INTEGRATED TECHNOLOGY PACING GUIDE

Includes
K-5 Technolgy Standards,
Technology Vocabulary,
Integrated Content Ideas, and
Lesson Plans

"BRINGING CONTENT WITH TECHNOLOGY TO OUR STUDENTS"

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*Note: All standards on pages 3-8 and 15-38 are in the format of Grade Level.NETS•S Standard.APS objective. For example, K.1.1 means Kindergarten.NETS Standard 1.APS objective 1.

Kindergarten APS Technology SOL Checklist

NETS 1: Basic Concepts and Operations

_____K.1.1 name technology in classroom and home
_____K.1.2 monitor, mouse, disk drive, keyboard, CPU, printer
_____K.1.3 use technology as part of classroom routines
_____K.1.4 turn computer on/off, log-in/log-out, launch/close application, insert/eject disk, print
_____K.1.5 use a mouse to make selections
_____K.1.6 locate alphabet keys, numeric keys, space bar, return, delete, shift, arrows
_____K.1.7 use printers, disk drives, CDs
_____K.1.8 save and retrieve work
_____K.1.9 save work to a disk

NETS 2: Social, Ethical, and Human Issues

_____K.2.1 handle technology carefully
_____K.2.2 operate with clean hands
_____K.2.3 no food or drink around computer
_____K.2.4 safe behavior with electrical cords
_____K.2.5 prevent damage to equipment
_____K.2.6 report problems to an adult
_____K.2.7 respect each other's work
_____K.2.8 share resources equitably
_____K.2.9 close windows, log-out, leave area neat
_____K.2.10 keep passwords private
_____K.2.11 discuss safety issues (don't give away personal info on the Internet)

NETS 3: Technology Productivity Tools

_____K.3.1 compose and publish written work – Appleworks
_____K.3.2 pre-writing activities – Kidspiration
_____K.3.3 create original art – KidPix, AppleWorks Draw or Paint
_____K.3.4 create a table as a class – Appleworks Spreadsheet, Graph Club
_____K.3.5 create a storyboard prior to all slide shows
_____K.3.6 create a slide show with audio and graphics – Appleworks, Hyperstudio, KidPix

NETS 4: Technology Communication Tools

_____K.4.1 participate in and respond to electronic field trips
_____K.4.2 create collaboratively a storyboard prior to all slide shows
_____K.4.3 create a slide show with audio and graphics – Appleworks, Hyperstudio, KidPix

NETS 5: Technology Research Tools

_____K.5.1 retrieve and gather info from electronic media
_____K.5.2 use ACORN

NETS 6: Technology Problem Solving and Decision Making Tools

_____K.6.1 communicate solutions to problems through graphing/drawing – Appleworks, KidPix
_____K.6.2 create and manipulate tables, pictographs – Graph Club, Appleworks Spreadsheet
_____K.6.3 use critical thinking skills when viewing video – www.unitedstreaming.com, VHS tapes

First Grade APS Technology SOL Checklist

NETS 1: Basic Concepts and Operations

_____1.1.1 disks, hard drives
_____1.1.2 name technology in classroom
_____1.1.3 name parts of computer
_____1.1.4 turn computer on and off, insert and eject disk
_____1.1.5 print, quit, new, open, save
_____1.1.6 ., ?, escape, tab, shift, control, apple key
_____1.1.7 use 2 hands
_____1.1.8 use a printer, disk, CD
_____1.1.9 observe a scanner and digital camera
_____1.1.10 name a file
_____1.1.11 save work

Nets 2: Social, Ethical, and Human Issues

_____1.2.1 handle technology carefully
_____1.2.2 operate with clean hands
_____1.2.3 no food or drink around computer
_____1.2.4 safe behavior with electrical cords
_____1.2.5 prevent damage to equipment
_____1.2.6 report problems to an adult
_____1.2.7 respect each other's work
_____1.2.8 share resources equitably
_____1.2.9 close windows, log out, leave lab neat
_____1.2.10 keep passwords private
_____1.2,11 discuss safety issues (don't give away personal info on the Internet)
_____1.2.12 use appropriate behavior

Nets 3: Technology Productivity Tools

_____1.3.1 pre-writing activities - Inspiration, Kidspiration
_____1.3.2 create and print written work
_____1.3.3 add a sentence to art – KidPix
_____1.3.4 create and print written work with art – KidPix or Appleworks Draw/Paint
_____1.3.5 create a database – Appleworks Database
_____1.3.6 discuss the database
_____1.3.7 create a spreadsheet – Appleworks Spreadsheet
_____1.3.8 organize information in spreadsheet – Appleworks spreadsheet
_____1.3.9 create a storyboard – paper and pencil/chart paper
_____1.3.10 slide show with audio – KidPix, MS PowerPoint, Appleworks Slide Show

Nets 4: Technology Communication Tools

_____1.4.1 participate in telecommunication projects – email, video conferencing
_____1.4.2 create a storyboard – paper and pencil / chart paper
_____1.4.3 slide show with audio presented to an audience - KidPix, MS PowerPoint, Appleworks Slide Show

Nets 5: Technology Research Tools

_____1.5.1 single word search using electronic media
_____1.5.2 summarize & publish info received from electronic media
_____1.5.3 observe teacher citing an electronic source
_____1.5.4 use ACORN

Nets 6: Technology Problem Solving and Decision Making Tools

_____1.6.1 communicate solutions to problems through drawing and written description – KidPix, Appleworks Draw / Paint
_____1.6.2 create and manipulate tables, pictographs – Graph Club, Appleworks Spreadsheet
_____1.6.3 use critical thinking skills when viewing video – http://www.unitedstreaming.com/, VHS tapes

Second Grade APS Technology SOL Checklist

NETS 1: Basic Concepts and Operations

_____2.1.1 list storage devices – disk, hard drive, CD-ROM, server
_____2.1.2 rank storage capacity – floppy disk, CD-ROM, hard drive
_____2.1.3 explain multimedia (combination of visual and audio/video)
_____2.1.4 identify examples of multimedia presented via computer
_____2.1.5 identify pop up menu, dialog box, tool palette
_____2.1.6 use instructional software for exploration and learning
_____2.1.7 place fingers on home keys, use 2 hands
_____2.1.8 locate and use all keys on keyboard
_____2.1.9 use the shift key
_____2.1.10 use shortcuts as alternatives to pulldown menus (i.e., apple key and S for File, Save)
_____2.1.11 use peripheral devices
_____2.1.12 discuss how peripheral devices can be used (camera, TV, VCR, DVD player)
_____2.1.13 load paper into printer
_____2.1.14 name files with student's name and file content

NETS 2: Social, Ethical, and Human Issues

_____2.2.1 discuss and respect guidelines for technology use and handling
_____2.2.2 prevent data loss through proper practices
_____2.2.3 use courteous language, good manners, and be respectful
_____2.2.4 discuss and demonstrate good behavior when using technology
_____2.2.5 access only appropriate web sites
_____2.2.6 share resources equitably
_____2.2.7 close windows, log out, leave area neat
_____2.2.8 keep data in shared folders in their original condition
_____2.2.9 ideas and work are the property of the author/creator
_____2.2.10 discuss and practice the APS Technology Code of Ethics (cite sources)

NETS 3: Technology Productivity Tools

_____2.3.1 use writing software for pre-writing (Kidspiration, Inspiration, Appleworks)
_____2.3.2 create, edit, revise, and publish a short document (Appleworks, Hyperstudio, Story Book Weaver, MS Office)
_____2.3.3 select and insert computer graphics into a writing document
_____2.3.4 define and understand the differences between databases and spreadsheets (Appleworks)
_____2.3.5 define appropriate categories for labeling database fields and spreadsheet cells
_____2.3.6 add information to group databases and spreadsheets
_____2.3.7 discuss and analyze, in groups, info in databases and spreadsheets
_____2.3.8 create a storyboard prior to all slide shows
_____2.3.9 create electronic slide show with audio and graphics; share w/ audience (Hyperstudio, PowerPoint)

NETS 4: Technology Communication Tools

_____2.4.1 participate in electronic communication (Internet, email, telecommunication projects)
_____2.4.2 create a storyboard prior to all slide shows
_____2.4.3 create electronic slide show with audio and graphics; share w/ audience (Hyperstudio, PowerPoint)

NETS 5: Technology Research Tools

_____2.5.1 use keyword searches for an electronic encyclopedia, network resource, & Internet
_____2.5.2 select records from an electronic database using keywords
_____2.5.3 summarize and publish info retrieved from electronic media
_____2.5.4 locate several related articles from electronic references
_____2.5.5 locate graphics within electronic references
_____2.5.6 incorporate at least one citation of an electronic reference into a report
_____2.5.7 locate text info and graphics while using the Internet

NETS 6: Technology Problem Solving and Decision Making Tools

_____2.6.1 communicate solutions to problems through webbing (Kidspiration, Inspiration)
_____2.6.2 use graphing software to manipulate tables, pictographs, bar graphs (Appleworks, Graph Club)
_____2.6.3 apply critical thinking skills when viewing and discussing video
_____2.6.4 participate in a project that uses reference materials on CD (World Book, library)

Third Grade APS Technology SOL Checklist

NETS 1: Basic Concepts and Operations

_____3.1.1 identify bits and bytes as units of measure in computer technology
_____3.1.2 discuss binary logic in terms of on/off current in the computer
_____3.1.3 identify and explain: modem, server, fax machine
_____3.1.4 discuss how telecommunication allows information sharing near and far
_____3.1.5 use terms appropriately: memory, email
_____3.1.6 distinguish between info in computer's memory and on a storage medium
_____3.1.7 select appropriate computer applications for a given task
_____3.1.8 select other types of technology or software for a given task
_____3.1.9 participate in keyboarding class (10 words/minute or better and 80% accuracy)
_____3.1.10 use proper keyboarding techniques
_____3.1.11 use camcorders, TVs, VCRs, peripheral devices
_____3.1.12 use a CD-ROM to play an audio CD
_____3.1.13 use prescribed or logical file naming to identify a student's saved work

