrors; and	450E-450F, 452–458, 461–463, 468–470, 472, 474–475
c) the electromagnetic spectrum.	388E-388F, 396–401, 403–409, 412–413, 833

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PS.10 The student will investigate and understand scientific principles and technological applications of work, force, and motion. Key concepts include	
a) speed, velocity, and acceleration;	37, 39–42, 44, 47–51, 68–69, 74, 76–77, 81, 394, 830, 841, 843
b) Newton’s laws of motion;	54–56, 66E-66F, 68–76, 79–80, 83–88, 838
c) work, force, mechanical advantage, efficiency, and power; and	52–53, 66–91, 126–131, 133–137, 141–149, 212–213, 259–260, 497
d) applications (simple machines, compound machines, powered vehicles, rockets, and restraining devices).	51, 55–59, 84, 132–146, 176

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PS.11 The student will investigate and understand basic principles of electricity and magnetism. Key concepts include	
a) static, current, circuits;	15, 71, 194–208, 210–212, 216–217, 233–234, 240–247
b) magnetic fields and electromagnets; and	224E-224F, 226–229, 234–237, 240–242, 248–249, 320, 398, 391–392, 527
c) motors and generators.	237–244, 248–249, 288E, 834

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Additional Criteria	Evidence Please provide information that will assist the reviewers in identifying support for the following criterion indicators.
1. Safe use of materials and equipment is encouraged.	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. . In the teacher’s edition, laboratory safety and chemical storage and disposal are discussed on pages 34T-35T.
2. Materials emphasize the use of effective instructional practices and learning theories. <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.	The teacher wraparound edition is organized around a three-step learning cycle—1. Motivate, 2. Teach, 3. Assess. Each chapter begins with a Foldables-Reading and Study Skills to help students organize information. All chapters and activities are reviewed by teachers for grade-level appropriateness. The Explore Activity at the beginning of each chapter introduces the lesson and ensuing content. MiniLABs and Activities introduce or reinforce content using a wide variety of materials and equipment. Students apply concepts in MiniLABs, Activities, Problem-Solving Activities, Math Skills Activities, and in the Think Critically questions in Section Assessments and Chapter Assessments. Design Your Own Experiment Activities (such as pages 216-217) provide opportunities to use prior knowledge and newly acquired information to pose questions, form hypotheses, and design investigations. Data collection and analysis allow students to draw conclusions, create new knowledge, and revise prior knowledge.

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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.</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: Reading Checks through out, Science Journal, MiniLAB analysis, Conclude and Apply in Activities, Section Assessment, Skill Builder Activities, Problem Solving Activities, caption questions, Chapter Study Guide and Assessment, and Test Practice. 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 Study Guides and Assessments contain a variety of assessment items. For examples see pages 94-97, 220-223, and 414-417.</p> <p>The teacher edition provides opportunities to assess student's prior knowledge in Tie to Prior Knowledge and Identifying Misconceptions.</p> <p>Correlations to the National Science Standards, NCTM Standards, and Benchmarks are presented on teacher edition pages 4T-8T. Students develop and apply higher order thinking skills throughout. For examples, see pages 13, 34-35, 186-187, and 448-449.</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.</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 11, 38, 50, and 73), connect their everyday lives to science (pages 112, 114, and 129) and careers (pages 31, 61, 219), and demonstrate applications (pages 17, 51, 70, and 83). Note National Geographic Visualizing (pages 49, 140, 243, and 405).</p>