Science Planned Course: Grade 4

Unit: **Scientific Methods**

Content Standard: **Apply the scientific process to solve real life problems.**

State Curriculum Standard: **3.2.4 Inquiry and Design.**

Course Content	Student Performance	Resources	Assessments
A. Describe objects in the world using the five senses. • Use observations to develop a descriptive vocabulary. B. Recognize and use the elements of scientific inquiry to solve problems. • Generate questions about objects, organisms and/or events that can be answered through scientific investigations. • Design investigation. • Conduct experiment. • State conclusion. C. Recognize and use the technological design process to solve problems. • Recognize and explain basic problems. • Identify possible solutions and their course of action. • Try a solution. • Describe the solution, identify its impacts and modify if necessary. • Show the steps taken and the results.	• Create a brochure of the five senses related to a science topic • Read Lab Zone in student textbook, pp. xxii-xxxii • Design a Science Safety poster • Perform various experiments and apply the scientific method throughout the units	• Various reference materials • Scott Foresman student textbook • Scott Foresman	• Teacher-made rubric for brochure • Teacher-made rubric for poster • Students journals observed by the teacher

Science Planned Course: Grade 4

Unit: **Scientific Method**

Content Standard: **Select appropriate technological tools to collect, analyze, and communicate information and ideas.**

State Curriculum Standard: **3.7.4 Technological Devices.**

Course Content	Student Performance	Resources	Assessments
A. Explore the use of basic tools, simple materials and techniques to safely solve problems. • Describe the scientific principles on which various tools are based.	• Read pp. xxxvii-xxxii • Design a science tool booklet to illustrate and explain the use of each one	• Scott Foresman student textbook	• Teacher-made rubric • Teacher observation

Science Planned Course: Grade 4

Unit: **Animals**

Content Standard: **Integrate the fundamental concepts of science and technology; motion in force, energy, and structure of matter, change over time, and simple machines.**

State Curriculum Standard: **3.1.4 Unifying Themes.**

Course Content	Student Performance	Resources	Assessments
A. Know that natural and human-made objects are made up of parts. • Identify and describe what parts make up a system. • Identify system parts that are natural and human-made (e.g., ball point pen, simple electrical circuits, plant anatomy). • Describe the purpose of analyzing systems. B. Illustrate patterns that regularly occur and reoccur in nature. • Identify observable patterns (e.g., growth patterns in plants, crystal shapes in minerals, climate, structural patterns in bird feathers).	• Sort common objects such as buttons, pencils, crayons, etc. • Read student textbook pp.1-13 • Create a step-book or poster of the Kingdoms • Guided Inquiry Activity • Observe a contour feather and a down feather with a hand lens	• Quick Activity; p. 10 Scott Foresman Teacher's Manual • Student textbook pp. 10-13 • Scott Foresman Teacher's Manual/ student textbook • Scott Foresman Activity Flip Chart, p. 1. Teacher's Manual p. 1E	• Scott Foresman Lesson Checkpoints pp. 11 and 13 • Teacher-made rubric for step-book • Activity rubric (p. 76) of Activity Book • Students illustrations of feathers • Teacher observations

Science Planned Course: Grade 4

Unit: **Animals**

Content Standard: **Describe living things, their appearance, different types of life, the scope of their similarities and differences, where and how they live, and how life has changed over time.**

State Curriculum Standard: **3.3.4 Biological Sciences.**

Course Content	Student Performance	Resources	Assessments
A. Know the similarities and differences of living things. • Identify life processes of living things (e.g., growth, digestion, react to environment). • Know that some organisms have similar external characteristics (e.g., anatomical characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat. • Describe basic needs of plants and animals. B. Know that living things are made up of parts that have specific functions. • Identify examples of unicellular and multicellular organisms. • Determine how different parts of living things work together to make the organism function.	• Read student textbook pp.18-25 • Play "20 Questions" about animals • Construct a group or individual poster of a vertebrate or invertebrate group including characteristics, examples and pictures of that group • Read student textbook pp. 110-113 • Contrast the dependence of the chipmunk and a family pet • Create a T Chart of unicellular and multicellular organisms. • Simulate being a bird in Nature Scope activity, "Pass the Part" • Read pp. 26-29 and pp. 32-33 of student textbook • Quick Activity p. 26 • Make a Baby Announcement	• Scott Foresman student textbook • Quick Activity: Scott Foresman Teacher Manual p. 18 • Scott Foresman student textbook • Quick Activity: Scott Foresman Teacher Manual p. 110 • TM p. EM ii • Birds, Birds, Birds Nature Scope • Scott Foresman student textbook • Nature Scope: Amazing Mammals I, p. 30 • Scott Foresman textbook • Website	• Teacher-made rubric for group or individual poster • Lesson Checkpoint p. 111 of student textbook • Venn diagram of Quick Activity (TM:EM IX) • Accuracy of student performance throughout activity • Teacher-made rubric for Baby announcement • Scaffolded Questions (TM SF p. 121)

Science Planned Course: Grade 4

Unit: **Animals**

Content Standard: **Recognize and evaluate the relationship between technological advances and society.**