NETS 2: Social, Ethical, and Human Issues

_____3.2.1 discuss and respect guidelines for technology use and handling
_____3.2.2 prevent data loss through proper practices
_____3.2.3 use courteous language, good manners, and respect
_____3.2.4 discuss and demonstrate appropriate behavior
_____3.2.5 access only appropriate web sites
_____3.2.6 share resources and supplies equitably
_____3.2.7 close windows, log out, leave area neat
_____3.2.8 keep data in shared folders in their original condition
_____3.2.9 ideas and works are the property of the author/creator
_____3.2.10 discuss and practice the APS Technology Code of Ethics with regard to copyright & fair use

NETS 3: Technology Productivity Tools

_____3.3.1 use editing functions (copy, cut, paste) and font, style, size to create, edit, revise, & publish (Appleworks)
_____3.3.2 insert images from digital sources (scanner, camera, CD, Internet, etc.)
_____3.3.3 edit images (resize, flip, crop) and insert into a document (Picture Viewer, Graphic Converter)
_____3.3.4 collect info and create a database and spreadsheet (AppleWorks database or spreadsheet)
_____3.3.5 create simple database layouts and reports (AppleWorks)
_____3.3.6 create graphs form spreadsheet data (AppleWorks, MS Excel)
_____3.3.7 create multimedia projects with audio and graphics for an audience (Hyperstudio or PowerPoint)
_____3.3.8 participate in creating a class video (iMovie)
_____3.3.9 insert a video clip into a slide show (www.unitedstreaming.com, PowerPoint)

NETS 4: Technology Communication Tools

_____3.4.1 exchange info w/ an audience in another location using network communications
_____3.4.2 create multimedia projects with audio and graphics to share with an audience
_____3.4.3 participate in creating a class video and share with an audience (iMovie)
_____3.4.4 insert a video clip into a slide show (www.unitedstreaming.com, PowerPoint)

NETS 5: Technology Research Tools

_____3.5.1 apply age appropriate information literacy skills
_____3.5.2 retrieve at least 3 articles from an electronic encyclopedia using keyword searches
_____3.5.3 find records in an electronic database using keywords (ACORN)
_____3.5.4 select material from electronic reference sources (on-line encyclopedias, almanacs)
_____3.5.5 use copy and paste functions to create notes for writing projects
_____3.5.6 incorporate several citations from electronic references into a project
_____3.5.7 retrieve text and graphics from the Internet
_____3.5.8 use ACORN

NETS 6: Technology Problem Solving and Decision Making Tools

_____3.6.1 communicate solutions to problems through webbing (Inspiration, Kidspiration)
_____3.6.2 use graphing and spreadsheet software to create and manipulate graphs (AppleWorks, Graph Club)
_____3.6.3 use a database to identify information that can be applied to a problem
_____3.6.4 plan and present, using multimedia, a project that addresses a problem solving activity
_____3.6.5 participate in a class project that uses network and the Internet to exchange info to help solve a problem

Fourth Grade APS Technology SOL Checklist

NETS 1: Basic Concepts and Operations

_____4.1.1 discuss computer memory and amounts of memory needed to complete tasks
_____4.1.2 estimate, predict, and determine storage mediums for various tasks
_____4.1.3 identify bits, bytes, kilobytes, megabytes, & gigabytes as units of measure
_____4.1.4 discuss how computers are networked
_____4.1.5 select appropriate applications for a given task
_____4.1.6 select other technologies for tasks
_____4.1.7 select and operate peripheral devices (printer, scanner, camera, disk drive)

NETS 2: Social, Ethical, and Human Issues

_____4.2.1 discuss and respect guidelines for technology use and handling equipment
_____4.2.2 prevent data loss
_____4.2.3 use courteous language and good manners
_____4.2.4 discuss and demonstrate appropriate behavior
_____4.2.5 access only appropriate web sites
_____4.2.6 share resources and supplies equitably
_____4.2.7 close windows, log-out, and leave area neat
_____4.2.8 keep data and documents in shared folders in their original condition
_____4.2.9 ideas and work are the property of the author/creator
_____4.2.10 discuss and practice the APS Technology Code of Ethics

NETS 3: Technology Productivity Tools

_____4.3.1 use editing functions, font, style, & size; writing tools & drawing tools to create, edit, revise, and publish a document
_____4.3.2 create and publish a newsletter collaboratively using columns (Appleworks, MS Word)
_____4.3.3 create and publish a multi-page document, where another file is inserted into the document
_____4.3.4 integrate images from multiple sources into documents
_____4.3.5 explain when to use a database and when to use a spreadsheet (Appleworks, MS Excel)
_____4.3.6 manipulate database information -- use sort and record select functions, create reports & layouts
_____4.3.7 use spreadsheet info to create different graphs
_____4.3.8 plan & create interactive multimedia projects; share w/ an audience (Hyperstudio, MS PowerPoint)
_____4.3.9 use a camcorder to record video segments
_____4.3.10 participate in creating class video projects; share w/ an audience (iMovie)

NETS 4: Technology Communication Tools

_____4.4.1 implement a project that can be electronically shared w/ others in a remote location (e-mail w/ attachments, video, webpage)
_____4.4.2 plan & create an interactive hypermedia project (PowerPoint, Hyperstudio)
_____4.4.3 use a camcorder to record video segments
_____4.4.4 participate in creating a class video project (iMovie)

NETS 5: Technology Research Tools

_____4.5.1 apply age appropriate information literacy skills to electronic resources
_____4.5.2 retrieve articles from electronic sources (on-line searches)
_____4.5.3 use keyword searches on the Internet
_____4.5.4 incorporate materials from electronic sources into multimedia projects
_____4.5.5 retrieve text, graphics from the Internet
_____4.5.6 exchange info electronically with others
_____4.5.7 use ACORN (Arlington County On-line Resource Network website)

NETS 6: Technology Problem Solving and Decision Making Tools

_____4.6.1 use technology tools to solve a problem
_____4.6.2 apply age appropriate critical thinking skills to gather info and critique content
_____4.6.3 participate in collaborative projects that use the network and the Internet to exchange info for problem solving

Fifth Grade APS Technology SOL Checklist

NETS 1: Basic Operations and Concepts

_____5.1.1 Correlate computer units of measure (bits, bytes, kilobytes, megabytes, & gigabytes) to storage devices
_____5.1.2 discuss similarities and differences between units of measure and the base 10 system
_____5.1.3 explore correlation between units of measure, base two, and binary logic
_____5.1.4 select and combine technology components to prepare assignments
_____5.1.5 select and operate peripheral devices (printer, scanner, camera)

NETS 2: Social, Ethical, and Human Issues

_____ See and refer to K-3 objectives

NETS 3: Technology Productivity Tools

_____5.3.1 create & publish a multi-page document that incorporates writing tools (MS Word)
_____5.3.2 incorporate a brief video clip into documents (http://www.unitedstreaming.com/)
_____5.3.3 use record selection and sort functions of a database to answer questions (Appleworks, MS Excel)
_____5.3.4 write simple formulas to calculate spreadsheet information (MS Excel)
_____5.3.5 create hypermedia projects incorporating audio & visuals; share w/ an audience (PowerPoint)
_____5.3.6 complete multimedia projects; share w/ an audience
_____5.3.7 participate in creating a small video project; share w/ an audience (iMovie)

NETS 4: Technology Communication Tools

_____5.4.1 implement a long-term group project that is shared electronically w/ another group elsewhere
_____5.4.2 use network communications to publish work
_____5.4.3 create interactive hypermedia projects w/ audio & visuals; share w/ an audience (PowerPoint)
_____5.4.4 complete multimedia projects; share w/ an audience
_____5.4.5 participate in creating a small video project; share w/ an audience (iMovie)

NETS 5: Technology Research Tools

_____5.5.1 apply age appropriate information literacy skills to electronic references
_____5.5.2 research electronic sources using search strategies
_____5.5.3 cite all electronic references in projects
_____5.5.4 retrieve information using the Internet
_____5.5.5 exchange information electronically w/ others

NETS 6: Technology Problem Solving and Decision Making Tools

_____5.6.1 use network resources and the Internet to solve a problem
_____5.6.2 use simulations to form, test, confirm, disconfirm, and revise hypotheses; model events
_____5.6.3 apply age appropriate critical thinking skills when viewing video
_____5.6.4 identify & debate the advantages & disadvantages of various materials & technologies as they are used

Virginia State's Computer/ Technology Standards

Computer/Technology Standards by the End of Grade Five
http://www.pen.k12.va.us/VDOE/Superintendent/Sols/home.shtml

Computer/Technology skills are essential components of every student's education. In order to maximize opportunities for students to acquire necessary skills for academic success, the teaching of these skills should be the shared responsibility of teachers of all disciplines.

Minimum skills that students should acquire by the end of Grade 5 include the following:

C/T5.1 The student will demonstrate a basic understanding of computer theory including bits, bytes, and binary logic.

C/T5.2 The student will develop basic technology skills.
* Develop a basic technology vocabulary that includes cursor, software, memory, disk drive, hard drive, and CD-ROM.
* Select and use technology appropriate to tasks.
* Develop basic keyboarding skills.
* Operate peripheral devices.
* Apply technologies to strategies for problem solving and critical thinking.

C/T5.3 The student will process, store, retrieve, and transmit electronic information.
* Use search strategies to retrieve electronic information using databases, CD-ROMs, videodiscs, and telecommunications.
* Use electronic encyclopedias, almanacs, indexes, and catalogs.
* Use local and wide-area networks and modem-delivered services to access information from electronic databases.
* Describe advantages and disadvantages of various computer processing, storage, retrieval, and transmission techniques.

