

This Elementary Curriculum Guide has been prepared to inform parents of the curriculum that has been established for all elementary students. State standards are listed in the language arts and mathematics curriculum.

Although the concepts and skills are listed in separate subject areas in each grade, they are frequently taught in conjunction with one another. This enables students to see the relationship among the various subjects. For example, reading and writing are included only in the language arts curriculum, but they are applied in all subject areas.

We hope you use the Elementary Curriculum Guide as a resource and as a springboard for questions and comments. Please contact your child's teacher, the Principal, Director of Curriculum or the Assistant Superintendent to address any questions you may have.

## **LANGUAGE ARTS READING, WRITING, SPEAKING AND LISTENING**

In a quest to develop lifelong learners, independent thinkers and problem solvers, the School District of Hatboro-Horsham embraces an integrated approach to teaching language arts reading, writing, speaking and listening, which is the core of all learning. High expectations are set as teachers employ the best instructional strategies to guide students through meaningful experiences using a balanced literacy model. This model includes guided reading, self-selected reading, working with words and writing. Students' needs are met through a variety of grouping practices. A balanced literacy approach to reading supports the individual needs of children at each grade level. Our curriculum is researched based and supports the findings of the National Reading Panel Report. Children are provided instruction in phonemic awareness, phonics instruction, fluency, vocabulary, and text comprehension. Through shared reading students are exposed to skills, concepts, and comprehension strategies such as repairing understanding, asking questions, determining important ideas, making connections, synthesizing, visualizing, and making inferences. Through guided reading students are given opportunities to apply these comprehension strategies at their instructional level and to monitor their own reading. Through self-selected reading students become better readers, score higher on achievement tests in all subject areas, and have greater content knowledge. Read-alouds build students' background knowledge, provide them with interesting vocabulary words, and ensure that they are hearing expressive, fluent reading.

Ongoing assessment determines the students' acquisition of skills and the attainment of the state standards. Reading instruction is based upon the student's instructional level. The instructional level is determined by a student's proficiency in word recognition and comprehension using both narrative and expository texts. Grouping may be based on the student's ability, interest, or skill development. Grouping practices may include whole class, flexible skill groups, individual instruction and cooperative groups.

- Student's progress will be monitored using teacher-made assessment and district assessments.
- Students in grades 3 through 5 will be identified by their instructional levels, i.e., above level, on level and below level.
- Novels, anthologies and content-based literature will be used at the student's instructional level.

Students are introduced to the writing process through mini-lessons and modeled writing which includes instruction in brainstorming, using graphic organizers to plan a rough draft, writing a rough draft, self and peer editing, conferencing with the teacher, revising their draft, and presenting a published copy. In addition, students have opportunities to share their work. Students are provided instruction in various writing genres including narrative, informational and persuasive. Students are also provided instruction in focus, style, conventions, organization, content and voice. Students are given opportunities to use technology throughout the writing process.

## **CRITERIA FOR READING LEVELS**

### **Grades 3, 4 and 5**

#### **Above Level:**

- Reads and comprehends above grade level materials.
- Consistently uses comprehension strategies, visualizing, drawing inferences, determining important ideas, making connections, synthesizing, asking questions, and repairing understanding to monitor reading.
- Reads with fluency and phrasing - intonation reflects mood and pace.
- Incorporates text structures to express higher level understanding of text in both oral and written forms.
- Is an active participant in literature discussions across a variety of genres.
- Adjusts reading pace to accommodate purpose, style and difficulty of material.
- Reads longer, more complex texts silently and independently for extended periods of time.
- Self-selects books for a variety of reading purposes.
- Gains understanding when reading a variety of genres.

#### **On Level:**

- Reads and comprehends grade level materials.
- Uses comprehension strategies, visualizing, drawing inferences, determining important ideas, making connections, synthesizing, asking questions, and repairing understanding to monitor reading.
- Reads with fluency and phrasing - intonation reflects mood and pace.
- Identifies story elements including character, setting, problem and solution both orally and in writing.
- Is an active participant in literature discussions across a variety of genres.
- Understands how to adjust reading pace to accommodate purpose, style and difficulty of material.

#### **Below Level:**

- Reads and comprehends material with support.
- Needs multiple exposures to master skills and concepts.
- Uses comprehension strategies, visualizing, drawing inferences, determining important ideas, making connections, synthesizing, asking questions, and repairing understanding to monitor reading with guidance.
- Reads with developing fluency.
- Responds to literature with support and practice.
- Has difficulty reading for meaning independently.

## KINDERGARTEN

### STATE STANDARD - 1.1 LEARNING TO READ INDEPENDENTLY

■ Purpose for Reading ■ Word Recognition Skills ■ Vocabulary Development ■ Comprehension and Interpretation ■ Fluency

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- identify the front and back covers and title page of books
- follow words from left to right and top to bottom
- understand that print and picture both carry the message
- distinguish letters from words
- point out the space between words
- identify the beginning and end of words
- point to words with one to one matching
- recognize their own name with only the first letter capitalized
- recognize and name all uppercase and lowercase letters

#### Phonemic Awareness:

- identify rhyming words and patterns in songs, poems, nursery rhymes and jingles
- recognize words that start and end with the same sound
- identify beginning sounds in words

#### Reading in Context:

- develop proficiency in beginning reading skills and strategies, including:
  - demonstrating an understanding of how print is organized and read
  - use information from the three-cueing systems to predict words during shared and independent reading
  - semantic (meaning) cues, which include pictures, knowledge of the story and topic (Does it make sense?)
  - syntactic (structure) cues, which include knowledge of sentence structure and grammar (Does it sound right? Can you say it that way?)
  - graph-o-phonics (visual cues) which include sounding out of words, breaking words into smaller words and looking for word part/affixes (Does it look right?)

#### Understanding How Words Work:

- understand that sounds are represented by letters
- identify the sounds of most letters of the alphabet
- find or match a word in text
- understand basic language concepts such as synonyms, antonyms, directional words and size words as they appear in literature read and heard
- develop a beginning sight vocabulary of high frequency words (e.g., it, is, in, up)
- connect what is read to students and what students read with students' own background knowledge and experience
- connect pictures and text in stories read to students and in stories students read

### STATE STANDARD-1.3 READING, ANALYZING AND INTERPRETING LITERATURE

■ Literary Elements ■ Literary Devices ■ Poetry ■ Drama

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- listen to a story and be able to discuss it
- identify the beginning, middle and end of a story
- identify characters and setting
- identify literary devices in stories (rhyme, rhythm)
- identify the structures in poetry (e.g., pattern books, predictable books and nursery rhymes)
- act out the story creatively
- retell the story

### STATE STANDARD - 1.4 TYPES OF WRITING

■ Narrative ■ Informational ■ Persuasive

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- compose personal/experiential genre:
  - engage in prewriting activities through pictures or writing (draft, revise, edit, publish)
- print formal name

## STATE STANDARD - 1.5 QUALITY OF WRITING

■Focus ■Content ■Organization ■Style ■Conventions

### HATBORO-HORSHAM CONCEPTS/SKILLS

- use capital letters correctly at the beginning of sentences, own names and the word "I"
- print upper and lowercase letters correctly
- write words and draw a picture to reflect word meaning

## STATE STANDARD - 1.6 SPEAKING AND LISTENING

■Listening Skills ■Speaking Skills ■Discussion ■Presentation

### HATBORO-HORSHAM CONCEPTS/SKILLS

- display appropriate turn-taking behaviors
- recite name address and phone number
- listen critically and/or appreciatively to gain information, follow directions, plan activities
- identify sound environmental (loud and soft), answer questions, contribute to conversation and discussion
- present themselves by conversing/discussing ideas and specific interests
- engage in creative activities/retelling
- follow directions and explanations sequentially
- use correct language through complete sentences
- use social language conventions: (please, thank you, etc.)
- listen to others without interrupting

## STATE STANDARD - 1.8 RESEARCH

■Selection ■Location of Information ■Organization

### HATBORO-HORSHAM CONCEPTS/SKILLS

- recognize the dictionary as a source for words
- summarize the main ideas

## GRADE 1

### STATE STANDARD - 1.1 LEARNING TO READ INDEPENDENTLY

■Purpose for Reading ■Word Recognition Skills ■Vocabulary Development ■Comprehension and Interpretation ■Fluency

### HATBORO-HORSHAM CONCEPTS/SKILLS

- identify reader's/listener's purpose
- identify title, author, glossary and table of contents
- apply initial consonants, blends, final consonant sounds when reading words
- identify short and long vowel sounds
- demonstrate understanding of main idea, sequence, cause/effect, details, predicting outcomes, fantasy, realism
- use sight words, compound words, contractions and word families
- decode words from picture cues, visual cues (word patterns)
- identify characters, setting, problem, solution, retell story events and make predictions
- demonstrate fluency and comprehension
- read 25 books per year

### STATE STANDARD - 1.2 READING CRITICALLY IN ALL CONTENT AREAS

■Detail ■Inferences ■Fact from Opinion ■Compare ■Analyzing and Evaluating

### HATBORO-HORSHAM CONCEPTS/SKILLS

- demonstrate an understanding of compare/contrast
- find the problem and solution in a selection
- use picture cues to find details

### STATE STANDARD - 1.3 READING, ANALYZING AND INTERPRETING LITERATURE

■Literary Elements ■Literary Devices ■Poetry ■Drama

## HATBORO-HORSHAM CONCEPTS/SKILLS

- read and understand types of literature
- identify literary elements in stories describing characters, setting and problem solution
- identify rhyme in stories
- identify patterns in literature
- read and respond to a variety of literature
- retell the story with interpretative and creative responses

## STATE STANDARD - 1.4 TYPES OF WRITING

- Narrative ■Informational ■Persuasive

## HATBORO-HORSHAM CONCEPTS/SKILLS

- write narrative pieces (stories)
- engage in pre-writing activities - draft, revise, edit, publish
- write informational pieces (report, response to literature)

## STATE STANDARD - 1.5 QUALITY OF WRITING

- Focus ■Content ■Organization ■Style ■Conventions

## HATBORO-HORSHAM CONCEPTS/SKILLS

- write with a sharp, distinct focus
- write a series of related sentences
- write sentences in a logical order
- use descriptive words in writing
- print upper and lower case letters correctly and well formed
- use capital letters correctly (at the beginning of sentences, names, the word "I", months, days of the week)
- punctuate correctly (use periods at the end of sentences, and identify sentences written as a question and punctuate them correctly).
- use proper spacing between words
- spell first grade words correctly
- use and identify nouns and verbs (naming words, action words)

## STATE STANDARD - 1.6 SPEAKING AND LISTENING

- Listening Skills ■Speaking Skills ■Discussion ■Presentation

## HATBORO-HORSHAM CONCEPTS/SKILLS

- listen to others without interrupting
- listen to a selection of literature, relate it to similar experiences, predict what will happen next, retell a story in chronological order
- use appropriate volume
- contribute to discussions, display appropriate turn-taking behaviors
- participate in small and large group discussions and presentations
- recite name, address and phone number to report an emergency

## STATE STANDARD - 1.7 CHARACTERISTICS AND FUNCTION OF THE ENGLISH LANGUAGE

- Word Origins ■Variations ■Application

## HATBORO-HORSHAM CONCEPTS/SKILLS

- understand that people use different languages to communicate

## STATE STANDARD - 1.8 RESEARCH

- Selection ■Location of Information ■Organization

## HATBORO-HORSHAM CONCEPTS/SKILLS

- select a topic for research
- use appropriate sources to locate information
- take notes from sources using a structured format
- summarize the main ideas
- organize and present the main ideas from the research
- use table of contents, dictionaries and glossaries to locate information

## GRADE 2

### STATE STANDARD - 1.1 LEARNING TO READ INDEPENDENTLY

■ Purpose for Reading ■ Word Recognition Skills ■ Vocabulary Development ■ Comprehension and Interpretation ■ Fluency

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- determine text organization and content including main idea, sequencing, cause/effect, details and locating information
- identify the reader's/listener's purpose for reading
- anticipate what the text may be about by predicting outcomes
- select text appropriate to a given purpose (i.e., author's purpose) and distinguish genre
- identify common beginnings (i.e., initial consonants) and endings (i.e., final consonants) of words
- apply phonics (i.e., sound-symbol relationships) when reading the alphabet (upper and lowercase):
  - initial consonants
  - final consonants
  - medial consonants
  - silent consonants
  - initial and final blends, digraphs
  - short and long vowels
  - vowel digraphs, r-controlled vowels
- apply word analysis (i.e., roots words, prefixes and suffixes) to read compound words, contractions, word families and new words
- read with fluency
- read and determine meaning from text by using pictures and context clues, rereading and identifying and defining new words and concepts:
  - visual clues
  - word meaning
  - multiple meanings, homonyms, pronoun referents, abbreviations, synonyms, antonyms, sight words
- use text to build on previous knowledge
- retelling/paraphrasing what was read by talking, writing or drawing and accurately expressing plot, setting and characters
- judge whether earlier assumptions were accurate

### STATE STANDARD - 1.2 READING CRITICALLY IN ALL CONTENT AREAS

■ Detail ■ Inferences ■ Fact from Opinion ■ Compare ■ Analyzing and Evaluating

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- use detail (descriptive and supportive) from text to support a generalization; form a generalization based on specific evidence from text
- use examples from text to support a conclusion
- differentiate fact from opinion; describe the relationship between fact and opinion
- distinguish between essential and nonessential information according to the purpose for reading
- compare and contrast various elements of a story including character, setting and plot
- find problems and solutions in text
- evaluation of solutions found in text using given criteria

### STATE STANDARD - 1.3 READING, ANALYZING AND INTERPRETING LITERATURE

■ Literary Elements ■ Literary Devices ■ Poetry ■ Drama

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- read and classify text as fiction or nonfiction
- read literature from various cultures
- identify and describe literary elements in stories including characters, setting, plot and theme
- identify and describe literary devices in stories including rhyme, rhythm, personification
- demonstrate an understanding for literature through interpretive, creative and evaluative responses
- compare and contrast the problems and solutions in a story with other stories

### STATE STANDARD - 1.4 TYPES OF WRITING

■ Narrative ■ Informational ■ Persuasive

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- engage in prewriting activities
- draft

- revise
- edit
- publish
- write narrative pieces such as stories, poems and plays that show evidence of detailed descriptions of people, places and things, relevant illustrations and literary elements
  - descriptive
  - short stories
  - personal/experiential
  - lists and labels
- write informational pieces such as descriptions, letters, reports and instructions, using illustrations when relevant (sentences related to one topic)
- write an opinion and support it with facts

### STATE STANDARD - 1.5 QUALITY OF WRITING

- Focus ■Content ■Organization ■Style ■Conventions

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- write with a sharp, distinctive focus and maintain a clear purpose by communicating ideas clearly
- write using well developed, content appropriate for the topic (state topic clearly and generally stay on subject; provide details to explain reasoning)
- write with controlled and/or subtle organization (maintain sequence; shows beginning, middle, end; sentences related to one topic; write at least five complete sentences)
- write with a command of the stylistic aspects of composition (using good ideas; begin sentences with different words; use describing words)
- spell common and frequently used words correctly using the dictionary as a tool (spells second grade words appropriately; sight vocabulary; phonetic patterns; selected Dolch words; theme content words)
- use capital letters correctly (beginning of sentences, I, names, proper nouns, titles)
- use punctuation marks correctly (period, exclamation point, question mark, comma)
- write with proper usage of nouns, pronouns, verbs, adjectives, adverbs and conjunctions (nouns and verbs agree; uses describing words; uses correct verb tense)
- write complete sentences, including:
  - simple
  - declarative, interrogative
  - exclamatory and imperative
  - write five complete, simple sentences
- print upper and lower case letters correctly throughout all the writing (letters A-Z are well formed and easy to read)

