The Digital Camera and Its Uses in Your Classroom

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Note:
There is also an excellent teacher's packet "An American Century of Photography: From Dry-Plate to Digital" at http://www.seatleartmuseum.org/exhibitions/hallmark/teachers.htm.

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Camera Lesson Plan ES1

Title: Changes in Living Things

Author: Sandra Estep, Albemarle County, Murray Elementary School, (Charlottesville, Virginia)

Grade Level: K-6

Core Content: Science, Life Science, Seeds, SC-E-3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.3.1, SC-M-3.1.2

Objective: On a bulletin board or display area, children will document the processes of change by photographing the growth and development of alfalfa sprouts over a period of time

Material: Digital Camera, bulletin board or display area, alfalfa seeds (or other grass or garden seeds), paper towels, and a tray

Procedure: Plant the seeds by spreading them out on brown paper towels in a tray. The seeds should be then be covered by another paper towel and saturated with water. Pour off the excess water.

Each day a pair of children will photograph the seed tray and print and post on the display board the photograph with a written (dictated) description of how the photo is different from the previous one.

Every few days, let the class examine and discuss the changes that are happening. Keep a chart describing the changes, modeling correct vocabulary and spelling of the language being used. On about the eleventh day, let the children eat the sprouts!

Assessment: Teacher observations of change in children's vocabulary, their ability to sequence the pictures, and participation in discussions of the changes they have observed.

Camera Lesson Plan ES2

Title: Life Cycle of a Butterfly

Author: Tamara B. Williams

Grade Level: K-6th

Core Content: Science, Life Science, SC-E-3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.3.1, SC-M-3.1.2

Objective:

1. Living things are born, they grow, and they change.

2. Living things take in and give off energy, live, and eventually die.

Abstract: The children will observe the life cycle of a Painted Lady butterfly. They will learn the different stages of the life cycle and discuss the changes that are occurring. The children will have a pictorial representation of the life cycle using the digital camera.

Materials: Digital camera, Painted Lady caterpillars (or another type of caterpillar such as a Monarch), pictures of the caterpillar and its growth, pictures of the chrysalis that the caterpillar forms, and a picture of the butterfly once it has hatched, poster board or a bulletin board, paper plate

Procedure:

1. Use books, real caterpillars and discussion to familiarize the children with the life cycle.
2. Once the caterpillars are in the classroom, take a picture of the caterpillar at its smallest form. Add this picture to the bulletin board. The caterpillar will not come in an egg form so you will want to make sure an egg is represented on your display.
3. As the caterpillar grows, continue to take pictures and add them to the bulletin board.
4. Once the caterpillar has formed a chrysalis, take a photograph of it and add it to the bulletin board. If you can capture the caterpillar forming the chrysalis, that would make a great series of pictures, but this is usually very hard to do.
5. Once the butterfly has hatched, photograph the butterfly having just emerged from the chrysalis (if possible) as its wings are drying (the butterfly will hang with wings down in order to let them dry).
6. Take a picture of the butterfly once the wings are dry and then add the final pictures to the bulletin board.
7. Finally, take the butterflies outside and photograph them being set free. This can be the last picture of the series. It would be good to place the pictures in a circle from to reinforce the idea of a life cycle being in a circle.

Follow-Up: As a follow-up discussion, the children can describe the life cycle using the bulletin board display and what will happen to the butterfly now that it is free (it will go on to lay an egg and then die).

Assessment: Teacher will make observations and note the student's ability to describe the life cycle of the butterfly using the display. A paper plate could be used to show the four basic stages of the butterfly.

Camera Lesson Plan ES3

Title: Simple Graphing Using Footwear

Author: Sandra Estep, Albemarle County, Murray Elementary School, (Charlottesville, Virginia)

Grade Level: K and up

Core Content: Math, MA-E-3.1.3, 3.2.5, 3.3.1

Objective: Conduct simple surveys with classmates and organize the data into groups

Abstract: In this lesson children will explore aspects of footwear worn by classmates and graph the results according to criteria that they choose.

