



Pine Grove Area

SCHOOL DISTRICT

SCIENCE

Fourth Grade Science

May 21, 2009

I. PHILOSOPHY

The Fourth grade Science course of the Pine Grove Area School District has been structured to introduce various concepts in Biology, Chemistry, and Earth Science. The course includes using the Scientific Method, Drawing Conclusions, and Determining Cause and Effect. This course will allow for the accommodations of many learning styles, motivational levels, and academic abilities.

II. CORE CONCEPTS

1. Scientific Method- Utilize the steps of the scientific method to answer questions & solve problems.
2. Weather Patterns & Charts-Identify how patterns effect seasons & climate.
3. Similarities & Differences of Living Things- Identify similarities & differences in living things.
4. Energy Types Transfer-Identify various types of energy & ways to transform it.
5. Water & Water Systems- Identify the water cycle & types of water systems.
6. Watersheds & Wetlands-Determine the importance of watersheds & wetlands.
7. Science Technology & Human Endeavors-Know that people select, create, & use science & technology for problems in society.

III. COURSE OF STUDY

A. Course Name: Science

B. Grade Level: Fourth

C. Length of Course: full year

1. Frequency: daily

2. Duration: 35 min.

D. Academic Level: 4th grade

E. Credits: none

F. Prerequisites: none

G. Course Description:

This course will introduce students to the nature of Science in the areas of Biology, Chemistry, and Earth Science. This course will increase their knowledge of the various concepts in these areas.

IV. CONTENT: 4th gr. Science

CORE CONCEPT 1: Scientific Method

MAJOR OBJECTIVE: Utilize the steps of the scientific method to answer questions & solve problems.

CURRICULUM STANDARD:			
PA State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.2.4.A Identify and use the nature of scientific and technological knowledge.</p> <ul style="list-style-type: none">• Distinguish between a scientific fact and a belief.• Provide clear explanations that account for observations and results.• Relate how new information can change existing perceptions.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Differentiate between a scientific fact and a belief.2. Supply clear explanations that account for observations and results.3. Recount how new information can change existing perceptions.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student drawingsb. student writingsc. teacher observationd. group discussionse. experiments & observations	<p>Textbook/textbook components</p> <p>Transparencies</p> <p>Chart paper</p> <p>Art supplies for drawings</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 1: Scientific Method

MAJOR OBJECTIVE: Utilize the steps of the scientific method to answer questions & solve problems.

CURRICULUM STANDARD:

PA State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.2.4.C Recognize and use the elements of scientific inquiry to solve problems.</p> <ul style="list-style-type: none">• Generate questions about objects, organisms and/or events that can be answered through scientific investigations.• Design an investigation.• Conduct an experiment.• State a conclusion that is consistent with the information.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Create and evaluate questions about objects, organisms and/or events that can be answered through scientific investigations.2. Devise an investigation.3. Perform the experiment.4. Use data to state a conclusion.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student drawingsb. student writingsc. teacher observationd. group discussionse. experiments & observations	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Tools to measure weather</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 1: Scientific Method

MAJOR OBJECTIVE: Utilize the steps of the scientific method to answer questions & solve problems.

CURRICULUM STANDARD:

PA State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.2.4.D Recognize and use the technological design process to solve problems.</p> <ul style="list-style-type: none">• 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.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Determine & explain problems given by teacher.2. Classify possible solutions and their course of action.3. Undertake a solution.4. Explain the results & discuss if a change in a variable is needed.5. Evaluate the steps & results	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student drawingsb. student writingsc. teacher observationd. group discussionse. experiments & observations	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Journal/ notebook</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 2: Weather Patterns & Charts

