

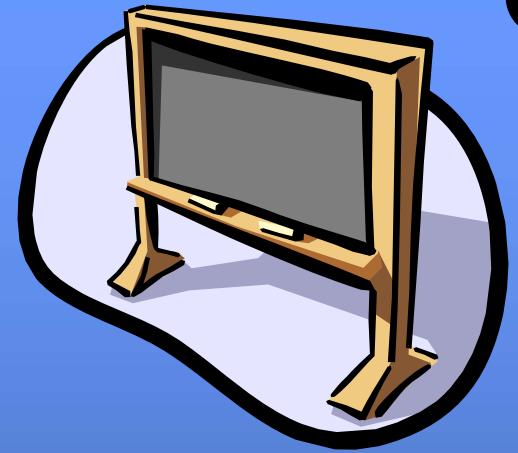
# Preserving Family Records in Digital Format

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Central New York Family History Conference 2006

# Agenda

- Managing family e-records
- Preservation strategies
- Types of electronic media
- Maximizing longevity



# Identify Your e-Records

- Digital camera images
- Word processing documents
- Database & spreadsheet files
- Scanned & downloaded images
- Audio & video recordings
  - Analog & digital
- PDF files
- Websites



# When Your Records Are At Risk

- ❑ Software obsolescence
- ❑ Hardware
  - ❑ Obsolescence & failure
- ❑ Storage media
  - ❑ Deterioration & physical destruction
- ❑ Security
  - ❑ Physical & digital
- ❑ Proprietary format



# Managing Family e-Records

- Develop filing system
- Provide security
- Make duplicates
- Plan for disasters



# e-Filing

- Manage and file your records well
- Ensure quick, reliable access
- Develop filing standards
- Create logical folder structure
- Maintain your computer system



# File Naming Conventions

- Model on paper filing systems if possible
- Use easily understandable names
- Strive for consistency
- Determine how you search for records



# e-Record Security Threats

- Networked environment
- Computer crashes
- Fire or other natural disaster
- Tampering
- Viruses

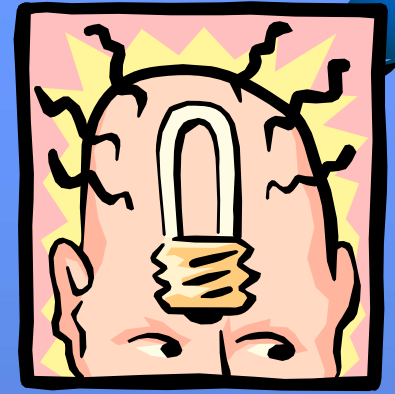


# Securing Computer Records

- Regularly update virus & spyware software
- Avoid software & files from unknown sources
- Make all users follow rules
- Keep all computers up to date



# Passwords



- Use passwords to protect your data
  - To restrict access to approved users
  - To protect from unauthorized changes
- Use passwords at various levels
  - Your computer
  - Your e-mail and Internet accounts
  - Specific computer files
  - Computer folders

# Backing Up vs. Duplicating

## □ Backing up

- Reduces storage space
- Compresses & essentially encrypts the file
- Not recommended for preservation

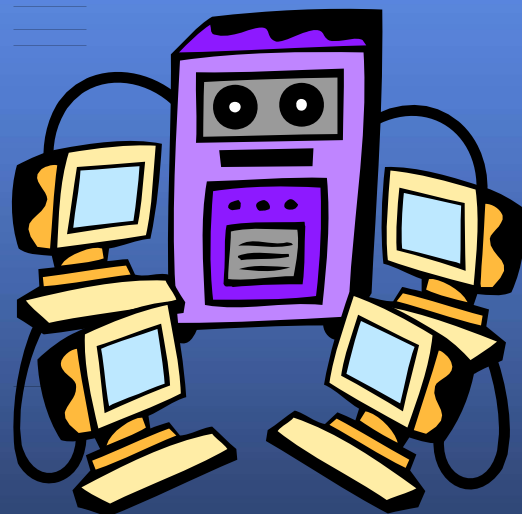
## □ Duplicating

- Uses same space as originals
- Stores documents uncompressed
- Leaves the documents more accessible



# Making Dupes

- Duplication provides protection from loss
  - Hard-disk crashes
  - Intentional damage
  - Accidents
  - Disasters
- Decide necessary frequency
- Use copies vs. accessing original files