C/T5.4 The student will communicate through application software.
* Create a 1-2 page document using word processing skills, writing process steps, and publishing programs.
* Use simple computer graphics and integrate graphics into word-processed documents.
* Create simple databases and spreadsheets to manage information and create reports.
* Use local and worldwide network communication systems.

ISTE NETS•S for Students

ISTE National Educational Technology Standards for Students

http://cnets.iste.org/students/s_stands.html

Technology Foundation Standards for All Students

The technology foundation standards for students are divided into six broad categories. Standards within each category are to be introduced, reinforced, and mastered by students. These categories provide a framework for linking performance indicators within the Profiles for Technology Literate Students to the standards. Teachers can use these standards and profiles as guidelines for planning technology-based activities in which students achieve success in learning, communication, and life skills.

Technology Foundation Standards for Students

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.

Technology Vocabulary*

Word	Definition
Applications	Applications software (also called end-user programs) include database programs, word processors, spreadsheets, and multimedia programs.
AUP	Acceptable Use Policy A contract specifying what a subscriber can and cannot do while using an ISP's service or an organization's network and equipment.
Auxiliary Storage Devices	Various techniques and devices for storing large amounts of data. These include floppy disks, tape drives, zip drives, hard disks, CD's, firewire drives, and optical disks.
Averkey	Device used to connect the computer to a television to generate the image on the computer screen onto the television
Backup	Copy files to a second medium (a disk or tape) as a precaution in case the first medium fails and the files are lost.
Binary logic	The computer uses zeros and ones (0 and 1) to complete processes and interpret key strokes/mouse selections. See http://www.dnaco.net/~ivanjs/binprime.html for more information.
Bit	An individual piece of computerized information
Boolean Search Logic	A search for specific data. It implies that any condition can be searched for using the operators AND, OR, and NOT.
Byte	The main unit of memory in a computer. Eight bits that are combined and recognized by the computer as numbers, letters, and symbols
CD	Compact Disk – Read Only Memory A round silver colored disk that comes with a large amount of information embedded and ready to use. (A CD-R is a one-time writable CD. A CD-RW allows you to write to the disk multiple times. A CD-ROM is a read only CD.)
Cold boot	Start-up a computer from a powered-down state (when the computer is not already on).
CPU	Central Processing Unit= The "brains" of the computer. This unit directs the computer's activities. Every instruction given by the operator must first pass through the CPU before it can be carried out.
Database	A computerized store (collection) of related information.
Desktop	A desktop is the metaphor to portray file systems on the computer's home screen. Such a desktop consists of pictures, called icons, which show files, folders, and various types of documents. You can arrange the icons on the electronic desktop to suit your particular needs.
Digital Camera	A camera that stores its pictures on digital media – disk, memory stick, or internal memory.
Digital Video Camera	A video camera that records on digital media – digital video tape or memory stick
Disk (Floppy)	A thin sheet of magnetic material on which a computer can store information
Disk Drive	A hardware device that accesses the data stored on a disk, a CD, or a Zip disk

Download	The process of transferring software/information from the Internet to your computer.
E-mail	Electronic Mail -- The transmission of messages over communications networks.
FAQs	Frequently Asked Questions - A listing of questions typically asked along with the answers to the questions. These lists are frequently prepared to help beginners to use computer software.
Fax machine	A machine that allows documents to be sent to another place over a phone line
Field	In a database record, a category that holds one type of information.
Firewall	A mechanism to keep unauthorized users from accessing parts of a network or host computer.
Folders	A folder is an object that can contain multiple documents. Folders are used to organize information/files.
Format a disk	Prepare a storage medium, usually a disk, for reading and writing information.
Graphics	A two-dimensional or three-dimensional computer image such as pictures, objects, bar graphs, or pie charts.
Hard drive	An inflexible magnetic disk with greater storage capacity than a CD; can be internal to the computer or external (i.e., Firewire drive)
Home Page	The front or main web page when a browser is launched, which provides access to web sites on the Internet.
HTML	HyperText Markup Language -- The language in which World Wide Web documents are written.
Internet	A global network connecting millions of computers.
ISP	Internet Service Provider
Keyboard	The part of the computer containing the keys and sometimes the mouse. It allows you to type and enter information on the computer.
LAN	Local Area Network-A group of computers and other devices dispersed over a relatively limited area and connected by a communications link that enables any device to interact with any other device on the network.
LCD	Liquid Crystal Display-A type of display used in digital watches, many portable computers, and flat screen monitors.
Listserv	An electronic mailing list used to deliver messages to the e-mail addresses of people interested in a particular topic.
Modem	A device that transmits digital data in tones over a phone line; an acronym for modulator-demodulator. A device or program that enables a computer to transmit data over telephone lines.
Monitor	The screen that displays the images, files, documents, etc. that the user is using.
Mouse	A handheld device that moves the computer screen cursor by rolling a plastic ball (or laser light) along a flat surface, communicating with the computer by cable.
Multimedia	Multiple forms of communication including sound, video, video-conferencing, graphics, and text.
Newsgroup	The Internet version of an electronic discussion group in which people can leave messages or post questions.
Operating system	The most important program that runs on a computer. Every general-purpose computer must have an operating system to run other programs. Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.

PDF File	Portable Document Format- The page description language used in the Acrobat document exchange system.
Peripheral device	Any device added to the computer.
Printer	A device that outputs data on paper.
RAM (Random Access Memory)	This is a type of computer memory that allows data to be stored and retrieved as required. It is called random access because any part of the memory can be located without having to go through everything that comes before it.
ROM (Read Only Memory)	This is the permanent memory. Its contents can only be read by the computer. Nothing new can be stored in it.
Scanner	A device that can read text or illustrations printed on paper and translate the information into a format that the computer can use.
Server	A computer in a network that is used to provide services (such as access to files or shared peripherals or the routing of E-mail) to other computers in the network
Spreadsheet	A software tool used to organize data in a row and column format and to perform multiple calculations.
Surf	Move from place to place on the Internet searching for topics of interest.
Units	Bits – Bytes – Kilobytes – Megabytes – Gigabytes 8 bits to 1 byte; 1000 bytes to 1 kilobyte; 1000 kilobytes to 1 megabyte; 1000 megabytes to 1 gigabyte.
URL	Universal Resource Locator- The global address of documents and other resources on the World Wide Web.
Virus	A destructive computer program that invades by means of a normal program and damages the computer system.
WAN	Wide Area Network - A communications network that connects geographically separated areas.
Warm boot	Resetting (restarting) a computer that is already turned on. Resetting it returns the computer to its initial state; any data or programs in the main memory are erased. A warm boot is sometimes necessary when a computer has crashed, frozen, or "locked-up."
WWW	World Wide Web - A hypertext-based collection of computers on the Internet that allows you to travel from one linked document to another, even if those documents reside on many different servers.

*This vocabulary list compiled by Amy Scott from several sources with the principle source being: www.fluco.org (Accessed: July 30, 2003). TSIP Standard 2. TSIP2.doc

Pacing Guide Overview

The purpose behind this guide is to provide teachers and technology coordinators suggestions for integrating technology into the content areas in a structured, developmentally appropriate manner.

Each grade level's pacing guide organizes the technology standards into four instructional quarters. The technology standards in the left-hand column are the Arlington Public Schools' technology objectives, which are correlated to the six areas of the ISTE National Educational Technology Standards for Studnets (NETS•S) and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).

The top right box lists themes, enduring understandings, and essential questions to be developed by each grade level. Enduring understandings are the *big ideas* teachers want students to uncover and grasp in their units of study. The essential questions are the focal points for unveiling the content. Enduring understandings and essential questions are aspects of Wiggins and McTighe's Understanding by Design instructional design format. One quarter from each grade level describes the theme as da Vinci. Leonardo da Vinci is the exemplary project at Barcroft Elementary School, Arlington, Virginia where this guide originated. The da Vinci project is a six-week fully integrated unit incorporating all subject areas, is based on the Virginia Standards of Learning, and was developed using Wiggins' and McTighe's Understanding by Design format.

The middle right box addresses content area typically covered during the specified quarter. Barcroft Elementary School teachers established the content pacing.

The bottom right box suggests lesson plan ideas for integrating the technology standards into the content areas. The lessons range from discussions to projects. Implementation time varies from mini-lessons to unit-long projects. Suggestions on software programs also are listed.

Lesson plans are being added continuously! The intent is to have an Understanding by Design-structured lesson for each *Integrated Idea* included in the Pacing Guide.

Comments, questions, or suggestions about this Integrated Pacing Guide should be directed to Amy Scott, Instructional Technology Coordinator via email: amyscott00@yahoo.com or amyscott@vanta.net.

Kindergarten 1st Quarter

APS Technology Objectives*

K.1.1 - Name technology in classroom and home

K.1.2 – Recognize monitor, mouse, disk drive, keyboard, CPU, printer

K.1.4 - Turn computer on/off, log-in/log-out, launch/close application, insert/eject disk, print

K.1.5 - Use a mouse to make selections

K.2.9 - Close windows, log-out, leave area neat

K.2.10 - Keep passwords private

K.3.3 - Create original art – KidPix, AppleWorks Draw or Paint

K.6.1 - Communicate solutions to problems through graphing/drawing – Appleworks, KidPix

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Hispanic Heritage (September 15-October 15)
Enduring Understanding:
Essential Questions:

CONTENT

Listen to story ✦ Participate in discussions ✦ Communicate through art & journals ✦ Develop fine motor skills ✦ Write name ✦ Explore classroom, school ✦ Share with friends ✦ Baby animals, animal coverings ✦ 5 senses ✦ Color ✦ Light ✦ Weather ✦ Bathroom etiquette ✦ Count to 10 ✦ Sorting

Integrated Ideas

Logging In and Out

Explore logging in and logging out. Discuss that passwords are private.