Materials: Digital camera, printer, large sheet or wall area to present materials

Procedure: On the way to school this morning what hazards to feet did you encounter? Did you walk through wet grass? Snow? Did you cross gravel? Did you walk on any rough pavement? What important part of your dress helped you to get to school without having sore feet? Footwear, of course!

Ask children to help brainstorm information about footwear and to examine their shoes to see what special parts shoes have: rough tread, smooth tread, laces, velcro, buckle, leather, canvas, tennis shoe, jellies, flip flops or boots. Children could also discuss how the footwear related to the day's weather. (It might be appropriate to tell students that we will examine parts of the footwear and their purpose, not condition, expense, etc.).

Explain to them that they will photograph their footwear, print the picture and place it on a class graph, grouping types. Let everyone have a chance to examine the kinds and parts of footwear and decide on some ways to graph them (purpose, type, closure, tread, etc.). Children can create labels for each aspect they choose and place the labels on the graph.

Model how to take a picture with the digital camera. It would be fun for the teacher to wear a wacky pair of shoes, photograph them, and show the picture to the children on the television.

Let the children work in pairs to photograph their partner's footwear (or children might like to experiment with perspective and photograph their own shoes). Before they take the picture, children should decide what particular aspect of the shoe is important. Encourage them to take their time about the shoe component they want to show. (Use the macro lens on the camera).

Print the pictures and allow the children to study the graph and place their picture appropriately.
As a class, study the graph and analyze the data.

Assessment: Teacher observations/class checklist/appropriate placement of picture, participation in discussion

Modifications: The graphing activity could be done throughout the year with various other data related to the curriculum or the children's personal interest, preferences, etc.

Camera Lesson Plan ES4

Title: Photographic Chart of the Daily Schedule

Author: Debbie Rondeau, Albemarle County, Hurt Elementary School, (Charlottesville, Virginia)

Grade Level: K-1st

Core Content: Math, Time/Daily Schedule, MA-E-1.1.5, M-P-6M-18

Objective: Using the digital camera, photograph students during a typical day involved with all the daily learning activities.

Materials: Digital camera, clock faces, pocket chart, daily schedule (written out)

Procedure: Using the digital camera, take pictures of a typical day, with students doing all the activities, centers, specials, or areas. Have the children help you to make up the words for your daily schedule, with the clocks telling the time of the activity. Laminate and post in the room for the students and teacher to refer to on a daily basis.

Assessment: Can the students use the pocket chart schedule to plan their day, predict happenings or events?

Modifications: For older students, they can do their own individual schedule, creating their own clock times, and add their own creative words for the activities/lesson learning areas.

Camera Lesson Plan ES5

Title: Photographing Classroom Objects to Teach Counting

Author: Nancy Teel, Albemarle County, Red Hill Elementary School, (North Garden, Virginia)

Grade Level: K-1st

Core Content: Math, Counting, MA-M-3.2.6, MA-E-1.1.1, M-8-PS-7

Objective: Count, recognize, and write numerals for the number of items in a set.

Abstract: Students will make a number book for zero through ten by photographing objects to coincide with each number.

Materials: Digital camera, assorted materials found in a classroom

Procedure: Students work in pairs or small groups to assemble objects to photograph for each number zero through ten. Use the computer to retrieve photographs and copy for each child in the group. Each child constructs a book adding numerals to correspond to the pictures.

Assessment: Completed project.

Modifications: Instead of constructing a book make cards out of the photos and use in a variety of math activities that involve counting.

Camera Lesson Plan ES6

Title: Solving Story Problems

Author: Becky Kennedy and Bonnie Sandell, Brownsville Elementary School, (Crozet, Virginia)

Grade Level: 2nd and up

Core Content: Math, MA-E-1.2.6, 3.2.1, NSS4-5.1, M-P-NC-38

Objective: Create and solve story problems

Abstract: Students will create and solve story problems using photos

Materials: Digital camera, television

Procedure:

1. Divide students into small groups.
2. Instruct groups to take photos in and around the school of people and objects.
3. Upon returning to the classroom, teacher and students will view pictures on the television.
4. Students will write a story problem relating to the picture on the television.
5. Students may volunteer to share aloud their story problem. Other students may volunteer to solve.

