Prentice Hall
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CORRELATED TO
Oregon Science Academic Content Standards (High School)
It is essential that these standards be addressed in contexts that promote scientific inquiry, use of evidence, critical thinking, making connections, and communication.

**H.1 Structure and Function:** A system’s characteristics, form, and function are attributed to the quantity, type, and nature of its components.

*Found throughout the text. See, for example:*


**TE Only:** 204, 338, 362, 571, 789, 811

**TR:** Guided Reading and Study Workbook, Sections 4.3, 6.1, 6.2, 6.3, 7.2, 7.3, 8.1, 8.2, 8.4, 22.5, 24.2, 24.3, 24.4, 24.5, 25.1, 25.2; Core Teaching Resources, Sections 4.3, 6.1, 6.2, 6.3, 7.2, 7.3, 8.1, 8.2, 8.4, 22.5, 24.2, 24.3, 24.4, 24.5, 25.1, 25.2 Review; Interpreting Graphics, Chapters 4, 6, 7, 8, 24, 25; Practice Problems, Chapters 4, 6, 7, 8; Chapter Quizzes, Chapters 4, 6, 7, 8; Chapter Tests A and B, Chapters 4, 6, 7, 8; Laboratory Manual, Lab 51; Small-Scale Chemistry Laboratory, Labs 6, 9, 40, 1; Laboratory Practicals, 6-1, 6-2

**TECH:** Interactive Textbook with ChemASAP, Chapters 4, 6, 7, 8, 24, 25; Animations 7, 8, 9, 10; Simulations 5, 6, 8, 29, 30; Problem-Solving 4.15, 4.17, 4.20, 4.21, 4.24, 7.2, 7.3, 8.1, 8.2, 8.4, 25.7; Assessments 4.3, 6.1, 6.2, 6.3, 22.5, 24.2, 24.3, 24.4, 24.5, 25.1, 25.2; Go Online, Sections 4.3, 6.1, 6.2, 6.3, 7.2, 8.1, 8.2, 8.4, 22.5, 24.2, 24.3, 24.4, 24.5, 25.2; Go Online (web code: cdn-1043, cdn-1061, cdn-1062, cdn-1063, cdn-1072, cdn-1081, cdn-1082, cdn-1084, cdn-1225, cdn-1242, cdn-1243, cdn-1244, cdn-1246, cdn-1252); Computer Test Bank, Chapters 4, 6, 7, 8, 24, 25; Transparencies, T48-T56, T65-T74, T79-T89, T260-T261, T273-T284, T286-292

**H.1P.1 Explain how atomic structure is related to the properties of elements and their position in the Periodic Table. Explain how the composition of the nucleus is related to isotopes and radioactivity.**


**TE Only:** 811
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<td>cdn-1062, cdn-1063, cdn-1252);</td>
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- **H.1P.2** Describe how different types and strengths of bonds affect the physical and chemical properties of compounds.  
  - **SE/TE:** 194-199, 201-203, 206-211, 213-216, 217-229, 237-244, 246-251  
  - **TE Only:** 204

- **H.1L.1** Compare and contrast the four types of organic macromolecules. Explain how they compose the cellular structures of organisms and are involved in critical cellular processes.  
  - **SE/TE:** 766-768, 769-773, 775-777, 778-785, 787, 792-797  
  - **TE Only:** 769

- **TR:** Guided Reading and Study Workbook, Sections 24.2, 24.3, 24.4, 24.5; Core Teaching Resources, Sections 24.2, 24.3, 24.4, 24.5; Practice Problems, Chapter 24; Chapter Quizzes, Chapter 24; Chapter Tests A and B, Chapter 24; Laboratory Manual, Lab 51; Small-Scale Chemistry Laboratory, Lab 40

