

PHYSICAL SCIENCE DAYBOOK

Grades 6-8

correlated to

Texas

Essential Knowledge and Skills (TEKS) for Science



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Physical SCIENCE DAYBOOK © 2003
correlated to
Texas Essential Knowledge and Skills (TEKS)
for Science
Grade 6

(1) S c i e n t i f i c p r o c e s s e s

The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) demonstrate safe practices during field and laboratory investigations; and	Teacher's Guide: 10A, 20A, 30A, 37, 72A, 104A, 124A, 136A, 146A, 150, 155, 156A, 178A, 188A, 189, 198A, 208A
(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.	Teacher's Guide: 213

(2) S c i e n t i f i c p r o c e s s e s

The student uses scientific inquiry methods during field and laboratory investigations.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology;	Teacher's Guide: 18-19, 21, 25, 29, 55, 62, 66-67, 77, 89, 95, 103, 105, 115, 119, 138, 141, 147, 148, 151, 156-157, 184-185, 197, 201, 209, 220
(B) collect data by observing and measuring;	Teacher's Guide: 18-19, 28-29, 31, 34-35, 52, 55, 64, 70, 78, 81, 104, 107, 116, 136, 188-190, 206-207
(C) analyze and interpret information to construct reasonable explanations from direct and indirect evidence;	Teacher's Guide: 18-19, 20-23, 28-29, 52-55, 56-59, 62-65, 72-73, 74-77, 94-97, 98-101, 102-103, 104-107, 112-113, 120-123, 136-137, 152-155, 156-157, 166-167, 168-171, 188-191, 198-199

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
(D) communicate valid conclusions; and	Teacher's Guide: 19, 23, 29, 55, 59, 65, 73, 77, 97, 101, 103, 107, 113, 123, 137, 155, 157, 167, 171, 191, 199
(E) construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.	Teacher's Guide: 12, 13, 17, 19, 20, 21, 26, 28, 29, 31, 44, 45, 54, 57, 88, 90, 91, 105, 115, 127, 133, 144, 145, 160, 169, 175, 181, 191, 214, 215

(3) S c i e n t i f i c p r o c e s s e s

The student uses critical thinking and scientific problem solving to make informed decisions.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	Teacher's Guide: 18-19, 40, 76, 119, 124, 150, 151, 181, 224
(C) represent the natural world using models and identify their limitations;	Teacher's Guide: 28-29, 34, 35, 104, 105, 107, 136-137, 138-141, 183
(D) evaluate the impact of research on scientific thought, society, and the environment; and	Teacher's Guide: 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207
(E) connect Grade 6 science concepts with the history of science and contributions of scientists.	Teacher's Guide: 10-13, 30-33, 36-39, 62-65, 68-71, 88-91, 114-115, 138-141, 196-197

(4) S c i e n t i f i c p r o c e s s e s

The student knows how to use a variety of tools and methods to conduct science inquiry.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) collect, analyze, and record information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, timing devices, hot plates, test tubes, safety goggles, spring scales, magnets, balances, microscopes, telescopes, thermometers, calculators, field equipment, compasses, computers, and computer probes.	Teacher's Guide: 10B, 11, 15, 18-19, 21, 25, 29, 30B, 31, 37, 40B, 43, 53, 55, 62, 66-67, 75, 77, 78, 89, 95, 103, 104B, 105, 109, 114B, 115, 117, 119, 124B, 125, 133, 136B, 138, 139, 141, 147, 148, 151, 156-157, 166B, 169, 173, 184-185, 197, 201, 209, 220

(5) S c i e n t i f i c c o n c e p t s

The student knows that systems may combine with other systems to form a larger system.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) identify and describe a system that results from the combination of two or more systems such as in the solar system; and	Teacher's Guide: 34-35, 36-39, 219, 200-203
(B) describe how the properties of a system are different from the properties of its parts.	Teacher's Guide: 34-35, 36-39, 219, 200-203

(6) S c i e n c e c o n c e p t s

The student knows that there is a relationship between force and motion.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) identify and describe the changes in position, direction of motion, and speed of an object when acted upon by force;	Teacher's Guide: 10-13, 14-17, 20-23, 24-27, 29, 220
(B) demonstrate that changes in motion can be measured and graphically represented.	Teacher's Guide: 12, 13, 15, 16, 17

