

Grade 7

Scientific Inquiry

Standard 7-1: The student will demonstrate an understanding of technological design and scientific inquiry, including process skills, mathematical thinking, controlled investigative design and analysis, and problem solving.

Indicators

PLT Activities

| Indicators | | PLT Activities |
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| 7-1.1 | Use appropriate tools and instruments (including a microscope) safely and accurately when conducting a controlled scientific investigation | <input type="checkbox"/> 4cd Sounds Around <input type="checkbox"/> 23 The Fallen Log <input type="checkbox"/> 29 Rain Reasons <input checked="" type="checkbox"/> 41 How Plants Grow <input type="checkbox"/> 77 Trees in Trouble |
| 7-1.2 | Generate questions that can be answered through scientific investigation | <input type="checkbox"/> 23 The Fallen Log <input checked="" type="checkbox"/> 29 Rain Reasons <input checked="" type="checkbox"/> 41 How Plants Grow |
| 7-1.3 | Explain the reasons for testing one independent variable at a time in a controlled scientific investigation. | <input type="checkbox"/> 4cd Sounds Around <input type="checkbox"/> 29 Rain Reasons <input type="checkbox"/> 41 How Plants Grow |
| 7-1.4 | Explain the importance that repeated trials and a well-chosen sample size have with regard to the validity of a controlled scientific investigation. | <input checked="" type="checkbox"/> 41 How Plants Grow |
| 7-1.5 | Explain the relationships between independent and dependent variables in a controlled scientific investigation through the use of appropriate graphs, tables, and charts. | <input type="checkbox"/> 4cd Sounds Around <input type="checkbox"/> 29 Rain Reasons <input checked="" type="checkbox"/> 41 How Plants Grow <input type="checkbox"/> 77 Trees in Trouble |
| 7-1.6 | Critique a conclusion drawn from a scientific investigation. | <input checked="" type="checkbox"/> 4cd Sounds Around <input type="checkbox"/> 23 The Fallen Log <input checked="" type="checkbox"/> 29 Rain Reasons <input checked="" type="checkbox"/> 41 How Plants Grow <input type="checkbox"/> 70 Soil Stories <input type="checkbox"/> 77 Trees in Trouble |
| 7-1.7 | Use appropriate safety procedures when conducting investigations. | <input type="checkbox"/> 4cd Sounds Around <input type="checkbox"/> 23 The Fallen Log <input checked="" type="checkbox"/> 77 Trees In Trouble |

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- Standard Partially Addressed or Reinforced

Cells and Heredity

Standard 7-2: The student will demonstrate an understanding of the structure and function of cells, cellular reproduction, and heredity. (Life Science)

| Indicators | | PLT Activities |
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| 7-2.1 | Summarize the structures and functions of the major components of plant and animal cells (including the cell wall, the cell membrane, the nucleus, chloroplasts, mitochondria, and vacuoles). | |
| 7-2.2 | Compare the major components of plant and animal cells. | |
| 7-2.3 | Compare the body shapes of bacteria (spiral, coccus, and bacillus) and the body structures that protists (euglena, paramecium, amoeba) use for food gathering and locomotion. | |
| 7-2.4 | Explain how cellular processes (including respiration, photosynthesis in plants, mitosis, and waste elimination) are essential to the survival of the organism. | <input type="checkbox"/> 42 Have Seeds, Will Travel |
| 7-2.5 | Summarize how genetic information is passed from parent to offspring by using the terms <i>genes</i> , <i>chromosomes</i> , <i>inherited traits</i> , <i>genotype</i> , <i>phenotype</i> , <i>dominant traits</i> , and <i>recessive traits</i> . | |
| 7-2.6 | Use Punnett squares to predict inherited monohybrid traits | |
| 7-2.7 | Distinguish between inherited traits and those acquired from environmental factors | |

Human Body Systems and Disease

Standard 7-3: The student will demonstrate an understanding of the functions and interconnections of the major human body systems, including the breakdown in structure or function that disease causes. (Life Science)

| Indicators | | PLT Activities |
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| 7-3.1 | Summarize the levels of structural organization within the human body (including cells, tissues, organs, and | |

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| | systems). | |
| 7-3.2 | Recall the major organs of the human body and their function within their particular body system. | <input type="checkbox"/> 4cd Sounds Around |
| 7-3.3 | Summarize the relationships of the major body systems (including the circulatory, respiratory, digestive, excretory, nervous, muscular, and skeletal systems). | |
| 7-3.4 | Explain the effects of disease on the major organs and body systems (including infectious diseases such as colds and flu, AIDS, and athlete's foot and noninfectious diseases such as diabetes, Parkinson's, and skin cancer). | |