### STATE STANDARD - 1.6 SPEAKING AND LISTENING

- Listening Skills ■Speaking Skills ■Discussion ■Presentation

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- listen to others:
  - without interrupting
  - asking clarifying questions
  - drawing logical conclusions
  - distinguishing fact from opinion
  - listens to gain information, follow directions, plan activities
  - listens to answer questions, contribute to conversation/discussion
- listen to selections of literature, including fiction and nonfiction:
  - relate it to previous knowledge
  - anticipate what's next
  - retell including theme, characters, tone and setting
  - retell in chronological order
  - identify and define new words and concepts
  - summarize the selection
- speak using complete sentences, adjusting volume, pace, pronunciation, stress and enunciation to be understood:
  - uses appropriate volume
  - uses appropriate voice and stance
  - uses complete sentences, descriptive words, comparisons
- contribute to discussions by:
  - asking relevant questions

- responding with relevant, information or opinions to questions asked
- listening to and acknowledging the contributions of others
- taking turns
- focusing eyes on speaker
- speaking clearly
- present information, ideas and opinions to others showing evidence of:
  - awareness of audience
  - awareness of purpose
  - an identifiable beginning, middle and ending
  - proper language usage to develop new vocabulary
  - proper word endings and appropriate forms of nouns and verbs
- participate effectively as a speaker and/or listener in the following activities:
  - everyday conversation
  - conversing/discussing ideas and specific interest, thoughts and problems clearly
  - oral reading
  - presentations (e.g. book reports)
  - short, simple interviews
  - simple directions and explanations
  - reporting an emergency
  - plans for an activity, small group work, problem solving
  - engages in retelling
  - gives directions and explanations sequentially
  - recite name, address and telephone number to report an emergency
- engage the audience using a variety of techniques, including:
  - eye contact
  - voice inflection
  - visual aids

### STATE STANDARD - 1.7 CHARACTERISTICS AND FUNCTION OF THE ENGLISH LANGUAGE

- Word Origins
- Variations
- Application

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- understand that people use different languages to communicate and understand words from other languages can be used in the English language

### STATE STANDARD - 1.8 RESEARCH

- Selection
- Location of Information
- Organization

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- select a topic for research
- locate materials appropriate to purpose in a school library/media center
- use table of contents, page numbers, glossaries and alphabetical order to locate information:
  - knows parts of books (cover, spine, title page, title, author, illustrator)
  - know table of contents, glossary
- use the card catalog (traditional or electronic) to locate information
- use the features of electronic media (e.g., passwords, entry menus, pull down menus) to locate information
- use the following to gather information:
  - books, including dictionaries and encyclopedias, audio/video resources, computers, simple interviews
  - use dictionary or glossary to determine proper spelling and word meaning (uses a dictionary for ABC order to the 1st letter, illustrations, correct spelling)
- take notes using a structured format
- summarize main ideas from research (use graphic organizers)

### GRADE 3

#### STATE STANDARD - 1.1 LEARNING TO READ INDEPENDENTLY

- Purpose for Reading
- Word Recognition Skills
- Vocabulary Development
- Comprehension and Interpretation
- Fluency

#### HATBORO-HORSHAM CONCEPTS/SKILLS

- before reading, identify the purposes and types of text (e.g., literary, informational)
- preview the text formats (e.g., title, headings, chapters and table of contents)
- during reading use knowledge of phonics, word analysis (e.g., root words, prefixes and suffixes), syllabication, picture and context clues to decode and understand new words
- read text using self-monitoring comprehension strategies (e.g., predicting, revising predictions, rereading, using headings, graphics, charts, organization of text, adjusting reading rate)

- acquire a reading vocabulary by identifying and correctly using words, (e.g., antonyms, synonyms, categories of words), use a dictionary when appropriate
- understand the meaning of and use correctly new vocabulary learned in various subject areas
- after reading, demonstrate understanding and interpretation of both fiction and nonfiction text
  - retell or summarize the major ideas, themes or procedures of the text
  - generalizations
  - connect the new information or ideas in the text to known information
  - clarify ideas and understandings through rereading and discussion
  - make responsible assertions about the text by citing evidence from the text
- demonstrate fluency and comprehension in reading
  - read familiar materials aloud with accuracy
  - self-correct mistakes
  - use appropriate rhythm, flow, meter and pronunciation
  - read a variety of genres and types of text
  - demonstrate comprehension (Standard 1.1.3.G.) (Recommend: 25 books/year)
- select text appropriate to a given purpose, locate information in text

### **STATE STANDARD - 1.2 READING CRITICALLY IN ALL CONTENT AREAS**

- Detail ■Inferences ■Fact from Opinion ■Compare ■Analyzing and Evaluating

#### **HATBORO-HORSHAM CONCEPTS/SKILLS**

- read and understand essential content of informational text and documents in all academic areas
  - differentiate fact from opinion within text
  - distinguish between essential and nonessential information within a text
  - make inferences from text when studying a topic (e.g., science, social studies) and draw conclusions based on text
  - analyze text organization and content to derive meaning from text using established criteria
- use and understand a variety of media and evaluate the quality of material produced
  - use electronic media for research
  - identify techniques used in television and use the knowledge to distinguish between facts and misleading information
  - develop media project (e.g., script, play, audiotape) for a targeted audience
- produce work in at least one literacy genre that follows the conventions of the genre

### **STATE STANDARD - 1.3 READING, ANALYZING AND INTERPRETING LITERATURE**

- Literary Elements ■Literary Devices ■Poetry ■Drama

#### **HATBORO-HORSHAM CONCEPTS/SKILLS**

- read and understand works of literature
- identify literary elements in stories describing characters, setting and plot
- identify literary devices in stories
  - rhyme
  - rhythm
  - personification
- identify the structures in poetry (e.g., pattern books, predictable books and nursery rhymes)
- identify the structures in drama (e.g., dialogue, story enactment, acts and scenes)
- read and respond to nonfiction and fiction, including poetry and drama

### **STATE STANDARD - 1.4 TYPES OF WRITING**

- Narrative ■Informational ■Persuasive

#### **HATBORO-HORSHAM CONCEPTS/SKILLS**

- write narrative pieces (e.g., stories, poems and plays)
  - include detailed descriptions of people, places and things
  - use relevant illustration
  - include literary elements (Standard 1.3.3.B.)
- write informational pieces (e.g., descriptions, letters, reports and instructions), using illustrations when relevant
- write an opinion and support it with facts

### **STATE STANDARD - 1.5 QUALITY OF WRITING**

- Focus ■Content ■Organization ■Style ■Conventions

## HATBORO-HORSHAM CONCEPTS/SKILLS

- write with a sharp, distinct focus identifying topic, task and audience
- write using well-developed, content appropriate for the topic
  - gather and organize information
  - write a series of related sentences or paragraphs with one central idea
  - incorporate details relevant and appropriate to the topic: use good, well thought out ideas; topic sentences; supporting details; characters, setting, problem and solution
- write with controlled and/or subtle organization
  - sustain a logical order
  - include a recognizable beginning, middle and end; including sentences related to one topic; paragraphing; using transitional sentences (composition flows; including an introduction, body and conclusion)
- write with an awareness of the stylistic aspects of composition
  - use sentences of differing lengths and complexities
  - use descriptive words and action verbs
  - use good ideas
  - use sentences of different words
- revise writing to improve detail and order by identifying missing information and determining if ideas follow logically (writing process)
- edit writing using the conventions of language
  - spell common, frequently used words correctly
  - use capital letters correctly (first word in sentences, proper nouns, pronoun "I")
  - punctuate correctly (period, exclamation point, question mark and commas in a series)
  - use nouns, pronouns, verbs, adjectives, adverbs and conjunctions properly
  - use complete sentences (simple, compound, declarative, interrogative, exclamatory and imperative) (writing process)
- present and/or defend written work for publication when appropriate
- introduce cursive writing

## STATE STANDARD - 1.6 SPEAKING AND LISTENING

■Listening Skills ■Speaking Skills ■Discussion ■Presentation

## HATBORO-HORSHAM CONCEPTS/SKILLS

- listen to others:
  - without interrupting
  - asking clarifying questions
  - drawing logical conclusions
  - distinguishing fact from opinion
  - listens to gain information, follow directions, plan activities
  - listens to answer questions, contribute to conversation/ discussion
- listen to selections of literature, including fiction and nonfiction:
  - relate it to previous knowledge
  - anticipate what's next
  - retell including theme, characters, tone and setting
  - retell in chronological order
  - identify and define new words and concepts
  - summarize the selection
  - make a mental image
  - interpret character traits
  - identify main idea sequence
- speak using complete sentences, adjusting volume pace, pronunciation, stress and enunciation to be understood during formal speeches:
  - uses appropriate volume
  - uses appropriate voice and stance
  - uses complete sentences, descriptive words, comparisons
  - pace speech so that it is understandable
  - demonstrate an awareness of audience
- contribute to discussions by:
  - listening to others
  - listen to a selection of literature
  - retell the story
  - predict
  - asking relevant questions
  - responding with relevant information or opinions to questions asked
  - listening to and acknowledging the contributions of others

- taking turns
- focusing eyes on speaker
- speaking clearly
- present information, ideas and opinions to others showing evidence of:
  - awareness of audience
  - awareness of purpose
  - an identifiable beginning, middle and ending
  - proper language usage to develop new vocabulary
  - proper word endings and appropriate forms of nouns and verbs
- participate effectively as a speaker and/or listener in the following activities:
  - everyday conversation
  - conversing/discussing ideas and specific interest, thoughts and problems clearly
  - oral reading
  - presentations (e.g., book reports)
  - short, simple interviews
  - simple directions and explanations
  - reporting an emergency
  - plans for an activity, small group work, problem solving
  - engages in retelling
  - gives directions and explanations sequentially
  - small and large group discussions and presentation
- engage the audience using a variety of techniques, including:
  - eye contact
  - voice inflection
  - visual aids
  - appropriate stance
- use media for learning purposes
  - explain the importance of television, radio, film and Internet in the lives of people
  - explain how advertising sells products
  - show or explain what was learned (e.g., audiotape, computer download)

#### **STATE STANDARD - 1.7 CHARACTERISTICS AND FUNCTION OF THE ENGLISH LANGUAGE**

- Word Origins ■Variations ■Application

##### **HATBORO-HORSHAM CONCEPTS/SKILLS**

- identify words from other languages that are commonly used English words
- identify variations in the dialogues of literacy characters and relate them to differences in occupation or geographical location

#### **STATE STANDARD - 1.8 RESEARCH**

- Selection ■Location of Information ■Organization

##### **HATBORO-HORSHAM CONCEPTS/SKILLS**

- select a topic for research
- locate information using appropriate sources and strategies
  - locate resources for a particular task (e.g., newspapers, dictionary)
  - select sources (e.g., dictionaries, encyclopedias, interviews to write a family history, observations and electronic media)
  - use table of contents, key words and guide words
  - use traditional and electronic search tools
- organize and present the main ideas from the research
  - take notes from sources using a structured format
  - make and interpret graphs, charts and tables
  - summarize, orally or in writing, the main ideas
- study skills: graphic organizers

#### **GRADE 4**

##### **STATE STANDARD - 1.1 LEARNING TO READ INDEPENDENTLY**

- Purpose for Reading ■Word Recognition Skills ■Vocabulary Development ■Comprehension and Interpretation ■Fluency

## HATBORO-HORSHAM CONCEPTS/SKILLS

### Before

- establish purpose
- retrieve prior knowledge
- use illustrations, headings and text format to select text and predict content
- choose books based on level and interest

### During

- use a variety of strategies to decode and understand new words including phonics, syllabication, prefixes, suffixes, dictionary and context clues
- identify and use synonyms, homophones, homographs and words related through roots, suffixes or prefixes
- use vocabulary words from various subject areas
- self-correct for fluency
- read familiar materials aloud with accuracy
- self-correct mistakes when reading aloud
- read a variety of genres and text
- read at least 10 books a year
- use vocabulary words accurately when writing and speaking
- demonstrate understanding and interpretation of both fiction and nonfiction text
- summarize text
- clarify by rereading
- cite evidence from the text to support ideas or opinions
- extend ideas found in the text

## STATE STANDARD - 1.2 READING CRITICALLY IN ALL CONTENT AREAS

- Detail ■Inferences ■Fact from Opinion ■Compare ■Analyzing and Evaluating

## HATBORO-HORSHAM CONCEPTS/SKILLS

### Before

- comprehend the content of text and learning material in all academic areas
- fact/opinion
- essential/non-essential information
- exaggeration
- make inferences
- draw conclusions
- author's purpose
- use and evaluate a variety of media for research
- evaluate the role of media as a source of both entertainment and information
- distinguishing genre
- produce work in at least one literary genre
- make generalizations
- compare and contrast

## STATE STANDARD - 1.3 READING, ANALYZING AND INTERPRETING LITERATURE

- Literary Elements ■Literary Devices ■Poetry ■Drama

## HATBORO-HORSHAM CONCEPTS/SKILLS

- characterization
- setting
- plot
- theme
- point of view
- sound techniques - rhyme, rhythm, meter, alliteration
- figurative language - exaggeration, personification, simile, metaphor
- sound and structure in poetry - alliteration, rhyme, verse, form
- analyze drama as information source entertainment, persuasion or transmitter of culture
- read and respond to fiction, non-fiction, poetry and drama
- make generalizations

## STATE STANDARD - 1.4 TYPES OF WRITING

- Narrative ■Informational ■Persuasive

## HATBORO-HORSHAM CONCEPTS/SKILLS

- play/skit
- poetry
- outline
- descriptive
- short stories
- letters
- relevant illustrations
- utilize dialogue
- problem/solution
- literary elements
- literary devices
- paragraph summaries
- relevant graphics - maps, charts, graphs, tables, illustrations and photographs
- cite sources

## STATE STANDARD - 1.5 QUALITY OF WRITING

- Focus ■Content ■Organization ■Style ■Conventions

## HATBORO-HORSHAM CONCEPTS/SKILLS

- sentences related to one topic
- identify topic, task and audience
- beginning, middle, end
- transition sentence
- point of view/voice
- introduction, body, conclusion
- sentence variety
- verb tense consistent
- use various parts of speech
- revise writing
- edit writing
- present writing
- reinforce cursive handwriting skills

## STATE STANDARD - 1.6 SPEAKING AND LISTENING

- Listening Skills ■Speaking Skills ■Discussion ■Presentation

## HATBORO-HORSHAM CONCEPTS/SKILLS

- listen to others and contribute to discussions
- ask questions
- determine relevant/irrelevant content
- take notes
- listen to a story and then retell, predict, relate to prior knowledge, identify and define new words, summarize
- identify main idea and sequence
- identify supporting ideas
- speak using complete sentences, proper pronunciation, appropriate volume, proper pace, purpose and adjust content for different audiences
- deliver research reports
- conduct interviews
- plan and participate in group presentations
- use media for learning purposes
- compare information from various media sources
- access Internet information and discuss its reliability
- use a variety of images and sound to create an effective presentation on a topic

## STATE STANDARD - 1.7 CHARACTERISTICS AND FUNCTION OF THE ENGLISH LANGUAGE

- Word Origins ■Variations ■Application

## HATBORO-HORSHAM CONCEPTS/SKILLS

- identify words from other languages that are commonly used English words
- identify differences in formal and informal speech (dialect, slang and jargon)
- identify word meanings that have changed over time (cool, mouse, etc.)