(7) S c i e n c e c o n c e p t s

The student knows that substances have physical and chemical properties.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) demonstrate that new substances can be made when two or more substances are chemically combined and compare the properties of the new substances to the original substances; and	Teacher's Guide: 178, 179, 180, 181, 212-215, 218
(B) classify substances by their physical and chemical properties.	Teacher's Guide: 56-59, 104-107, 112-113, 136-137, 138-141, 142-145, 146-149, 150-151, 152-155, 156-157, 158-161, 162-165, 166-167, 168-171, 172-175, 178-181, 182-185, 186-187, 188-191, 192-195, 196-197, 198-199, 200-203, 204-207, 208-211, 212-215, 216-217, 222

(8) Science concepts

The student knows that complex interactions occur between matter and energy.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) define matter and energy.	Teacher's Guide: 52-55, 94, 104-107, 136, 138-140, 200, 201, 220, 221

(9) Science concepts

The student knows that obtaining, transforming, and distributing energy affects the environment.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) identify energy transformations occurring during the production of energy for human use such as electrical energy to heat energy or heat energy to electrical energy.	Teacher's Guide: 14-17, 18-19, 52-55, 56-59, 60-61, 62-65, 82-85, 86-87, 94-97, 102-103, 104-107, 108-111, 112-113, 114-115, 116-119, 120-123, 124-127, 128-129, 130-133, 152-155, 182-185, 186-187, 200-203, 204-207

(10) Science concepts

The student knows the relationship between structure and function in living systems.

Knowledge and Skills, Grade 6	Physical SCIENCE DAYBOOK
The student is expected to: (A) differentiate between structure and function;	Teacher's Guide: 60-61, 74-77, 116-119, 172-175, 178-181
(C) identify how structure complements function at different levels of organization including organs, organ systems, organisms, and populations.	Teacher's Guide: 116-119



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Grade 7

(1) S c i e n t i f i c p r o c e s s e s

The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (A) demonstrate safe practices during field and laboratory investigations; and	Teacher's Guide: 10A, 20A, 30A, 37, 72A, 104A, 124A, 136A, 146A, 150, 155, 156A, 178A, 188A, 189, 198A, 208A
(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.	Teacher's Guide: 213

(2) S c i e n t i f i c p r o c e s s e s

The student uses scientific inquiry methods during field and laboratory investigations.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology;	Teacher's Guide: 18-19, 21, 25, 29, 55, 62, 66-67, 77, 89, 95, 103, 105, 115, 119, 138, 141, 147, 148, 151, 156-157, 184-185, 197, 201, 209, 220
(B) collect data by observing and measuring;	Teacher's Guide: 18-19, 28-29, 31, 34-35, 52, 55, 64, 70, 78, 81, 104, 107, 116, 136, 188-190, 206-207
(C) organize, analyze, make inferences, and predict trends from direct and indirect evidence;	Teacher's Guide: 10, 14, 16, 18, 19, 20, 23, 30, 31, 35, 36, 37, 40, 41, 42, 43, 46, 48, 49, 52, 54, 56, 59, 61, 62, 65, 67, 68, 71, 72, 73, 74, 77, 78, 79, 80, 82, 85, 94, 97, 99, 102, 103, 104, 106, 108, 109, 110, 112, 113, 114, 115, 119, 120, 124, 127, 128, 129, 146, 149, 150, 151, 152, 157, 162, 165, 169, 172, 174, 178, 181, 182, 183, 186, 187, 188, 191, 192, 197, 198, 199, 222

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
(D) communicate valid conclusions; and	Teacher's Guide: 19, 23, 29, 55, 59, 65, 73, 77, 97, 101, 103, 107, 113, 123, 137, 155, 157, 167, 171, 191, 199
(E) construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.	Teacher's Guide: 12, 13, 17, 19, 20, 21, 26, 28, 29, 31, 44, 45, 54, 57, 88, 90, 91, 105, 115, 127, 133, 144, 145, 160, 169, 175, 181, 191, 214, 215