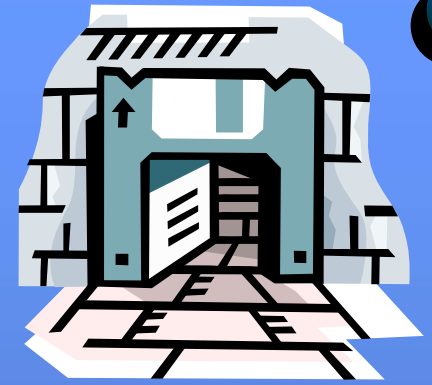


# Duping Do's



- Dupe as frequently as you need
- Make duplication simple & routine
- Use reliable media
- Label and date media clearly
- Maintain offsite
- Verify your dupes

# Duping Don'ts



- ❑ Don't dupe over the only duplicate
- ❑ Don't store important duplicates on site
- ❑ Don't rely on fire-resistant safes
- ❑ Avoid safe deposit boxes

# Disaster Planning

- Identify your risks
- Implement preventative measures
- Create response plan



# Preservation Strategies

- Maintaining obsolete technologies
- Conversion to hardcopy
- Migration
- Storing records in standard formats



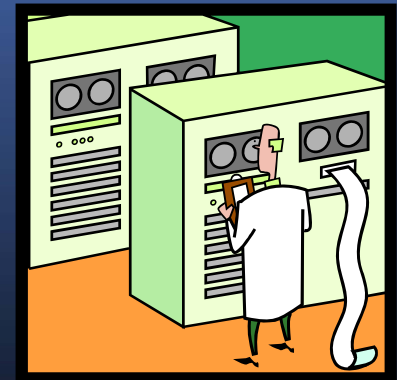
# Evaluate Preservation Strategies

- Costs
- Time commitment
- Accessibility
- Necessary functionality



# Maintaining Obsolete Technologies

- Examples . . .
  - Outdated computer, software or media
- Only short-term solution
  - Requires maintenance
  - Failure of any component disastrous
- Access & functionality limited
- Risks very high

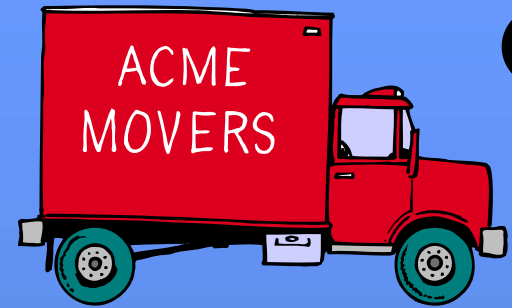


# Printing e-Records



- Black and white laser printing
  - Best solution for printing
  - Use paper that meets ANSI Standard for Permanence of Paper [ANSI/NISO Z39.48-1992 (R1997)]
- If preservation of color is important
  - Inkjet printer: use paper and ink specified by manufacturer
  - Color laser printer: use paper that meets ANSI standard
  - Consider preserving records in both paper and e-format

# Migration



- Periodic transfer of data to newer system
  - Before old system becomes obsolete
  - Transfer of data to new media
- Can do item-by-item migration or . . .
- Programmed mass migration
- Example - WordPerfect files to MS Word

# Migration Challenges

- Time consuming & labor intensive
- May loose some information
- Opportunity for human error
- Conversion software costs



# Storing Records in Standard Formats

- Formats expected not to change
  - Usually open and popular formats
- May lose essential formatting & info
  - If converting to a new format
- May not be a permanent solution



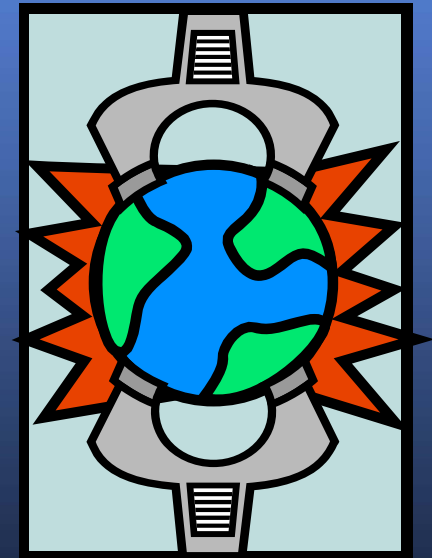
# Standard File Types For Images & Graphics

- Lossless compression examples
  - Tagged Image File Format (TIFF)
    - \*Recommended for long-term preservation
  - Graphics Interchange File (GIF)
  - Portable Network Graphics (PNG)
  - JPEG 2000
- Lossy compression example
  - Joint Photographics Experts Group (JPEG)



# Compression

- Process that reduces the size of digital documents
- Two types:
  - Lossless = no data is lost
  - Lossy = some data is lost
- Some techniques are proprietary



# JPEG vs. TIFF



**JPEG**



**TIFF**

# Resolutions for Scanned Images

- 300 dpi (minimum)
  - Preservation copy
- 150 dpi
  - Printer output
- 96 dpi
  - Internet publication