State Curriculum Standard: **3.8 Science, Technology and Human Endeavors.**

Course Content	Student Performance	Resources	Assessments
A. Know that characteristics are inherited and thus, offspring closely resemble their parents. • Identify characteristics for animals and plants survival in different climates. • Identify physical characteristics that appear in both parents and offspring and differ between families, strains or species . B. Identify changes in living things over time. • Compare extinct life forms with living organisms. C. Know that people select, create and use science and technology and that they are limited by social and physical restraints. • Identify interrelationships among technology, people and their world.	• Read chapter 19: pp.545-561 of student text • Create a Venn diagram to compare and contrast technological devices • Create a time line of a specific piece of technology • Read student textbook pp. 120-121 • View website: www.SFSuccessNet.com	• Student textbook • www.SFSuccessNet.com • Encyclopedias	• Teacher-made rubrics • Teacher observations

Science Planned Course: Grade 4

Unit: **Animals**

Content Standard: **Describe and evaluate how human actions affect environmental health issues.**

State Curriculum Standard: **4.3.4 Environmental Health.**

Course Content	Student Performance	Resources	Assessments
A. Know that plants, animals and humans are dependent on air and water. B. Identify how human actions affect environmental health.	• These two standards have been covered in the geology unit • Refer to 4.2-D	• Student textbook	• Teacher-made rubrics • Teacher observations

Science Planned Course: Grade 4

Unit: **Animals**

Content Standard: **Explain various integrated pest management concepts and practices used in society.**

State Curriculum Standard: **4.5.4 Integrated Pest Management**.

Course Content	Student Performance	Resources	Assessments
A. Know types of pests. • Identify classifications of pests. • Identify and categorize pests. • Know how pests fit into a food chain. B. Explain pest control. • Know reasons why people control pests. • Identify different methods for controlling specific pests in the home, school and community. C. Understand society's need for integrated pest management. • Identify integrated pest management practices in the home . • Identify integrated pest management practices outside the home.	• "People & Insects Activity", p. 45-46: Nature Scope-Incredible Insects • Show through drama several ways insects affect people's lives • Read in student textbook p. 117 • Research pest problems and investigate safe solutions • Create posters or pamphlets to inform public of pest management	• Nature Scope-Incredible Insects • Nature Scope-Incredible Insects-"Insects on Stage" pp. 49-51 • Nature Scope: Discovery Pac: "Lesson 9, The Pest Patrol", pp. 18-19	• Student reflection in science journal • Teacher-made rubric of posters or pamphlets

Science Planned Course: Grade 4

Unit: **Animals**

Content Standard: **Examine the flow of energy within an ecosystem and how its organisms have changed over time.**

State Curriculum Standard: **4.6,4 Ecosystems and their Interactions.**

Course Content	Student Performance	Resources	Assessments
A. Understand that living things are dependent on nonliving things in the environment for survival. • Describe how certain insects interact with soil for their needs. • Understand the components of a food chain. • Identify animals that live underground.	• Read in textbook pp. 84-89 • Create a food chain (Activity Flip Chart p. 5) • Observe insects in nature and record data in student journal • Make a model of an earthworm habitat	• Scott Foresman student text • SF Activity Flip Chart (TM 73E) • Insect Identification Guides • Lab Zone Directed Inquiry TM 73D/ Scott Foresman	• Lesson checkpoint • Student created journal • Model of habitat • Student journal observations

Science Planned Course: Grade 4

Unit: **Animals**

Content Standard: **Describe the biological diversity of an ecosystem and explain how natural or human actions cause the loss of species.**

State Curriculum Standard**: 4,7 Threatened, Endangered and Extinct Species.**

Course Content	Student Performance	Resources	Assessments
A. Identify differences in living things. • Explain why plants and animals are different colors, shapes and sizes and how these differences relate to their survival. • Identify characteristics that living things inherit from their parents. • Explain why each of the four elements in a habitat is essential for survival. • Identify local plants or animals and describe their habitat. B. Know that adaptations are important for survival. • Explain how specific adaptations can help a living organism to survive. • Explain what happens to a living thing when its food, water, shelter or space is changed.	• Complete Quick Activity p. 26 of textbook • Read Lesson 5, pp. 26-29 of student Textbook • Visit the Tannersville Cranberry Bog	• Scott Foresman student textbook • Monroe County Environmental Education Center staff	• Student Checkpoint p. 27 and p. 29 of student textbook • Students diagrams from field trip

Science Planned Course: Grade 4

Unit: **Forces and Motion**

Content Standard: **Investigate the structure and properties of objects.**

State Curriculum Standard: **3.4.4 Physical Science, Chemistry and Physics.**

Course Content	Student Performance	Resources	Assessments
A. Observe and describe different types of force and motion. • Describe various types of motions. • Compare the relative movement of objects and describe types of motion that are evident. • Describe the position of an object by locating it relative to another object or the background (e.g., geographic direction, left, up).	• Read pp. 438-439 of student textbook • Create a flap book to illustrate and explain the three types of motions (straight line, circular path, or they can vibrate) • Lab Zone: Directed Inquiry activity, p. 436 of student textbook	• Scott Foresman student textbook • Student textbook and Activity Book (pp. 173-174)	• Checkpoint questions from student text • Teacher-made rubric for flap book • Activity Rubric (SF Activity Book, p. 106)

Science Planned Course: Grade 4

Unit: **Forces and Motion**

Content Standard: **Investigate the structure and properties of objects.**

State Curriculum Standard: **3.6.4 Physical Science, Chemistry and Physics**.

