Unit: Communication

Type of Learning Activity: Digital Photography

Level: Middle School

Purpose of the Activity:

Students will:

- E.8.1 Use computers to acquire, organize, analyze, and communicate information
- A.8.4 Develop effective oral and written presentations
- A.8.5 Analyze how cultures and groups value technology differently and how these values influence the development and acceptance of technology
- A.8.7 Discover that human will or desire can lead to the design of new technology in order to seize an opportunity or solve a problem

Background Information

Conventional color photography begins with cameras that record color images on light-sensitive film. The film is processed to create a negative. Light is projected through this negative onto photosensitive paper and processed to make a print.

Digital cameras don't use film. Instead, they store the image as digital data inside the camera on a disk or memory card. This data can then be downloaded to a computer's hard drive. From there they can be edited and sent to a printer for hard copies.

Like conventional cameras, digital cameras use glass lenses to capture and direct the light that reflects off the subject. However, the similarity ends there. In digital photography incoming light is converted into electrical signals that represent red, green, and blue components of the original subject. These analog electrical signals are then converted into digital data and compressed.

Once digital photographs/files are downloaded to a desktop computer they can be edited with software such as *Photodraw* or *Adobe Photoshop*. The image can very easily be cropped, resized, color-corrected, or changed in a multitude of other ways with editing software.

Digital photographs are used in many different ways. Newspapers and magazines photographers send these files over telephone lines to their publishers, who can then quickly combine them with digital text provided by a journalist. Since film processing isn't necessary, stories can go from the field to print in record time.

Speed is only one of the advantages of digital imaging. Digital images do not degrade over time, as do images recorded with conventional formats. Film negatives and photographs fade overtime, and duplicating them results in a loss of detail as well. As additional forms of media continue to shift from analog to digital formats, digital cameras will become commonplace.

Design Brief

Digital photographs are increasingly used in place of conventional photographs. They can be quickly imported into desktop publications to create stunning multimedia presentations. In this activity, you will plan and create a 360-degree panorama photo using a digital camera and editing software.

Tools and Materials

- Digital Camera
- Tripod
- Torpedo Level
- Registration Disk
- Digital Editing Software

Activity

Implementation Procedure

1. Design (plan) your project idea. Identify the location where you think the most interesting or beneficial panorama can be completed. Important things to consider are lighting, aesthetics (how pleasing the surroundings are), whether or not you will include people in the panorama, is there anything that should be removed (trash etc.).
2. Complete a storyboard sheet and get instructor approval.
3. Receive instructions on the use of the digital camera. Ask questions if you are not sure of any aspect of using the camera.
4. Take the digital camera and tripod to your pre-selected shooting point. Set up the camera so that it is both plumb and level
5. Take twelve pictures using the registration disk to rotate the camera 30-degrees for each picture.
6. Download the images to a computer.
7. Create panorama JPEG using application software such as photo vista or panaworks.
8. Open the JPEG in Adobe Photoshop and print a final copy on photo quality paper
9. Present your Panorama to class.

Assessment

Organization & Planning

Design plan completed prior to taking photos	10 points
Design plan not completed prior to taking photos	0 points

Digital Camera

Project shows evidence of correct use of digital camera and tripod	10 points
Project shows evidence of marginal use of digital camera and tripod	5 points
Project shows evidence of misuse of digital camera and tripod	-10 points

Application Software

Student used software in an efficient and knowledgeable manner	10 points
Student used software with minimal teacher intervention	5 points
Student used software with maximum teacher intervention	0 points

Project Presentation

Exceptional presentation with printed copy of panorama	20 points
Adequate presentation with printed copy of panorama	10 points
Adequate presentation with no printed copy of panorama	5 points
Poor presentation with no printed copy of panorama	0 points

45-50 points = A
35-40 points = B
25-30 points = C

You should bullet four things you think are important for a teacher to ask her/himself when assessing the activity and give an example of an assessment tool rather then limit a teacher to one tool.

Extension Learning Opportunities

- Create a web page incorporating student panorama work
- Create a virtual tour of school building
- Create a 360-degree object presentation

Resources

NOTICE: References or links to any web sites does not constitute an endorsement of the products or services represented by the web sites or an endorsement of any site advertisers or their products. As always, we recommend parental/adult supervision while surfing the World Wide Web.

http://www.howstuffworks.com/digital-camera.htm

Samples
http://www.virtualparks.org/
http://www.yosemite.org/vryos/movie.htm
http://www.virtualgettysburg.com/
http://www.kaidan.com/products/pano-gallery.html
http://www.graphicsdept.com/grandcanyon/
http://www.desertusa.com/qtvr/du_qtvr.html
http://rockymountainscenery.com/qtvr.html
http://liftoff2.msfc.nasa.gov/vr/welcome.html

QTVR

- Apple Quicktime VR
- Kaidan: QTVR hardware manufacturer
- VR Toolbox: QTVR software developer
- QuickTime Virtual Reality for Educators and Just Plain Folks: Tutorials
- Demystifying QTVR from Outside the Lines: Tutorials and plans for equipment
- QTVR on a Budget

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