MAJOR OBJECTIVE: Identify how patterns effect seasons & climate.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.5.4.C Know basic weather elements.</p> <ul style="list-style-type: none">▪ Identify weather patterns from data charts (including temperature, wind direction and speed, precipitation) and graphs of the data▪ Explain how the different seasons affect plants, animals, food availability and daily human life.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Classify weather patterns using data charts graphs of the data.2. Describe how different seasons affect plants, animals, food availability and daily human life.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student drawings & diagramsb. experimentsc. projectsd. teacher observatione. student notebooks or journalsf. testsg. group discussions	<p>Weather maps</p> <p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Tools to measure weather</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 2: Weather Patterns & Charts

MAJOR OBJECTIVE: Identify how patterns effect seasons & climate.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.4.4.D Describe the composition and structure of the universe and the earth's place in it.</p> <ul style="list-style-type: none">• Recognize earth's place in the solar system.• Explain and illustrate the causes of seasonal changes.• Identify planets in our solar system and their general characteristics.• Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Identify earth's place in the solar system.2. Clarify and demonstrate the causes of seasonal changes.3. Recognize planets in the solar system and their general characteristics.4. Illustrate and describe the solar system motions and use them to clarify time (e.g., days, seasons), major lunar phases and eclipses.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student drawings & diagramsb. experimentsc. projectsd. teacher observatione. student notebooks or journalsf. testsg. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Tools to measure weather</p> <p>Trade books</p> <p>Computer</p> <p>Weather maps</p>

CONTENT: 4th gr. Science

CORE CONCEPT 3: Similarities & Differences of Living Things

MAJOR OBJECTIVE: Identify similarities & differences in living things

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.3.4.A Know the similarities and differences of living things</p> <ul style="list-style-type: none">• Know that some organisms have similar external characteristics (eg, anatomical characteristics; appendages, type of covering, body segments) and that similarities and differences are related to environmental habitat• Identify life processes of living things (e.g., growth, digestion, react to environment).• Describe basic needs of plants and animals.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Recognize that some organisms have similar external characteristics (eg, anatomical characteristics; appendages, type of covering, body segments) and that similarities and differences are connected to environmental habitat2. Classify life processes of living things (e.g., growth, digestion, react to environment).3. Explain and describe basic needs of plants and animals.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbooks/textbook components</p> <p>Overheads.</p> <p>Videos</p> <p>Trade books</p> <p>Art supplies</p> <p>Plants</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 3: Similarities & Differences of Living Things

MAJOR OBJECTIVE: Identify similarities & differences in living things

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.7.4.B Know that adaptations are important for survival.</p> <ul style="list-style-type: none">• 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.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Clarify how specific adaptations can help a living organism to survive.2. Clarify what happens to a living thing when its food, water, shelter or space is changed.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Trade Books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 3: Similarities & Differences of Living Things

MAJOR OBJECTIVE: Identify similarities & differences in living things

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>.PA Standard 4.6.4.A Understand that living things are dependent on nonliving things in the environment for survival</p> <ul style="list-style-type: none">• Identify and categorize living and nonliving things.• Describe the basic needs of an organism.• Identify basic needs of a plant and an animal and explain how their needs are met.• Identify plants and animals with their habitat and food sources.• Identify environmental variables that affect plant growth.• Understand the components of a food chain.• Identify a simple ecosystem and its living and nonliving components.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Recognize and catalog living and nonliving things.2. Explain the basic needs of an organism.3. Recognize basic needs plant and animals and clarify how needs are met.4. Classify plants and animals by habitat and food sources.5. Categorize environmental variables that affect plant growth.6. Recognize the components of a food chain.7. Recognize a simple ecosystem and its living and nonliving components.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 3: Similarities & Differences of Living Things

MAJOR OBJECTIVE: Identify similarities & differences in living things

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.6.4.B Understand the concept of cycles</p> <ul style="list-style-type: none">• Explain the carbon dioxide/oxygen cycle (photosynthesis)• Identify how ecosystems change over time.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Clarify the carbon dioxide/oxygen cycle (photosynthesis)2. Discover how ecosystems change over time.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 4: Energy Types & Transfer