Course Content	Student Performance	Resources	Assessments
A. Know physical technologies of structural design, analysis and engineering, finance, production, marketing, research and design. • Identify and experiment with simple machines used in transportation systems.	• Read pp. 457-458 • Chose a science project from page 488	• Scott Foresman student textbook	• Checkpoint questions from student text • Teacher-made rubric • Workbook pages • Chapter assessments

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Design, create, use, evaluate, and modify systems of Biotechnologies, Information Technologies, and Physical Technologies.**

State Curriculum Standard: **3.6.4 Technology Education.**

Course Content	Student Performance	Resources	Assessments
A. Know that biotechnologies relate to propagating, growing, maintaining, adapting, treating and converting. • Identify waste management treatment processes. • Describe how biotechnology has impacted various aspects of daily life (e.g., health care, agriculture, waste treatment).	• Guide a drop of water through a maze of "drainage pipes" • Remove contaminants from "wastewater"	• Project Wet: "A-maze-ing Water" pp. 219-222 • Project Wet: "Sparkling Water" pp. 348-352	• Finished water mazes • Designed brochures describing steps people can take to prevent surface water contamination • Evaluate the effectiveness of their water treatment strategies

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Identify and explain the living and nonliving characteristics of water environments**.

State Curriculum Standard: **4.1.4 Watersheds and Wetlands.**

Course Content	Student Performance	Resources	Assessments
A. Identify various types of water environments. • Identify the lotic system (e.g., creeks, rivers, streams). • Identify the lentic system (e.g., ponds, lakes, swamps). B. Explain the differences between moving and still water. • Explain why water moves or does not move. • Identify types of precipitation. C. Identify living things found in water environments. • Identify fish, insects and amphibians that are found in fresh water. • Identify plants found in fresh water. D. Identify a wetland and the plants and animals found there. • Identify different kinds of wetlands. • Identify plants and animals found in wetlands.	• Watch a slide-show presentation during a pre-field trip classroom visit conducted by a MCEEC naturalist • Simulate the movement of water within the water cycle • Make a paper model of a freshwater marsh • Create a wetland plant book. • Hold a classroom discussion on characteristics while showing pictures of the different wetlands • Listen to a description of a marsh and create a scene • Classroom visit from MCEEC naturalist • Make a wetland model • Use a sponge to show how wetlands capture, store, and release water	• Monroe County Environmental Education Center personnel • Project Wet, “The Incredible Journey”, pp. 161-163 • Naturescope: Wading Into Wetlands pp. 38-39, 43 • Nature Scope: “Little Green Monsters” pp. 36-37, p. 42 • Nature Scope: Wading Into Wetlands pp. 33-35 • Reference books • Nature Scope: Wading Into Wetlands pp. 5-6, 14 • Monroe County Environmental Education Center personnel • “Wetland Models” activity-Naturescope: Wading Into Wetlands pp. 11-12 • “Capture, Store, and Release” activity-Project Wet Guide pp. 133-135	• Illustrate and label an example of each type of freshwater habitat on a cube that students can construct. • Student record sheet from role-play activity • Story describing the movement of water • Students wetland plant books • Teacher-made test to match characteristics with the appropriate wetland • Teacher-made test • Written paragraph that includes the terms capture, store, and release, comparing the flow of water through watersheds

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Identify and explain the living and nonliving characteristics of water environments.**

State Curriculum Standard: **4.1.4 Watersheds and Wetlands.**

Course Content	Student Performance	Resources	Assessments
• Explain wetlands as habitats for plants and animals. E. Recognize the impact of watersheds and wetlands on animals and plants. • Explain the role of watersheds in everyday life. • Identify the role of watersheds and wetlands for plants and animals.	• Watch a slide-show presentation during a pre-field trip classroom visit conducted by a MCEEC naturalist • Simulate the movement of water within the water cycle • Make a paper model of a freshwater marsh • Create a wetland plant book. • Hold a classroom discussion on characteristics while showing pictures of the different wetlands • Listen to a description of a marsh and create a scene • Classroom visit from MCEEC naturalist • Make a wetland model • Use a sponge to show how wetlands capture, store, and release water	• Monroe County Environmental Education Center personnel • Project Wet, "The Incredible Journey", pp. 161-163 • Naturescope: Wading Into Wetlands pp. 38-39, 43 • Nature Scope: "Little Green Monsters" pp. 36-37, p. 42 • Nature Scope: Wading Into Wetlands pp. 33-35 • Reference books • Nature Scope: Wading Into Wetlands pp. 5-6, 14 • Monroe County Environmental Education Center personnel • "Wetland Models" activity-Naturescope: Wading Into Wetlands pp. 11-12 • "Capture, Store, and Release" activity-Project Wet Guide pp. 133-135	• Illustrate and label an example of each type of freshwater habitat on a cube that students can construct. • Student record sheet from role-play activity • Story describing the movement of water • Students wetland plant books • Teacher-made test to match characteristics with the appropriate wetland • Teacher-made test • Written paragraph that includes the terms capture, store, and release, comparing the flow of water through watersheds

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Analyze the needs of people and factors affecting the availability of renewable and nonrenewable resources.**

State Curriculum Standard: **4.2.4 Renewable and Nonrenewable Resources**.