Artsy Understandings

Students use drawing/painting software to depict any of the following:
Baby animals, 5 senses, Weather picture, Family / Friends
KidPix, Appleworks Draw, Appleworks Paint

I Can Count

A Kidspiration template is made depicting several different objects. Students count the number of objects and label each set with the number shown.
Kidspiration

I Know That Number!

Using KidPix, students use the stamp feature to stamp X number of items. If the number of the day is 5, then students stamp 5 paw prints, 5 dogs, 5 bones, etc.
KidPix

What's at home? What's at school?

A Kidspiration template is made depicting items found at home and school. Students sort the pictures into 2 groups – items found at home, items found at school. A third group could be made of items found in both places.
Kidspiration, KidPix

Kindergarten 2nd Quarter

APS Technology Objectives*

K.1.6 - Locate alphabet keys, numeric keys, space bar, return, delete, shift, arrows

K.1.7 - Use printers, disk drives, CDs

K.1.8 - Save and retrieve work

K.1.9 - Save work to a disk

K.2.1 - Handle technology carefully

K.2.4 - Safe behavior with electrical cords

K.2.5 - Prevent damage to equipment

K.2.11 - Discuss safety issues (don't give away personal info on the Internet)

K.3.1 - Compose and publish written work – Appleworks

K.3.2 - Prewriting, composing, publishing -- Kidspiration

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme:
Enduring Understanding:
Essential Questions:

CONTENT

Recognize letters ✦ Identify 1/2 ABCs ✦ Listen, comprehend, re-tell stories, make predictions ✦ Share details of drawing/writing ✦ Cooperation / Manners ✦ Fall Plants ✦ Color ✦ Light ✦Weather ✦ Discussing feelings ✦ Patterns, shapes, sequencing ✦ Schedules

Integrated Ideas

Match Big Letter, Little Letter
Students are presented with various upper case and lower case letters. Students identify the matching letters and drag the matching letters together to form a pair. Students also can create their own pairs.
Kidspiration, KidPix

I Know My Shapes
Students choose shapes in Kidspiration and label orally or in writing.
Kidspiration

Drawing and Writing
Students draw a picture about a topic they're studying. Then, students write a sentence describing their picture and the topic.
KidPix

Sequencing
Students are given a variety of pictures, scenes, letters, or numbers. By clicking on the objects, students will drag and rearrange the objects to be in "how to make" order, correct sequence order, ABC order, or numerical order.
Kidspiration

MathKeys
The MathKeys software offers a variety of learning activities and simulations for whole numbers, geometry, and probability.
Math Keys

Kindergarten 3rd Quarter

APS Technology Objectives*

K.1.3 - Use technology as part of classroom routines

K.2.2 - Operate with clean hands

K.2.3 - No food or drink around computer

K.3.4 - Create a table as a class – Appleworks Spreadsheet, Graph Club, MS Excel

K.4.1 - Participate in and respond to electronic field trips

K.6.1 - Communicate solutions to problems through graphing/drawing – Appleworks, KidPix

K.6.2 - Create and manipulate tables, pictographs – Graph Club, Appleworks Spreadsheet

K.6.3 - Use critical thinking skills when viewing video – www.unitedstreaming.com, VHS tapes

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Black History Month / Women's History Month
Enduring Understanding:
Essential Questions:

CONTENT

Read own writing ✦ Learn initial sounds ✦ Expand language development & thinking skills ✦ Add details to writing/drawing ✦ Form letters correctly ✦ Learn state & US symbols ✦ Gardens ✦ Bears ✦ Wheels ✦ Color ✦ Light ✦ Weather ✦ Safety at school & home ✦ +, - ✦ Measurement

Integrated Ideas

How Big Is It?

Students measure how long an object is with nonstandard units. Using a spreadsheet or graphing program, students graph their data.
Graph Club, Appleworks Spreadsheet, MS Excel

States and Symbols

Pictures of various states and their names are given along with pictures of each state's symbols. Students draw lines to connect the states with their symbols or drag the pairs together to form matches.
Kidspiration

Morning Message

Students, as a class, write a morning message. They could choose to replace words with pictures making a Rebus-type message.
Appleworks Word Processing, MS Word

Letters and Sounds

Students group an alphabet letter to pictures that begin with the letter's sound.
Kidspiration

Field Trips

Using the Internet, guide your students to sites showing gardens, bears, or wheels. Visit the arboretum, the aquarium, or the zoo.
Internet Browser

Kindergarten 4th Quarter

APS Technology Objectives*

K.1.3 - Use technology as part of classroom routines

K.2.6 - Report problems to an adult

K.2.7 - Respect each other's work

K.2.8 - Share resources equitably

K.3.5 and K.4.2 - Create a storyboard collaboratively prior to all slide shows

K.3.6 and K.4.3 - Create a slide show with audio and graphics

K.5.1 - Retrieve and gather info from electronic media

K.5.2 - Use ACORN

K.6.3 – Use critical thinking skills when viewing video – www.unitedstreaming.com, VHS tapes

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Resources, Needs & Wants (da Vinci 6-week unit)
Enduring Understanding:
Essential Questions:

CONTENT

Read own writing ✦ Read sight words ✦ Add details to drawing/writing ✦ Invented spelling ✦ Form letters correctly ✦ Learn about community (locally-globally) ✦Seeds ✦ Space ✦ Color ✦ Light ✦ Weather ✦ Nutrition- healthy foods ✦ Time and Money ✦Count to 100 by 1s, 5s, & 10s ✦ da Vinci

Integrated Ideas

What is Water?

As a class, students make a storyboard and a slide show about water –its characteristics, where one finds water, the water cycle, etc.
MS PowerPoint, Hyperstudio

Do I Need It or Do I Want It?

Students generate a list of items in their environment. Then, students sort the items into Needs & Wants. Discuss why something is a need or a want.
Kidspiration

What Is a Community?

Students design a slide show about the meaning of community. Include digital pictures of students' community.
MS PowerPoint

Eating Healthy!

Students create a healthy meal in artistic form and support it with writing.
MS PowerPoint, Kidspiration, Word Processing

Can We Find the Information?

Conduct an electronic search about seeds, space, weather.
Internet Browser, Electronic Reference CD

Symbols

Sort money pictures from time pictures.
Kidspiration

1st Grade 1st Quarter

APS Technology Objectives*

1.1.1– Distinguish between disks and hard drive

1.1.4 – Turn computer on and off, insert and eject disk

1.1.8 – Use a printer, disk, CD

1.2.9 – Close windows, log out, leave lab neat

1.2.10 – Keep passwords private

1.3.1 – Use technology productivity tools for pre-writing activities – Kidspiration

1.3.2 – Create and print written work

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Hispanic Heritage (September 15-October 15)
Enduring Understanding:
Essential Questions:

CONTENT

Following directions ✦ Letter identification/sounds ✦ Listening & writing ✦ Oral language ✦ Group Stories ✦ Writing lower & uppercase letters ✦ School, Friends, Family ✦ Rules ✦ Columbus Day ✦ Scientists ✦ Life process/animals ✦ Life Skills ✦ Number Sense

Integrated Ideas

Story Time
Write a group story and insert pictures as a class. This story could be in Rebus format.
Appleworks Word Processing, MS Word

What is a Scientist?
Brainstorm the characteristics of a scientist.
Kidspiration

Following Directions
Guide students through font, color, and size changes in creating a written piece of work. Create a template using Kidspiration that has various pictures. Then, have students listen to your orally given directions to move objects on the template to form a certain picture.
Appleworks Word Processing, MS Word, Kidspiration

About Me Book
Create a template for the student page. Each student inserts his/her picture and answers the questions/fills in the categories on the template. Students print the page(s) to create the book.
Appleworks Word Processing, MS Word, MS PowerPoint

What is a Computer?
Discuss and label the parts of a computer.
Kidspiration, MS Word, Internet

1st Grade 2nd Quarter

APS Technology Objectives*

1.1.5 – Print, quit, new, open, save

1.1.10 – Name a file

1.1.11 – Save work

1.2.9 – Close windows, log out, leave lab neat

1.2.10 – Keep passwords private

1.3.3 – Add a sentences to art – KidPix

1.3.4 – Create and print written work with art – KidPix, Appleworks Draw/Paint

1.6.1 – Communicate solutions to problems through drawing and written description – KidPix, Appleworks Draw/Paint

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme:
Enduring Understanding:
Essential Questions:

CONTENT

Within word patterns ✦ Short vowel words / CVC ✦ Creating sentences ✦ Journals/Class Books ✦ D'Nealian Practice ✦ Family & Communities ✦ Martin L. King, Jr. ✦ Ben Franklin ✦ Space systems ✦ +, - 0 through 10 ✦ Thanksgiving Unit ✦ Celebrations around the World

Integrated Ideas

Outer Space and Back Book

Write a class book about Outer Space. Include the different planets, facts about the planets, and pictures of the planets. Insert students' art interpretations of Outer Space into the writing piece.

Appleworks WP, Appleworks Draw/Paint, MS Word, Kidspiration

What is an Orbit?

Use the planet pictures in Kidspiration to create a visual picture of the placement of the planets, the sun, and the planets' orbits. Use the SmartBoard marker feature to draw the orbits or copy/paste the pictures into Appleworks Paint and then make the orbits.

Kidspiration, Appleworks Draw/Paint

Thanksgiving To Me Is…

Students draw a picture of Thanksgiving in KidPix and add a sentence describing Thanksgiving.

KidPix

My Family

Students draw a picture of their family and include a sentence describing their family.

KidPix

I Can Create Math

Students create an original math problem, illustrate it, and answer it.