## STATE STANDARD - 1.8 RESEARCH

- Selection
- Location of Information
- Organization

### HATBORO-HORSHAM CONCEPTS/SKILLS

- select and refine a topic for research
- utilize various types of reference books
- gather data - class notes, outlines, time lines, visual materials, questions and answers
- knowledge of table of contents and glossary
- knowledge of forward, preface, introduction, appendix, bibliography, index, key words and cross-references
- use traditional and computerized search tools
- organize, write and present the main ideas from the research
- develop a bibliography

## GRADE 5

### STATE STANDARD - 1.1 LEARNING TO READ INDEPENDENTLY

- Purpose for Reading
- Word Recognition Skills
- Vocabulary Development
- Comprehension and Interpretation
- Fluency

### HATBORO-HORSHAM CONCEPTS/SKILLS

#### Before

- establish purpose
- retrieve prior knowledge
- use illustrations, headings and text format to select text and predict content
- choose books based on level and interest

#### During

- use a variety of strategies to decode and understand new words including phonics, syllabication, prefixes, suffixes, dictionary and context clues
- identify and use synonyms, homophones, homographs and words related through roots, suffixes or prefixes
- use vocabulary words from various subject areas
- self-correct for fluency
- read familiar materials aloud with accuracy
- self-correct mistakes when reading aloud
- read a variety of genres and text
- read 25 books a year

#### After

- use vocabulary words accurately when writing and speaking
- demonstrate understanding and interpretation of both fiction and non-fiction text
- summarize text
- relate text to additional media sources
- clarify by rereading
- cite evidence from the text to support ideas or opinions
- extend ideas found in the text

### STATE STANDARD - 1.2 READING CRITICALLY IN ALL CONTENT AREAS

- Detail
- Inferences
- Fact from Opinion
- Compare
- Analyzing and Evaluating

### HATBORO-HORSHAM CONCEPTS/SKILLS

#### Before

- comprehend the content of text and learning material in all academic areas
- fact/opinion
- essential/non-essential information
- stereotypes
- exaggeration
- make inferences
- draw conclusions
- author's purpose
- use and evaluate a variety of media for research
- evaluate the role of media as a source of both entertainment and information
- design a media project for a targeted audience
- distinguish genre
- produce work in at least one literacy genre

## STATE STANDARD - 1.3 READING, ANALYZING AND INTERPRETING LITERATURE

■Literary Elements ■Literary Devices ■Poetry ■Drama

### HATBORO-HORSHAM CONCEPTS/SKILLS

- characterization
- setting
- plot
- theme
- point of view
- sound techniques - rhyme, rhythm, meter, alliteration
- figurative language - exaggeration, personification, simile, metaphor, hyperbole
- sound and structure in poetry - alliteration, rhyme, verse, form
- analyze drama as information source, entertainment, persuasion or transmitter of culture
- read and respond to fiction, non-fiction, poetry and drama

## STATE STANDARD - 1.4 TYPES OF WRITING

■Narrative ■Informational ■Persuasive

### HATBORO-HORSHAM CONCEPTS/SKILLS

- play/skit
- poetry
- outline
- persuasive
- descriptive
- short stories
- letters
- relevant illustrations
- utilize dialogue
- problem/solution
- literary elements
- literary devices
- three paragraph writing pieces
- relevant graphics - maps, charts, graphs, tables, illustrations and photographs
- cite sources

## STATE STANDARD - 1.5 QUALITY OF WRITING

■Focus ■Content ■Organization ■Style ■Conventions

### HATBORO-HORSHAM CONCEPTS/SKILLS

- sentences related to one topic
- identify topic, task and audience
- topic sentence and supporting details
- composition, flow and organization
- beginning, middle and end
- transition sentence
- point of view and voice
- introduction, body and conclusion
- sentence variety
- verb tense consistency
- use various parts of speech
- revise writing
- edit writing
- present writing

## STATE STANDARD - 1.6 SPEAKING AND LISTENING

■Listening Skills ■Speaking Skills ■Discussion ■Presentation

## HATBORO-HORSHAM CONCEPTS/SKILLS

- listen to others and contribute to discussions
- ask questions
- determine relevant and irrelevant content
- take notes
- listen to a story and then retell, predict, relate to prior knowledge, identify and define new words, summarize
- identify main idea and sequence
- identify supporting ideas
- speak using complete sentences, proper pronunciation, appropriate volume, proper pace, purpose and adjust content for different audiences
- deliver research reports
- conduct interviews
- plan and participate in group presentations
- contribute to informal debates
- use media for learning purposes
- compare information from various media sources
- access Internet information and discuss its reliability
- explain how video can represent either accurate versions or fictional versions of the same event
- explain the role of advertisers in the media
- use a variety of images and sound to create an effective presentation on a topic

### STATE STANDARD - 1.7 CHARACTERISTICS AND FUNCTION OF THE ENGLISH LANGUAGE

- Word Origins
- Variations
- Application

## HATBORO-HORSHAM CONCEPTS/SKILLS

- identify words from other languages that are commonly used English words
- identify differences in formal and informal speech (dialect, slang and jargon)
- identify word meanings that have changed over time (cool, mouse)

### STATE STANDARD - 1.8 RESEARCH

- Selection
- Location of Information
- Organization

## HATBORO-HORSHAM CONCEPTS/SKILLS

- select and refine a topic for research
- utilize various types of reference books
- gather data - class notes, outlines, time lines, visual materials, questions and answers
- knowledge of table of contents and glossary
- knowledge of forward preface, introduction, appendix, bibliography, index, key words and cross-references
- use traditional and computerized search tools
- organize and present the main ideas from the research
- bibliography

## ELEMENTARY MATHEMATICS CURRICULUM & RESOURCES

The School District of Hatboro-Horsham is in the final stages of a complete revision of the elementary math curriculum K-5. Our new curriculum is correlated with the Pennsylvania Academic Standards for Mathematics and assures that every child is prepared for advanced math competency and critical problem-solving agility. Through the elementary math curriculum, students will develop higher order thinking and critical problem solving at the same time they master automatic recall of the basic number facts and computational accuracy. The curriculum requires students to correctly solve complex math problems and to succinctly explain, verbally and in writing, the steps they used to solve the problems. All of these skills and abilities are critical for success against Pennsylvania and national standards in preparing students for higher level math. The District chose to resource the elementary curriculum with the University of Chicago School Mathematics Project Everyday Mathematics (EM) materials. With these resources, math content and concepts are introduced, practiced and mastered at various times and within specific units. Students are not expected to (but may) master skills during the initial presentation. The curriculum has been developed to "spiral" and allow student understanding to emerge at their own pace over several exposures which allows for either extension or support activities.

Below is a listing of the grade level curriculum goals and content descriptions for the elementary math curriculum. These charts are organized by grade and directly reference the PA Academic Standards for Mathematics and EM goals on which they are based. Because of the spiraling nature of the elementary math curriculum, two of the math standards, mathematical reasoning and connections with problem solving and math communication, are taught in every grade throughout most math units.

### KINDERGARTEN

#### *PA Standards for Mathematics ~ Numbers, Number Systems & Number Relationships*

EM Goals ~ Number & Numeration	Content
Count on by 1s to 100; count on by 2s, 5s, & 10s & count back by 1s with number grids, number lines, & calculators.	Rote counting
Count 20 or more objects; estimate the number of objects in a collection.	Rational counting
Model numbers with manipulatives; use manipulatives to exchange 1s for 10s & 10s for 100s; recognize that digits can be used & combined to read & write numbers; read numbers up to 30.	Place value & notation
Use manipulatives to model half of a region or a collection; describe the model.	Meanings & uses of fractions
Use manipulatives, drawings, & numerical expressions involving addition & subtraction of 1-digit numbers to give equivalent names for whole numbers up to 20.	Equivalent names for whole numbers
Compare & order whole numbers up to 20.	Comparing & ordering numbers

#### *PA Standards for Mathematics ~ Computation & Estimation*

EM Goals ~ Operations & Computation	Content
Use manipulatives, number lines, & mental arithmetic to solve problems involving the addition & subtraction of single-digit whole numbers.	Addition & subtraction procedures
Identify join & take-away situations.	Models for the operations

#### *PA Standards for Mathematics ~ Statistics & Data Analysis ~ Probability & Predictions*

EM Goals ~ Data & Chance	Content
Collect & organize data to create class-constructed tally charts, tables, & bar graphs	Data collection & representation
Use graphs to answer simple questions.	Data analysis
Describe events using certain, possible, impossible, & other basic probability terms.	Qualitative probability

#### *PA Standards for Mathematics ~ Measurement & Estimation*

EM Goals ~ Measurement & Reference Frames	Content
Use nonstandard tools & techniques to estimate & compare weight & length; identify standard measuring tools.	Length, weight & angles
Identify pennies, nickels, dimes, quarters & dollar bills.	Money
Describe temperature using appropriate vocabulary, such as hot, warm, & cold; identify a thermometer as a tool for measuring temperature.	Temperature
Describe & use measures of time periods relative to a day & week; identify tools that measure time.	Time

#### *PA Standards for Mathematics ~ Geometry*

EM Goals ~ Geometry	Content
Identify & describe plane & solid figures including circles, triangles, squares, rectangles, spheres, & cubes.	Plane & solid figures
Identify shapes having line symmetry.	Transformations & symmetry

#### *PA Standards for Mathematics ~ Algebra & Functions*

EM Goals ~ Patterns, Functions, & Algebra	Content
Extend, describe, & create visual, rhythmic, & movement patterns; use rules, which will lead to functions, to sort, make patterns, & play "What's My Rule?" & other games.	Patterns & functions
Read & write expressions & number sentences using the symbols +, -, and =.	Algebraic notation & solving number sentences

## GRADE 1

### ***PA Standards for Mathematics ~ Numbers, Number Systems & Number Relationships***

EM Goals ~ Number & Numeration	Content
Count on by 1s, 2s, 5s & 10s past 100 & back by 1s from any number less than 100 with & without number grids, number lines & calculators.	Rote counting
Count collections of objects accurately & reliably; estimate the number of objects in a collection.	Rational counting
Read, write, & model with manipulatives whole numbers up to 1,000; identify places & values of digits.	Place value & notation
Use manipulatives & drawings to model halves, thirds & fourths as equal parts of a regions or a collection; describe the model.	Meanings & uses of fractions
Use manipulatives to identify & model odd & even numbers.	Number theory
Use manipulatives, drawings, tally marks & numerical expressions involving addition & subtraction of 1- or 2-digit numbers to give equivalent names for numbers up to 100.	Equivalent names for whole numbers
Compare & order whole numbers up to 100.	Compare & order numbers

### ***PA Standards for Mathematics ~ Computation & Estimation***

EM Goals ~ Operations & Computation	Content
Demonstrate proficiency with $+/-0$ , $+/-1$ , doubles, & sum-equals-ten addition & subtraction facts; calculate & compare values of combinations & coins; use manipulatives, number grids, tally marks, mental math to solve problems of 1-digit numbers with 1- or 2-digit numbers.	Addition & subtraction facts & procedures
Estimate reasonableness of answers to basic fact problems.	Computational estimation
Identify change-to-more, change-to-less, comparison & parts-and-total situations.	Models of operations

### ***PA Standards for Mathematics ~ Statistics & Data Analysis***

EM Goals ~ Data & Chance	Content
Collect & organize data to create tally charts, tables, bar graphs & line plots.	Data collection & representation
Students will analyze & interpret data.	Use graphs to answer simple questions & draw conclusions
Students will understand & apply basic concepts of probability.	Qualitative probability to describe events

### ***PA Standards for Mathematics ~ Measurement & Estimation***

EM Goals ~ Measurement & Reference Frames	Content
Use nonstandard tools & techniques to estimate & compare weight & length; measure length with standard measuring tools.	Length, weight & angles
Know & compare the value of coins & dollar bills; make exchanges between coins.	Money
Use Fahrenheit & Celsius thermometers to read temperatures to the nearest 10o.	Temperature
Use calendar to identify days, weeks, months; tell & show time on analog clock.	Calendar

### ***PA Standards for Mathematics ~ Geometry***

EM Goals ~ Geometry	Content
Identify & describe plane & solid figures (circles, triangles, squares, rectangles, spheres, cylinders, rectangular prisms, pyramids, cones, cubes.	Plane & solid figures
Identify shapes having lines symmetry; complete line-symmetric shapes or designs.	Transformations & symmetry

### ***PA Standards for Mathematics ~ Algebra & Functions***

EM Goals ~ Patterns, Functions & Algebra	Content
Extend, describe & create numeric, visual & concrete patterns; solve problems involving function machines, table & diagrams.	Patterns & functions
Read, write & explain expressions & number sentences using the symbols $+$ , $-$ , $+$ and $>$ and $<$ with cures; solve equations involving addition & subtraction.	Algebraic notation & solving number sentences

## GRADE 2

### ***PA Standards for Mathematics ~ Numbers, Number System & Number Relationships***

EM Goals ~ Number & Numeration	Content
Count on by 1s, 2s, 5s, 10s, 25s & 100s past 1,000 & back by 1s from any number less than 1,000 with & without number grids, number lines & calculators.	Rote counting
Read, write, & model with manipulatives whole numbers up to 10,000; identify places in such numbers & the values of the digits in those places; read & write money amounts in dollars-and-cents notation.	Place value & notation
Use manipulatives & drawings to model fractions as equal parts of a region or a collection; describe the models & name the fractions.	Meanings & uses of fractions
Recognize numbers as odd or even.	Number theory

Use tally marks, arrays, & numerical expressions involving addition & subtraction to give equivalent names for whole numbers.	Equivalent names for whole numbers
Use manipulatives & drawings to model equivalent names for $\frac{1}{2}$ .	Equivalent names for fractions, decimals, & percents
Compare & order whole numbers up to 10,000; use area models to compare fractions.	Comparing & ordering numbers

**PA Standards for Mathematics ~ Computation & Estimation**

EM Goals ~ Operations & Computation	Content
Demonstrate automaticity with $+/- 0$ , $+/- 1$ , doubles, & sum-equals-ten facts, & proficiency with all addition & subtraction facts through $10 + 10$ .	Addition & subtraction facts
Use manipulatives, number grids, tally marks, mental arithmetic, paper & pencil, & calculators to solve problems involving the addition & subtraction of 2-digit whole numbers; describe the strategies used; calculate & compare values of coin & bill combinations.	Addition & subtraction procedures
Make reasonable estimates for whole number addition & subtraction problems; explain how the estimates were obtained.	Computational estimation
Identify & describe change, comparison, & part-and-total situations; use repeated addition, arrays, & skip counting to model multiplication; use equal sharing & equal grouping to model division.	Models for the operations

**PA Standards for Mathematics ~ Statistics & Data Analysis ~ Probability & Predictions**

EM Goals ~ Data & Chance	Content
Collect & organize data or use given data to create tally charts, tables, bar graphs & line plots.	Data collection & representation
Use graphs to ask & answer simple questions & draw conclusions; find the maximum, minimum, mode, & median of a data set.	Data analysis
Describe events using certain, likely, unlikely impossible & other basic probability terms; explain the choice of language.	Qualitative probability