Course Content	Student Performance	Resources	Assessments
A. Identify needs of people. • Identify plants, animals, water, air, minerals and fossil fuels as natural resources. B. Identify products derived from natural resources. • Identify by-products of plants and animals.	• Read Chapter 10 pp. 281-299 of student textbook • Lab Zone Guided Inquiry: create " fossil fuel" and observe (pp. 298-299) of student textbook • Read p. 63 and pp. 296-297 • Sample some tasty wetland foods. Nature Scope: Wading into Wetlands, "A Taste of Wetlands" pp. 50-51	• Scott Foresman student textbook • Student SF workbook • SF Assessment Book • Nature Scope: Wading into Wetlands	• Student workbook pp. 91-96 • Assessment Book p. 51 • Activity Rubric from Activity Book • Lesson Checkpoint p. 297 of student textbook

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Describe and evaluate how human actions affect environmental health issues.**

State Curriculum Standard: **4.3.4 Environmental Health**

Course Content	Student Performance	Resources	Assessments
A. Understand that the elements of natural systems are interdependent. • Identify some of the organisms that live together in an ecosystem. • Understand that the components of a system all play a part in a healthy natural system. • Identify the effects of a healthy environment on the ecosystem.	• Read Lesson 2 pp. 114-117 of student textbook • Participate in a simulation activity to understand the components of an ecosystem. “Oh Deer”, Project Wild pp. 131-134	• Scott Foresman student textbook • Project Wild	• Scaffolded Questions of TM p. 117 • Name three essential components of habitat. Define “limiting factors” and give three examples

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Examine the flow of energy within an ecosystem and how its organisms have changed over time.**

State Curriculum Standard: **4.6.4 Ecosystems and their Interactions**

Course Content	Student Performance	Resources	Assessments
A. Understand that living things are dependent on nonliving things in the environment for survival. • Identify plants and animals with their habitat and food sources. • Describe how animals interact with plants to meet their needs for shelter. • Understand the components of a food chain. • Identify a local ecosystem and its living and nonliving components. • Identify a simple ecosystem and its living and nonliving components. B. Identify how ecosystems change over time.	• Read Lesson 1, pp. 111-113. read Lesson 2, pp. 114-119 • Construct a diorama of a wetland to show the interaction of animals and plants in this habitat • Field trip to the Tannersville Cranberry Bog • Draw pictures or make models of the stages of succession using student textbook pp. 118-119	• Pocono Environmental Education Center personnel • Scott Foresman student textbook	• Teacher-made rubric for diorama • Teacher-made rubric of pictures or models

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Describe the biological diversity of an ecosystem and explain how natural or human actions cause the loss of species.**

State Curriculum Standard: **4.7.4 Threatened, Endangered and Extinct Species.**

Course Content	Student Performance	Resources	Assessments
A. Identify differences in living things. • Explain why each of the four elements in a habitat is essential for survival. • Identify local plants or animals and describe their habitat. B. Know that adaptations are important for survival. • Explain how specific adaptations can help a living organism to survive. • Explain what happens to a living thing when its food, water, shelter or space is changed. C. Define and understand extinction. • Know that there are local and state laws regarding plants and animals.	• Classroom visit from MCEEC naturalist • Field trip to the Tannersville Cranberry Bog • Learn about characteristics of reptiles and amphibians at hands-on activity stations, "Hand-On Herps" Nature Scope "Let's Hear It For Herps" pp. 7-9 • Read and discuss hypothetical situations involving reptiles and amphibians, " What Would You Do? " Nature Scope: Let's Hear It For Herps! Pp. 62-64	• Monroe County Environmental Education Center personnel • Nature Scope: Let's Hear It For Herps! • Nature Scope "Let's Hear It For Herps!"	• Teacher-made test • Student journal observations • Journal summaries from discussion

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Identify the biological requirements of humans, and analyze the relationship between the use of natural resources and society's needs.**

State Curriculum Standard: **4,8,4 Humans and the Environment.**

Course Content	Student Performance	Resources	Assessments
A. Explain how human activities may change the environment. • A community affects the natural Identify everyday human activities and how they affect the environment. • Identify examples of how human activities within environment. B. Know the importance of natural resources in daily life. • Identify major land uses in the community .	• Read student textbook pp. 124-129 • Lesson 4, SF workbook p. 39 • Lab Zone Guided Inquiry activity, student textbook pp. 130-131. Activity Book pp. 61-62 • Research and collect articles related to major land uses in our community	• Scott Foresman student textbook • Scott Foresman workbook • Scott Foresman Activity Book • Current newspapers and magazines	• Activity Rubric of SF • Students data chart