(3) S c i e n t i f i c p r o c e s s e s

The student uses critical thinking and scientific problem solving to make informed decisions.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	Teacher's Guide: 18-19, 40, 76, 119, 124, 150, 151, 181, 224
(C) represent the natural world using models and identify their limitations;	Teacher's Guide: 28-29, 34, 35, 104, 105, 107, 136-137, 138-141, 183
(D) evaluate the impact of research on scientific thought, society, and the environment; and	Teacher's Guide: 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207
(E) connect Grade 7 science concepts with the history of science and contributions of scientists.	Teacher's Guide: 10-13, 30-33, 36-39, 62-65, 68-71, 88-91, 114-115, 138-141, 196-197

(4) S c i e n t i f i c p r o c e s s e s

The student knows how to use tools and methods to conduct science inquiry.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (A) collect, analyze, and record information to explain a phenomenon using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, timing devices, magnets, and compasses.	Teacher's Guide: 10B, 11, 15, 18-19, 21, 25, 29, 30B, 31, 37, 40B, 43, 53, 55, 62, 66-67, 75, 77, 78, 89, 95, 103, 104B, 105, 109, 114B, 115, 117, 119, 124B, 125, 133, 136B, 138, 139, 141, 147, 148, 151, 156-157, 166B, 169, 173, 184-185, 197, 201, 209, 220

(6) Science concepts

The student knows that there is a relationship between force and motion.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (A) demonstrate basic relationships between force and motion using simple machines including pulleys and levers;	Teacher's Guide: 30-33, 34-35, 223
 (B) demonstrate that an object will remain at rest or move at a constant speed and in a straight line if it is not being subjected to an unbalanced force.	Teacher's Guide: 12-13, 20-23, 224

(7) Science concepts

The student knows that substances have physical and chemical properties.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (B) describe physical properties of elements and identify how they are used to position an element on the periodic table; and	Teacher's Guide: 145, 166-167, 168, 169, 172, 174, 222
 (C) recognize that compounds are composed of elements.	Teacher's Guide: 136, 168, 201, 219

(8) Science concepts

The student knows that complex interactions occur between matter and energy.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (A) illustrate examples of potential and kinetic energy in everyday life such as objects at rest, movement of geologic faults, and falling water.	Teacher's Guide: 14-17, 186, 221

(9) Science concepts

The student knows the relationship between structure and function in living systems.

Knowledge and Skills, Grade 7	Physical SCIENCE DAYBOOK
The student is expected to: (B) describe how organisms maintain stable internal conditions while living in changing external environments.	Teacher's Guide: 60-61

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Grade 8

(1) Scientific processes

The student conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) demonstrate safe practices during field and laboratory investigations; and	Teacher's Guide: 10A, 20A, 30A, 37, 72A, 104A, 124A, 136A, 146A, 150, 155, 156A, 178A, 188A, 189, 198A, 208A
(B) make wise choices in the use and conservation of resources and the disposal or recycling of materials.	Teacher's Guide: 213

(2) Scientific processes

The student uses scientific inquiry methods during field and laboratory investigations.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting and using equipment and technology;	Teacher's Guide: 18-19, 21, 25, 29, 55, 62, 66-67, 77, 89, 95, 103, 105, 115, 119, 138, 141, 147, 148, 151, 156-157, 184-185, 197, 201, 209, 220
(B) collect data by observing and measuring;	Teacher's Guide: 18-19, 28-29, 31, 34-35, 52, 55, 64, 70, 78, 81, 104, 107, 116, 136, 188-190, 206-207
(C) organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence;	Teacher's Guide: 10, 14, 16, 18, 19, 20, 23, 30, 31, 35, 36, 37, 40, 41, 42, 43, 46, 48, 49, 52, 54, 56, 59, 61, 62, 65, 67, 68, 71, 72, 73, 74, 77, 78, 79, 80, 82, 85, 94, 97, 99, 102, 103, 104, 106, 108, 109, 110, 112, 113, 114, 115, 119, 120, 124, 127, 128, 129, 146, 149, 150, 151, 152, 157, 162, 165, 169, 172, 174, 178, 181, 182, 183, 186, 187, 188, 191, 192, 197, 198, 199, 222