**PA Standards for Mathematics ~ Measurement & Estimation**

EM Goals ~ Measurement & Reference Frames	Content
Estimate length with & without tools; measure length to the nearest inch & centimeter; use standard & nonstandard tools to measure & estimate weight.	Length, weight, & angles
Count unit squares to find the area of rectangles.	Area, perimeter, volume & capacity
Describe relationships between days in a week & hours in a day.	Units & syst. of measurement
Make exchanges between coins & bills.	Money
Read temperature on both the Fahrenheit & Celsius scales.	Temperature
Tell & show time to the nearest five minutes on an analog clock; tell & write in digital notation.	Time

**PA Standards for Mathematics ~ Geometry & Trigonometry**

EM Goals ~ Geometry	Content
Draw line segments & identify parallel line segments.	Lines & angles
Identify, describe, & model plane & solid figures including circles, triangles, squares, rectangles, hexagons, trapezoids, rhombuses, spheres, cylinders, rectangular prisms, pyramids, cones, & cubes	Plane & solid figures
Create & complete two-dimensional symmetrical shapes or designs.	Transformations & symmetry

**PA Standards for Mathematics ~ Algebra & Functions**

EM Goals ~ Patterns, Functions, & Algebra	Content
Extend, describe, & create numeric, visual, & concrete patterns; describe rules for patterns & use them to solve problems; use words & symbols to describe & write rules for functions involving addition & subtraction & use those rules to solve problems.	Patterns & functions
Read, write, & explain expressions & number sentences using the $+$ , $-$ , $=$ , $>$ , and $<$ ; solve number sentences involving addition & subtraction; write expressions & number sentences to model number stories.	Algebraic notation & solving number sentences
Describe the Commutative & Associative Properties of Addition & apply them to mental arithmetic problems.	Properties of the arithmetic operations

**GRADE 3**

***PA Standards for Mathematics ~Numbers, Number Systems & Number Relationships ~ Calculus***

EM Goals ~ Number & Numeration	Content
Read & write whole numbers up to 1,000,000; read, write, & model with manipulatives decimals through hundredths; identify places in such numbers & the values of the digits in those places; translate between whole numbers & decimals represented in words, in base-10 notation, & with manipulatives.	Place value & notation
Read, write, & model fractions; solve problems involving fractional parts of a region or a collection; describe strategies used.	Meanings & uses of fractions
Find multiples of 2, 5, & 10.	Number theory
Use numerical expressions involving one or more of the basic four arithmetic operations to give equivalent names for whole numbers.	Equivalent names for whole numbers
Use manipulatives & drawings to find & represent equivalent names for fractions; use manipulatives to generate equivalent fractions.	Equivalent names for fractions, decimals, & percents
Compare & order whole numbers up to 1,000,000; use manipulatives to order decimals through hundredths; use area models & benchmark fractions to compare & order fractions.	Comparing & ordering numbers

***PA Standards for Mathematics ~Computation & Estimation***

EM Goals ~ Operations & Computation	Content
Demonstrate automaticity with all addition & subtraction facts through 10 + 10; use basic facts to compute fact extensions such as 80 + 70.	Addition & subtraction facts
Use manipulatives, mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the addition & subtraction of whole numbers & decimals in a money context; describe the strategies used & explain how they work.	Addition & subtraction procedures
Demonstrate automaticity with x0, x1, x2, x5 & x10 multiplication facts; use strategies to compute remaining facts up to 10 x 10.	Multiplication & division facts
Use arrays, mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the multiplication of 2- & 3-digit whole numbers by 1-digit & describe the strategies used.	Multiplication & division procedures
Make reasonable estimates for whole number addition & subtraction problems; explain how the estimates were obtained.	Computational estimation
Recognize & describe change, comparison, & parts-and-total situations; use repeated addition, arrays, & skip counting to model multiplication; use equal sharing & equal grouping to model division.	Models for the operations

***PA Standards for Mathematics ~Statistics & Data Analysis ~ Probability & Predictions ~ Calculus***

EM Goals ~ Data & Chance	Content
Collect & organize data or use given data to create charts, tables, bar graphs & line plots.	Data collection & representation
Use graphs to ask simple questions & draw conclusions; find the maximum, minimum, range, mode, & median of a data set.	Data analysis
Describe events using certain, very likely, likely, unlikely, very unlikely, impossible & other basic probability terms; explain the choice of language.	Qualitative probability
Predict the outcomes of simple experiments & test the predictions using manipulatives; express the probability of an event by using " _out of_ " language.	Quantitative probability

***PA Standards for Mathematics ~Measurements & Estimation***

EM Goals ~ Measurement & Reference Frames	Content
Estimate length with & without tools; measure length to the nearest ½ inch & ½ centimeter; draw & describe angles of records of rotations.	Length, weight, & angles
Describe & use strategies to measure the perimeter of polygons; count unit squares to find the areas of rectangles.	Area, perimeter, volume, & capacity
Describe relationships among inches, feet, & yards; describe relationships between minutes in an hour, hours in a day, days in a week.	Units & systems of measurement
Tell & show time to the nearest minute on an analog clock; tell & write time in digital notation.	Time

***PA Standards for Mathematics ~Geometry ~ Trigonometry***

EM Goals ~ Geometry	Content
Identify & draw points, intersecting & parallel line segments, & lines, rays, & right angles.	Lines & angles
Identify, describe, model & compare plane & solid figures including circles, polygons, spheres, cylinders, rectangular prisms, pyramids, cones, & cubes using appropriate geometric terms including the terms face, edge, vertex, & base.	Plane & solid figures
Create & complete two-dimensional symmetric shapes or designs; locate multiple lines of symmetry in a two-dimensional shape.	Transformations & symmetry

**PA Standards for Mathematics ~ Algebra & Functions ~ Calculus**

EM Goals ~ Patterns, Functions, & Algebra	Content
Extend, describe, & create numeric patterns; describe rules for patterns & use them to solve problems; use words & symbols to describe & write rules for functions involving addition, subtraction & multiplication & use those rules to solve problems.	Patterns & functions
Read, write, & explain number sentences using the symbols +, -, x, ÷, =, >, and <; solve number sentences, write expressions & number sentences to model number stories.	Algebraic notation & solving number sentences
Recognize that numeric expressions can have different values depending on the order in which operations are carried out; understand that grouping symbols can be used to affect the order in which operations are carried out.	Order of operations
Describe & apply the Commutative & Associative Properties of Addition, the Commutative Property of Multiplication, & the Multiplicative Identity.	Properties of the arithmetic operations

**GRADE 4****PA Standards for Mathematics ~Numbers, Number Systems & Number Relationships ~ Calculus**

EM Goals ~ Number & Numeration	Content
Read & write whole numbers up to 1,000,000,000 & decimals through thousandths; identify places in such numbers & the values of the digits in those places between whole numbers & decimals represented in words & in base-10 notation.	Place value & notation
Read, write, & model fractions; solve problems involving fractional parts of a region or a collection; describe & explain strategies used; given a fractional part of a region or a collection, identify the unit whole.	Meanings & uses of fractions
Find multiples of whole numbers <10; find whole-number factors of numbers.	Number theory
Use numerical expressions involving one or more of the basic four arithmetic operations & grouping symbols to give equivalent names for whole numbers.	Equivalent names for whole numbers
Use numerical expressions to find & represent equivalent names for fractions & decimals; use & explain a multiplication rule to find equivalent fractions; rename fourths, fifths, tenths, & hundredths as decimals & percents.	Equivalent names for fractions, decimals, & percents
Compare & order whole numbers up to 1,000,000,000 & decimals through thousandths; compare & order integers between -100 & 0; use area models, benchmark fractions, & analyses of numerators & denominators to compare & order fractions.	Comparing & ordering numbers

**PA Standards for Mathematics ~ Computation & Estimation**

EM Goals ~ Operations & Computation	Content
Demonstrate automatically with basic addition & subtraction facts & fact extensions.	Addition & subtraction facts
Use manipulatives, mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the addition & subtraction of whole numbers & decimals through hundredths; describe the strategies used & explain how they work.	Addition & subtraction procedures
Demonstrate automatically with multiplication facts through $10 \times 10$ & proficiency with related division facts; use basic facts to compute fact extensions such as $30 \times 60$ .	Multiplication & division facts
Use mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the multiplication of multi-digit whole numbers by 2-digit whole numbers & the division of multi-digit whole numbers by 1-digit whole numbers; describe the strategies used & explain how they work.	Multiplication & division procedures
Use manipulatives, mental arithmetic, & calculators to solve problems involving the addition & subtraction of fractions with like & unlike denominators; describe the strategies used	Procedures for addition & subtraction of fractions
Make reasonable estimates for whole number & decimal addition & subtraction problems & whole number multiplication & division problems; explain how the estimates were obtained.	Computational estimation
Use repeated addition, skip counting, arrays, area, & scaling to model multiplication & division.	Models for the operations

**PA Standards for Mathematics ~ Statistics & Data Analysis ~ Probability & Predictions ~ Calculus**

EM Goals ~ Data & Chance	Content
Collect & organize data or use given data to create charts, tables, bar graphs, line plots & line graphs.	Data collection & representation
Use the maximum, minimum, range, median, mode, & graphs to ask & answer questions, draw conclusions, & make predictions.	Data analysis
Describe events using certain, very likely, likely, unlikely, very unlikely, impossible & other basic probability terms; use more likely, equally likely, same chance, 50-50, less likely, & other basic probability terms to compare events; explain the choice of language.	Qualitative probability
Predict the outcomes of experiments & test the predictions using manipulatives; summarize the results & use them to predict future events; express the probability of an even as a fraction.	Quantitative probability

**PA Standards for Mathematics ~ Measurements & Estimation**

EM Goals ~ Measurement & Reference Frames	Content
Estimate length with & without tools; measure length to the nearest $\frac{1}{4}$ inch & $\frac{1}{2}$ centimeter; estimate the size of angles without tools.	Length, weight, & angles
Describe & use strategies to measure the perimeter & area of polygons, to estimate the area of irregular shapes, & to find the volume of rectangular prisms.	Area, perimeter, volume, & capacity
Describe relationships among U.S. customary units of length & among metric units of length.	Units & systems of measurement
Use ordered pairs of numbers to name, locate, & plot points in the first quadrant of a coordinate grid.	Coordinate systems

**PA Standards for Mathematics ~ Geometry ~ Trigonometry**

EM Goals ~ Geometry	Content
Identify, draw & describe points, intersecting & parallel line segments, & lines, rays, & right, acute, & obtuse angles.	Lines & angles
Describe, compare & classify plane & solid figures, including circles, polygons, spheres, cylinders, rectangular prisms, pyramids, cones, & cubes using appropriate geometric terms including vertex, base, face, edge, & congruent.	Plane & solid figures
Identify, describe, & sketch examples of reflections; identify & describe examples of translations & rotations.	Transformations & symmetry

**PA Standards for Mathematics ~ Algebra & Functions ~ Calculus**

EM Goals ~ Patterns, Functions, & Algebra	Content
Extend, describe, & create numeric patterns; describe rules for patterns & use them to solve problems; use words & symbols to describe & write rules for functions that involve the four basic arithmetic operations & use those rules to solve problems.	Patterns & functions
Use conventional notation to write expressions & number sentences using the four basic arithmetic operations; determine whether number sentences are true or false; solve open sentences & explain the solutions; write expressions & number sentences to model number stories.	Algebraic notation & solving number sentences
Evaluate numeric expressions containing grouping symbols; insert grouping symbols to make number sentences true.	Order of operations
Apply the Distributive Property of Multiplication over Addition to the partial-products multiplication algorithm.	Properties of the arithmetic operations

**GRADE 5****PA Standards for Mathematics ~ Numbers, Number Systems & Number Relationships ~ Calculus**

EM Goals ~ Number & Numeration	Content
Read & write whole numbers & decimals; identify places in such numbers & the values of the digits in those places; use expanded notation to represent whole numbers & decimals.	Place value & notation
Solve problems involving percent & discounts; describe & explain strategies used; identify the unit whole in situations involving fractions.	Meanings & uses of fractions
Identify prime & composite numbers; factor numbers; find prime factorizations.	Number theory
Use numerical expressions involving one or more of the basic four arithmetic operations, grouping symbols, & exponents to give equivalent names for whole numbers; convert between base-10, exponential, & repeated-factor notations.	Equivalent names for whole numbers
Use numerical expressions to find & represent equivalent names for fractions, decimals & percents; use & explain multiplication & division rules to find equivalent fractions & fractions in simplest form; convert between fractions & mixed numbers; convert between fractions, decimals & percents.	Equivalent names for fractions, decimals, & percents
Compare & order whole #s up to 1,000,000,000 & decimals through thousandths; compare & order integers between -100 & 0; use area models, benchmark fractions, & analyses of numerators & denominators to compare & order fractions.	Comparing & ordering numbers

**PA Standards for Mathematics ~ Computation & Estimation**

EM Goals ~ Operations & Computation	Content
Use mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the addition & subtraction of whole numbers, decimals & signed numbers; describe the strategies used & explain how they work.	Addition & subtraction procedures
Demonstrate automatically with multiplication facts & proficiency with division facts & extensions.	Multiplication & division facts
Use mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the multiplication of whole numbers & decimals & the division of multi-digit whole #s & decimals by whole #s; express remainders as whole numbers or fractions as appropriate; describe the strategies used & explain how they work.	Multiplication & division procedures

Use mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the addition & subtraction of fractions & mixed numbers; describe the strategies used & explain how they work.	Procedures for addition & subtraction of fractions
Use area models, mental arithmetic, paper & pencil algorithms, & calculators to solve problems involving the multiplication of fractions & mixed numbers; use diagrams, a common-denominator method & calculators to solve problems involving the division of fractions; describe the strategies used.	Procedure for multiplication & division of fractions
Make reasonable estimates for whole number & decimal addition, subtraction, multiplication, & division problems & fraction & mixed number addition & subtraction problems; explain how the estimates were obtained.	Computational estimation
Use repeated addition, arrays, area, & scaling to model multiplication & division; use ratios expressed as words, fractions, percents, & with colons; solve problems involving ratios of parts of a set to the whole set.	Models for the operations

***PA Standards for Mathematics ~ Statistics & Data Analysis ~ Probability & Predictions ~ Calculus***

EM Goals ~ Data & Chance	Content
Collect & organize data or use given data to create bar, line & circle graphs with reasonable titles, labels, keys & intervals.	Data collection & representation
Use the maximum, minimum, range, median, mode, mean, & graphs to ask & answer questions, draw conclusions, & make predictions.	Data analysis
Describe events using certain, very likely, likely, unlikely, very unlikely, impossible & other basic probability terms; use more likely, equally likely, same chance, 50-50, less likely, & other basic probability terms to compare events; explain the choice of language.	Qualitative probability
Predict the outcomes of experiments, test the predictions using manipulatives & summarize the results; compare predictions based on theoretical probability with experimental results; use summaries & comparisons to predict future events; express the probability of an event as a fraction, decimal or percent.	Quantitative probability

***PA Standards for Mathematics ~ Measurements & Estimation***

EM Goals ~ Measurement & Reference Frames	Content
Estimate length with & without tools; measure length with tools to the nearest 1/8 inch & in millimeter; estimate the measure of angles with & without tools; use tools to draw angles with given measures.	Length, weight, & angles
Describe & use strategies to find the perimeter of polygons & the area of circles; choose & use appropriate formulas to calculate the areas of rectangles, parallelograms, & triangles, & the volume of a prism; define pi as the ratio of a circle's circumference to its diameter.	Area, perimeter, volume, & capacity
Describe relationships among U.S. customary units of length; among metric units of length; and among U.S. customary units of capacity.	Units & systems of measurement
Use ordered pairs of numbers to name, locate, & plot points in all four quadrants of a coordinate grid.	Coordinate system

***PA Standards for Mathematics ~ Geometry ~ Trigonometry***

EM Goals ~ Geometry	Content
Identify, describe, compare, names, & draw right, acute, obtuse, straight, & reflex angles; determine angle measures in vertical & supplementary angles & by applying properties of sums of angle measures in triangles & quadrangles.	Lines & angles
Describe, compare & classify plane & solid figures using appropriate geometric terms; identify congruent figures & describe their properties.	Plane & solid figures
Identify, describe, & sketch examples of reflections, translations, & rotations.	Transformations & symmetry

***PA Standards for Mathematics ~ Algebra & Functions ~ Calculus***

EM Goals ~ Patterns, Functions, & Algebra	Content
Extend, describe, & create numeric patterns; describe rules for patterns & use them to solve problems; write rules for functions involving the four basic arithmetic operations; represent functions using words, symbols, tables, & graphs & use those representations to solve problems.	Patterns & functions
Determine whether number sentences are true or false; solve open number sentences & explain the solutions; use a letter variable to write an open sentence to model a number story; use a pan-balance model to solve linear equations with one unknown.	Algebraic notation & solving number sentences
Evaluate numeric expressions containing grouping symbols and nested grouping symbols; insert grouping symbols & nested grouping symbols to make number sentences true; describe and use the precedence of multiplication & division over addition & subtraction.	Order of operations
Describe & apply properties of arithmetic.	Properties of the arithmetic operations

## ELEMENTARY SCIENCE CURRICULUM & RESOURCES

For the 2010-2011, the School District of Hatboro-Horsham will continue to implement a renewed elementary science curriculum. It is our intention to develop scientific literacy among all elementary students as defined by Project 2061 of the American Association for the Advancement of Science. Scientific literacy includes:

- Familiarity with the natural world, its diversity and interdependence.
- Understanding big ideas of science such as energy, patterns of change, variations, systems and interactions.
- Understanding that science, technology and math are interrelated and interdependent.
- Ability to think scientifically and use scientific knowledge and thinking patterns to solve scientific problems.