MAJOR OBJECTIVE: Identify various types of energy & ways to transform it

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.4.4.B Know basic energy types, sources and conversions.</p> <ul style="list-style-type: none"> • Describe static electricity in terms of attraction, repulsion and sparks. • Identify energy forms and examples (e.g., sunlight, heat, stored, motion). • Apply knowledge of the basic electrical circuits to design and construction simple direct current circuits. • Classify materials as conductors and nonconductors. • Know the concept of the flow of energy by measuring flow through an object or system. • Know and demonstrate the basic properties of heat by producing it in a variety of ways.. • Know the characteristics of light (e.g., reflection, refraction, absorption) and use them to produce heat, color or a virtual image. 	<p>Teacher will guide students to:</p> <ol style="list-style-type: none"> 1. Illustrate and explain static electricity in terms of attraction, repulsion and sparks. 2. Categorize energy forms and examples (e.g., sunlight, heat, stored, motion). 3. Relate knowledge of the basic electrical circuits to devise and for assembly of simple direct current circuits. 4. Categorize materials as conductors and nonconductors. 5. Identify the concept of the flow of energy by measuring flow through an object or system. 6. Identify and exhibit the basic properties of heat by producing it in a variety of ways. 7. Discern the characteristics of light (e.g., reflection, refraction, absorption) and utilize them to produce heat, color or a virtual image. 	<p>Teacher evaluation of:</p> <ol style="list-style-type: none"> a. Experiments b. projects c. teacher observation d. journals or notebooks e. tests g. group discussions 	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 4: Energy Types & Transfer

MAJOR OBJECTIVE: Identify various types of energy & ways to transform it

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.4.4.C Observe and describe different types of force and motion.</p> <ul style="list-style-type: none">• Identify characteristics of sound (pitch, loudness and echoes)• Recognize forces that attract or repel other objects and demonstrate them.• 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).	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Categorize characteristics of sound (pitch, loudness and echoes)2. Discern forces that attract or repel other objects and demonstrate them.3. Explain various types of motions.4. Evaluate the relative movement of objects and explain types of motion that are evident.5. Illustrate the position of an object by locating it relative to another object or the background (e.g., geographic direction, left, up).	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. Experimentsb. projectsc. teacher observationd. journals or notebookse. testsg. group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 4: Energy Types & Transfer

MAJOR OBJECTIVE: Identify various types of energy & ways to transform it

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.1.4.E Recognize change in natural and physical systems.</p> <ul style="list-style-type: none">• Recognize change as fundamental to science and technology concepts.• Examine and explain change by using time and measurement.• Describe relative motion.• Describe the change to objects caused by heat, cold, light or chemicals.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Identify change as fundamental to science and technology concepts.2. Observe and elucidate change by using time and measurement.3. Explain relative motion.4. Depict the change to objects caused by heat, cold, light or chemicals.	<p>Teacher evaluation of: Teacher evaluation of:</p> <ol style="list-style-type: none">a. Experimentsb. projectsc. teacher observationd. journals or notebookse. testsg. group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 5: Water & Water Systems

MAJOR OBJECTIVE: Identify Water Cycle & Water Systems

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.5.4.D Recognize the earth's different water resources.</p> <ul style="list-style-type: none">• Identify and describe types of fresh and salt-water bodies.• Explain and illustrate evaporation and condensation.• Recognize other resources available from water (eg, energy, transportation, minerals, food)	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Recognize and explain different types of fresh and salt-water bodies.2. Clarify and demonstrate evaporation and condensation.3. Identify other resources available from water (eg, energy, transportation, minerals, food)	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. Experimentsb. projectsc. teacher observationd. journals or notebookse. testsg. group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 5: Water & Water Systems