Ecology: The Biotic and Abiotic Environment

Standard 7-4: The student will demonstrate an understanding of how organisms interact with and respond to the biotic and abiotic components of their environment. (Earth Science, Life Science)

Indicators

PLT Activities

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| 7-4.1 | Summarize the characteristics of the levels of organization within ecosystems (including populations, communities, habitats, niches, and biomes). | <input type="checkbox"/> 10 Charting Diversity <input type="checkbox"/> 12 Invasive Species <input type="checkbox"/> 21b Adopt A Tree <input type="checkbox"/> 22v Trees as Habitats <input type="checkbox"/> 23 The Fallen Log <input type="checkbox"/> 26 Dynamic Duos <input type="checkbox"/> 27 Every Tree for Itself <input type="checkbox"/> 32b A Forest of Many Uses <input type="checkbox"/> 35 Living It Too Much <input type="checkbox"/> 45 Web of Life | <input type="checkbox"/> 47 Are Vacant Lots Vacant? <input type="checkbox"/> 48 Field, Forest, and Stream <input checked="" type="checkbox"/> 49bc Tropical Treehouse <input type="checkbox"/> 69 Forest for the Trees <input checked="" type="checkbox"/> 71 Watch On Wetlands <input type="checkbox"/> 80bc Nothing Succeeds Like Succession <input type="checkbox"/> 86 Our Changing World <input type="checkbox"/> 88 Life on the Edge <input type="checkbox"/> 96 Improve Your Place |
| 7-4.2 | Illustrate energy flow in food chains, food webs, and energy pyramids | <input type="checkbox"/> 16 Pass the Plants, Please <input checked="" type="checkbox"/> 45 Web of Life <input type="checkbox"/> 47 Are Vacant Lots Vacant? <input type="checkbox"/> 48 Field, Forest, and Stream | <input type="checkbox"/> 49bc Tropical Treehouse <input checked="" type="checkbox"/> 71 Watch On Wetlands <input checked="" type="checkbox"/> 86 Our Changing World <input type="checkbox"/> 88 Life on the Edge |

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| Indicators | | PLT Activities | |
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| 7-4.3 | Explain the interaction among changes in the environment due to natural hazards (including landslides, wildfires, and floods), changes in populations, and limiting factors (including climate and the availability of food and water, space, and shelter). | <input type="checkbox"/> 12 Invasive Species <input type="checkbox"/> 22v Trees as Habitats <ul style="list-style-type: none"> ● 27 Every Tree for Itself ● 29 Rain Reasons <input type="checkbox"/> 31 Plant A Tree <input type="checkbox"/> 32b A Forest of Many Uses <input type="checkbox"/> 33 Forest Consequences <input type="checkbox"/> 35 Living It Too Much <input type="checkbox"/> 40 Then and Now <input type="checkbox"/> 45 Web of Life <input type="checkbox"/> 47 Are Vacant Lots vacant? <input type="checkbox"/> 48 Field, Forest, and Stream <ul style="list-style-type: none"> ● 49bc Tropical Treehouse <input type="checkbox"/> 50 400-Acre Wood | <input type="checkbox"/> 69 Forest for the Trees <ul style="list-style-type: none"> ● 71 Watch On Wetlands ● 77 Trees in Trouble ● 80bc Nothing Succeeds Like Succession <input type="checkbox"/> 81bc Living with Fire <ul style="list-style-type: none"> ● 84 The Global Climate ● 86 Our Changing World ● 88 Life on the Edge <input type="checkbox"/> 89 Trees for Many Reasons <ul style="list-style-type: none"> ● 90 Native Ways ● 91 In the Good Old Days <input type="checkbox"/> 92 A Look at Lifestyles <input type="checkbox"/> 96 Improve Your Place |
| 7-4.4 | Explain the effects of soil quality on the characteristics of an ecosystem | <input type="checkbox"/> 23 The Fallen Log <input type="checkbox"/> 27 Every Tree for Itself <input type="checkbox"/> 31 Plant a Tree <input type="checkbox"/> 47 Are Vacant Lots Vacant? <input type="checkbox"/> 60 Publicize It! <ul style="list-style-type: none"> ● 70 Soil Stories | <ul style="list-style-type: none"> ● 71 Watch On Wetlands <input type="checkbox"/> 72 Air We Breathe <ul style="list-style-type: none"> ● 77 Trees in Trouble <input type="checkbox"/> 80bc Nothing Succeeds Like Succession <input type="checkbox"/> 81bc Living with Fire <input type="checkbox"/> 86 Our Changing World |
| 7-4.5 | Summarize how the location and movement of water on Earth's surface through groundwater zones and surface-water drainage basins, called watersheds, are important to ecosystems and to human activities | <ul style="list-style-type: none"> ● 29 Rain Reasons <input type="checkbox"/> 38 Every Drop Counts <ul style="list-style-type: none"> ● 44 Water Wonders <input type="checkbox"/> 60 Publicize It! <input type="checkbox"/> 70 Soil Stories | <ul style="list-style-type: none"> ● 71 Watch On Wetlands <input type="checkbox"/> 73 Waste Watchers <input type="checkbox"/> 77 Trees in Trouble <input type="checkbox"/> 80bc Nothing Succeeds Like Succession <input type="checkbox"/> 81bc Living with Fire <input type="checkbox"/> 86 Our Changing World |
| 7-4.6 | Classify resources as renewable or nonrenewable and explain the implications of their depletion and the importance of | <ul style="list-style-type: none"> ● 14 Renewable or Not? ● 15 A Few of My Favorite Things <input type="checkbox"/> 19 Viewpoints on the Line <input type="checkbox"/> 32b A Forest of Many | <ul style="list-style-type: none"> ● 69 Forest for the Trees ● 70 Soil Stories ● 71 Watch On Wetlands ● 73 Waste Watchers <input type="checkbox"/> 77 Trees in Trouble <input type="checkbox"/> 82 Resource-Go- |