The renewal process includes curriculum development and resourcing elementary classrooms with hands-on science resources, materials and scientific supplies that help students learn scientific concepts through inquiry, investigation and analysis and that prepare students to master the PA Department of Education Academic Standards for Science and Technology. Curriculum and resources will be provided to promote collaborative learning, hands-on active learning and inquiry-based activities to stimulate scientific literacy and build scientific content knowledge for all children. Within our curriculum, students will develop the following scientific inquiry skills as they develop increasing sophisticated scientific content knowledge. These skills include ability to: pose questions about objects, organisms and events in the environment; plan and conduct investigations; use appropriate tools and techniques to gather, analyze and interpret data, use data to construct a reasonable explanation; and, develop verbal and written descriptions, explanations, predictions and models using evidence. In addition, the curriculum will integrate technology and maximize the use of the Jarrett Nature Center as a setting for active learning.

Through research and investigation, we have chosen to outfit our classrooms with FOSS resources. These resources were developed with support of the National Science Foundation and are highly regarded by the PA Department of Education as tools for guaranteeing that students are prepared to meet state and national science standards. At the elementary level, the FOSS resources are organized into three strands - Earth and Space Science; Physical Science and Technology; and, Life Science. The following is a chart of the scientific content knowledge and scientific process skills students will learn within the earth science curriculum. The following is a chart of the scientific content knowledge and scientific process skills students will learn within the earth science curriculum.

### KINDERGARTEN

#### *Earth Science Curriculum ~ Trees*

Science Content Knowledge	Science Process Skills
1. Trees (identifiable structures & shapes, as organisms & resources, living & growing organisms with basic needs of water, light & soil, changes that occur with seasons)	1. Observe & compare trees (similarities & differences, seasonal changes, structures).
2. Leaves (geometric shapes, identifiable structures & properties)	2. Observe & compare leaves (size, shape, texture, color, edges). 3. Verbally & visually communicate observations & comparisons.

### GRADE 1

#### *Earth Science Curriculum ~ Pebbles, Sand and Silt*

Science Content Knowledge	Science Process Skills
1. Rocks (solid material of the earth, have properties of color, hardness, shape, texture & size that make them suitable for specific uses, include clay, silt, sand, gravel & pebbles, as natural resources)	1. Observe & compare rocks (properties, interacting with each other & water, how they are used in human constructions)
2. Soil (a mixture of earth materials, color & texture, ability to support plants, composed of humus & rocks)	2. Observe the properties of clay particles when dry & when wet. 3. Observe & compare different grades of sandpaper. 4. Observe how a matrix binds sand particles in a sand sculpture. 5. Observe the properties of clay that make it useful in creating jewelry, beads & bricks.

#### *Physical Science Curriculum ~ Solids & Liquids*

Science Content Knowledge	Science Process Skills
1 Solids (as a state of matter, have properties that separate them from other states of matter, can be observed using senses, can be sorted by properties, have distinct uses, come in all sizes & shapes, sometimes have particles that can pour like liquids, can support denser materials on their surface, can be separated with a screen, can behave like liquids, may change, dissolve, or mix when mixed/combined with water)	1. Observe & compare the properties of several kinds of solids & liquids & their properties. 2. Sort solids in different ways. 3. Compare the appearance & behavior of different liquids. 4. Separate mixture of solids by using screens. 5. Observe & describe the properties of solid particles in closed bottles.
2 Liquids (are a state of matter, have many properties, pour & flow, take the shape of their containers, have distinct properties, are level on the surface with respect to the ground)	6. Observe & describe what happens when solids & liquids are mixed. 7. Organize observations of mixtures.

**GRADE 2**

**Earth Science Curriculum ~ Air and Weather**

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>Air (as matter, as a gas, takes up space, interacts with objects, can be compressed, air pressure moves objects)</li> <li>Weather (as the condition of the atmosphere &amp; changes over time, components of temperature, precipitation, &amp; cloud type, studied by meteorologists, can be predicted, seasons have a typical weather pattern, sun heats the Earth during the day, sun &amp; moon appear to move slowly in the sky)</li> <li>Clouds (different types, rain comes from them)</li> <li>Wind (as moving air, measured with anemometers, wind scales &amp; wind vanes)</li> </ol>	<ol style="list-style-type: none"> <li>Observe the properties of air as it interacts with other materials &amp; when it is put under pressure.</li> <li>Compare the path a balloon rocket travels along a flight line to that of an air-filled plastic bag.</li> <li>Observe &amp; compare cloud types.</li> <li>Observe &amp; compare the action of moving air &amp; its effects on pinwheels, bubbles, &amp; kites.</li> <li>Observe &amp; describe the speed &amp; direction of wind (wind vanes, anemometer).</li> <li>Organize &amp; graph class weather data recorded for a month (temperature, rainfall).</li> <li>Record weather data throughout the year &amp; compare seasonal weather conditions.</li> <li>Observe &amp; record (the changing location of the Sun during a day, nightly weather &amp; the changing appearance of the moon).</li> </ol>

**Physical Science Curriculum ~ Balance & Motion**

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>Balance (Objects can be balanced in many ways. A stable position is one that is steady. Counterweights can help balance an object. A mobile is a system of balanced beams &amp; objects.)</li> <li>Spinners (Objects &amp; systems that turn on a central axis exhibit rotational motion. The amount &amp; position of mass affect how an object rotates. There are different ways to initiate rotational motion. The motion of an object can be changed by pushing or pulling.)</li> <li>Rollers (Wheels &amp; spheres roll down a slope. Axles support wheels. Wheel-&amp;-axle systems with wheels of different sizes roll toward the smaller wheel. The amount &amp; location of an added weight can change the way a system rolls.)</li> </ol>	<ol style="list-style-type: none"> <li>Observe balanced objects, stable balanced systems, expressions of rotational motion &amp; linear motion, and rotation of a system falling through air.</li> <li>Compare balanced systems &amp; representations of balanced systems.</li> <li>Organize materials to make various balanced systems, systems that exhibit rotational motion, &amp; systems that roll in different ways.</li> <li>Communicate observations &amp; comparisons of balance &amp; stability, rotational motion, &amp; rolling motion using precise vocabulary.</li> <li>Compare the actions of several different top designs.</li> <li>Compare the paths followed by rolling systems with different-sized wheels.</li> </ol>

**GRADE 3**

**Earth Science Curriculum ~ Earth Materials**

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>Rocks (properties of shape, size, color &amp; texture, can be separated into components by water, settling &amp; evaporation, composed of minerals, examples are sandstone, limestone, marble, &amp; granite)</li> <li>Minerals (examples are quartz, fluorite, calcite &amp; gypsum, identified by color &amp; hardness, effects of acid)</li> </ol>	<ol style="list-style-type: none"> <li>Record, discuss &amp; compare observations about rocks &amp; minerals.</li> <li>Take apart a mixture by separating the ingredients.</li> <li>Observe &amp; describe how rock materials separate &amp; settle in water.</li> <li>Observe the results of evaporation.</li> <li>Observe &amp; record the properties of a group of minerals.</li> <li>Observe, seriate &amp; compare &amp; record minerals based on hardness.</li> <li>Identify one ingredient from a mixture.</li> <li>Sort objects according to properties &amp; compare observations of properties.</li> </ol>

**Earth Science Curriculum ~ Sun, Moon and Stars**

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>Earth (spins on its axis, as a planet that orbits the sun)</li> <li>Sun (rises in the east &amp; sets in the west, shadows are the areas of darkness created when an opaque object blocks light, shapes of shadows change over a day &amp; depend on the position of the Sun in the sky, day &amp; night occur based on whether a location is facing the sun, its path varies by season)</li> <li>Moon (orbits Earth, can appear in the sky during both night &amp; day, phase patterns over four weeks)</li> <li>Stars (as suns positioned at great distances from Earth, various sizes &amp; brightnesses, only seen at night, groups of stars form patterns called constellations, constellations can be seasonal, use of telescopes to study)</li> </ol>	<ol style="list-style-type: none"> <li>Observe &amp; record the path the Sun takes in the sky.</li> <li>Observe, collect &amp; communicate shadow data at different times of day.</li> <li>Analyze shadow data to develop an explanation about the Sun's daily movements.</li> <li>Observe &amp; record changes in the Moon's appearance over a month, including the changes that occur during the Moon's phase cycle.</li> <li>Use models &amp; simulations to develop explanations.</li> <li>Learn the vocabulary associated with Moon phases.</li> <li>Identify several constellations as stable, predictable patterns of stars.</li> </ol>

**Physical Science Curriculum ~ Matter & Energy**

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>1. Energy (makes things happen, takes many forms, can be stored and converted to other forms, including motion &amp; heat, by machines &amp; living things, can be carried by waves, electric current, &amp; moving objects)</li> <li>2. Light (is a form of energy, travels in straight lines from a light source, reflects surfaces, such as a mirror, allows objects to be seen by entering the eye, can be absorbed by matter. White light is a mixture of all colors of light. The apparent color of an object is the result of the light it reflects &amp; is affected by the color of light striking it.)</li> <li>3. Matter (behaves in a way that is specific to its state, is made of particles, has mass measured in grams, has volume measured by liters, melts at different temperatures, can react when two substances are combined, which may produce a new substance with unique properties)</li> </ol>	<ol style="list-style-type: none"> <li>1. Investigate different energy sources doing work, how energy moves from place to place, and how different colored light affects the apparent colors of objects.</li> <li>2. Summarize how energy is converted into different forms.</li> <li>3. Observe how light reflects from the surface of a mirror.</li> <li>4. Design systems of mirrors to direct light beams.</li> <li>5. Describe properties of solids, liquids and gases.</li> <li>6. Determine the need for standard units in order to measure &amp; record the mass of objects, the volume of fluids, and the temperature of water using appropriate tools.</li> <li>7. Compare results to estimates.</li> <li>8. Solve problems using understanding of standard units &amp; measuring tools.</li> <li>9. Observe &amp; record what happens when heat is added to different materials.</li> <li>10. Record data &amp; compare the results of an investigation.</li> <li>11. Conduct multiple trials &amp; average results.</li> <li>12. Observe &amp; describe a chemical reaction.</li> </ol>

**GRADE 4**

**Earth Science Curriculum ~ Water Cycle, Watersheds and Wetlands**

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>1. Water Cycle (water as a resource, water uses, locations of water &amp; ice on earth, presence of water in soil &amp; plants, evaporation, condensation, transpiration, precipitation, formation &amp; role of clouds, movement of water throughout the water cycle)</li> <li>2. Watersheds (as an area of land where all of the water flows to the lowest point, effects of air, water &amp; land pollution, lentic &amp; lotic systems, water from precipitation can seep into the ground, run off, or evaporate, flow of groundwater, effects of pollution)</li> <li>3. Wetlands (types of wetlands, soil, plants &amp; animals found there, as habitats, as ecosystems, interdependence)</li> </ol>	<ol style="list-style-type: none"> <li>1. Construct a terrarium &amp; observe changes over time.</li> <li>2. Observe &amp; measure evaporation &amp; condensation.</li> <li>3. Design an experiment to model evaporation &amp; condensation.</li> <li>4. Construct models &amp; charts (water cycle, clouds, watersheds &amp; wetlands).</li> <li>5. Identify &amp; compare living things (plants &amp; animals) found in wetlands.</li> <li>6. Examine &amp; describe wetland soils.</li> <li>7. Compare &amp; contrast different types of wetlands.</li> <li>8. Identify substances that can cause air, water and/or soil pollution &amp; list ways to reduce their effects.</li> <li>9. Describe &amp; give examples of everyday human activities &amp; how this may change the environment.</li> </ol>

**Physical Science Curriculum ~ Magnetism & Electricity**

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>1. Magnets (stick to metal objects made of iron, display forces of attraction &amp; repulsion that decrease with distance, are affected by the magnetic force. Magnetism can be induced in a piece of steel that is close to or touching the magnet.)</li> <li>2. Electricity (flows through pathways called circuits, flows through conductors, does not flow through insulators)</li> <li>3. Circuits (open &amp; close by use of a switch, when open, is an incomplete pathway, when closed, is a complete pathway)</li> <li>4. Electromagnets (a core of iron or steel that have electricity flowing through a coil of insulated wire surrounding it, vary in strength depending on the number of winds around the core, can be used to make a telegraph when placed in a complete circuit with a switch as a key, technology is the application of science)</li> </ol>	<ol style="list-style-type: none"> <li>1. Observe magnetic interactions &amp; sort objects based on whether they are affected by a magnet &amp; whether they conduct electricity.</li> <li>2. Compare the functioning of different kinds of circuits &amp; the interaction between an electromagnet &amp; objects.</li> <li>3. Measure the force of attraction between magnets.</li> <li>4. Build a test circuit &amp; test objects for conductivity.</li> <li>5. Predict conductivity of materials.</li> <li>6. Compare the brightness of lamps in different kinds of circuits &amp; the strength of electromagnets.</li> <li>7. Determine the defining characteristic of series &amp; parallel circuits.</li> <li>8. Analyze &amp; solve circuitry problems</li> <li>9. Systematically investigate ways to strengthen electromagnets.</li> <li>10. Conduct multiple trials, average results, organize data &amp; display results on a graph.</li> <li>11. Explore the behavior of an electromagnet under different conditions.</li> <li>12. Encode &amp; decode clicks produced by a telegraph.</li> </ol>