Kidspiration, KidPix

1st Grade 3rd Quarter

APS Technology Objectives*

1.1.6 – Use these keys: ?, escape, tab, shift, control, apple key

1.1.7 – Use 2 hands on the keyboard

1.1.9 – Observe a scanner and digital camera

1.2.4 – Use safe behavior with electrical cords

1.2.5 – Prevent damage to equipment

1.2.11 – Discuss safety issues (Don't give away personal information on the Internet)

1.3.5 – Create a database - Appleworks Database

1.3.6 – Discuss the database

1.3.7 – Create a spreadsheet – Appleworks Spreadsheet

1.3.8 – Organize information in the spreadsheet

1.4.1 – Participate in telecommunication projects – Email, Video conferencing

1.6.2 – Create and manipulate tables, pictographs

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Black History Month / Women's History Month
Enduring Understanding:
Essential Questions:

CONTENT

Within word patterns ✦ Long Vowel words ✦ Nouns, Verbs, and Adjectives ✦ Writing Process ✦ Complete Sentences ✦ D'Nealian practice ✦ Virginia, U.S. ✦ Presidents' Day ✦ Recycling ✦ Liquids & Matter ✦ Place Value ✦ +, - 11 through 18

Integrated Ideas

What Can We Recycle?

Create a database as a class that describes different items, whether they can be recycled, and type of material. Students can bring in items or pictures of items of recyclables.
Appleworks Database

How Much Do We Recycle?

As a class, keep track of how many things your class can recycle (scratch paper, milk cartons, etc.). Add this information to a spreadsheet and graph. Also, create other graphs by replacing the recycling information with other information (birthdays, eye color, favorites, etc.).
Appleworks Spreadsheet

Check Your Math

Create a spreadsheet of math problems. Students enter their answers in the answer column. Create an If, Then statement in the next column that will tell the students if their answers are correct.
Appleworks Spreadsheet, MS Excel

How Many . . . ?

Create a spreadsheet to record how many … are in Virginia or in the U.S. Graph this information.
Appleworks Spreadsheet, MS Excel

Liquid or Matter? Noun or Verb?

Create a database to organize liquids and matter. Create a database from your word wall that includes words, parts of speech, and visual images of the words. Use the sort and find functions.
Appleworks Database

1st Grade 4th Quarter

APS Technology Objectives*

1.1.2 – Name technology in the classroom

1.1.3 – Name parts of computer

1.1.9 – Observe a scanner and digital camera

1.2.6 – Report problems to an adult

1.2.7 – Respect each other's work

1.2.8 – Share resources equitably

1.3.9/1.4.2 – Create a storyboard

1.3.10/1.4.3 – Create a slide show with audio

1.5.1 – Conduct a single word search using electronic media

1.5.2 – Summarize & publish info received from electronic media

1.5.3 – Observe teacher citing an electronic source

1.5.4 – Use ACORN

1.6.3 – Use critical thinking skills when viewing video

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Circles and Cycles (da Vinci 6 week integrated unit)
Enduring Understanding:
Essential Questions: Which cycles exist in my life?

CONTENT

Within word patterns ✦ Blends/Digraphs ✦ Writing/Speaking ✦ Statements, exclamations, quotations ✦ Writing process ✦ Paragraphs/Short stories ✦ D'Nealian practice ✦ Holidays ✦ Life Process/Plants ✦ Force/Motion/Energy ✦ Geometry/Measurement/Time/Money

Integrated Ideas

Retell a Story
Create a slide show to retell a story. Each slide is a different scene or part of the story map.
MS PowerPoint

Search and Tell
Conduct a search about holidays and famous people to answer questions you have about these holidays and people. Share your findings.
Internet, Electronic reference CD

A Plant's Life
Create a slide show of the stages of a plant's life cycle. Include graphics and audio.
MS PowerPoint

Specials Are a Cycle!
Create a slide show about your weekly specials (art, pe, music, computer lab, etc.). Include digital pictures of students at their specials in the slide show.
MS PowerPoint

Pattern Makers
Create a geometrical pattern.
MathKeys

Life Cycles
Illustrate various life cycles including pictures and labels.
Kidspiration

2nd Grade 1st Quarter

APS Technology Objectives*

2.1.7 – Place fingers on home keys, use 2 hands

2.1.8 – Locate and use all keys on the keyboard

2.1.9 – Use the shift key

2.1.10 – Use shortcuts as alternatives to pulldown menus

2.2.1 – Discuss and respect guidelines for technology use and handling

2.2.9 – Discuss that ideas and work are the property of the author/creator

2.2.10 —Discuss and practice the APS Technology Code of Ethics

2.3.1 – Use writing software for pre-writing – Kidspiration, Inspiration, AppleWorks, MS Word

2.3.2 – Create, edit, revise, and publish a short document – Appleworks, MS Word

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Hispanic Heritage, The World Around Us
Enduring Understanding:
Essential Questions:

CONTENT

Communities / Citizenship ✦ Geography ✦ Matter and Magnets ✦ Friends ✦ Feelings ✦ Safety ✦ Patterns ✦ Addition and Subtraction to 100

Integrated Ideas

What Is a Community?
Students create a picture illustrating what a community is.
Kidspiration, KidPix, Appleworks Draw/Paint

What Can a Keyboard Do?
Have students explore the various keys on the keyboard and what the keys do. Then, have students write a short story using a variety of the keys. Encourage them to use the different keys as appropriate.
Appleworks Word Processing, MS Word

What Does Copyright Mean?
Discuss the APS Code of Ethics. Explain what copyright is and how ideas belong to the author / creator. As a class, use Kidspiration to record titles of the children's favorite books and the names of the authors and illustrators.
Kidspiration

Writing Center
Create, edit, revise, and publish a piece on friends, feelings, and / or safety. Collaborate with the school counselor, nurse, or P.E. teacher to develop topics and ideas for writing with the students.
Appleworks Word Processing, MS Word

Solve a Problem
Students write an original math problem and solve. Include a picture to go with the math problem.
KidPix

2nd Grade 2nd Quarter

APS Technology Objectives*

2.1.1 – List storage devices: disk, hard drive, CD-ROM, server

2.1.2— Rank storage capacity

2.1.5 – Identify popup menu, dialog box, tool palette

2.1.14 – Name files

2.2.2 – Prevent data loss

2.2.7 – Close windows, log out, leave area neat

2.2.8 – Keep data in shared folders in their original condition

2.3.4 – Define and understand the differences between databases and spreadsheets

2.3.5 – Define appropriate categories for labeling database fields and spreadsheet cells

2.3.6 – Add information to group databases and spreadsheets

2.3.7 – Discuss and analyze, in groups, information in databases and spreadsheets

2.5.2 – Select records from an electronic database using keywords

2.6.2 – Use graphing software to manipulate tables, pictographs, and bargraphs

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: "Past to Present to Future"
Enduring Understanding:
Essential Questions:

CONTENT

Native Americans ✦ Ancient Egypt ✦ Ancient China ✦ Space ✦ Nutrition ✦ Preventing Disease ✦ Adding and subtracting 2 and 3 digit numbers

Integrated Ideas

Storage Math
Write a math problem using storage capacity of the different storage devices. Discuss how to save work and the different places one can save work.
MS Excel or Appleworks Spreadsheet

Who Are the Native Americans?
Write a non-fiction paragraph about the Native Americans. Use the dialog boxes and toolbars as short cuts for saving work, changing fonts, etc.
MS Word, Appleworks Word Processing

People of Our Past
Create a database about the people of our past. Add information to the database as students learn more about the Native Americans, Ancient Egyptians, and people of Ancient China. Include pictures of these people in the database.
Appleworks Database

How Many? How Much?
Focus on spreadsheets by calculating Outer Space data, keeping a record of foods consumed for the week and totals by food group, or by having an activity to check math work. Add graphs of the data to the spreadsheet.
Appleworks Spreadsheet or MS Excel

2nd Grade 3rd Quarter

APS Technology Objectives*

2.1.11 – Use peripheral devices

2.1.12 – Discuss how peripheral devices can be used

2.1.13 – Load paper into printer

2.2.3 Use courteous language, good manners, and be respectful

2.2.4 – Discuss and demonstrate good behavior when using technology

2.2.5 – Access only appropriate websites

2.2.6 – Share resources equitably

2.5.1 – Use keyword searches for an electronic encyclopedia, network resource, and Internet

2.5.3 – Summarize and publish info retrieved from electronic media

2.5.4 – Locate several related articles from electronic references

2.5.5 – Locate graphics within electronic references

2.5.6 – Incorporate at least one citation of an electronic reference into a report

2.5.7 – Locate text info and graphics while using the Internet

2.6.4 – Participate in a project that uses reference materials on CD

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: "Pattern Makers & Pattern Breakers" (da Vinci unit)
Enduring Understanding:
Essential Questions:

CONTENT

Economics ✦ Influential People ✦ Weather ✦ Medicines / Drugs / Dental Care ✦ Money ✦ Measurement ✦ Time ✦ Numbers to 1000

Integrated Ideas

What's the Weather? (da Vinci)
Students gather weather data from a city in the world. Enter the data into a spreadsheet. Graph the data. Create a slide show of a news weather forecast about that city's weather.
Internet Browser, MS Excel, MS PowerPoint, Hyperstudio

Explore Peripherals
Have students take digital pictures of the weather and the clouds. Transfer the digital pictures to the computer and print. Create a *Capture the Weather* photography class book.
Picture Viewer, Graphic Converter, MS Word

Mining for Influential People
Mine the web for facts about influential people using hotlists, scrapbooks, subject samplers, treasure hunts, or webquests. Use electronic references to find more information. Create a final product about the people. Include graphics and citations.
MS Word, MS PowerPoint, Hyperstudio, Appleworks