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| conservation. | <p>Uses</p> <ul style="list-style-type: none"> <input type="checkbox"/> 35 Living It Too Much ● 37 Reduce, Reuse, Recycle <input type="checkbox"/> 38 Every Drop Counts <input type="checkbox"/> 39bc Energy Sleuths <input type="checkbox"/> 44 Water Wonders ● 49bc Tropical Treehouse <input type="checkbox"/> 50 400-Acre Wood <input type="checkbox"/> 51 Make Your Own Paper ● 52 A Look at Aluminum <input type="checkbox"/> 60 Publicize It! | <p>Round</p> <ul style="list-style-type: none"> <input type="checkbox"/> 83 A Peek at Packaging ● 85 In the Drivers Seat <input type="checkbox"/> 86 Our Changing World <input type="checkbox"/> 88 Life on the Edge ● 89 Trees for Many Reasons ● 90 Native Ways ● 91 In the Good Old Days ● 92 A Look at Lifestyles ● 94 By the Rivers of Babylon |
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The Chemical Nature of Matter

Standard 7-5: The student will demonstrate an understanding of the classifications and properties of matter and the changes that matter undergoes. (Physical Science)

Indicators

PLT Activities

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| 7-5.1 | Recognize that matter is composed of extremely small particles called atoms. | |
| 7-5.2 | Classify matter as element, compound, or mixture on the basis of its composition | <ul style="list-style-type: none"> <input type="checkbox"/> 72 Air We Breathe <input type="checkbox"/> 84 The Global Climate |
| 7-5.3 | Compare the physical properties of metals and nonmetals. | <ul style="list-style-type: none"> <input type="checkbox"/> 52 A Look at Aluminum |
| 7-5.4 | Use the periodic table to identify the basic organization of elements and groups of elements (including metals, nonmetals, and families). | |
| 7-5.5 | Translate chemical symbols and the chemical formulas of common substances to show the component parts of the substances (including NaCl [table salt], H ₂ O [water], C ₆ H ₁₂ O ₆ [simple sugar], O ₂ [oxygen gas], CO ₂ [carbon dioxide], and N ₂ [nitrogen gas]). | <ul style="list-style-type: none"> <input type="checkbox"/> 84 The Global Climate |
| 7-5.6 | Distinguish between acids and bases and use indicators (including litmus paper, pH paper, and phenolphthalein) to determine | <ul style="list-style-type: none"> <input type="checkbox"/> 77 Trees in Trouble |

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| | their relative pH. | |
| 7-5.7 | Identify the reactants and products in chemical equations. | |
| 7-5.8 | Explain how a balanced chemical equation supports the law of conservation of matter. | |
| 7-5.9 | Compare physical properties of matter (including melting or boiling point, density, and color) to the chemical property of reactivity with a certain substance (including the ability to burn or to rust). | <input type="checkbox"/> 51 Make Your Own Paper <input type="checkbox"/> 52 A Look at Aluminum <input type="checkbox"/> 72 Air We Breathe <input type="checkbox"/> 77 Trees in Trouble <input checked="" type="checkbox"/> 81bc Living with Fire <input type="checkbox"/> 84 The Global Climate |
| 7-5.10 | Compare physical changes (including changes in size, shape, and state) to chemical changes that are the result of chemical reactions (including changes in color or temperature and formation of a precipitate or gas). | <input checked="" type="checkbox"/> 81bc Living with Fire <input type="checkbox"/> 84 The Global Climate |

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