Science Planned Course: Grade 4

Unit: **Watersheds and Wetlands**

Content Standard: **Identify and describe environmental laws and regulations.**

State Curriculum Standard: **4,9,4 Environmental Laws and Regulations.**

Course Content	Student Performance	Resources	Assessments
A. Know that there are laws and regulations for the environment. • Identify local and state laws and regulations regarding the environment. • Identify and describe the role of a local or state agency that deals with environmental laws and regulations.	• Write a letter to a local politician or agency describing the importance of protecting wetlands. • Design a stamp, poster, T-shirt, or bumper sticker	• Monroe County Environmental Education Water Habitat curriculum (see Appendix) • "Surveys and Slogans", Nature Scope: Wading Into Wetlands	• Teacher-created rubric

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Integrate the fundamental concepts of science and technology; motion in force, energy, and structure of matter, change over time, and simple machines**.

State Curriculum Standard: **3,1,4 Unifying Themes**.

Course Content	Student Performance	Resources	Assessments
A. Know models as useful simplifications of objects or processes. • Identify different types of models. • Identify theories that serve as models (e.g.,molecules). B. Illustrate patterns that regularly occur and reoccur in nature. • Identify observable patterns (e.g., growth patterns in plants, crystal shapes in minerals, climate, structural patterns in bird feathers). • Use knowledge of natural patterns to predict next occurrences (e.g., seasons, leaf patterns; lunar phases).	• Read pp. 186-187 of student text • Perform an experiment to demonstrate the parts of the water cycle (see TM p. 300, Quick Activity) • Lesson 2 of student text (pp.186-190) • Create a paper model of fronts using Nature Scope, “Follow the Front” • Conduct an experiment which illustrates how warm and cold air masses meet	• Scott Foresman student textbook • Scott Foresman student textbook • Weather: Nature Scope	• Write and illustrate an explanation of the water cylcle from a water molecule’s point of view. • Teacher-made assessments • Students journal observations

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Apply the scientific process to solve real life problems**.

State Curriculum Standard: **3,2 Inquiry and Design**

Course Content	Student Performance	Resources	Assessments
A. Identify and use the nature of scientific and technological knowledge. • Distinguish between a scientific fact and a belief. • Provide clear explanations that account for observations and results.	• Discuss common misconceptions dealing with weather • Read student text pp.206-207 • Utilize www.weather.com to understand weather patterns and observations	• Scott Foresman TM p. 179, 188, 192, 198 • Scott Foresman student text • Internet	• Teacher-made true/ false test • Student summaries of weather observations in science journals

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Investigate the structure and properties of objects.**

State Curriculum Standard: **3.4.4 Physical Science, Chemistry and Physics.**

Course Content	Student Performance	Resources	Assessments
A. Recognize basic concepts about the structure and properties of matter. • Know different material characteristics (e.g., texture, state of matter, solubility). B. Know basic energy types, sources and conversions. • Describe static electricity in terms of attraction, repulsion and sparks.	• Read Student text pp. 319-321 • Guided Inquiry activity in student text pp. 200-201 and Activity Book pp. 83-84 • Read student text pp. 374-377 • Lab Zone: Directed Inquiry student text p. 372. Activity Book pp. 153-154	• Scott Foresman Student text and Activity Book • Scott Foresman student text and Activity Book	• Student Workbook p. 102 • Student Workbook pp.100-101 • Activity Rubric (Activity DVD segment 13) • Lesson Checkpoint p. 377 • Activity Rubric (Activity DVD Segment 27)

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Use principles from physical sciences, geography, and mathematics to study the forces of nature that build the earth and wear down the earth.**
State Curriculum Standard: **3.5.4 Earth Sciences**

Course Content	Student Performance	Resources	Assessments
A. Know basic weather elements. • Identify cloud types. • Identify weather patterns from data charts (including temperature, wind direction and speed, precipitation) and graphs of the data. B. Recognize the earth's different water resources. • Identify examples of water in the form of solid, liquid and gas on or near the surface of the earth. • Explain and illustrate evaporation and condensation. • Recognize other resources available from water (e.g., energy, transportation, minerals, food).	• Read student text p. 193 • Create a cloud chart using cotton and fiberfill • Make cloud flash cards using index cards (TM p. 193) • Read student text p. 196-197 and p. 202-203 • Collect weather maps from local newspaper for a week to make weather predictions. • Refer back to 3.4.A • Create a water cycle bracelet using beads to illustrate components of the water cycle • Read student text p. 293	• Scott Foresman student text • Scott Foresman TM • Scott Foresman TM p. 197. • Colored beads: yellow (sun/energy), light blue (water), clear (evaporation), dark blue (condensation), white (precipitation), green (transpiration), black (groundwater), elastic thread • Scott Foresman Student workbook	• Teacher-made rubric to assess cloud charts and flash cards • Summaries describing differences in weather predictions and actual weather. • use their bracelets to describe the water cycle in a paragraph. • Student Workbook p. 96

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Select appropriate technological tools to collect, analyze, and communicate information and ideas.**

State Curriculum Standard: **3.7.4 Technological Devices**.