MAJOR OBJECTIVE: Identify Water Cycle & Water Systems

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.1.4.A Know that natural and human-made objects are made up of parts.</p> <ul style="list-style-type: none">• 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.• Know that technologies include physical technology systems (e.g., construction, manufacturing, transportation), informational systems and biochemical-related systems.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Research & illustrate what parts make up a system.2. Categorize system parts that are natural and human-made (e.g., ball point pen, simple electrical circuits, plant anatomy).3. Explain the purpose of analyzing systems.4. Discern that technologies include physical technology systems (e.g., construction, manufacturing, transportation), informational systems and biochemical-related systems.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. Experimentsb. projectsc. teacher observationd. journals or notebookse. testsg. group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 6: Watersheds & Wetlands

MAJOR OBJECTIVE: Determine the importance of watersheds & wetlands

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.1.4.A Identify various types of water environments.</p> <ul style="list-style-type: none">• Identify the lotic system (e.g., creeks, rivers, streams).• Identify the lentic system (e.g., ponds, lakes, swamps).	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Categorize the lotic system (e.g., creeks, rivers, streams).2. Categorize the lentic system (e.g., ponds, lakes, swamps).	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. Projectsb. Experimentsc. Teacher observationd. Journals or notebookse. Testsf. Group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Trade books</p>
<p>PA Standard 4.1.4.D Identify a wetland and the plants and animals found there.</p> <ul style="list-style-type: none">• Identify different kinds of wetlands.• Identify plants and animals found in wetlands.• Explain wetlands as habitats for plants and animals.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Discover different kinds of wetlands2. Categorize plants and animals found in wetlands.3. Clarify wetlands as habitats for plants and animals.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. Projectsb. Experimentsc. Teacher observationd. Journals or notebookse. Testsf. Group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Trade books</p>

CONTENT: 4th gr. Science

CORE CONCEPT 6: Watersheds & Wetlands

MAJOR OBJECTIVE: Determine the importance of watersheds & wetlands

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 4.1.4.E Recognize the impact of watersheds and wetlands on animals and plants.</p> <ul style="list-style-type: none">• Explain the role of watersheds in everyday life.• Identify the role of watersheds and wetlands for plants and animals.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Clarify the role of watersheds in everyday life.2. Recognize the role of watersheds and wetlands for plants and animals.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. Projectsb. Experimentsc. Teacher observationd. Journals or notebookse. Testsf. Group discussions	<p>Textbook resources</p> <p>Computer programs/web sites</p> <p>Journal or notebook</p> <p>Supplemental materials</p> <p>Videos</p> <p>Trade books</p>

CONTENT: 4th gr. Science

CORE CONCEPT 7: Science Technology & Human Endeavors

MAJOR OBJECTIVE: Know that people select, create, & use science & technology for problems in society.

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.6.4 A Know that biotechnologies relate to propagating, growing, maintaining, adapting, treating and converting.</p> <ul style="list-style-type: none">• Identify agricultural and industrial production processes that involve plants and animals.• Identify waste management treatment processes.• Describe how knowledge of the human body influences or impacts ergonomic design.• Describe how biotechnology has impacted various aspects of daily life (e.g., health care, agriculture, waste treatment).	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Classify agricultural and industrial production processes that involve plants and animals.2. Discover waste management treatment processes3. Explain how knowledge of the human body controls or forces ergonomic design.4. Explain how biotechnology has impacted various aspects of daily life (e.g., health care, agriculture, waste treatment).	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 7: Science Technology & Human Endeavors

MAJOR OBJECTIVE: Know that people select, create, & use science & technology for problems in society.

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.7.4.A Explore the use of basic tools, simple materials and techniques to safely solve problems.</p> <ul style="list-style-type: none">• Describe the scientific principles on which various tools are based.• Group tools and machines by their function.• Select and safely apply appropriate tools and materials to solve simple problems.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Illustrate the scientific principles on which various tools are based.2. Compare and contrast tools and machines by their function.3. Choose and safely apply appropriate tools and materials to solve simple problems.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 7: Science Technology & Human Endeavors

MAJOR OBJECTIVE: Know that people select, create, & use science & technology for problems in society.