Has Money Always Been a Part of Our Economy?
Students do a keyword search using electronic (on-line or on CD) encyclopedias and the Internet to mine for facts about money.
Internet, Electronic Encylopedia

2nd Grade 4th Quarter

APS Technology Objectives*

2.1.3 – Explain multimedia

2.1.4 – Identify examples of multimedia presented via computer

2.1.6 – Use instructional software for exploration and learning

2.3.8/2.4.2 – Create a storyboard prior to all slide shows

2.3.9/2.4.3 – Create electronic slide show with audio and graphics; share with an audience

2.4.1 – Participate in electronic communication

2.6.1 – Communicate solutions to problems through webbing

2.6.3 – Apply critical thinking skills when viewing and discussing video

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: "Cycles and Structure" / Asian Pacific Am. His. Month
Enduring Understanding:
Essential Questions:

CONTENT

Government ✦ Life Cycles ✦ Plants/Interdependence ✦ Personal Growth ✦ Geometry ✦ Fractions ✦ Probability ✦ Introduction to Multiplication and Division

Integrated Ideas

I Am Growing!
Explore multimedia. Students make a slide show of how they have grown during the year.
MS PowerPoint, Hyperstudio

What's Happening Here?
Introduce a local challenge or problem. Have students brainstorm ways to solve the problem. Write a local government official or appropriate person to ask questions about the issue and share ideas. Create a slide show presentation to present the issue and solution. Go through all phases of a multimedia project from planning and storyboarding to making and revising to publishing and performing/sharing.
Email, Kidspiration, **MS PowerPoint, Hyperstudio**

Discover Life Cycles!
Capture a life cycle on video. As a class, take pictures or record using a digital video camera the different stages of a life cycle. Edit the footage. Create a short video about the life cycle.
iMovie

What Can I Learn about . . . ?
Use an instructional software program for students to explore government, life cycles, plants, or math.
Programs will vary.

3rd Grade 1st Quarter

APS Technology Objectives*

3.1.9 -- Participate in keyboarding class (10 words/minute or better and 80% accuracy)

3.1.10 -- Use proper keyboarding techniques

3.2.1 -- Discuss and respect guidelines for technology use and handling

3.2.3 -- Use courteous language, good manners, and respect

3.2.4 -- Discuss and demonstrate appropriate behavior

3.2.6 -- Share resources and supplies equitably

3.3.1 -- Use editing functions (copy, cut, paste) and font, style, size to create, edit, revise, & publish (AW)

3.5.1 -- Apply age appropriate information literacy skills

3.5.2 -- Retrieve at least 3 articles from an electronic encyclopedia using keyword searches

3.5.3 -- Find records in an electronic database using keywords (ACORN)

3.5.4 -- Select material from electronic reference sources (on-line encyclopedias, almanacs)

3.5.5 -- Use copy and paste functions to create notes for writing projects

3.5.6 -- Incorporate several citations from electronic references into a project

3.5.7 -- Retrieve text and graphics from the Internet

3.5.8 -- Use ACORN

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Hispanic Heritage (September 15-October 15)
Enduring Understanding: Change Is Everywhere around Us!
Essential Questions:

CONTENT

Fiction ✦ Sentence Structure ✦ Ancient Civilizations ✦ Economics ✦ Simple Machines ✦ Healthy Lifestyle ✦ Numeration ✦ Maps ✦ Graphs ✦ Charts

Integrated Ideas

Learn How to Type!

Participate in Type to Learn for 15-20 minutes/day each day for 5-6 weeks. Reinforce keyboarding skills. Use keyboarding time to discuss proper technology practices.
Type to Learn

Simple Machines

Create a database with fields about simple machines. Have students research and find simple machines. Enter new records about the simple machines and their characteristics. Insert a picture of each simple machine.
Appleworks Database

Research!

Conduct effective research using technology. Content could cover fictional books' authors, simple machines, economic concepts, ancient civilizations, healthy living, and graph gleaning. Compose and publish a written work.
Internet, Appleworks Word Processing, MS Word, ACORN

Capture a Concept from Ancient Times

In pairs, students research one concept from Ancient Rome or Ancient Greece (i.e., Parthenon, architecture, democracy). Then, add graphics and text from the Internet to create a poster about the concept. Share final products with classmates.
Internet, Appleworks Word Processing, MS Word, ACORN

3rd Grade 2nd Quarter

APS Technology Objectives*

3.1.1 -- Identify bits and bytes as units of measure in computer technology

3.1.2 -- Discuss binary logic in terms of on/off current in the computer

3.1.5 -- Use terms appropriately: memory, email

3.1.6 -- Distinguish between info in computer's memory and on a storage medium

3.1.13 -- Use prescribed or logical file naming to identify student saved work

3.2.2 -- Prevent data loss through proper practices

3.2.7 -- Close windows, log out, leave area neat

3.2.8 -- Keep data in shared folders in their original condition

3.3.4 -- Collect info and create a database and spreadsheet (AppleWorks database or spreadsheet)

3.3.5 -- Create simple database layouts and reports (AppleWorks)

3.3.6 -- Create graphs form spreadsheet data (AppleWorks)

3.6.2 -- Use graphing and spreadsheet software to create and manipulate graphs (AppleWorks, Graph Club)

6.3 -- Use a database to identify information that can be applied to a problem

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme:
Enduring Understanding: Change Is Everywhere around Us!
Essential Questions:

CONTENT

Folk Tales, Fables, and Fairy Tales ✦ Paragraph writing ✦ Explorers and Economics ✦ Seasons, Tides, Moon, Systems in the Sky ✦ Making Good Choices / No Drugs ✦ Geometry ✦ Division and Multiplication ✦ Measurement ✦ Hemispheres

Integrated Ideas

A Bit, A Byte, A What?

Discuss with students computer units of measurement and memory. Invent multiplication and division problems to figure out how many bits are in a gigabyte or bytes in a megabyte.
MS Excel

Story Inventory

Create a database on different folk tales, fables, and fairy tales. Each record should contain story map fields (author, title, characters, etc.). Students enter information as they read the stories.
Appleworks Database, MS Excel

Explorers of the Past

Create a database on explorers. Each record should include fields pertaining to where the explorer went, when, why, and his/her successfulness. Then, use Timeliner to create an Explorer Timeline.
Appleworks Database, Timeliner

Shapes and Measurement

Create a spreadsheet that describes shapes and their characteristics (2D/3D, # of vertices, # of faces, etc.). Locate these shapes around your classroom, measure, and record information in the spreadsheet. Then, make a graph.
MS Excel

3rd Grade 3rd Quarter

APS Technology Objectives*

3.1.11 -- Use camcorders, TVs, VCRs, peripheral devices

3.1.12 -- Use a CD-ROM to play an audio CD

3.2.5 -- Access only appropriate web sites

3.2.9 -- Ideas and works are the property of the author/creator

3.2.10 -- Discuss and practice the APS Technology Code of Ethics with regard to copyright & fair use

3.3.8 -- Participate in creating a class video (iMovie)

3.4.3 -- Participate in creating a class video and share with an audience (iMovie)

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Black History Month / Women's History Month
Enduring Understanding: Change Is Everywhere around Us!
Essential Questions:

CONTENT

Biographies ✦ Autobiographies ✦ US Government ✦ Famous Americans with Economics ✦ Living things and nature ✦ Safety with rules ✦ Fractions and Decimals ✦ Locations and Environment

Integrated Ideas

*Note: Creating a video entails drafting a storyboard, filming clips, editing footage, adding audio and transitions as necessary, and saving the final product. Video projects are time-intensive, so you may want to focus on one video project for the entire quarter or divide the class into several groups with each group completing one of the projects listed below.

My Video Autobiography
Each student will create a short video depicting his/her life. Video can include pictures from the student's childhood, an interview, and objects/symbols representing his/her life.
iMovie

Rules and Rights? What do they mean to me?
As a class, create a short video about the U.S. government's rules and our individual rights. Apply those rules and rights to real life situations in the students' lives.
iMovie

Famous Americans
Students research famous Americans from History SOL 3.11b. Students role-play or interpret one famous person from history. Record the performance and edit clips to create a short video about Famous Americans.
iMovie

3rd Grade 4th Quarter

APS Technology Objectives*

3.1.3 – Identify bits and bytes as units of measure in computer technology

3.1.4 – Discuss how telecommunication allows information sharing near and far

3.1.7 – Select appropriate computer applications for a given task

3.1.8 – Select other types of technology or software for a given task

3.3.2 – Insert images from digital sources

3.3.3 – Edit images and insert into a document

3.3.7/3.4.2 – Create multimedia projects with audio and graphics for an audience

3.3.9/3.4.4– Insert a video clip into a slide show

3.4.1 – Exchange information with an audience in another location using network communications

3.6.1 – Communicate solutions to problems through webbing

3.6.4 – Plan and present, using multimedia, a project that addresses a problem solving activity

3.6.5 – Participate in a class project that uses network and the Internet to exchange information to help solve a problem

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Asian / Pacific Heritage Month
Enduring Understanding: Change is Everywhere around Us!
Essential Questions:

CONTENT

Diaries ✦ Letter Writing ✦ Writing non-fiction reports and stories ✦ Economics ✦ Resources ✦ Family Life Education ✦ Multiplication ✦ Division ✦ Problem Solving ✦ Novels

Integrated Ideas

Problem Solving – Math

Create a simple slide show of a math word problem. Include the word problem, the steps to solve the problem, and appropriate graphics.
MS PowerPoint, Hyperstudio, Appleworks Slide show

Problem Solving – Real Life

As a class, brainstorm a real life problem in the school or in the neighborhood. Describe the problem, research the history/cause of the problem, and suggest possible solutions. Create a slide show of the causes and effects of this problem with your solutions. Show the slide show to students or school and community officials.
MS PowerPoint, Hyperstudio, Appleworks Slide show