Course Content	Student Performance	Resources	Assessments
A. Select appropriate instruments to study materials. • Develop simple skills to measure, record, cut and fasten. • Explain appropriate instrument selection for specific tasks.	• Read Student text pp. 194-195 and p. 352 • Construct a barometer to observe daily changes in air pressure • Construct a simple weather vane • Construct a model of an anemometer • Construct and make a rain gauge to measure precipitation • Use weather instruments to collect and record weather data • Create a booklet of weather instruments including an illustration and definition of each	• Weather in Climate, pp. E28-29 • Weather in Climate, pp. E34-35 • Weather in Climate, pp. E36-37 • Weather in Climate, pp. E42-43	• Teacher-made rubric of weather instrument booklet

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Recognize and evaluate the relationship between technological advances and society.**

State Curriculum Standard: **3.8,4 Science, Technology and Human Endeavors.**

Course Content	Student Performance	Resources	Assessments
A. Know that people select, create and use science and technology and that they are limited by social and physical restraints. • Identify interrelationships among technology, people and their world. • Apply the technological design process to solve a simple problem.	• Read p. 208 and p. 232 in student text • Lab Zone: Take-Home Activity p. 232 of student text • Read student text pp. 220-221	• Scott Foresman Student textbook	• Lesson Checkpoint p. 221 student text

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Identify and explain the living and nonliving characteristics of water environments.**

State Curriculum Standard: **4.1.4 Watersheds and Wetlands.**

Course Content	Student Performance	Resources	Assessments
A. Explain the differences between moving and still water. • Identify types of precipitation.	• Create a flip-flap book that illustrates the four types of precipitation (rain, snow, sleet, hail) • Write a poem about a type of precipitation	• Weather in Climate pp. E44-45, 48, 87-89 • Project WET p. 182 “Poetic Precipitation”	• Teacher-made rubric of flip-flap book • Student poems

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Analyze the needs of people and factors affecting the availability of renewable and nonrenewable resources.**

State Curriculum Standard: **4.2.4 Renewable and Nonrenewable Resources**

Course Content	Student Performance	Resources	Assessments
A. Identify needs of people. • Explain air, water and nutrient cycles.	• Read student p. 287	• Scott Foresman student textbook	• Checkpoint p. 287 student text

Science Planned Course: Grade 4

Unit: **Weather**

Content Standard: **Examine the flow of energy within an ecosystem and how its organisms have changed over time.**

State Curriculum Standard: **4.6.4 Ecosystems and their Interactions.**

Course Content	Student Performance	Resources	Assessments
A. Understand the concept of cycles. • Explain the water cycle.	• Simulation activity of water in its solid, liquid, and gaseous forms as it travels around the world	• Project Wet, "Imagine!" pp. 157-158	• Students' written responses in science journal

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Integrate the fundamental concepts of science and technology; motion in force, energy, and structure of matter, change over time, and simple machines.**

State Curriculum Standard: **3,1,4 Unifying Themes**

Course Content	Student Performance	Resources	Assessments
A. Know models as useful simplifications of objects or processes. • Identify theories that serve as models (e.g., molecules).	• Lab Zone: Directed Inquiry p. 260 of student text. and Activity book pp. 111-112	• Scott Foresman Student texbook and activity book	• Compare and Contrast: Target Skill TM p. 261 • Activity Rubric from Activity DVD Segment 18
B. Illustrate patterns that regularly occur and reoccur in nature. • Identify observable patterns (e.g., growth patterns in plants, crystal shapes in minerals, climate, structural patterns in bird feathers).	• Read student text pp. 239-241 • Observe different crystals using magnifying lens and draw crystal shapes	• Scott Foresman student textbook • Crystals • Magnifying lenses	• Scaffolded Questions TM p. 239 • Student journals
C. Know that scale is an important attribute of natural and human made objects, events and phenomena. • Identify the use of scale as it relates to the measurement of distance, volume and mass.	• Read pp. 240-241 of student text • Lab Zone: Guided Inquiry pp. 250-251 and student activity book pp. 103-104	• Scott Foresman student textbook and Activity Book	• Activity Rubric use Activity DVD Segment 17
D. Recognize change in natural and physical systems. • Recognize change as fundamental to science and technology concepts.	• Read pp. 248-249 of student text • Create storybook after listening to a story • Read p. 245 of student text	• Scott Foresman sudent textbook • Nature Scope: Geology, the Active Earth, “Carla Calcite” pp. 23-24	• Completed storybook in correct sequence • Teacher-made quiz of geologic time scale

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Integrate the fundamental concepts of science and technology; motion in force, energy, and structure of matter, change over time, and simple machines.**