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.8.4.A Know that people select, create and use science and technology and that they are limited by social and physical restraints.</p> <ul style="list-style-type: none">• Identify and describe positive and negative impacts that influence or result from new tools and techniques.• Identify how physical technology (e.g., construction, manufacturing, transportation), informational technology and biotechnology are used	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Recognize and explain positive and negative impacts that influence or result from new tools and techniques.2. Categorize how physical technology (e.g., construction, manufacturing, transportation), informational technology and biotechnology are used <p>.</p>	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 7: Science Technology & Human Endeavors

MAJOR OBJECTIVE: Know that people select, create, & use science & technology for problems in society.

CURRICULUM STANDARD:			
State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.8.4.B Know how human ingenuity and technological resources satisfy specific human needs and improve the quality of life.</p> <ul style="list-style-type: none">• Identify and distinguish between human needs and improving the quality of life.• Identify and distinguish between natural and human-made resources.• Describe a technological invention and the resources that were used to develop it.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Compare and contrast between human needs and improving the quality of life.2. Recognize and evaluate the differences between natural and human-made resources.3. Illustrate a technological invention and the resources that were used to develop it	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 7: Science Technology & Human Endeavors

MAJOR OBJECTIVE: Know that people select, create, & use science & technology for problems in society.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.8.4.C Know the pros and cons of possible solutions to scientific and technological problems in society.</p> <ul style="list-style-type: none">• Compare the positive and negative expected and unexpected impacts of technological change.• Identify and discuss examples of technological change in the community that have both positive and negative impacts.	<p>Teacher will guide students to:</p> <ol style="list-style-type: none">1. Compare and contrast the positive and negative expected and unexpected impacts of technological change.2. Evaluate and illustrate examples of technological change in the community that have both positive and negative impacts.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 7: Science Technology & Human Endeavors

MAJOR OBJECTIVE: Know that people select, create, & use science & technology for problems in society.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.1.4.B Know models as useful simplifications of objects or processes.</p> <ul style="list-style-type: none">• Identify different types of models.• Identify and apply models as tools for prediction and insight.• Apply appropriate simple modeling tools and techniques.• Identify theories that serve as models (e.g., molecules).	<ol style="list-style-type: none">1. Categorize different types of models.2. Classify and relate models as tools for prediction and insight.3. Utilize appropriate simple modeling tools and techniques.4. Apply advanced theories that serve as models and evaluate effectiveness in various situations(e.g., molecules).	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Trade books</p> <p>Computer</p>

CONTENT: 4th gr. Science

CORE CONCEPT 7: Science Technology & Human Endeavors

MAJOR OBJECTIVE: Know that people select, create, & use science & technology for problems in society.

CURRICULUM STANDARD:

State Standard/Student Expectation	Specific Content	Assessments	Resources/Materials
<p>PA Standard 3.1.4.D Know that scale is an important attribute of natural and human made objects, events and phenomena.</p> <ul style="list-style-type: none">• Identify the use of scale as it relates to the measurement of distance, volume and mass.• Describe scale as a ratio (e.g., map scales). <p>Explain the importance of scale in producing models and apply it to a model.</p>	<ol style="list-style-type: none">1. Classify the use of scale as it relates to the measurement of distance, volume and mass.2. Illustrate scale as a ratio (e.g., map scales).3. Explain the importance of scale in producing models and apply it to a model.	<p>Teacher evaluation of:</p> <ol style="list-style-type: none">a. student projectsb. observation of group workc. testsd. experimentse. journals or notebooksf. group discussions	<p>Experiment supplies</p> <p>Textbook & textbook components</p> <p>Overheads</p> <p>Trade books</p> <p>Computer</p>

V. EXPECTED LEVELS OF ACHIEVEMENT

A. Students are expected to reach the kindergarten level of achievement in mathematics. These skills include all of those noted in the specific content area of this curriculum.

B. Grading system for all kindergarten technology classes is as follows:

Grading Scale	
S	Satisfactory
N	Needs Improvement
O	Outstanding

C. Each student's grade will be determined at the conclusion of each marking period.