It's the Truth

Each student will research one topic and create a non-fiction report about the topic in the form of a slide show. Incorporate graphics, audio, and video where appropriate. Present the report to classmates.
MS PowerPoint, Hyperstudio, Appleworks Slide show

4th Grade 1st Quarter

APS Technology Objectives*

4.1.1 -- Discuss computer memory and amounts of memory needed to complete task

4.1.2 -- Estimate, predict, and determine storage mediums for various tasks

4.1.3 -- Identify bits, bytes, kilobytes, megabytes, and gigabytes as units of measure

4.2.1 – Discuss and respect guidelines for technology use and handling equipment

4.2.3 – Use courteous language and good manners

4.2.4 – Discuss and demonstrate appropriate behavior

4.2.6 – Share resources and supplies equitably

4.3.1 – Use editing functions, font, style, and size; Writing tools, drawing tools to create, edit, revise, and publish a document

4.3.2 – Create and publish a newsletter collaboratively using columns

4.3.3 – Create and publish a multi-page document, where another file is inserted into the document

4.3.4 – Integrate images from multiple sources into documents

4.5.1 – Apply age appropriate information literacy skills to electronic resources

4.5.2 – retrieve articles from electronic sources

4.5.3 – Use keyword searches on the Internet

4.5.5 – Retrieve text, graphics from the Internet

4.5.7 – Use ACORN

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Hispanic Heritage, Exploration
Enduring Understanding:
Essential Questions:

CONTENT

Paragraph Writing ✦ Map Skills ✦ Regions of Virginia ✦ US Industries ✦ Plants and Animals ✦ Living Systems ✦ Self Image ✦ Safety ✦ Place Value ✦ Operations ✦ Data Presentation

Integrated Ideas

It All Comes Down to Size

Discuss computer memory and storage mediums (see vocabulary list). Create a word processing fact sheet about memory and storage mediums. Experiment with font, style, and size.
Microsoft Word

Press Time

Create an individual or class newsletter about the class, the Virginia Regions, industries, plants and animals, and / or self-image and safety. Use factual information and appropriate literacy / Internet skills.
Microsoft Word, Appleworks Word Processing, Internet

Mini-Book

Each student will create a mini-book about a plant, an animal, or Virginia. The book will be multi-page in nature, will include images, and will cite Internet sources.
Microsoft Word, Appleworks Word Processing, Internet

What's in Virginia?

Use Inspiration or Kidspiration to create a template of a map of Virginia and its resources, industries, or characteristics. Students drag/place icons of the resources and industries to the proper geographical region.
Kidspiration, Inspiration

4th Grade 2nd Quarter

APS Technology Objectives*

4.1.4 – Discuss how computers are networked

4.2.2 – Prevent data loss

4.2.7 – Close windows, log out, leave area neat

4.2.8 – Keep data and documents in shared folders in their original conditions

4.3.5 – Explain when to use a database and when to use a spreadsheet

4.3.6 – Manipulate database information; use sort and record select functions, create reports and layouts

4.3.7 – Use spreadsheet information to create different graphs

4.6.1 – Use technology tools to solve a problem

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Balance: Connecting the Past to the Present (da Vinci unit)
Enduring Understanding:
Essential Questions:

CONTENT

Essays ✦ Dialogues ✦ Colonial Virginia History ✦ Early nation building ✦ Forms of Energy ✦ Force ✦ Electricity ✦ Tobacco ✦ Substance Abuse ✦ Geometry ✦ Fractions

Integrated Ideas

Computer Networking

Discuss how computers are networked and how shared folders work. Have students create folders in their home directories to help organize work.

Important Virginians

Create a database about important Virginians. Include the individual's name, contribution, time period, contemporaries, and picture. Use sort and find functions to create and answer questions about the Virginians.
Appleworks Database

Geometry Figures

Create a database about geometrical figures (lines, rays, cube, etc.). Include the name of the figure, the number of vertices, the number of faces, and a picture of the figure. Use sort and find functions to create and answer questions about the geometrical figures.
Appleworks Database

Make a Spreadsheet

Collect data and graph on a spreadsheet. Data could be historical or present. Collect or glean data from a source.
MS Excel, Appleworks Spreadsheet

Virginia's Clock

Create a timeline of Virginia events. Include date and event. Incorporate images.
Timeliner

4th Grade 3rd Quarter

APS Technology Objectives*

4.1.5 – Select appropriate applications for a given task

4.1.6 – Select other technologies for a task

4.1.7 – Select and operate peripheral devices (printer, scanner, camera, disk drive)

4.2.5 – Access only appropriate websites

4.2.9 – Ideas and work are the property of the author/creator

4.2.10 – Discuss and practice the APS Technology Code of Ethics

4.3.8/4.4.2 – Plan and create interactive multimedia projects; share with an audience

4.4.1 – Implement a project that can be electronically shared with others in a remote location (email with attachments, video, webpage)

4.5.4 –Incorporate materials from electronic sources into multimedia projects

4.5.6 – Exchange info electronically with others

4.6.3 – Participate in collaborative projects that use the network and the Internet to exchange information for problem solving

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Exploration / Black History Month / Women's History
Enduring Understanding:
Essential Questions:

CONTENT

Letter Writing ✦ Poetry ✦ 18th and 19th century Virginia ✦ Weather ✦ Body Systems ✦ Double Digit Multiplication ✦ Long Division

Integrated Ideas

One Piece of the Story

Students create a multimedia presentation on Virginia from storyboard to the final presentation. Use a digital camera or scanner to insert graphics. Include graphics and website links from the Internet. Add audio and a video clip where appropriate. Share completed multimedia with an audience.
MS PowerPoint, Hyperstudio

PenPals

Write to students in another location. Share information about where you live with them. Share this information electronically via email, the school webpage, video, or school television channels.
Applications will vary.

Scene Selection

Create a multimedia presentation about a novel read in class. Include all elements of a storymap and include major scenes from the book.
MS PowerPoint, Hyperstudio, Scanner

Code of Ethics

Discuss the APS Technology Code of Ethics and copyright.

4th Grade 4th Quarter

APS Technology Objectives*

4.3.9 / 4.4.3 -- Use a video camera to record video segments

4.3.10 / 4.4.4 – Participate in creating class video projects; share with an audience

4.6.2 – Apply age appropriate critical thinking skills to gather information and critique content

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Exploration / Asian & Pacific American History Month
Enduring Understanding:
Essential Questions:

CONTENT

Persuasive Writing ✦ Advertising ✦ 20th century Virginia ✦ History SOL Review ✦ Outer Space ✦ Family Life ✦ Fractions ✦ Decimals ✦ Probability

Integrated Ideas

Create a Class Video*
Plan a video project from the storyboard to the final product. Take video clips, edit the clips, add transitions, music, and audio where necessary. Video length will vary depending on the topic (30 seconds to 5 minutes). Critique video and make additional edits if necessary. Share the video with an audience.
iMovie

Suggested Topics for Video Projects:
Be Persuasive – Students write a persuasive piece and create a short video about their piece. Peers watch the video. Critique the video to determine if the piece was persuasive.

Market It! – Students pick a topic to advertise. Create a short video advertisement or commercial.

It Happened in Virginia – Create a scrapbook tour of Virginia. Share this video with an audience or as a way to introduce Virginia to next year's fourth graders.

Where in Outer Space? – Create a non-fiction piece about Outer Space describing the planets, spacecraft, and galaxy.

*Note: Creating a video entails drafting a storyboard, filming clips, editing footage, adding audio and transitions as necessary, and saving the final product. Video projects are time-intensive, so you may want to focus on one video project for the entire quarter or divide the class into several groups with each group completing one of the projects listed above.

5th Grade 1st Quarter

APS Technology Objectives*

5.1.1 – Correlate computer units of measure to storage devices

5.1.2 – Discuss similarities and differences between units of measure and the base 10 system

5.1.3 – Explore correlation between units of measure, base two, and binary logic

5.3.1 – Create and publish a multi-page document that incorporates writing tools

5.5.1 – Apply age appropriate information literacy skills to electronic references

5.5.2 – Research electronic sources using search strategies

5.5. 3 – Cite all electronic references in projects

5.5. 4 – Retrieve information using the Internet

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Hispanic Heritage, Systems (da Vinci 6-week unit)
Enduring Understanding:
Essential Questions:

CONTENT

Early Humans ✦ Ancient Egypt ✦ Systems in the Sky ✦ Exploring Space ✦ Body Systems✦ Place Value ✦ Measurement

School-based Integrated 6-week Unit: da Vinci – Systems: A Way of Life

Integrated Ideas

Units of Measure

Discuss units of measure. Review the units of measure from the base ten system. Introduce computer units of measure (bits, bytes, kilobytes, megabytes, & gigabytes). Discuss similarities and differences.
MS Excel, MS Word

Ancient Egypt

Using information literacy skills and electronic research skills to create and publish a multi-page document about Ancient Egypt.
MS Word

Ancient Egyptian Gods and Goddesses

Create a 5-slide slide show about an Ancient Egyptian god or goddess. Cite all references including image references and websites. Include audio and graphics. This lesson is one performance task of the 5th grade Barcroft da Vinci integrated unit during the first quarter.
MS PowerPoint, Internet

5th Grade 2nd Quarter

APS Technology Objectives*

5.1.4 – Select and combine technology components to prepare assignments

5.3.3 – Use record selection and sort functions of a database to answer questions

5.3.4 – Write simple formulas to calculate spreadsheet information

5.4.1 – Implement a long-term group project that is shared electronically with another group

5.4.2 – Use network communications to publish work

5.5.5 – Exchange information electronically with others

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Golden Goblet / Systems
Enduring Understanding:
Essential Questions:

CONTENT

Ancient Civilization in Asia ✦ Sound and Light ✦ Oceans ✦ Drugs and Alcohol ✦ Multiplication and Division ✦ Worlds

Integrated Ideas

Ancient Asia

Brainstorm ideas using Inspiration. Organize ideas using the Inspiration outline feature. Write a report about Asia and incorporate hyperlinks to websites and images.
Inspiration, MS Word, Internet

Fact-Finding

Students or teachers create a database about Ancient Asia, the Open Ocean, Sound and Light, Drugs and Alcohol, or Worlds. Students enter information into database. Students use the sort and find functions to answer questions about the contents. Students use critical thinking to analyze and draw conclusions.
Appleworks Database, MS Excel

Formulas in a Snap!

