

# TECHNOLOGY

LENGTH OF TIME: Integrated as part of other curricular areas throughout the entire school year

GRADE LEVEL: 4

## COURSE STANDARDS:

Students will:

1. Recognize how technology is used in the state of Pennsylvania. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
2. Demonstrate respect for the work of others. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
3. Discuss ownership of computer-created work. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
4. Recognize an individual's rights of ownership of computer-created work. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
5. Recognize that the Copyright Law protects what a person, group or company has created. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
6. Identify violations of the Copyright Law and recognize the correct use of copyrighted materials in multimedia products. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
7. Identify the need for Acceptable Use Policies. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
8. Describe the use of Acceptable Use Policy: recognize ownership, security and privacy issues; & recognize the need for protection of software & hardware from computer viruses & vandalism. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
9. Demonstrate an understanding of copyright by citing sources of copyrighted materials in papers, projects & multimedia presentations; & demonstrate ethical behavior relating to security, privacy, passwords & personal information. (PA Academic Std 3.6B, 3.8A, 3.8B; NETS 2)
10. Recognize that multimedia is use of the computer to present text, graphics, video, animation, and sound in an integrated way. (PA Academic Std 3.7A, 3.7C, 3.7E; NETS 1, 3, 4, 5)
11. Identify & explain the difference between non- networked & networked computers. (PA Academic Std 3.7C, 3.7E; NETS 1)
12. Locate & use letters, numbers, & special keys on a keyboard. (PA Academic Std 3.7C; NETS 1)
13. Know placement of individual letter keys. (PA Academic Std 3.7C; NETS 1)
14. Know word processing terms and their functions: file, print, open, arrow keys, backspace, enter/return key, shift key, spell check (red and green underscores), font formatting (style, size, color). (PA Academic Std 3.7C; NETS 1, 3)
15. Demonstrate proper keyboarding techniques for upper & lower case letters using shift key. (PA Academic Std 3.7C, 3.7D; NETS 1, 3)
16. Create, format, save & print a word processed document. (PA Academic Std 3.7C, 3.7D; NETS 1, 3)
17. Retrieve & edit a word processed document. (PA Academic Std 3.7C, 3.7D; NETS 1, 3)

18. Use keyboarding skills to improve speed & accuracy. (PA Academic Std 3.7C, 3.7D; NETS 1)
19. Use word processing or some other software program (ie. TimeLiner, Kidspiration) to produce and print a computer generated document/assignment/project, related to content areas, that combines text and graphics or images. (PA Academic Std 3.7C, 3.7D; NETS 1, 3)
20. Identify the parts of a spreadsheet: cells, rows, columns, and table. (PA Academic Std 3.7C, 3.7D; NETS 1, 3, 6)
21. Define spreadsheet terms. (PA Academic Std 3.7C, 3.7D; NETS 1, 3)
22. Use a prepared spreadsheet to enter & graph data as a group activity. (PA Academic Std 3.7C, 3.7D; NETS 1, 3, 6)
23. Edit data in a spreadsheet & observe the results. (PA Academic Std 3.7C, 3.7D; NETS 1, 3, 6)
24. Select and use search strategies to locate information electronically.\* (PA Academic Std 3.7E; NETS 3, 5, 6)
25. Search & sort prepared databases for information to use in classroom projects.\* (PA Academic Std 3.7E; NETS 3, 5, 6)
26. Evaluate the accuracy, credibility & validity of data in a database.\* (NETS 3, 5, 6)
27. Use e-mail as a means of communication as a whole class and/or individually. (PA Academic Std 3.6B, 3.7D; NETS 3, 4)
28. Evaluate information found via Internet for appropriateness, content & usefulness. (PA Academic Std 3.6B; NETS 4)
29. Use Internet to share & publish information. (PA Academic Std 3.6B, 3.7D; NETS 3, 4)
30. Collect, enter, sort & organize information to display as a graph or chart. (PA Academic Std 3.6B, 3.7D; NETS 3, 4)
31. Select the most appropriate graph to display data & state reason. (PA Academic Std 3.6B, 3.7D; NETS 3, 4)
32. Interpret data on charts/graphs & make predictions. (PA Academic Std 3.6B, 3.7D; NETS 3, 4)
33. Participate in the planning and creation of a class/group multimedia that uses any combination of text, graphics, video, animation, or sound to present information & cite sources of copyrighted material. (PA Academic Std 3.6B, 3.7D; NETS 3, 4)
34. Use technology tools to organize, analyze & display data appropriately. (PA Academic Std 3.7A, 3.7C; NETS 1, 3, 4, 5, 6)

#### RELATED PA ACADEMIC STANDARDS FOR SCIENCE AND TECHNOLOGY

- 3.6 Technology Education
  - B. Information Technology
- 3.7 Technological Devices
  - A. Tools
  - C. Computer Operations
  - D. Computer Software
  - E. Computer Communication Systems
- 3.8 Science, Technology and Human Endeavors
  - A. Constraints