State Curriculum Standard: **3,1,4 Unifying Themes**

Course Content	Student Performance	Resources	Assessments
• Examine and explain change by using time and measurement. • Describe the change to objects caused by heat, cold, light or chemicals.	• Make a time wheel of the history of life on earth. • Read pp. 264-265 of student text • Conduct several demonstrations then take an erosion and weathering walk "Crack, Crumble, and Carry" from Geology: The Active Earth pp. 37-39	• Nature Scope, "Digging Into Dinosaurs", p. 29, 31-33 • Nature Scope, " Geology: The Active Earth "	• Observations in students' science journals

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Apply the scientific process to solve real life problems.**

State Curriculum Standard: **3,2,4 Inquiry and Design**

Course Content	Student Performance	Resources	Assessments
A. Identify and use the nature of scientific and technological knowledge. • Relate how new information can change existing perceptions.	• Find current events	• Local newspapers, magazines	• Teacher observation

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Investigate the structure and properties of objects.**

State Curriculum Standard: **3,4.4 Physical Science, Chemistry and Physics**

Course Content	Student Performance	Resources	Assessments
A. Recognize basic concepts about the structure and properties of matter. • Describe properties of matter (e.g.,hardness, reactions to simple chemical tests. • Know that combining two or more substances can make new materials with different properties. • Know different material characteristics (e.g., texture, state of matter, solubility).	• Read pp. 240-241 of student text • Lab Zone: Guided Inquiry student text pp. 250-251, Student Activity Book pp. 103-104 • Grow crystals from a chemical solution, "Grow a Crystal", Nature Scope: Geology, the Active Earth pp. 26-28 • Lab Zone: Guided Inquiry pp.338-339 of student text, student activity book pp. 135-136 • Read pp. 330-331 of student text • Experiment with various substances for solubility	• Scott Foresman student textbook and Activity Book • Nature Scope: Geology, the Active Earth • Scott Foresman student text and Activity Book • Water, sugar, salt, sand, soil	• Activity Rubric use Activity DVD Segment 17 • Student observations in science journal • Activity Rubric use Activity DVD Segment 24 • Teacher-made experiment activity sheet

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Use principles from physical sciences, geography, and mathematics to study the forces of nature that build the earth and wear down the earth.**
State Curriculum Standard: **3,5.4 Earth Sciences**

Course Content	Student Performance	Resources	Assessments
A. Know basic landforms and earth history. • Describe earth processes (e.g., rusting, weathering, erosion) that have affected selected physical features in students' neighborhoods. • Identify various earth structures (e.g., mountains, faults,drainage basins) through the use of models. • Identify the composition of soil as weathered rock and decomposed organic remains. • Describe fossils and the type of environment they lived in (e.g., tropical, aquatic, desert). B. Know types and uses of earth materials. • Identify uses of various earth materials (e.g., buildings, highways, fuels, growing plants). • Identify and sort earth materials according to a classification key (e.g., soil/rock type).	• Read pp. 263-269 of student text • Observe and record evidences of weathering and erosion around school, home, and community • Create a model of a folded mountain by using several different colored towels • Create a model of a volcano and erupt using baking soda and vinegar • Demonstrate the movement of fault-block mountains using chalkboard erasers • Read pp. 288-291 of student text • Read pp. 244-245 of student text • Create a fossil using clay or plaster of Paris and seashells • Read pp. 242-243 AND 246-248 of student text. • Construct a booklet describing the three types of rocks and list uses of each	• Scott Foresman student textbook • Colored towels • Volcanoes and Earthquakes pp. 14-15 • Scott Foresman student textbook • Scott Foresman student textbook • Scott Foresman student textbook • Other rock reference books	• Lesson checkpoints pp.265,267,269 • Students science journals • Teacher-made quiz on mountains and volcanoes • Scaffolded Questions SF TM p. 291 • Lesson Checkpoint p. 245 of student text • Teacher-made rubric for rock booklet

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Analyze the needs of people and factors affecting the availability of renewable and nonrenewable resources.**

State Curriculum Standard: **4.2.4 Renewable and Nonrenewable Resources**

Course Content	Student Performance	Resources	Assessments
A. Identify needs of people. • Identify plants, animals, water, air, minerals and fossil fuels as natural resources. B. Know that some natural resources have limited life spans. • Identify renewable and nonrenewable resources used in the local community. C. Identify by-products and their use of natural resources. • Identify those items that can be recycled and those that cannot. • Identify use of reusable products. • Identify the use of compost, landfills and incinerators.	• Read pp. 292-297 of student text • "My Science Journal: Important Resources, TM p. 294 • Read p. 19 of student text • Create a Venn diagram to compare and contrast renewable and nonrenewable resources • Make a list of items recycled in our community and what items are not • Create a recycled magazine necklace using strips of magazine pages • Read pp. 296-297, 126-127 of student text	• Scott Foresman student textbook • Scott Foresman Teacher's Manual • Scott Foresman: Pennsylvania student textbook • Twin Borough Recycling Center personnel • Scott Foresman student textbook	• Scaffolded Questions TM p. 295 and p. 297 • Teacher-made rubric • Scaffolded Questions TM p. 127 and p. 297 • Teacher-made quiz