GRADE 5

*Earth Science Curriculum ~ Solar Energy*

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>Solar Energy (as energy from the Sun that comes to Earth in the form of light, energy transfer, energy is absorbed &amp; released by different materials at different rates, heat sink, space heating)</li> <li>Solar Water Heater (effects of colors, covers, &amp; surface area)</li> <li>Shadows (as the dark areas that result when light is blocked, length of a shadow depends on &amp; changes as a result of the position &amp; orientation of Earth relative to the Sun)</li> </ol>	<ol style="list-style-type: none"> <li>Observe &amp; compare (shadows over time, temperature change of different materials, the effect of different colors &amp; covers on solar water heaters, the effects of variables on solar-house heating efficiency).</li> <li>Organize information &amp; communicate results of investigations on a graph.</li> <li>Relate the position of the Sun to a shadow's shape &amp; direction.</li> <li>Relate the rate &amp; amount of temperature change to properties of materials.</li> <li>Relate the surface area of a collector to energy transfer.</li> <li>Use information to build an efficiently solar-heated model house.</li> <li>Investigate insulation as a means of holding heat in a space.</li> </ol>

*Physical Science Curriculum ~ Models & Designs*

Science Content Knowledge	Science Process Skills
<ol style="list-style-type: none"> <li>Conceptual Models (used to explain how systems work, a representation or explanation of a system or interaction that cannot be observed directly, communicated through words &amp; drawings)</li> <li>Physical Models (used to demonstrate how something works or how it is constructed, may need an electric device to complete a circuit)</li> <li>Design (the way something is put together, the work of engineers, as a way to develop systems to perform specific functions)</li> <li>Simple Machines (use of levers to move objects, use of axles to turn wheels)</li> <li>Scientific Principles (collaboration as a way to find solutions, technology as the application of science for the benefit of people, use of problem solving, including designing, constructing, testing, evaluating, &amp; redesigning based on evidence from testing, variables change &amp; may affect results)</li> </ol>	<ol style="list-style-type: none"> <li>Observe the behavior of black boxes, hum dingers, &amp; self-propelled go-carts.</li> <li>Organize &amp; communicate observations.</li> <li>Develop conceptual models.</li> <li>Relate conceptual models to observations to develop physical models.</li> <li>Organize &amp; assemble components to design a physical model of a device.</li> <li>Compare physical models to the working hum dinger.</li> <li>Relate the structure &amp; arrangement of materials to a functional hum dinger system &amp; a functional self-propelled go-cart.</li> <li>Compare the go-cart's performance to an established objective.</li> <li>Organize &amp; communicate observations of investigations to solve a problem.</li> <li>Relate cart design to cart performance.</li> <li>Investigate the relationships among variables in a cart design.</li> </ol>

## SOCIAL STUDIES

### Strands/Goals

The following Social Studies strands/goals are applicable to all grade levels.

1. Reading, Writing and Thinking
  - a. Reading - Students will be able to read and comprehend Social Studies content and materials, including texts, non-fiction materials, primary sources and appropriate literature in addition to the textbook.
  - b. Writing - Students will be able to effectively write reports, position papers and interpretive essays.
  - c. Thinking - Students will be able to define and clarify problems, critically analyze fact from opinion, infer cause and effect, ask appropriate and searching questions, draw conclusions or inference from evidence and make predictions from evidence.
  - d. Research - Students will be able to effectively utilize research skills: locate, select and organize information, retrieve and analyze information, read and interpret maps, globes, charts and use community resources.
2. Social Responsibility-Students will develop:
  - a. Individual Responsibility
  - b. Group Interaction Skills - Cooperative Learning Skills
  - c. Social and Political Participation Skills
  - d. Cultural Understanding
3. Social Studies Content
  - a. Facts and Concepts - Students will learn key themes and concepts from:
    - History
    - Geography
    - Other Social Sciences (to be determined by scope and sequence and topics at each grade level)
    - Emphasis should be on concepts and themes.
  - b. Map and globe skills should be integrated into the Social Studies content.
  - c. Role of People - Students will understand the role that individuals and groups have played and will play in shaping the world.
  - d. Current Events - Students will understand current issues and problems affecting America and the world today.
  - e. Process of Change - Students will understand the dynamics of change and how it impacts upon society.

### Current Events

The goal of Current Events is for the student to become aware of and respond to current local, state, national and world issues and events of significance.

### Guidelines

Whenever possible and applicable, current issues, problems and events should be explored as part of the regular Social Studies outcomes.

### Grades K, 1, 2, 3

- ◆ identify sources of news (radio, TV, newspapers, library and people)
- ◆ use newspapers and/or news magazines to locate information

### Grade 4

- ◆ distinguish between local, state, national and international news
- ◆ analyze a variety of local, state, national and international news events
- ◆ identify different points of view on an issue including differentiating between fact and opinion (Fourth Grade Current Events outcomes are incorporated into the Fourth Grade curriculum)

### Grade 5

- ◆ analyze news stories for accuracy and bias
- ◆ examine news issues over a period of time and analyze their impact on the students and the community
- ◆ analyze the relationship of news stories to events in American History

## KINDERGARTEN

### Exploring My World

The Child and His/Her Environment

Learn About Self

- say their entire name
- state special interests or things they can do

Friends

- state ways to work together to facilitate cooperative learning projects
- identify similarities and differences about each other

Work Together

- develop awareness of the importance of being a part of a team and sharing responsibilities
- cooperate in a small group activity and a large group activity

## School Geography

- locate rooms in the school by taking a tour
- name the different rooms in their school

## Work

- identify school workers and be able to tell why the school workers are important
- demonstrate responsible behavior as they carry out their jobs in the classroom

## Rules

- know and follow school rules, applying those rules in everyday routine

## Families and Home

### Families

- identify ways families can spend time together
- identify needs of families (i.e., shelter, food, clothes and love)

### Homes

- compare different kinds of homes, including animal homes and homes in different environments or communities

## Holidays and Special Events

- identify holidays, special family events, unique customs and holiday celebrations around the world - Kwanzaa, Hanukkah, Christmas, Halloween, Thanksgiving, Valentine's Day, Martin Luther King, Jr. Day
- identify unique customs and holidays celebrated by members of the class
- identify a variety of holiday celebrations
- examine and discuss the calendar and its uses
- discuss the difference between telling time on a digital clock and a mechanical clock

## Community, State and Country

### Understanding Community Services

- understand the services that are needed to make a community work
- name important places in a community
- name important people in the community
- name ways to help in their community
- discuss neighborhood similarities and differences among classmates

### Identifying Community, State and Country

- name their community, state and country

## American Symbols

- learn to show respect and appreciation for American symbols
- recite the Pledge of Allegiance
- identify the current President of the United States
- identify the American Flag and its characteristics

## Geography

### Maps

- identify a map of the United States
- identify a map and a globe of the world
- become aware of verbal directions (i.e., right, left, over, under and around)

## GRADE 1

### I Know a Place

#### A Child's Place in a Social Community

##### Friendship and Respect

- identify ways in which people show friendship and respect to others
- compare and contrast friendships found in literature
- demonstrate actions appropriate to building and/or repairing friendships
- compare the contributions of men and women from many ethnic and racial backgrounds to our world
- observe seasonal changes including customs and traditions, cultural events, food, games and songs

##### Decision-making/Valuing Differences

- identify the steps used in the decision-making process (identify the problem, examine alternatives, listen to others, decide what action to take and implement the action)
- apply the decision-making process to at least one problem identified by the class Social Skills
- create and demonstrate a set of classroom rules and expectations
- describe and demonstrate the use of good manners
- demonstrate respect for property in the home, school and community

##### Cooperation/Group Work

- work in groups
- find a role in a group
- share ideas and information in a group, make decisions in a group
- describe individual similarities and differences within a group

## A Child's Place in Space - Geographic Awareness

### Map Skills

- use a key to identify objects on a map
- read a map and a map key

### Globe Skills

- understand that a globe is a model of the earth
- distinguish water from land on a globe

### Direction

- identify and use the cardinal directions North, South, East and West on a map

## GRADE 2

### People Who Make a Difference

#### People Depend on Each Other

##### Supply and Demand

- explain how wants and needs are met through the interdependence of people
- conclude that cooperation among people is necessary to realize their wants and needs
- identify how occupations and careers help meet the needs and wants of a community at large

##### Geographic Awareness

- apply basic map skills such as:
  - identifying and locating continents, oceans and United States on both map and globe
  - identifying countries on the continent of North America
  - locating their own state and other states
- explain the relationships of symbols (keys and legends) to the maps

#### People, Culture and History

##### Family Histories

- define ancestry
- compare and contrast their lives with that of their ancestors (dress, occupations, customs and hobbies)
- identify contributions of ancestors
- read a time line/time periods to include family, biography, transportation and communication
- identify aspects of the family and ways of life that have endured or changed over time

##### Exploration of Different Cultures

- locate Mexico and two additional foreign countries on both a map and a globe
- compare and contrast life in Hatboro-Horsham with life in foreign countries
- discuss traditions, customs and cultures, then and now

#### Living in Our Country

##### Our Own Country

- define citizenship and the responsibilities of being a citizen
- define some basic concepts of democracy, i.e., voting
- identify the boundaries of our country

##### National Celebrations

- explain why we have national holidays
- examine the historical significance of Thanksgiving
- identify and understand Independence Day as our nation's birthday
- describe the contributions of George Washington and Abraham Lincoln
- sequence holidays in a calendar year

##### Symbols of the United States of America

- define the word symbol and cite examples
- identify the United States flag, Statue of Liberty and Liberty Bell as national symbols
- explore the meaning of stars and stripes on the flag
- explain the significance of a flag or banner

##### Making a Difference

- list and define individual talents and interests
- explain how individual talents and interests help make a difference in the world
- investigate the lives of famous people in varied fields
- explain how the special talents and interests of these individuals have contributed to American life

## GRADE 3

### An American Sampler: Its Land and People - Then and Now

#### The Geography of America

##### Variety of American Landscapes

- compare and contrast prairies, mountains, deserts and forests
- infer the kinds of plants and animals that inhabit these different environments
- interpret a physical map of the United States
- explain the effects of elevation on plant and animal life and weather
- identify the characteristics of deserts, prairies, forest and mountain regions and the ways plants and animals live within the region

## American Indian Communities: Adapt to their Environment

### A Long Time Here

- identify Indians as the earliest Americans
- investigate some traditions that are very old and how they continue to be passed from generation to generation
- describe some traditions of an Indian tribe
- identify the importance of land to Native Americans

### Community and Diversity

- describe how traditions are preserved in a community, historical significance of major holidays and celebrations
- demonstrate multi cultural diversity through games and songs
- discuss local government, borough and township

### Natural Resources

- investigate the use of natural resources by three different regional Indian tribes

### Adapting to the Land

- explain how a Pacific Northwest tribe met their needs from the sea and the forest
- explain how a desert Indian tribe utilized their environment to their advantage

## GRADE 4

### Providing a Global Perspective

#### Learning to Use Media

##### Why We Need the News

- explain why it is important to learn about the world around us
- list a variety of news sources
- compare and contrast different characteristics of media sources

##### Local, State, National and International News

- use a variety of resources (newspapers, television and radio) in order to:
  - locate newspaper/magazine articles and pictures related to current local, state, national and international news issues and problems
- distinguish between fact and opinion in news stories
- determine the significance of news stories to everyday life
- ask and answer questions about stories in the news

#### World Geography

##### Basic Map Skills

- use latitude and longitude to locate places on a map
- apply knowledge of map symbols, map legends and directionality
- compare and contrast different types of maps

##### Physical, Political and Human Geography

- use map symbols to identify physical characteristics in a variety of locations (i.e., mountains, plains, plateaus, oceans, etc.)
- use map symbols to identify locations of natural resources and develop hypotheses about their economic and political implications
- use map symbols to identify cities, towns, states, national and international regions

##### Use of an Atlas

- identify the features of an atlas
- demonstrate an ability to use the atlas independently to search for information

#### Pennsylvania as Part of the World Community

##### People and Groups in Pennsylvania

- examine and analyze the culture of the Woodland Indians of Pennsylvania
- identify immigrant groups and settlers who came and settled in Pennsylvania and the reasons for their immigration
- compare and contrast the religious and cultural groups that settled in Pennsylvania
- research specific individuals from Pennsylvania and report on their contributions to and impact on the arts, industry, politics, etc.
- describe features of city and state political systems
- discuss why groups and communities have rules

##### Natural Resources

- identify the key natural resources in Pennsylvania
- construct a chart that indicates how these resources are used
- identify the trends regarding the use of natural resources and predict the future use of Pennsylvania's natural resources

##### Pennsylvania's Place in the World

- locate Pennsylvania in the world in terms of climate, terrain, land forms and other physical features

## GRADE 5

### Discovery to Democracy

- create a timeline that includes a chronology of people and events showing patterns and connections
- identify the states in each region of the United States and locate them based on their relative position to other states
- define what is meant by latitude, longitude, meridian, physical map and region
- use appropriate resources (Internet, atlas, maps, charts, databases) to interpret information

#### Historical Process, Exploration and European Colonization

- understand that European trade expansion in the late Middle Ages was responsible for European involvement in North America including Marco Polo, Crusaders, Prince Henry, Henry the Navigator, etc.
- demonstrate a knowledge of the major events in European exploration of the new world including French, Dutch, English and Spanish explorers, emphasizing their purposes for exploration and their effects on later colonization

#### Colonization

- understand that Western Europeans influenced the cultural development of North America
- analyze the role played by geography in the economic development of the British Colonies
- compare and contrast the religious backgrounds and conflicts in each region of the British Colonies
- investigate the various lifestyles in the three regions and synthesize the information into an understanding of the colonial lifestyle

#### Road to Revolution

- develop a timeline of the major causes and events leading to the revolution
- evaluate attempted solutions to improve relations between England and her American colonies

#### War for Independence

- identify the individuals and groups who played a major role in the American Revolution
- identify the major events of the war

#### Government

- distinguish among local, state and national government, identifying leaders, concepts of fairness, equity and justice

## TECHNOLOGY KINDERGARTEN

### Basic Operations and Concepts:

- point and click
- click and drag
- log on/off network using a username and password
- identifies major parts of a computer
- accurately locate the mouse pointer in an identified location on a monitor including lifting and replacing on a mouse pad
- demonstrate appropriate care and use of keyboard and mouse
- demonstrate appropriate care and use of computer disks
- demonstrate appropriate care and use of cd rom
- demonstrate ability to turn computer off and on independently
- demonstrate appropriate care and use of printer
- demonstrate appropriate care and use of special keyboard keys (esc, shift key, arrow keys, spacebar, backspace, delete key, enter key, alt key, ctrl key)

### Word Skills:

- create graphics using graphics tools

### Keyboarding:

- use both hands simultaneously on the keyboard as well as emphasize left and right side of keyboard
- demonstrates touch typing techniques such as eyes on source document, fingers curved over keys, feet flat/back straight, wrists/palms slightly above keyboard