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
(D) communicate valid conclusions; and	Teacher's Guide: 19, 23, 29, 55, 59, 65, 73, 77, 97, 101, 103, 107, 113, 123, 137, 155, 157, 167, 171, 191, 199
(E) construct graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate data.	Teacher's Guide: 12, 13, 17, 19, 20, 21, 26, 28, 29, 31, 44, 45, 54, 57, 88, 90, 91, 105, 115, 127, 133, 144, 145, 160, 169, 175, 181, 191, 214, 215

(3) S c i e n t i f i c p r o c e s s e s

The student uses critical thinking and scientific problem solving to make informed decisions.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;	Teacher's Guide: 18-19, 40, 76, 119, 124, 150, 151, 181, 224
(C) represent the natural world using models and identify their limitations;	Teacher's Guide: 28-29, 34, 35, 104, 105, 107, 136-137, 138-141, 183
(D) evaluate the impact of research on scientific thought, society, and the environment; and	Teacher's Guide: 30-33, 36-39, 40-41, 42-45, 46-49, 62-65, 66-67, 68-71, 78-81, 88-91, 102-103, 142-145, 152-155, 158-161, 162-165, 192-195, 200-203, 204-207
(E) connect Grade 8 science concepts with the history of science and contributions of scientists.	Teacher's Guide: 10-13, 30-33, 36-39, 62-65, 68-71, 88-91, 114-115, 138-141, 196-197

(4) S c i e n t i f i c p r o c e s s e s

The student knows how to use a variety of tools and methods to conduct science inquiry.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) collect, record, and analyze information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, water test kits, and timing devices; and	Teacher's Guide: 10B, 11, 15, 18-19, 21, 25, 29, 30B, 31, 37, 40B, 43, 53, 55, 62, 66-67, 75, 77, 78, 89, 95, 103, 104B, 105, 109, 114B, 115, 117, 119, 124B, 125, 133, 136B, 138, 139, 141, 147, 148, 151, 156-157, 166B, 169, 173, 184-185, 197, 201, 209, 220
(B) extrapolate from collected information to make predictions.	Teacher's Guide: 18, 20, 37, 49, 80, 119, 150, 151, 152, 222

(5) S c i e n t i f i c p r o c e s s e s

The student knows that relationships exist between science and technology.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) identify a design problem and propose a solution;	Teacher's Guide: 31, 35
(B) design and test a model to solve the problem; and	Teacher's Guide: 31
(C) evaluate the model and make recommendations for improving the model.	Teacher's Guide: 31

(7) S c i e n c e c o n c e p t s

The student knows that there is a relationship between force and motion.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) demonstrate how unbalanced forces cause changes in the speed or direction of an object's motion; and	Teacher's Guide: 12-13, 20-23, 224
(B) recognize that waves are generated and can travel through different media.	Teacher's Guide: 94-97, 98-101, 104-107, 108-111, 112-113

(8) S c i e n c e c o n c e p t s

The student knows that matter is composed of atoms.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) describe the structure and parts of an atom; and	Teacher's Guide: 128, 136-137, 138-141, 142-145, 173-175, 218
(B) identify the properties of an atom including mass and electrical charge.	Teacher's Guide: 128, 136-137, 138-141, 142-145, 173-175, 218

(9) Science concepts

The student knows that substances have chemical and physical properties.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) demonstrate that substances may react chemically to form new substances;	Teacher's Guide: 178, 179, 180, 181, 212-215, 218
(B) interpret information on the periodic table to understand that physical properties are used to group elements;	Teacher's Guide: 145, 166-167, 168, 169, 172, 174, 222
(C) recognize the importance of formulas and equations to express what happens in a chemical reaction.	Teacher's Guide: 101, 170-171, 178-181, 188-191, 196-197, 198-199, 218, 200-203, 204-207, 223
(D) identify that physical and chemical properties influence the development and application of everyday materials such as cooking surfaces, insulation, adhesives, and plastics.	Teacher's Guide: 208, 209, 212-215, 216-217, 222

(10) Science concepts

The student knows that complex interactions occur between matter and energy.

Knowledge and Skills, Grade 8	Physical SCIENCE DAYBOOK
The student is expected to: (A) illustrate interactions between matter and energy including specific heat;	Teacher's Guide: 128-129, 183-185, 187, 200, 202, 204-207
(C) identify and demonstrate that loss or gain of heat energy occurs during exothermic and endothermic chemical reactions.	Teacher's Guide: 205

