



| STANDARDS | PAGE REFERENCES |
|--|---|
| Grade Level Expectation: Eighth Grade | |
| <p>Concepts and skills students master:</p> <ol style="list-style-type: none"> 1. Identify and calculate the direction and magnitude of forces that act on an object, and explain the results in the object's change of motion | |
| Evidence Outcomes | |
| <p>Students can:</p> <ol style="list-style-type: none"> a. Predict and evaluate the movement of an object by examining the forces applied to it | <p>Student Edition: 52-55, 68-70, 73-74, 76-82, 84-88 <i>Design Your Own Lab</i> 58-59 <i>Lab</i> 57, 89, 90-91 <i>Mini Lab</i> 54 <i>National Geographic</i> 85</p> <p>Teacher Wraparound Edition: D 74; IM 53</p> |

| STANDARDS | PAGE REFERENCES |
|--|---|
| b. Use mathematical expressions to describe the movement of an object | Student Edition: 40-42, 48-50, 69-70, 76-77, 86-87 <i>Design Your Own Lab</i> 58-59 <i>Lab</i> 90-91 <i>Math Skill Handbook</i> 832 <i>Mini Lab</i> 42 Teacher Wraparound Edition: D 42; DI 86; FF 76 |
| c. Develop and design a scientific investigation to collect and analyze speed and acceleration data to determine the net forces acting on a moving object | Student Edition: 70 <i>Design Your Own Lab</i> 58-59 <i>Extra Try At Home Lab</i> 899 <i>Lab</i> 57 Teacher Wraparound Edition: VL 53 |
| Concepts and skills students master: 2. There are different forms of energy, and those forms of energy can be changed from one form to another – but total energy is conserved | |
| Evidence Outcomes | |
| Students can: a. Gather, analyze, and interpret data to describe the different forms of energy and energy transfer | Student Edition: 102-104, 162, 164-167, 212-213, 244, 267-268 <i>Design Your Own Lab</i> 116-117, 214-215 <i>Lab</i> 106, 171, 180-181, 277 <i>Launch Lab</i> 255, 289 <i>Mini Lab</i> 168, 169, 272 <i>Science and Society</i> 280 <i>Use the Internet Lab</i> 278-279 Teacher Wraparound Edition: CC 160, 260; LD 165, 208 |
| b. Develop a research-based analysis of different forms of energy and energy transfer | Student Edition: 100-104, 127-131, 135, 159-160, 164-167, 207-208, 212, 267-268, 271-276, 361-365, 396-399 <i>Design Your Own Lab</i> 116-117, 214-215 <i>Lab</i> 106, 171, 180-181, 277 <i>Launch Lab</i> 157, 255 <i>Mini Lab</i> 169 Teacher Wraparound Edition: DI 170; LD 165, 208; SJ 127 |

| STANDARDS | PAGE REFERENCES |
|--|--|
| c. Use research-based models to describe energy transfer mechanisms, and predict amounts of energy transferred | Student Edition: 162, 164-167, 212-213, 244, 290-295 <i>Design Your Own Lab</i> 116-117, 214-215 <i>Lab</i> 106, 171, 180-181, 277 <i>Launch Lab</i> 255, 289 <i>Mini Lab</i> 168, 169, 272 <i>Use the Internet Lab</i> 278-279 Teacher Wraparound Edition: CC 160, 261; LD 165, 208 |
| Concepts and skills students master: 3. Distinguish between physical and chemical changes, noting that mass is conserved during any change | |
| Students can: a. Identify the distinguishing characteristics between a chemical and a physical change | Student Edition: 460-464, 632-634 <i>Lab</i> 466-467 Teacher Wraparound Edition: QD 459, 464; SJ 462 |
| b. Gather, analyze, and interpret data on physical and chemical changes | Student Edition: 460-464, 632-634 <i>Lab</i> 466-467 Teacher Wraparound Edition: QD 459, 464; SJ 462; TPK 632 |
| c. Gather, analyze, and interpret data that show mass is conserved in a given chemical or physical change | Student Edition: 463, 465, 632-633, 638-640 Teacher Wraparound Edition: D 635; QD 633; R 640 |
| d. Identify evidence that suggests that matter is always conserved in physical and chemical changes | Student Edition: 463, 465, 632-633, 638-640 Teacher Wraparound Edition: D 635; QD 633; R 640 |

