Frameworks: What we know...

How much access to computers is there in schools?
- Access varies...
  - One or more stand alone computers
  - Computer learning centers
  - A computer workstation
  - Centrally located computer lab
  - Mobile technology options for checkout
- NEA study (2008)
  - Ratio: 3.8 students per computer
  - Great disparity in equitable access
  - Many are outdated and unable to run software

Basics: Computer System

What is a computer system?
- The computer and other support devices
  - Receive the information
  - Process the information
  - Output the information in usable form
- Processing takes place in the CPU
  - Control Unit
  - Arithmetic logic unit
  - Memory Unit
    - RAM
    - ROM
Basics: Memory
What is memory and why do I care?
- Computer system works with Binary Code
  - ASCII
  - 0s and 1s
  - Binary character is a bit
  - Eight bits = byte
- Byte
  - Represents one alphabetic or numeric character
  - Unique combination of 0s and 1s = each
  - 01000001 = A
- Amount of information a device can hold
  - Kilobytes (K), Megabytes (MB) and Gigabytes (G)

Basics: Processor Speed
What is processing speed and why do I care?
- How fast the data is moved in and out of memory
  - Megahertz (MHz)
    - One million cycles per second
  - Gigahertz (GHz)
    - One billion cycles per second
- Current computers
  - Entry level - 2 GHz
  - Top level - 4 GHz
- Cache
  - Temporary storage
  - Provides quick access to information

Basics: Peripheral Devices
What is a peripheral device and why do I care?
- Inputs the information
  - Input devices
- Outputs the information
  - Output devices
- Stores the information
  - Storage devices
Basics: Input Devices

What are examples of input devices?
- Keyboards
- Mice (joysticks, pointing sticks)
- Touch screens
- Scanners
- Graphics tablets
- Digital camera (still and video)
- Video input: Webcams
- Audio input: Microphones; midi keyboard
- Electronic whiteboards
- PDAs
- Clickers
- Cell phones

Basics: Output Devices

What are examples of output devices?
- Computer monitors
- Printers
- Speakers
- Projection units
- Document cameras
- Interactive whiteboards
- Portable media players

Basics: Storage Devices

What are examples of storage devices?
- Internal storage
  - hard drive
- External storage
  - External hard drives
  - USB drives
  - Optical disc options
    - CD, CDR, CDRW
    - DVD
    - Blu-ray disc
  - Flash memory
Basics: Connecting to the Computer

How do I make connections?
- USB connections
  - Fast connections for an array of devices
  - Not all created equal
    - 1.1 fast
    - 2.0 faster
    - 3.0 fastest transfer
- USB hub
  - Needed when there are more devices than ports

Basics: Connecting to the Computer

Are there more connections?
- Ethernet
  - Used for connection to the Internet
- Firewire
  - Needed when there is huge amount of information to transfer
- Wireless - WiFi

Adapting for Special Learners

How can I adapt hardware for students?
- Monitor adaptations
  - Screen magnifiers
  - Anti-glare filters
  - Monitor mounts
- Keyboard adaptations
  - Arm and wrist supports
  - Alternate keyboards
- Mouse adaptations
  - Joysticks
  - Touch screens
Voices in the Classroom

Mobilizing My Students
JoAnne Logan, PhD
University of Tennessee
Climatology, GIS systems and Environmental Science

In this Voice, JoAnne Logan discusses using PDAs, GPS and a mobile GIS program with students in a college computer mapping course. She talks of the great possibilities that PDAs and wireless technology can have in K-12 classrooms.

Voices in the Classroom

On the Cutting Edge: One Classroom, The World
L’Jon Papillion
Knox County Schools
Gifted and Talented for Grades 3-5

In this Voice, L’Jon Papillion discusses using an electronic whiteboard (SMART Board) with students in her elementary classes. She talks of ways to use the SMART Board to bring the world to her inner-city classroom “through pictures, language, music and activities”.

Voices in the Classroom

iPower in a Third-Grade Classroom
James Andrew McDonald
Oak Ridge, Tennessee
Third Grade Teacher

In this Voice, Andrew McDonald discusses using iPods with students in his third grade class. He discusses setting up a “iPod based listening station” in his classroom and its power to help him differentiate instruction. Further, he explains new plans to extend the use of the iPods with his students by creating slideshows that can be viewed on the iPods.
Voices in the Classroom

Increase Classroom Access through Writing Grants
Valerie Pearce
Lenoir City Elementary
Pre-school Special Education Teacher

In this Voice, Valerie Pearce discusses using a Mimeo board with her pre-school children and how its use has increased communication with parents. This unique board has "assisted the development of fine motor skills, encouraged the development of creative representation, reinforced visual motors and much more" with her students……and all of this was possible through a grant!!

For more information
Go to the textbook companion website:
http://web.utk.edu/~bobannon/preparing/index.shtml