## B. Meeting Human Needs

### RELATED NETS (NATIONAL EDUCATIONAL TECHNOLOGY STANDARDS FOR STUDENTS) STANDARDS

1. Basic operations and concepts
  - Students demonstrate a sound understanding of the nature and operation of technology systems.
  - Students are proficient in the use of technology.
2. Social, ethical, and human issues
  - Students understand the ethical, cultural, and societal issues related to technology.
  - Students practice responsible use of technology systems, information, and software.
  - Students develop positive attitudes toward technology uses that support lifelong learning, collaboration, personal pursuits, and productivity.
3. Technology productivity tools
  - Students use technology tools to enhance learning, increase productivity, and promote creativity.
  - Students use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works.
4. Technology communications tools
  - Students use telecommunications to collaborate, publish, and interact with peers, experts, and other audiences.
  - Students use a variety of media and formats to communicate information and ideas effectively to multiple audiences.
5. Technology research tools
  - Students use technology to locate, evaluate, and collect information from a variety of sources.
  - Students use technology tools to process data and report results.
  - Students evaluate and select new information resources and technological innovations based on the appropriateness for specific tasks.
6. Technology problem-solving and decision-making tools
  - Students use technology resources for solving problems and making informed decisions.
  - Students employ technology in the development of strategies for solving problems in the real world.

### PERFORMANCE ASSESSMENTS:

Students will demonstrate achievement of the standards by:

1. Locating and discussing ways technology is used in society (Course Standard 1)
2. Showing respect for others work and caring for the computer (Course Standards 2, 3, 4, 5, 6, 7, 8, 9)
3. Listing characteristics of multimedia (Course Standard 10)
4. Logging onto computer appropriately (Course Standard 11)
5. Creating sentences, stories, and writing/presentation pieces (Course Standards 12, 13, 14, 15, 16, 17, 18, 19)
6. Using Excel to enter, present, and interpret data and graph results (Course Standards 20, 21, 22, 23)

7. Using search strategies to locate information electronically (Course Standards 24, 25, 26)
8. Using appropriate tools for communicating (Course Standards 27, 28, 29, 30, 31, 32, 33, 34)

#### DESCRIPTION OF INTEGRATION:

Technology is not a separate course but rather a curriculum that is integrated and taught through other curricula. Technology is a valuable tool that students will explore through integrated activities in other subjects. The technology curriculum will be the responsibility primarily of the grade level teacher, with concepts introduced, modeled, reinforced, and practiced, with the eventual goal of mastery. Keyboarding concepts will be practiced in the computer lab using a software program, Type 2 Learn, a self-directed keyboarding practice program. The librarian will facilitate the searching and sorting of databases to locate information. Curriculum at each grade level will reinforce the previous, while at the same time providing for the introduction and practice of new skills.

#### TITLES OF UNITS:

time/unit – on-going integrations

1. Technology and Society
  - a. Technology use
  - b. Use of others work
  - c. Self responsibility in technology use
2. Computer Conceptual Knowledge
  - a. Technology types
  - b. Computer Hardware and terms
3. Word Processing
4. Spreadsheets
  - a. Pre-made spreadsheets
  - b. Student made spreadsheets
5. Database/Data Organization
  - a. Information access and retrieval
6. Skill Communications/Graphs/Presentations
  - a. Telecommunications and e-mail
  - b. Graphing
  - c. Presentation
7. Skill Tool Selection

#### SAMPLE INSTRUCTIONAL STRATEGIES:

1. Discussion
2. Modeling
3. Demonstrations
4. Oral presentation
5. Visual presentation
6. Role-play
7. Sequencing
8. Brainstorming
9. Independent/self-paced practices
10. Peer assistance/partner or group work

#### MATERIALS:

1. Networked computers equipped with Windows XP or upgrade (minimum of 10)
2. Teacher computer station with display device (TV or projector or smart board)
3. Color printer
4. Digital camera
5. Software:
  - Power Library – Access PA
  - Spectrum Card Catalog
  - Microsoft Office 2003 Package (including Publisher)
  - Kidspiration
  - TimeLiner
  - Type 2 Learn – Keyboarding program
6. Poster of computer parts
7. Miscellaneous
  - MLA citation format
  - District's Acceptable Use Policy
  - Copyright guidelines
  - Web site evaluation guidelines

#### METHODS OF ASSISTANCE AND ENRICHMENT:

1. Technology skills are reinforced in all curricular areas, including Specials
2. Students have opportunities to use technology to explore various curricular topics in depth, allowing for differentiation
3. Individualized assistance is available as needed (teachers, teaching assistants, peers)
4. Remedial and enrichment work can be done during computer lab time, during recess or before/after school, and during class time when appropriate

#### PORTFOLIO DEVELOPMENT:

1. Student work demonstrating technology integrations can be saved electronically in student folders

#### METHODS OF EVALUATION:

1. Teacher observation
2. Class participation
3. Group work
4. Completed projects - Technology skills are evaluated as part of integrated projects in curricular areas
5. Oral and visual presentations

#### INTEGRATED ACTIVITIES:

It is expected that as technology skills are integrated into other curricular areas, technology will be used: to reinforce concepts; as a communication tool; in thinking/problem solving; to show application of knowledge; and to enable students to practice and reinforce interpersonal skills.

1. Concepts

- Demonstrate understanding of computer as an important tool
  - Demonstrate correct care and use of computers
  - Understand the basic ethics and responsibilities of a computer use
2. Communication
    - Describe procedures
    - Use correct terminology
    - Exchange information
    - Present acquired information in a media presentation
  3. Thinking/Problem Solving
    - Use computer generated, organized and presented information to draw conclusions, form opinions and make judgments
  4. Application of Knowledge
    - Use software, hardware to present, evaluate and communicate
  5. Interpersonal Skills
    - Demonstrate the ability to listen and communicate effectively through writing, speaking, and computer generated communications