| STANDARDS | PAGE REFERENCES |
|--|---|
| <p>e. Examine, evaluate, question, and ethically use information from a variety of sources and media to investigate physical and chemical changes</p> | <p>Student Edition: 460-464, 490-495, 632-634, 638-640, 664-665, 707-708, 736-737, 758-759 <i>Lab</i> 466-467, 748-749 <i>Mini Lab</i> 648 <i>National Geographic</i> 647 <i>Science and Society</i> 718 <i>Use the Internet Lab</i> 652-653 Teacher Wraparound Edition: QD 459, 464, 737; R 495; SJ 462; TPK 632, 664</p> |
| <p>Concepts and skills students master: 4. Recognize that waves such as electromagnetic, sound, seismic, and water have common characteristics and unique properties</p> | |
| <p>Students can: a. Compare and contrast different types of waves</p> | <p>Student Edition: 291-295, 322-323, 354, 357-359, 361-365, 368, 398 <i>Integrate Earth Science</i> 295 <i>Mini Lab</i> 356 <i>National Geographic</i> 294, 369 <i>Science and History</i> 314 Teacher Wraparound Edition: FYI 294</p> |
| <p>b. Describe for various waves the amplitude, frequency, wavelength, and speed</p> | <p>Student Edition: 296-301, 323-324, 327-330, 357-358, 360-365, 367-368 <i>Lab</i> 302, 312-313 <i>Mini Lab</i> 297 <i>National Geographic</i> 369 <i>Use the Internet Lab</i> 374-375 Teacher Wraparound Edition: FYI 324; QD 298; R 301</p> |
| <p>c. Describe the relationship between pitch and frequency in sound</p> | <p>Student Edition: 330-332 Teacher Wraparound Edition: A 335; QD 330</p> |

| STANDARDS | PAGE REFERENCES |
|--|--|
| d. Develop and design a scientific investigation regarding absorption, reflection, and refraction of light | Student Edition: 303-305, 384-388, 402-404 <i>Lab</i> 405, 423 <i>Mini Lab</i> 419, 435 <i>Model and Invent Lab</i> 438-439 Teacher Wraparound Edition: FYI 305; LD 402 |
| Grade Level Expectation: Seventh Grade | |
| Concepts and skills students master: 1. Mixtures of substances can be separated based on their properties such as solubility, boiling points, magnetic properties, and densities | |
| Evidence Outcomes | |
| Students can: a. Identify properties of substances in a mixture that could be used to separate those substances from each other | Student Edition: 259, 453-454, 458-461, 463, 736-737 <i>Integrate Environment</i> 459 <i>Lab</i> 466-467 <i>Mini Lab</i> 453 Teacher Wraparound Edition: DI 459; FYI 453; QD 463; VL 461 |
| b. Develop and design a scientific investigation to separate the components of a mixture | Student Edition: 459-461 <i>Extra Try At Home Lab</i> 809 <i>Launch Lab</i> 449 <i>Mini Lab</i> 453 Teacher Wraparound Edition: DI 459; LD 460; QD 737 |

| STANDARDS | PAGE REFERENCES |
|--|---|
| Grade Level Expectation: Sixth Grade | |
| Concepts and skills students master: 1. All matter is made of atoms, which are far too small to see directly through a light microscope. Elements have unique atoms and thus, unique properties. Atoms themselves are made of even smaller particles | |
| Evidence Outcomes | |
| Students can: a. Identify evidence that suggests there is a fundamental building block of matter | Student Edition: 507-508 Teacher Wraparound Edition: AS 511; D 507; UA 508 |
| b. Use the particle model of matter to illustrate characteristics of different substances | Student Edition: 358-359, 506-509, 512-515, 523-524, 541-543 <i>Mini Lab</i> 509 <i>National Geographic</i> 510 Teacher Wraparound Edition: FF 523; LD 478 |
| c. Develop an evidence based scientific explanation of the atomic model as the foundation for all chemistry | Student Edition: 516-519, 520-523, 570-576, 578-582, 584-591, 604-606, 608-611, 635-636, 641-645 <i>Lab</i> 583 Teacher Wraparound Edition: A 611; DI 605; FF 522, 523; FYI 518, 573; R 582 |
| d. Find and evaluate appropriate information from reference books, journals, magazines, online references, and databases to compare and contrast historical explanations for the nature of matter | Student Edition: 476-479, 485-488, 492-495, 509-511, 516-517 <i>Integrate Astronomy</i> 524 <i>Integrate History</i> 462, 482 <i>National Geographic</i> 446-447, 510, 566-567 <i>Science and History</i> 92, 376, 560 Teacher Wraparound Edition: DI 477; FF 522; FYI 517; VL 509 |