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Examine the flow of energy within an ecosystem and how its organisms have changed over time.**

State Curriculum Standard: **4.6.4 Ecosystems and their Interactions**

Course Content	Student Performance	Resources	Assessments
A. Understand that living things are dependent on nonliving things in the environment for survival. • Identify common soil textures.	• Compare and contrast different soils, e.g. Sand, silt and clay • Make a chart to compare the properties of sand, silt and clay	• Soil samples • Scott Foresman teacher manual	• Scaffolded Questions TM p. 291 • Teacher-made rubric for soil chart • Chapter 10 test Assessment Book

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Describe the biological diversity of an ecosystem and explain how natural or human actions cause the loss of species.**

State Curriculum Standard: **4.7.4 Threatened, Endangered and Extinct Species**

Course Content	Student Performance	Resources	Assessments
A. Define and understand extinction. • Identify plants and animals that are extinct. • Explain why some plants and animals are extinct.	• Read pp. 120-121 of student text • Identify characteristics that make an animal more prone to extinction by participating in the activities “Rare Scare” and “Picky Eaters” • Research and report on an extinct animal	• Scott Foresman student textbook • Naturescope, “Endangered Species” pp8-10, 15 • Teacher recommended internet sites	• Student –created rubric for animal report

Science Planned Course: Grade 4

Unit: **Geology**

Content Standard: **Identify the biological requirements of humans, and analyze the relationship between the use of natural resources and society's needs**

State Curriculum Standard: **4.8.4 Humans and the Environment**

Course Content	Student Performance	Resources	Assessments
A. Identify the biological requirements of humans. • Identify several ways that people use natural resources. B. Know the importance of natural resources in daily life. • Identify major land uses in the community.	• Read pp. 42-47 of Explore Our Land student text • Create a collage showing how people use natural resources • Read pp. 126-127 of student text • Activity Flip Chart, "How does mining affect ecosystems?" TM 105E	• Explore Our Land student textbook • Magazine pictures • Scott Foresman student textbook • Scott Foresman teacher's manual • Flip Chart	• Group presentation of collage • Think About It questions on Flip chart

Science Planned Course: Grade 4

Unit: **Technology**

Content Standard: **Recognize and evaluate the relationship between technological advances and society.**

State Curriculum Standard: **3.8.4 Science, Technology and Human Endeavors**

Course Content	Student Performance	Resources	Assessments
A. Identify and describe positive and negative impacts that influence or result from new tools and techniques. • Identify and describe positive and negative impacts that influence or result from new tools and techniques. • Describe how scientific discoveries and technological advancements are related. B. Know how human ingenuity and technological resources satisfy specific human needs and improve the quality of life. • Describe a technological invention and the resources that were used to develop it. C. Know the pros and cons of possible solutions to scientific and technological problems in society.	• View "Acceptable Use" Power Point presentation demonstrated by the teacher. • Research technology in science topics • Read pp. 551-559 • Research how a technological invention is made • Create a poster of a someone using the device • Students should identify each element of the device and how it is made • Read pp 562-563 • Make a chart, which illustrates how students use technology in their daily lives and describe positive and negatives impacts of these technologies • Read p. 551 in student text	• Internet curriculum CD, Acceptable Use PowerPoint show • Scott Foresman student textbook pp. 33, 125, &187 • Scott Foresman student textbook • Scott Foresman student textbook	• List 3 examples of acceptable use • List 3 examples of non-acceptable use • Teacher observation • Oral reports • Teacher-made rubric • Workbook page180 • Scaffolded Questions • Scaffolded Questions Tm p. 551

Science Planned Course: Grade 4

Unit: **Technology**

Content Standard: **Cross Curricular Integrations to Social Studies**

State Curriculum Standard: **4.4 Agriculture and Society: Pennsylvania Social Studies Unit**

Course Content	Student Performance	Resources	Assessments
A. Know the importance of agriculture to humans. B. Identify the role of the sciences in Pennsylvania agriculture. C. Know that food and fiber originate from plants and animals. D. Identify technology and energy use associated with agriculture.	• Read pp. 16, 39-40, 45-46, 58,86-87	• Scott Foresman: Pennsylvania student textbook • ESASD social studies curriculum guide	• Teacher observation

Science Planned Course: Grade 4

Unit: **Technology**

Content Standard: **Cross Curricular Integrations to Social Studies**

State Curriculum Standard: **3.6 and 3.7 Technology Education: Student Internet Curriculum**

Course Content	Student Performance	Resources	Assessments
A. Know that information technologies involve encoding, transmitting, receiving, storing, retrieving and decoding. B. Identify basic computer operations and concepts. C. Use basic computer software. D. Identify basic computer communications systems.	• Complete ESASD Student Internet Curriculum training • Use technological skills to research and present a science project through the creation of a PowerPoint or web quest	• ESASD Student Internet Curriculum • Use of the Internet	• Teacher-made rubric for Student presentations • District Mandated assessment