# Standard File Types for Text

- American Standard Code for Information Interchange (ASCII)
- Unicode
- Rich Text Format (RTF)
- Portable Document Format (PDF)
  - PDF/A
- Extensible Markup Language (XML)



# Standard File Types For e-Mail

- Remove from e-mail system
- Convert to standard text file format
- Preserve attachments too
  - May have to convert them to appropriate standard format



# Standard File Types for Databases & Spreadsheets

- No adequate standards
- Two options
  - Keep in original format & migrate
  - Or preserve as comma- or tab-delimited files
- XML may be future option
- Long-term access is problematic



# Standard File Types for Video & Audio

## □ Audio

- WAVE (.wav)
- Broadcast Wave Format (.bwf)

## □ Video

- MotionJPEG2000 [lossless compression]
- Motion Picture Experts Group (MPEG) [lossy compression]



# Standard File Types for Websites

- Capture static webpages by
  - Taking snapshot (manual)
  - PDF/A
  - Using web harvester (automated)
- Preserve pages in original format
  - HTML, XHTML, XML
- May need to convert other file formats to standard
- Capture dynamic pages by preserving
  - Database, every possible user query, database software



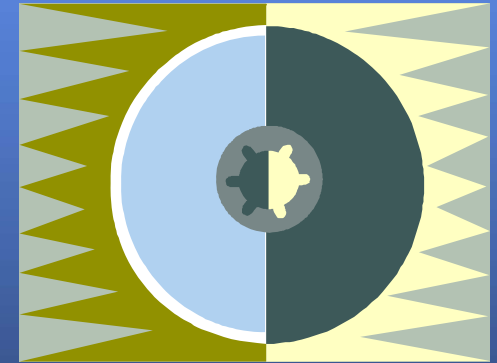
# Electronic Storage Media

- Consider all to be temporary storage
- Digital vs. analog media and data
- Primary types of media:
  - Optical
  - Magnetic
  - Magneto-optical



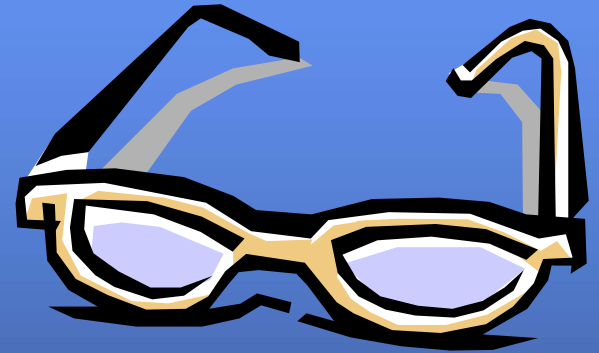
# Digital Media & Data

- Data stored as 1s and 0s
- Information loss is sudden and total
- No loss of quality when copied
- All optical media is digital
- All data produced by computers is digital
- All data stored on optical media is digital



# Optical Media

- Optical media
  - CDs, DVDs
  - Digital characteristics
  - Less stable
  - Fast data transfer rate
  - Random access



# Optical Media Examples

- Read only memory (ROM)

  - CD-ROM, DVD-ROM

- Recordable

  - WORM, CD-R, DVD-R

- Rewritable (RW)

  - Magneto-Optical (MO), CD-RW, DVD-RW



# Magnetic Media

- Magnetic media

- Tape, disks, and diskettes
- Best performance overall
- Analog characteristics
- Serial access
- Established track record
- Slow data transfer rate (except DLT)



# Magnetic Media

- Disks and diskettes

- 3.5-inch
- Zip & Jaz
- Hard drives



**3.5" diskettes**

- Computer tape

- Half-inch, QIC, Digital Linear Tape (DLT)
- 3480/3490 open-reel tape
- 3590 tape cartridges
- Linear Tape Optical (LTO)