## GRADE 1

### Basic Operations and Concepts:

- point and click
- move, resize, close and open a window
- view the contents of a window by using scroll bars
- print documents by choosing appropriate printer
- click and drag
- double click
- open, use, exit program
- log on/off network using a username and password
- use multiple programs simultaneously
- follow proper shut down procedures for a computer.
- identifies major parts of a computer
- accurately locate the mouse pointer in an identified location on a monitor including lifting and replacing on a mouse pad
- demonstrate appropriate care and use of keyboard and mouse
- demonstrate appropriate care and use of computer disks
- demonstrate appropriate care and use of cd rom
- demonstrate ability to turn computer off and on independently
- demonstrate appropriate care and use of printer
- demonstrate appropriate care and use of special keyboard keys (esc, shift key, arrow keys, spacebar, backspace, delete key, enter key, alt key, ctrl key)
- save files to individual network folder

### Word Skills:

- create, Save, Print, Open document
- create graphics using graphics tools

### Keyboarding:

- use correct finger placement on keys
- identify keys on the right and left side of the keyboard
- use both hands simultaneously on the keyboard as well as emphasize left and right side of keyboard
- use thumb on the spacebar
- demonstrates touch typing techniques such as eyes on source document, fingers curved over keys, feet flat/back straight, wrists/palms slightly above keyboard
- locate, identify, and use letter, number, punctuation, and symbol keys as grade level appropriate
- recognize that letters typed are lower case unless the shift key is used
- be able to produce documents at the keyboard, proofread, and correct errors as grade level appropriate
- be able to type home row words

## GRADE 2

### Basic Operations and Concepts:

- point and click
- move, resize, close and open a window
- view the contents of a window by using scroll bars
- print documents by choosing appropriate printer
- click and drag
- double click
- use menus within an application
- open, use, exit program
- name & save files to various locations
- log on/off network using a username and password
- use multiple programs simultaneously
- follow proper shut down procedures for a computer.
- identifies major parts of a computer
- accurately locate the mouse pointer in an identified location on a monitor including lifting and replacing on a mouse pad
- demonstrate appropriate care and use of keyboard and mouse
- demonstrate appropriate care and use of computer disks
- demonstrate appropriate care and use of cd rom
- demonstrate ability to turn computer off and on independently
- demonstrate appropriate care and use of printer
- demonstrate appropriate care and use of special keyboard keys (esc, shift key, arrow keys, spacebar, backspace, delete key, enter key, alt key, ctrl key)
- rename files
- save files to individual network folder

### Spreadsheet Skills:

- create charts and graphs
- use charts and graphs to present information
- use to collect, analyze and display data.
- select the most appropriate graph to display data and stated the reason

### Word Skills:

- create, save, print, open document
- use print preview to view and edit
- format text (size, color, style, font)
- line spacing (single, double,...)
- align text (right, center, left)
- indent text on 1st line of paragraph using tab key
- choose page setup features
- bold, italics, underline
- enter and delete text
- select/deselect text and graphics
- cut, copy, paste
- use the spell checker and the thesaurus functions
- undo, redo commands
- create graphics using graphics tools
- use a teacher created template

### Graphics

- add clip art to a document from a clip art library
- insert clip art from a graphic file or from another document using copy/paste.

### Keyboarding:

- use correct finger placement on keys
- identify keys on the right and left side of the keyboard
- use both hands simultaneously on the keyboard as well as emphasize left and right side of keyboard
- use thumb on the spacebar
- demonstrates touch typing techniques such as eyes on source document, fingers curved over keys, feet flat/back straight, wrists/palms slightly above keyboard
- locate, identify, and use letter, number, punctuation, and symbol keys as grade level appropriate
- recognize that letters typed are lower case unless the shift key is used
- be able to produce documents at the keyboard, proofread, and correct errors as grade level appropriate
- be able to type home row words
- be able to use language skills including capitalization, punctuation, and spelling as grade level appropriate

#### PowerPoint:

- use a storyboard to plan a presentation
- use templates to present information
- combine text & graphics to create a presentation
- create, open, save, and print a presentation
- create a title slide
- add a new slide
- select slide sorter view
- use a search engine or directory

## GRADE 3

#### Basic Operations and Concepts:

- move, resize, close and open a window
- view the contents of a window by using scroll bars
- print documents by choosing appropriate printer
- name and save files to various locations
- use multiple programs simultaneously
- use multiple storage devices
- use click/shift-click, and multiple mouse clicks to select text
- save files to individual network folder
- abiding by copyright and plagiarism guidelines and laws
- abiding by netiquette and safety guidelines
- following the AUP policy regarding technology resources

#### Word Skills:

- create, save, print, open document
- use print preview to view and edit
- format text (size, color, style, font)
- line spacing (single, double,...)
- align text (right, center, left)
- indent text on 1st line of paragraph using tab key
- add bullets and /or numbered lists
- bold, italics, underline
- enter and delete text
- select/deselect text and graphics
- cut, copy, paste
- grammar check
- use the spell checker and the thesaurus functions
- undo, redo commands

#### Graphics:

- import graphics from clip art, Internet, peripherals
- edit and resize graphics to fit into documents, presentations
- send an object to the front or to the back layer
- add clip art to a document from a clip art library

#### Research and Analysis:

- use internet sites selected by teacher
- use navigation buttons to move within sources
- use grade appropriate citation for sources of information
- know basic functions of a web browser, buttons to move
- access a web site by entering its address
- access web pages by selecting hyperlinks within a web site
- use a search engine or directory
- define the term internet
- recognize the need for information
- download and print information

#### PowerPoint:

- use templates to present information
- combine text and graphics to create a presentation
- create, open, save and print a presentation
- create a title slide
- add a new slide
- change font size, style and color
- use word art to enhance titles
- practice presentation skills for an audience

## GRADE 4

### Basic Operations and Concepts:

- move, resize, close and open a window
- print documents by choosing appropriate printer
- name and save files to various locations
- use multiple programs simultaneously
- use multiple storage devices
- use click/shift-click, and multiple mouse clicks to select text
- use a combination of locating the insertion point and text selection techniques to efficiently edit text in a document.
- rename files
- save files to individual network folder
- delete a file
- abiding by copyright and plagiarism guidelines and laws
- abiding by netiquette and safety guidelines
- following the AUP policy regarding technology resources

### Word Skills:

- create, save, print, open document
- use print preview to view and edit
- format text (size, color, style, font)
- line spacing (single, double,...)
- align text (right, center, left)
- indent text on first line of paragraph using tab key
- add bullets and /or numbered lists
- number pages and insert page breaks (introduce)
- bold, italics, underline
- enter and delete text
- select/deselect text and graphics
- cut, copy, paste
- grammar check
- use the spell checker and the thesaurus functions
- undo, redo commands

### Graphics:

- import graphics from clip art, internet, peripherals
- edit and resize graphics to fit into documents, presentations
- send an object to the front or to the back layer
- add clip art to a document from a clip art library
- insert clip art from a graphic file or from another document using copy/paste
- select and move or delete pieces of a picture

### Research and Analysis:

- use internet sites selected by teacher
- use navigation buttons to move within sources
- use grade appropriate citation for sources of information
- know basic functions of a web browser, buttons to move
- access a web site by entering its address
- access web pages by selecting hyperlinks within a web site
- use a search engine or directory
- define the term internet
- recognize the need for information
- download and print information

### PowerPoint:

- combine text & graphics to create a presentation
- create, open, save, and print a presentation
- create a title slide
- add a new slide
- create a text slide with multi-level bulleted list
- change font size, style and color
- change slide layout
- insert digitized graphic images from the internet, clip art, digital camera, or scanner
- modify and resize inserted graphics
- select the "bulleted list" slide layout from the slide layout menu
- select a bullet type from the format menu
- use word art to enhance titles

## GRADE 5

### Basic Operations and Concepts:

- print documents by choosing appropriate printer
- name & save files to various locations
- choose page set up features
- use multiple programs simultaneously
- save files in various formats
- use multiple storage devices
- identify and utilize a scanner
- identify and utilize a digital camera
- create/name folders in various locations
- save files to individual network folder
- new folders in a desired location
- abiding by copyright and plagiarism guidelines and laws
- abiding by netiquette and safety guidelines
- following the AUP policy regarding technology resources

### Research and Analysis:

- choose appropriate resources to answer questions
- use Internet sites selected by teacher
- use navigation buttons to move within sources
- gather, evaluate and organize information
- use grade appropriate citation for sources of information
- credit sources of copyrighted materials in paper, projects and multimedia presentations
- evaluate information found via telecommunications for appropriateness, content and usefulness
- know basic functions of a web browser, buttons to move
- access a web site by entering its address
- access web pages by selecting hyperlinks within a web site
- use a "path" menu to move from one web location to a previously visited location
- use a search engine or directory
- define the term Internet
- recognize the need for information
- formulate questions based on information needs
- initiate a Search Strategy
- identify potential sources of information
- use electronic resources to locate, retrieve and transfer information
- be able to narrow searches using Boolean operators (and, or, not)
- recognize the different ways that information is organized
- download and print information

### Word/ Spreadsheet Skills:

- create, open, save and print a spreadsheet
- create, save, print, open document
- use print preview to view and edit
- format text (size, color, style, font)
- line spacing (single, double,...)
- align text (right, center, left)
- indent text on 1st line of paragraph using tab key
- add bullets and /or numbered lists
- use footnotes, endnotes, headers and footers
- number pages and insert page breaks
- choose page setup features
- change margin settings
- automatic page numbering
- bold, italics, underline
- enter and delete text
- select/deselect text and graphics
- cut, copy, paste
- grammar check
- use the spell checker and the thesaurus functions
- use find and replace
- undo, redo commands
- create a text box and manipulate its size, shape and location in a document
- create graphics using graphics tools
- use camera and scanner to create graphics
-

#### Graphics:

- import graphics from clip art, internet, peripherals
- edit and resize graphics to fit into documents, presentations
- save graphics in appropriate formats (jpg, gif)
- send an object to the front or to the back layer
- change the thickness and color of an object's border or line
- change the color and pattern or gradient of an object's fill
- add clip art to a document from a clip art library
- insert clip art from a graphic file or from another document using copy/paste.
- select and move or delete pieces of a picture
- use the appropriate tool to remove painting (color fill) from a picture.
- use the appropriate tool to fill areas of a picture
- choose colors from the color palette for use with various tools

#### PowerPoint:

- use a storyboard to plan a presentation
- use templates to present information
- create, open, save, and print a presentation
- create a title slide
- add a new slide
- create a text slide with multi-level bulleted list
- end a slide show with a black slide
- use various views to edit slides
- create a presentation using outline view
- select slide sorter view
- select a design template
- change font size, style and color
- change slide layout
- insert digitized graphic images from the internet, clip art, digital camera, or scanner
- modify and resize inserted graphics
- display a presentation in black and white
- run a slideshow
- change slide transitions
- select the "bulleted list" slide layout from the slide layout menu
- select a bullet type from the format menu
- set space before and space after bulleted list items to format spacing in the list
- select and move slides into a desired order.
- set slides to advance automatically or with mouse click
- use word art to enhance titles
- practice presentation skills for an audience
- deliver presentation using projection devices
- create notes to have for final presentation

## **LIBRARY**

### **GRADE 1**

Students will demonstrate proficiency in the following areas:

- identifying librarian and staff
- discussing the differences between school and public libraries
- discussing the differences between author and illustrator

### **GRADE 2**

Students will demonstrate proficiency in the following areas:

- differentiating between fiction and nonfiction books by call number
- Identifying parts of the book including title page, copyright date, dedication page, table of contents, front and back cover, spine and call number

### **GRADE 3**

Students will demonstrate proficiency in the following areas:

- demonstrating responsibility and care of library materials
- demonstrating knowledge of library procedures
- identifying all parts of the book including glossary and index
- identifying basics of folk literature
- utilizing alphabetical order
- identifying the difference between fiction and nonfiction

### **GRADE 4**

Students will demonstrate proficiency in the following areas:

- demonstrating responsibility and care of library materials
- demonstrating knowledge of library procedures
- identifying all parts of the book including bibliography
- demonstrating knowledge of arrangement of various library materials
- utilizing alphabetical order
- explaining the difference between fiction and nonfiction
- identifying the basics of folk literature
- locating library materials using the library catalog (OPAC)

### **GRADE 5**

Students will demonstrate proficiency in the following areas:

- identifying, locating and selecting materials suitable to interests and curriculum needs
- locating library materials using the library catalog (OPAC)
- locating information using indexes
- citing sources
- demonstrating search strategies using print resources, such as encyclopedias, as well as electronic and online databases, such as SIRS Discoverer and POWER Library
- listening and responding to a variety of literary genres, including award winning literature
- demonstrating knowledge of a variety of authors and illustrators

## MUSIC

- develop an enjoyment of music through experience and participation
- experience music through singing, moving, playing instruments and creating simple rhythms appropriate to his/her grade level
- develop self-esteem through his/her musical experiences
- experience music of the great masters

## KINDERGARTEN

- participate in the singing of a variety of rote songs
- recognize and use so-mi patterns
- hear, feel and perform a steady beat using bilateral body percussion
- play singing games requiring a steady beat
- chant nursery rhymes while keeping a steady beat
- identify and differentiate between high and low pitches; soft and loud pitches; fast and slow tempos
- recognize the timbre of certain instruments and voices
- recognize familiar songs when given the rhythm of the song
- perform "ta" and "ta rest" through body percussion and non-pitched percussion instruments
- recognize the following musical symbols:
  - two line staff
  - rest
  - ta

## GRADE 1

- participate in the singing of age appropriate rote songs
- recognize and use so-mi patterns
- hear, feel and perform a steady beat using bilateral body percussion
- play singing games requiring a steady beat
- identify and differentiate between high, middle and low pitches; same and different pitches; soft and loud pitches; fast and slow tempos
- recognize the timbre of certain instruments and/or voices
- aural recognition of the terms beat and rhythm
- recognize familiar songs when given the rhythm of the song
- perform "ta," "ta rest" and "titi" through body percussion and non-pitched percussion instruments write simple four-beat patterns from dictation
- recognize the following musical symbols:
  - do clef
  - ta
  - ta rest
  - titi
  - two line staff
  - three line staff

## GRADE 2

- recall and build upon concepts learned in Kindergarten and First Grade Music
- participate in singing a variety of rote songs
- participate in singing partner songs and canons
- reproduce So-Mi-La-Do patterns after hearing them sung
- generate musical responses to questions sung in So-Mi-La-Do patterns
- use Kodaly hand signals for So-Mi-La-Do patterns
- hear, feel and perform a steady beat using bilateral and left-right alternating single body percussion movements
- play singing games requiring a steady beat
- keep a steady beat on pitched or non-pitched percussion instruments
- identify and differentiate between the treble clef and bass clef

## GRADE 3

- recall and build upon concepts learned in Kindergarten through Second Grade Music
- reproduce Do-Re-Me-So-La-Do patterns after hearing them sung
- understand simple song structures (form), two and three part form, repetition and contrast of phrases and interlude and introduction
- understand simple meter in two, three and four
- identify lines and spaces by letter names on the treble clef staff

- understand the forms ABA and Rondo
- speak, play and feel the value of the whole note and whole rest
- recognize and use the following musical symbols:
  - piano-soft
  - forte-loud
  - single and double bar lines
  - accent
- aurally experience the music of selected composers and explore the biographies of each
- observe sound as a form of energy produced when matter vibrates
- predict how the length, thickness and composition of a vibrating object affect the sound (raises or lowers pitch)