| STANDARDS | PAGE REFERENCES |
|--|---|
| Grade Level Expectation: Sixth Grade | |
| Concepts and skills students master: 2. Atoms may stick together in well-defined molecules or be packed together in large arrays. Different arrangements of atoms into groups compose all substances | |
| Evidence Outcomes | |
| Students can: a. Explain the similarities and differences between elements and compounds | Student Edition: 450-452, 602-603, 767-768 <i>Lab 457</i> Teacher Wraparound Edition: DI 767; SJ 452 |
| b. Identify evidence suggesting that atoms form into molecules with different properties than their components | Student Edition: 602-603, 632-634, 726-730, 734 <i>Accidents in Science 654</i> <i>Lab 735</i> <i>Launch Lab 725</i> Teacher Wraparound Edition: AS 730; D 603; FYI 727; LD 732 |
| c. Find and evaluate information from a variety of resources about molecules | Student Edition: 579, 587-588, 611-614, 667, 682-683, 714-715, 726-730, 731-734, 736-737 <i>Integrate Astronomy 733</i> <i>Mini Lab 683</i> Teacher Wraparound Edition: FYI 737; USW 728 |
| Concepts and skills students master: 3. The physical characteristics and changes of solid, liquid, and gas states can be explained using the particulate model | |
| Evidence Outcomes | |
| Students can: a. Explain how the arrangement and motion of particles in a substance such as water determine its state | Student Edition: 476-480 <i>Integrate Astronomy 480</i> <i>Extra Try At Home Lab 801</i> Teacher Wraparound Edition: LD 478; VL 480 |
| b. Distinguish between changes in temperature and changes of state using the particle model of matter | Student Edition: 158-160, 161-162, 476-483, 494-495 <i>Lab 484</i> Teacher Wraparound Edition: QD 481; SJ 482; VL 161 |

| STANDARDS | PAGE REFERENCES |
|---|---|
| <p>Concepts and skills students master:</p> <p>4. Distinguish among, explain, and apply the relationships among mass, weight, volume, and density</p> | |
| <p>Evidence Outcomes</p> | |
| <p>Students can:</p> <p>a. Explain that the mass of an object does not change, but its weight changes based on the gravitational forces acting upon it</p> | <p>Student Edition: 68, 77-79</p> <p>Teacher Wraparound Edition: A 77; D 78</p> |
| <p>b. Predict how changes in acceleration due to gravity will affect the mass and weight of an object</p> | <p>Student Edition: 77-79 <i>Lab 89</i></p> <p>Teacher Wraparound Edition: A 79; FYI 78</p> |
| <p>c. Predict how mass, weight, and volume affect density</p> | <p>Student Edition: 19, 486 <i>Lab 19</i> <i>Math Skill Handbook 832</i></p> <p>Teacher Wraparound Edition: ML 486</p> |
| <p>d. Measure mass and volume, and use these quantities to calculate density</p> | <p>Student Edition: 18-19, 486 <i>Math Skill Handbook 832</i> <i>Mini Lab 19, 486</i></p> <p>Teacher Wraparound Edition: CC 18</p> |
| <p>e. Use tools to gather, view, analyze, and report results for scientific investigations about the relationships among mass, weight, volume, and density</p> | <p>Student Edition: 18-19 <i>Math Skill Handbook 832</i> <i>Mini Lab 19</i> <i>Science Skill Handbook 793-795</i></p> <p>Teacher Wraparound Edition: A 18</p> |