**DLT drive**

# Magnetic Media cont.

## □ Solid state media

- USB, jump, thumb & flash drives
- Memory sticks, cards

## □ Videotape

- VHS, digital videotape

## □ Audio tape

- Cassette, 4mm DAT



Memory stick



USB drive

# Media Life Expectancy (Physical)

- Depends on
  - Environment
  - Handling
  - Media quality

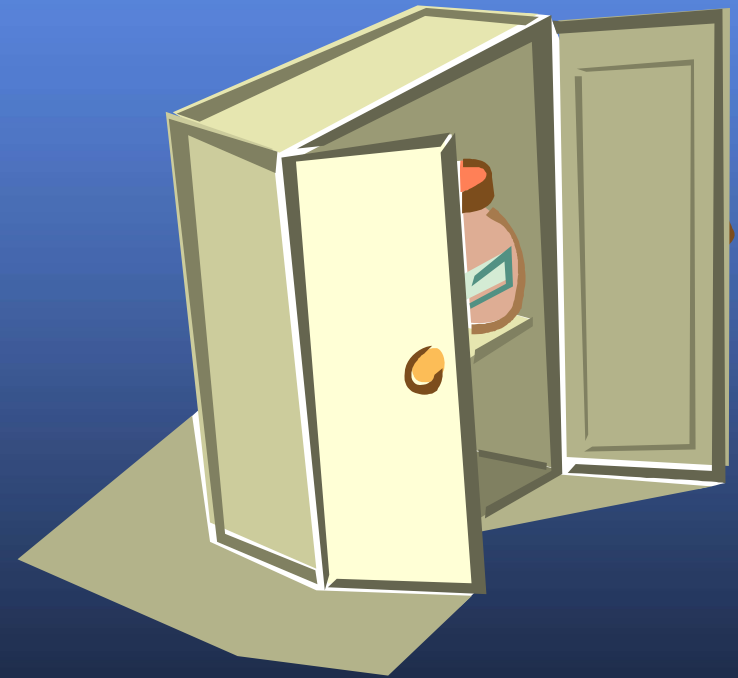
- Examples

- Paper = 100+ years
- Microfilm = 500 years
- Computer diskette = 2 - 5 years
- DLT = 10 - 30 years
- CD-ROM = 5 - 50 years
- Magneto-optical = 5 - 100 years



# Maximizing Longevity

- Store records on quality media
- Handle properly
- Maintain proper storage
- Monitor media regularly
- Refresh media periodically



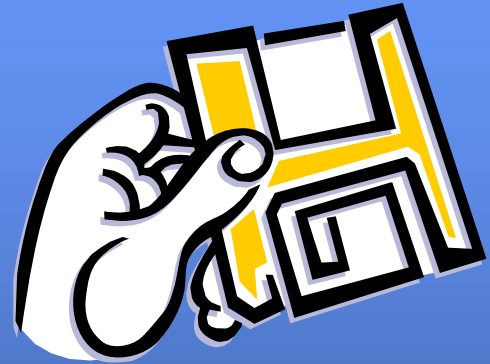
# Storing Records on Quality Media

- Use quality, brand-name products
- Use recently manufactured media
- Don't reuse media indefinitely
- Avoid VHS tapes or audio cassettes



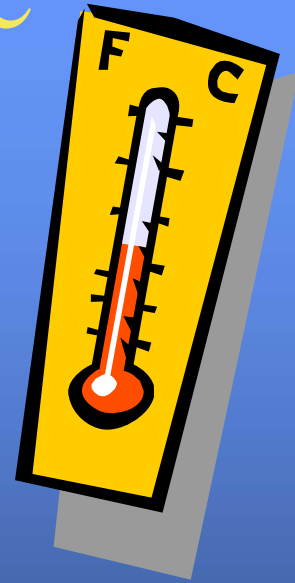
# Proper Handling of Media

- Handle by housing or edges
- Don't bend or place objects on top
- Use duplicate copies for viewing
- Do not use paper clips or rubber bands
- Create clear, detailed labels



# Maintaining Proper Storage

- Maintain optimal temp and humidity
  - 45°F to 65°F
  - 30% to 40% RH
- Protect from dust, light, and smoke
- Protect magnetic media from mag fields
- Store media on end
- Use fire-resistant media cabinets
- Store copy and master separately



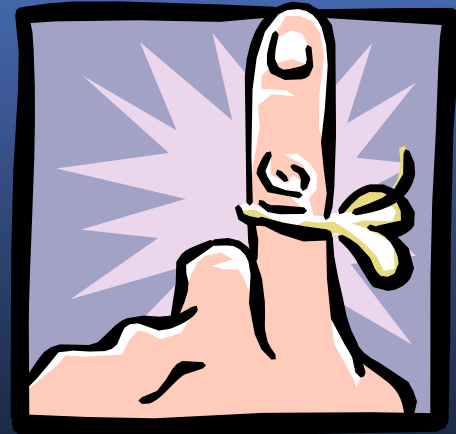
# Refresh Media Periodically

- Copying from old to new media
- Ensures integrity and accuracy
- Do before signs of deterioration
- Follow a refreshment schedule
  - Videotape = 10 years
  - Tape and Disc = 3 - 5 years
  - Computer diskette = 1 year



# Conclusion

- Develop & follow preservation plan
- Maintain offsite duplicates
- Maintain system components
  - Equipment
  - Software
  - Data
  - Media



# Questions?



The End

**Thank You**