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**SE = Student Edition**  
**TE = Teacher’s Edition**  
**TR = Teaching Resources**  
**TECH = Technology**
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| **H.1L.2** Describe the chemical structure of DNA and its relationship to chromosomes. Explain the role of DNA in protein synthesis. | **TECH:** Interactive Textbook with ChemASAP, Chapter 24; Simulation 29; Assessment 24.2, 24.3, 24.4, 24.5; Go Online, Sections 24.2, 24.3, 24.4; Go Online (web code: cdn-1242, cdn-1243, cdn-1244, cdn-1246); Computer Test Bank, Chapter 24; Transparencies, T273-T284

**SE/TE:** 778-781, 785, 792-795 |

| **H.1L.3** Explain and apply laws of heredity and their relationship to the structure and function of DNA. | **TR:** Guided Reading and Study Workbook, Section 24.5; Core Teaching Resources, Section 24.5; Practice Problems, Chapter 24; Chapter Quizzes, Chapter 24; Chapter Tests A and B, Chapter 24

**TECH:** Interactive Textbook with ChemASAP, Chapter 24; Simulation 29; Assessment 24.5; Computer Test Bank, Chapter 24; Transparencies, T281-T284

**SE/TE:** 778, 785, 792 |

| **H.1L.4** Explain how cellular processes and cellular differentiation are regulated both internally and externally in response to the environments in which they exist. | **TECH:** Interactive Textbook with ChemASAP, Chapter 24; Assessment 24.5

**SE/TE:** 786-788, 790, 792-797

**TE Only:** 789 |

| **H.1E.1** Classify the bodies in our solar system based on properties and composition. Describe attributes of our galaxy and evidence for multiple galaxies in the universe. | **TR:** Guided Reading and Study Workbook, Section 24.6; Core Teaching Resources, Section 24.6; Interpreting Graphics, Chapter 24

**TECH:** Interactive Textbook with ChemASAP, Chapter 24; Assessment 24.6; Go Online, Section 24.6; Go Online (web code: cdn-1246); Transparencies, T285

**SE/TE:** 17

**TE Only:** 17, 362 |

| **H.1E.2** Describe the structure and composition of Earth’s atmosphere, geosphere, and hydrosphere. | **TR:** Guided Reading and Study Workbook, Section 22.5; Core Teaching Resources, Section 22.5; Practice Problems, Chapter 22; Chapter Quizzes, Chapter 22; Chapter Tests A and B, Chapter 22