#### GRADE 4

- recall and build upon concepts learned in Kindergarten through Third Grade Music
- understand simple song structure
- experience the major scale
- recognize and comprehend the concept of the coda
- recognize and name notes and related rests by mathematical names
- experience and recognize the crescendo and decrescendo
- recognize and play verbal and instrumental ostinato
- recognize and understand tri-sixteenth notes
- aurally and visually recognize instruments of the orchestra and classify these instruments according to the families of instruments
- understand the mechanics of sound production of the various instrument families
- listen to various orchestral compositions
- aurally experience the music of selected composers and explore biographies of these composers
- reinforce the aural and visual recognition of melodic patterns, repeated tones, C Major Pentatonic Scale and the C Major Scale
- observe that an echo is a sound bouncing back from an object
- observe that the vibrations of the vocal chords make sound

#### GRADE 5

- recall, extend and develop concepts in rote singing, beat awareness, musical terms, rhythm, musical symbols and listening experiences learned in Kindergarten through Fourth Grade Music
- recognize the relationship between the three elements of music:
  - melody
  - rhythm
  - harmony
- recognize and understand the concept of dotted notes
- recognize melodic patterns, repeated tones, an ascending and descending C Major Scale and the Major Pentatonic Scale
- label a simple diagram of the ear
- describe how sound travels through the ear

## INSTRUMENTAL MUSIC

- understand the discipline necessary to improve through practice, lessons and rehearsals
- play the instrument of their choice
- read and understand music notation pertaining to their instrument
- perform in lessons, rehearsals and concerts

### GRADE 4

- follow basic rhythm of notes and rests including whole, half, quarter and eighth
- play within an octave range
- respond to basic time signatures 4/4 (C), 2/4 and 3/4
- understand repeat methods 11:, D.C., D.S., Fine, first and second ending
- perform with basic articulation (tonguing, slurring, ties and accent)
- relate to flat and sharp accidentals and key signature
- relate to tempo markings (Moderato, Allegro, Andante and Largo)
- respond to the direction of a conductor (pick up, fermata, cues, measures, rest, dynamic loud (f) and soft (p), etc.)
- perform in the Elementary Spring Concert

### GRADE 5

- develop basic rhythm adding dotted quarter and eighth rhythms, syncopation and sixteenth note rhythms
- play within an octave and a half adding half steps (inharmonic notes)
- respond to time signatures 2/2 (C), 3/8 and 6/8
- understand basic repeat signs adding Coda
- develop articulation patterns and technical ability on instrument
- develop key signature adding minor tonality
- relate to tempo markings (Maestoso, Allegretto, Vivace, Presto, Lento, ritard, accelerando and a tempo)
- develop dynamic contrasts (loud - f and soft - p)
- respond to a conductor during large group rehearsals (combine Fifth Grades)
- perform in the Fifth Grade Band Winter Concert and All Band Night (spring)

## ART

- create art using various techniques, media and tools (art studio)
- evaluate art using criterion (art criticism)
- ponder and discuss questions about art (aesthetics)
- discuss artists from many cultures (art history)

## KINDERGARTEN

- use the elements of design: color, shape, line and pattern
- discuss and assess colors in student's and artist's works
- identify primary colors
- demonstrate proper mixing techniques
- mix primary colors to make secondary colors
- identify and use basic shapes to create works of art
- identify types of lines
- model line direction
- define, discuss and use various types of lines
- create patterns incorporating shape and color
- describe the ways a print is different than a painting
- evaluate his/her craftsmanship
- use his/her tools properly
- use a variety of media to create art
- view/discuss art and artists from an art historical, aesthetic and critical eye
- discuss works of some artists and cultures
- create a sculpture using additive and subtractive techniques

## GRADE 1

- build upon skills developed in Kindergarten Art
- use elements of design learned in Kindergarten Art with the addition of space
- demonstrate proper mixing techniques
- describe how shapes relate to one another
- create art using basic shapes
- describe and name line direction: vertical, horizontal, diagonal and curved
- draw parallels between lines in nature and in art
- create work that shows space relationships
- identify repeat (pattern) in nature, in art and in his/her clothing
- create a pattern incorporating some of the following: line, shape and color
- create prints
- view/discuss art and artists from an art historical, aesthetic and critical eye
- create a sculpture using additive and subtractive techniques
- introduce tints and shades
- integrate illustration with literature

## GRADE 2

- build upon skills developed in First Grade Art
- identify and use warm and cool color schemes
- discuss relationships between basic shapes in nature
- discuss the use of lines in works by various artists
- define and employ contour line and line direction in art work
- explain the importance of the following space relationships: near, far and overlapping (aerial perspective) and create work that shows aerial perspective
- discuss the ways space is created in nature and in art
- identify symmetry in nature and in art
- create a symmetrical design incorporating some of the following: line, shape and color
- differentiate between various subject matter including: portraits, landscapes and seascapes, cityscapes, still life and genre
- describe organic shapes in sculpture
- create a sculpture using additive and/or subtractive techniques
- view/discuss art and artists from an art historical, aesthetic and critical eye

### GRADE 3

- build upon what was learned in Second Grade Art
- describe intermediate colors in art work (tertiary)
- identify and use complementary colors
- discuss and describe how an artist can use line quality to convey an emotion or mood
- view and discuss surrealism
- critically examine art using four steps of art criticism: description, analysis, interpretation and judgment
- define, compare and contrast the following terms: realistic, abstract, non-objective and surrealism
- create an edition of prints
- create sculptures
- view/discuss art and artists from an art historical, aesthetic and critical eye
- introduce analogous colors
- recognize crafts as an art form

### GRADE 4

- build and expand upon what was learned in Third Grade Art
- identify and apply the elements of design in his/her work
- identify monochromatic and complementary colors in art work and the work of others
- explain and use shading and modeling to create the illusion of space
- create work that shows depth
- use gesture lines when building a drawing of a person
- compare and contrast basic and exaggerated proportions
- critically examine art using four steps of art criticism: description, analysis, interpretation and judgment
- differentiate between fine art and crafts
- view/discuss art and artists from an art historical, aesthetic and critical eye
- identify and use tints and shades in a monochromatic painting

### GRADE 5

- build and expand upon what was learned in Fourth Grade Art
- compare and contrast various color schemes
- use shading and modeling in art work
- evaluate and use some of the techniques that artists from western cultures use to create the illusion of space (perspective), overlapping, placement and size relationships
- critically examine art using four steps of art criticism: description, analysis, interpretation and judgment
- determine how different artists view the same object
- observe differences in techniques
- create an edition of prints
- differentiate between utilitarian and symbolic aspects in art
- create art projects using various techniques, elementary of art and principles
- view/discuss art and artists from an art historical, aesthetic and critical eye

## PHYSICAL EDUCATION

### KINDERGARTEN

- learn basic warm-up exercises and activities
- start to run in a given direction
- stop suddenly and change directions without falling
- throw an object into the air and catch it with both hands
- throw and catch an object with a different person
- recall and play properly three or more games of low organization such as tag, ball, circle and line games
- learn basic gym safety procedures concerning all aspects of a gym class
- develop the concept of good sportsmanship which will be emphasized in all remaining grades

### GRADE 1

- plan a path of running and increase the speed
- tag with a touch, not a push
- throw a ball or bean bag a measured distance
- bounce a ball to another child
- follow directions and safety procedures
- experience activities such as stunts, tumbling
- learn hopping, jumping and skipping
- recall and play properly five or more games of low organization such as, tag, relay, ball, circle or line games

### GRADE 2

- dodge to avoid being caught
- kick a ball to a target
- develop the ability to stop and start quickly
- play games which introduce team sports
- play team games of low organization that include sport skills, leading to soccer, basketball, hockey, baseball and football
- do rhythmic activities of fundamental movements, creative rhythms, singing games and folk dance
- continue development of warm-up exercises and activities
- display proper gym safety and equipment safety procedures

### GRADE 3

- play games of low organization which will emphasize the skills of running, tagging, throwing and catching
- do rhythmic activities including folk and square dance
- practice proper safety procedures
- develop team game skills which will be used in lead-up games
- develop concept of physical fitness
- participate in swimming instruction and swimming safety procedures

### GRADE 4

- play games of low organization which will emphasize proper tagging techniques, running, catching, throwing and using different formations
- understand the importance of exercise and the development of fine motor coordination
- do activities involved with President's Physical Fitness Test
- refine team game skills and play lead-up team games

### GRADE 5

- play games involving running and tagging skills
- do exercises and understand the importance of exercises in his/her daily life
- do the activities involved with President's Physical Fitness Test
- practice proper safety procedures in gym
- improve upon team sport skills and play lead-up games for soccer, football, volleyball, etc.

## HEALTH KINDERGARTEN

- understand the place of "rules" in school and know the value of sharing
- define ways to avoid accidents
- know the function of a doctor and a dentist
- explain why medicine can be helpful or harmful
- define "health", demonstrate good health practices and explain the importance of proper dress
- discuss the importance of exercise, fitness and sleep
- discuss methods for keeping the school room a healthy place through neatness and cleanliness
- recognize why we need food to keep our bodies healthy
- know the danger of talking to strangers

## GRADE 1

- recognize the importance of family and friends
- describe the role of the dental hygienist
- discuss what feelings are and describe how a person might feel in a new situation
- describe the importance of taking care of your neighborhood
- discuss rules for being safe around strangers

## GRADE 2

- learn and practice respect to others and self and to identify healthy and safe ways to resolve conflict
- identify the five senses and explain the importance of each
- describe the functions of the brain, muscles, bones and joints
- identify the food groups and why it is important to eat different kinds of food
- explain why eating healthy helps growth and development
- learn to choose healthy snacks
- name the benefits of exercise and how they apply to the heart, muscles and lungs
- list ways to exercise safely and the importance of being fit
- recognize the relationship between taking care of your teeth, eyes and ears with healthy wellness
- understand the importance of accepting responsibility for personal health care and the importance of getting adequate sleep
- identify causes of illness and how diseases are spread
- learn and follow safety practices regarding medicine
- define the words drug, alcohol, tobacco, nicotine and caffeine
- identify the dangers and health hazards which accompany the use of alcohol, tobacco, nicotine and caffeine
- identify good safety practices for bicycling, walking, school and home, water and pools, strangers and animals
- understand basic first aid concepts
- recognize that it is important to have a healthy community

## GRADE 3

- understand growth and development of a cell, tissues, organs and systems of the human body and the importance of maintaining a healthy body
- identify the parts of the food pyramid and understand the importance of choosing, preparing and serving foods in healthy ways
- identify types of teeth and describe the importance of good dental hygiene
- learn safety rules and procedures to prevent accidents
- discuss the effects of caffeine, alcohol, narcotics and nicotine on the body
- understand the different uses for prescription and over the counter drugs
- understand how bacteria, viruses and vaccines work in the body
- design plan of exercise for good physical fitness
- identify community health issues and the importance of being a responsible citizen

## GRADE 4

- identify and understand the digestive, nervous, circulatory and respiratory systems
- understand the variety of ways to become fit and stay fit
- learn responsible ways for dealing with minor injuries, emergency situations and personal safety
- describe good hygiene as it relates to teeth, eyes, ears and skin
- learn how to evaluate and choose health care products wisely
- identify the nutrients in food and the importance of a balanced diet
- understand the importance of safety in preparing and storing food
- develop an understanding of the importance of medicine safety
- know about the dangers of drug abuse, as it pertains to alcohol, tobacco and other dangerous substances
- identify and learn about communicable and non-communicable disease
- discuss ways to avoid disease by forming good health habits
- discuss ways communities help to ensure a healthy environment and become aware of local community health services

## GRADE 5

- describe and understand the structure and function of cells as it pertains to the growth process
- discuss how heredity and health practices affect growth patterns
- identify body systems and learn how the systems work together to keep the body functioning
- discuss an individual's responsibility for caring for the body
- understand the importance of developing good life-long personal care habits
- describe and understand the correlation between proper diet, growth and health maintenance
- know the importance of regular exercise and its affect on the cardiovascular system
- develop an appreciation for physical fitness and healthy wellness
- understand the classification of drugs and describe the effects of drug abuse on mental and physical health
- discuss the importance of safety in all situations
- develop a sense of responsibility for the environment
- understand the physical changes in the body during puberty
- understand the nature of aids, the methods of transmission and prevention

## STUDY SKILLS

Study skills are the tools all students need "to learn how to learn." Study skills enable students to gather, organize, record, remember, use and understand information and ideas.

### KINDERGARTEN

- clean up after an activity
- recognize importance of organizing time
- learn to listen and follow basic directions
- classify information
- remember simple rules and directions
- recognize a problem visit school library and check out books
- begin to work independently
- understand concept of homework

### GRADE 1

- practice neatness in all activities
- follow a sequence of directions
- learn to organize time and materials
- develop good listening habits (details)
- classify and summarize information
- use table of contents to locate stories
- remember and relate basic information
- recognize possible approaches to solving problems
- choose and check out books from library
- become more independent in school work
- develop good homework habits

### GRADE 2

- practice neatness in all activities
- follow both written and oral directions
- increase ability to organize time and materials
- practice good listening habits
- summarize information
- locate words in a dictionary
- introduce basic test-taking skills
- define and select an approach to solve a problem
- locate important areas in a library
- utilize independent time wisely
- follow homework procedures as prescribed by the teacher

### GRADE 3

- practice neatness in all activities
- follow both written and oral directions
- refine ability to organize time and materials
- practice good listening habits (main idea)
- use an index and a dictionary
- develop good test-taking and memory skills
- refine problem solving techniques
- use card catalog and call number system
- begin to use SQ3R techniques (Survey, Question, Read, Recite, Review)
- follow homework procedures as prescribed by the teacher

## GRADE 4

- practice neatness in all activities
- follow both written and oral directions
- develop time management and organizational techniques
- develop accurate listening skills (main points)
- refine outlining and note taking skills
- use a glossary and encyclopedia
- cultivate test-taking skills and memory skills
- distinguish fact from opinion and evaluation sources of information
- use periodical index
- develop SQ3R techniques (Survey, Question, Read, Recite, Review)
- follow homework procedures as prescribed by the teacher

## GRADE 5

- practice neatness in all activities
- follow detailed directions
- practice time management and organizational techniques
- develop accurate listening skills (summarize)
- record and organize information through the use of outlining and note taking
- use encyclopedia and other reference books for information
- expand test taking skills to include standardized tests
- use critical thinking skills by relating the new to the old, seeing relationship and recognizing patterns
- use reference books for reports (encyclopedias, almanacs, etc.)
- reinforce SQ3R techniques (Survey, Question, Read, Recite, Review)
- follow homework procedures as prescribed by the teacher

## HOMEWORK KINDERGARTEN

- understand directions for the assignments
- understand and write down the assignments
- ask the teacher questions regarding the assignment if it is not clearly understood
- do assignments carefully, neatly and thoroughly
- submit assignments on time
- make up homework missed due to absence from class
- assume responsibility for completion of individual assignments without constant dependence upon others for help
- carry out his/her part of any assignment involving the cooperation of family members

## GRADE 1

- understand and write down the assignments
- ask the teacher questions regarding the assignment if it is not clearly understood
- do assignments carefully, neatly and thoroughly
- submit assignments on time
- make up homework missed due to absence from class
- assume responsibility for completion of individual assignments without constant dependence upon others for help
- utilize study helps and available resource materials
- use study time efficiently in school and at home (long-term assignments require special attention in this regard)
- carry out his/her part of an assignment involving the cooperation of one or more classmates

## GRADE 2

- understand the assignments
- ask the teacher questions regarding the assignment if it is not clearly understood
- do assignments carefully, neatly and thoroughly
- submit assignments on time
- make up homework missed due to absence from class
- assume responsibility for completion of individual assignments without constant dependence upon others for help
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