Students gather data and write a simple spreadsheet formula to help with multiplication and / or division. Measure items and find averages. Enter various statistics about the ocean and use formulas to calculate quantities (how much food is eaten, how fast *X* moves, how many miles deep the ocean is, etc.), or analyze the speed of sound and light or the amount of time it takes for sound and light to travel to different planets/places.
MS Excel

Collaborative Work

As a class, work to solve a problem over time, and share your findings via the web, television, or email.
Applications will vary.

5th Grade 3rd Quarter

APS Technology Objectives*

5.1.5 – Select and operate peripheral devices (printer, scanner, camera)

5.3.2 – Incorporate brief video clips into documents

5.3.5 – Create hypermedia projects incorporating audio & visuals; share with an audience

5.3.6 – Complete multimedia projects; share with an audience

5.4.3 – Create interactive hypermedia projects with audio & visuals; share with an audience

5.4.4 – Complete multimedia projects; share with an audience

5.6.1 – Use network resources and the Internet to solve a problem

5.6.2 Use simulations to form, test, confirm, disconfirm, and revise hypotheses; model events

**The APS Objectives listed above are correlated to the 6 areas of the National Educational Technology Standards (NETS) and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Golden Goblet / Systems, Black & Women's His. Mo.
Enduring Understanding:
Essential Questions:

CONTENT

Ancient Greece ✦ Ancient Rome ✦ Weather and Climate ✦ Structures of Life ✦ Personal hygiene ✦ Fractions ✦ Decimals ✦ Ratios

Integrated Ideas

Weather and Climate

Using a digital camera, capture images of local weather. Explore weather conditions in Rome and Greece. Create a PowerPoint comparing weather and climate locally, in Rome, and in Greece.
Internet, MS PowerPoint, Inspiration

How Does Weather Happen?

Explore weather trends, movements, and natural disasters. Create hypotheses about weather patterns. Use the Internet and video clips about weather occurrences to confirm and disconfirm hypotheses. How can weather trends and forecasts help people plan for the future?
Internet

Ancient Civilizations

Gather information about the various ancient civilizations studied this year. In small, cooperative groups, make a slide show about each civilization as a way to introduce the civilization to next year's 5th graders. Scan pictures as necessary into slide shows. Add hyperlinks to websites that unveil these ancient civilizations. Insert short video clips.
Internet, Scanner, MS PowerPoint, QuickTime

5th Grade 4th Quarter

APS Technology Objectives*

5.6.4 – Identify and debate the advantages and disadvantages of various materials and technologies as they are used

5.3.7 – Participate in creating a small video project; share with an audience

5.4.5 – Participate in creating a small video project; share with an audience

5.6.3 – apply age appropriate critical thinking skills when viewing video

**The APS Objectives listed above are correlated to the 6 areas of the ISTE NETS•S and to the Virginia Computer/Technology Standards of Learning (VA C/T SOL).*

Theme: Golden Goblet / Systems, Asian & P.Am. His. Month
Enduring Understanding:
Essential Questions:

CONTENT

Asia and America ✦ Growth to Trade ✦ Chemistry ✦ SOL Review ✦ Family Life ✦ Probability and Statistics

Integrated Ideas

Is Technology Worthwhile?
Brainstorm a list of various materials and technologies used in society. Through research and experience, develop the advantages and disadvantages each material and technology has. This activity could be done in pairs with one partner supporting the advantages and one partner explaining the disadvantages. As a pair, come to a conclusion whether the item is overall worthwhile. Explain and support your answer.
Inspiration, Internet, MS Word; applications may vary

Making Movies*
Plan a video project from beginning to end. Videos can be made independently or in small groups. Video topics could cover Asia and America, Growth to Trade, Chemistry, SOL Review, or Probability and Statistics. The video should act as a culminating project for any of the above topics.
iMovie, Video Studio

Jeopardy
To review for the SOL tests, have students create questions and answers in Jeopardy format. Use MS PowerPoint to create an interactive Jeopardy game.
MS PowerPoint

*Note: Creating a video entails drafting a storyboard, filming clips, editing footage, adding audio and transitions as necessary, and saving the final product. Video projects are time-intensive, so you may want to focus on one video project for the entire quarter or divide the class into several groups with each group completing one of the projects listed above.

Science Lesson Planner – Oceans -- Grade 5, 2nd Quarter

Strand(s):	SOL objectives: Science 5.6
Science, Technology, Information Literacy	*Technology: 5.1.4, 5.3.3, 5.4.1, 5.5.5* Information Literacy: Research & Citations

1. DESIRED RESULTS

Enduring Understandings (*BIG* ideas)

Science: The Earth's oceans are complex environments.
Technology: Databases are a tool to organize and find information.
Information Literacy: Researchers give credit to their sources

Essential Questions	Knowledge and Skills
• How have organisms adapted to the Earth's ocean environments? • What characteristics change in the Earth's oceans? • How do changes in the Earth's ocenas affect the ocean's ecosystems? • *How can a database help me to organize information and draw conclusions?* • Why do researchers need to give credit to their sources? Is information the property of the researcher or the author?	• As the depth of the ocean varies, temperature, salinity, and pressure fluctuate. Marine organisms adapt to these conditions • Analyze how the physical characteristics (depth, salinity, temperature, pressure) of the ocean affect where marine organisms live • A diversity of animals and plants live in the ocean environment and share limited resources • Animals have life needs and specific physical characteristics. • *Create a database, collect information, draw conclusions* • Complete a bibliography using proper citation format ***Vocabulary*** **Science:** ocean layers/environments, depth, temperature, salinity, pressure, prey, predators, adaptations, physical characteristics ***Technology****: database, field, record, organize, sort, find* **Information Literacy:** Citation

2. ASSESSMENT EVIDENCE

Prior knowledge	Ongoing throughout lesson	By the end of the lesson
Discuss/review • Ocean layers • Ocean animals • Database use	Observe and assist students with research, entering information into the database, and citing their sources. Students will be given a checklist to help monitor progress.	Rubric to be made to assess work – accuracy of information, database, and citations Scavenger Hunt distributed for students to explore merged / complete database

3. LEARNING ACTIVITIES/INSTRUCTION

Introduction (hook)	What students are doing	Conclusion
• Introduction to ocean unit by homeroom teacher	1. Students will research ocean animals via on-line encyclopedias, books, and websites. 2. Students will enter information into a created database 3. Students will support and justify their findings 4. Students will cite their resources	Each student will have a database on ocean animals and be able to explain how their animals adapt to the ocean's conditions.

Accommodations	*Materials and Resources*
Extra support: Database template printed-out to record notes while researching; tiered websites Enrichment or early finishers: Determine if there is competing information or if the sources disagree on a particular fact. Various learning styles: Audio, visual, kinesthetic Limited English proficiency: Simplified English format, support in native language where possible	On-line encyclopedias (or CDs) Selected Websites: http://www.arlington.k12.va.us/schools/barcroft/oceanresearch.html Selected Books
Related Technology	***Literature Connections***
Database – create, enter, sort, find On-line research	Selected books on oceans, ocean animals, etc.

4. WRAP-UP

Assessment	***Homework***
Evidence of student learning/understanding Complete individual database on ocean animals compiled into one class database judged on accuracy of information and proper citations	Study science notes from class.

5. TEACHER REFLECTION

- Were my students talking about the science, or was I doing all of the talking and students were just listening to me?
- Were my students engaged at the beginning of the lesson?
- How much time did I spend reviewing homework, and how much time did I spend on new material?
- Did the students respond to "How" and "Why" questions?
- Did my students have an opportunity to discuss and/or write about science?
- What changes would I make next time the lesson is taught?
- What steps do I need to take next in this topic?

Software Titles
Referred to in the
Integrated Technology Pacing Guide

Acrobat Reader

Appleworks
- Database
- Drawing
- Painting
- Spreadsheet
- Word Processing

Geo Logo

The Graph Club

Graphic Converter

Hyperstudio

iMovie (iLife Suite)

Inspiration

Internet Browsers
- Internet Explorer
- Netscape
- Safari

KidPix

Kidspiration

MathKeys
- Fractions and Decimals
- Geometry Volume I
- Probability Volumes I and II
- Whole Numbers Volumes I and II

Microsoft Office
- Microsoft Excel
- Microsoft PowerPoint
- Microsoft Word

Picture Viewer

QuickTime Player

Story Book Weaver

Timeliner

Type To Learn

Windows Media Player

Equipment / Accessories / Peripherals Referred to in the Integrated Technology Pacing Guide

Averkey (transmits image from computer to television)
Cables (Ethernet, firewire, patch, serial, USB, etc.)
CD (compact disc – CD-R, CD-RW, or CD)
Computer (desktop or laptop)
CPU
Digital Camera
Disk Drive (floppy, CD, external hard drive)
Fax machine
Firewire Drive
Floppy Disk
Keyboard
Microphone (stand alone or lavalier)
Modem
Monitor
Mouse
Printer
Scanner
Server
SmartBoard (interactive white board)
Software (applications, programs)
Speaker
Tapes (analog VHS tapes or digital video tapes)
Television
VCR
Video Camera (analog or digital)