**SE/TE:** 60, 217, 221-222, 227, 432, 436, 445, 496, 712-715, 718, 763, 789

**TE Only:** 338, 571 |
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<tr>
<td>H.2 Interaction and Change: The components in a system can interact in dynamic ways that may result in change. In systems, changes occur with a flow of energy and/or transfer of matter.</td>
<td>TECH: Interactive Textbook with ChemASAP, Assessment 22.5, Go Online, Section 22.5, Go Online (web code: cdn-1225); Transparencies, T260-T261</td>
</tr>
<tr>
<td>H.2P.1 Explain how chemical reactions result from the making and breaking of bonds in a process that absorbs or releases energy. Explain how the rate of a chemical reaction is affected by temperature, pressure, and concentration.</td>
<td>SE/TE: 320-329, 330-339, 342-344, 345, 346-351, 511-517, 527-532, 533, 534-539, 540-547, 549-559, 566-573, 574, 575-579, 580-585, 763-765, 786-790, 792-793, 814-815, 822</td>
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<td>TR: Guided Reading and Study Workbook, Sections 11.1, 11.2, 11.3, 12.1, 17.1, 17.2, 17.3, 17.4, 18.1, 18.2, 18.4, 18.5, 24.1; Core Teaching Resources, Sections 11.1, 11.2, 11.3, 17.1, 17.2, 17.3, 17.4, 18.1, 18.2, 18.4, 18.5, 24.1; Interpreting Graphics, Chapters 11, 17, 18; Practice Problems, Chapters 11, 17, 18; Chapter Quizzes, Chapters 11, 17, 18; Chapter Tests A and B, Chapters 11, 17, 18; Laboratory Manual, Labs 14, 15, 16, 17, 18, 34, 35, 36, 37, 38; Small-Scale Chemistry Laboratory Manual, Labs 14, 15, 16, 17, 27, 28, 29, 35; Lab Practical 11-1, 11-2, 11-3, 11-4, 11-5, 18-1; Probeware Lab Manual, Sections 17.3, 17.4; Laboratory Manual, Labs 19, 34, 35</td>
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<td>H.2P.2 Explain how physical and chemical changes demonstrate the law of conservation of mass.</td>
<td>SE/TE: 55, 57-59, 61, 124, 152, 320, 324-329, 357-358, 379, 381, 383</td>
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<tr>
<td>H.2P.3 Describe the interactions of energy and matter including the law of conservation of energy.</td>
<td>SE/TE: 504-510, 511-517, 520-526, 527-532, 533, 534-539</td>
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<td>H.2P.4 Apply the laws of motion and gravitation to describe the interaction of forces acting on an object and the resultant motion.</td>
<td>Opportunities to address this standard can be found on the following pages:</td>
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<tr>
<td><strong>SE/TE:</strong> 76</td>
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<tr>
<td>H.2L.1 Explain how energy and chemical elements pass through systems. Describe how chemical elements are combined and recombined in different ways as they cycle through the various levels of organization in biological systems.</td>
<td><strong>SE/TE:</strong> 505-510, 764-765, 786-790, 792-793</td>
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<tr>
<td><strong>TE Only:</strong> 506, 765, 789</td>
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<tr>
<td>H.2L.2 Explain how ecosystems change in response to disturbances and interactions. Analyze the relationships among biotic and abiotic factors in ecosystems.</td>
<td><strong>SE/TE:</strong> 16</td>
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<td><strong>TE Only:</strong> 714, 789</td>
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<td>H.2L.3 Describe how asexual and sexual reproduction affect genetic diversity.</td>
<td>Opportunities to address this standard can be found on the following pages:</td>
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<tr>
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<tr>
<td>H.2L.4 Explain how biological evolution is the consequence of the interactions of genetic variation, reproduction and inheritance, natural selection, and time.</td>
<td>Opportunities to address this standard can be found on the following pages:</td>
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<tr>
<td>H.2L.5 Explain how multiple lines of scientific evidence support biological evolution.</td>
<td>Opportunities to address this standard can be found on the following pages: SE/TE: 781</td>
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<tr>
<td>H.2E.1 Identify and predict the effect of energy sources, physical forces, and transfer processes that occur in the Earth system. Describe how matter and energy are cycled between system components over time.</td>
<td>SE/TE: 401, 445, 518-519, 764-765, 789-790 TE Only: 222</td>
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<tr>
<td>H.2E.2 Explain how Earth’s atmosphere, geosphere, and hydrosphere change over time and at varying rates. Explain techniques used to elucidate the history of events on Earth.</td>
<td>SE/TE: 763-765, 789-790, 814-815 TE Only: 217, 269, 763, 571</td>
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<tr>
<td>H.2E.3 Describe how the universe, galaxies, stars, and planets evolve over time.</td>
<td>Opportunities to address this standard can be found on the following pages: SE/TE: 17, 63</td>
</tr>
<tr>
<td>H.3 Scientific Inquiry: Scientific inquiry is the investigation of the natural world by a systematic process that includes proposing a testable question or hypothesis and developing procedures for questioning, collecting, analyzing, and interpreting multiple forms of accurate and relevant data to produce justifiable evidence-based explanations and new explorations.</td>
<td>SE/TE: 6, 20-25, 33, 35-38, 45, 56, 62, 72, 87, 94, 100, 108, 120, 126, 137, 142, 154, 175, 179, 186, 199-200, 212, 226, 245, 252, 267, 279, 286, 304, 308, 320, 326, 345, 352, 367, 372, 384, 400, 402, 412, 428, 437, 444, 448, 458, 470, 489, 497, 504, 522, 533, 540, 544, 574, 586, 604, 617, 630, 653, 655, 662, 682, 684, 692, 707-708, 724, 746, 753, 762, 774, 780, 798, 809, 818</td>
</tr>
<tr>
<td>H.3S.1 Based on observations and science principles formulate a question or hypothesis that can be investigated through the collection and analysis of relevant information.</td>
<td>SE/TE: 6, 22-23, 33, 35-37 TE Only: 21, 76, 375, 562, 565, 785</td>
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<tr>
<td>H.3S.2 Design and conduct a controlled experiment, field study, or other investigation to make systematic observations about the natural world, including the collection of sufficient and appropriate data.</td>
<td>SE/TE: 6, 20-25, 33, 38, 45, 56, 62, 72, 87, 94, 100, 108, 120, 126, 137, 142, 154, 175, 179, 186, 199-200, 212, 226, 245, 252, 267, 279, 286, 304, 308, 320, 326, 345, 352, 367, 372, 384, 400, 402, 412, 428, 437, 444, 448, 458, 470, 489, 497, 504, 522, 533, 540, 544, 574, 586, 604, 617, 630, 653, 655, 662, 682, 684, 692, 707-708, 724, 746, 753, 762, 774, 780, 798, 809, 818</td>
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<td>H.3S.3 Analyze data and identify uncertainties. Draw a valid conclusion, explain how it is supported by the evidence, and communicate the findings of a scientific investigation.</td>
<td>TE Only: 75</td>
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<tr>
<td>H.3S.5 Explain how technological problems and advances create a demand for new scientific knowledge and how new knowledge enables the creation of new technologies.</td>
<td>SE/TE: 109, 147, 204, 242, 259, 313, 340, 405, 430, 463, 478, 518, 548, 623, 685, 716, 754, 791, 814</td>
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<tr>
<td>H.4 Engineering Design: Engineering design is a process of formulating problem statements, identifying criteria and constraints, proposing and testing possible solutions, incorporating modifications based on test data, and communicating the recommendations.</td>
<td>SE/TE: 109, 147, 204, 242, 259, 313, 463, 478, 480, 518-519, 548, 783-785, 791</td>
</tr>
<tr>
<td>H.4D.1 Define a problem and specify criteria for a solution within specific constraints or limits based on science principles. Generate several possible solutions to a problem and use the concept of trade-offs to compare them in terms of criteria and constraints.</td>
<td>Opportunities to address this standard can be found on the following page: TE Only: 374</td>
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<td>H.4D.2 Create and test or otherwise analyze at least one of the more promising solutions. Collect and process relevant data. Incorporate modifications based on data from testing or other analysis.</td>
<td>Opportunities to address this standard can be found on the following pages: SE/TE: 88, 127, 376 TE Only: 452</td>
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<td>H.4D.3 Analyze data, identify uncertainties, and display data so that the implications for the solution being tested are clear.</td>
<td>Opportunities to address this standard can be found on the following pages: TE Only: 376, 452</td>
</tr>
<tr>
<td>H.4D.4 Recommend a proposed solution, identify its strengths and weaknesses, and describe how it is better than alternative designs. Identify further engineering that might be done to refine the recommendations.</td>
<td>Opportunities to address this standard can be found on the following pages: TE Only: 374, 452</td>
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<td>H.4D.5 Describe how new technologies enable new lines of scientific inquiry and are largely responsible for changes in how people live and work.</td>
<td>SE/TE: 109, 147, 204, 242, 259, 313, 463, 478, 518, 548, 783-785, 791 TE Only: 785</td>
</tr>
<tr>
<td>H.4D.6 Evaluate ways that ethics, public opinion, and government policy influence the work of engineers and scientists, and how the results of their work impact human society and the environment.</td>
<td>SE/TE: 463, 480, 518-519, 785 TE Only: 14, 654, 728, 783</td>
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