Assessment: Teacher observations and student participation

Modifications: Captions of story problems can be added to pictures. Pictures can be used to make a class book.

Camera Lesson Plan ES7

Title: Exploring Time Change Using Shadows

Author: Brian Maznevski, University of Virginia, Charlottesville, Virginia, Jamie Endahl, Stoney Point Elementary School, (Keswick, Virginia)

Grade Level: 1st and up

Core Content: Math and Science, MA-E-2.3.3, 2.2.8, 2.2.7, SC-E-2.3.3, 2.2.2, 1.2.2

Objective: The student will note changes in shadows as determined by position of the sun.

Abstract: The students will make predictions, determine lesson format, method and draw conclusions about size, direction and position of their shadows at varying times during a sunny day.

Materials: Digital camera, a sunny day, life-size (child size) drawing paper, black markers, chalk, other writing tools, measuring tools, math/science notebook/sketchbook.

Procedure: Ask these questions: Do shadows change position? How? Why? How would the objects of different sizes, dimension, form, etc, change?
Depending on experience with measuring, have children determine measuring tools (younger children-twine, string, yarn, unifix cubes, etc.).

Day 1: Take children outside, grouped in pairs, at three different times during the day. Have them choose one object/location. Sketch the object and its shadow each time. The teacher can use the digital camera to photograph all sketches/images.
Children should measure object, shadow and distance between object and shadow. Mark measuring device or record measurements in notebook or on pavement.

Discussion 1: What did you observe about your object's shadow? How did you approach the drawing task? (How did the children connect shadow to objects, use of paper, use of space, etc.?) How did you measure? Why did you choose your object: What will happen to your shadow in 2 hours? (9:00, 11:00, 1:00)?
Draw how you think your shadow will look in two hours. (Later children can compare predictions with actual shadows, sketches, and photos). (Repeat procedure two more times).

Discussion 2: How did shadow change: Why do you think it changed? How much did it change? In how many ways did it change? Children record/ draw impressions.
For older children, increase the frequency of outside visits (every half-hour) - children might discover differences and complexities of linear and nonlinear patterns, etc.

Discussion 3: Children will now have at least three photos and three sketches, measurement data, etc.

Day 2, 3+: Teacher produces a template using HyperStudio® that includes: title page, page turning buttons, information buttons, etc. Pairs of students will make stacks of what they have learned.

Assessment: Teacher observations/class discussion/ display of pictures with descriptions

Camera Lesson Plan ES8

Title: Private Eye

Author: Ruth A. Bohannon, Cimarron Elementary School, (Aurora, Colorado)

Grade Level: 2nd and up

Core Content: Math, Science, MA-E-4.2.1, MA-M-1.1.3

Objective: To encourage observation skills in students. Students will use higher level thinking to observe patterns and characteristics of a "part of a whole."

Description of Lesson: Think about the back covers of World magazines. Students will view, on a computer screen, digital camera images that show a small part of a total object (or larger portion). To begin, photograph items from the school environment. This may be applied to any area of study throughout the year.

Procedure:

1. Identifying images to photograph.
2. Photograph an intriguing "portion" of an item.
3. If you wish, photograph the entire item also.
4. Load the images on the computer or television.
5. Show students "portion" images.
6. Develop higher-level problem solving skills as students observe and solve the "mystery portion."
7. Study "whole" image or physically "hunt."

Other Comments: This activity is great for patterns in nature. It relates to math patterns and science patterns and observation skills. It encourages logic and reasoning.

Camera Lesson Plan MS9

Title: Geometry Walk

Author: Alan Landon, Redwood High School (Visalia, California)

Grade Level: 5th and higher

Core Content: Mathematics, Geometry, Arts, MA-E-2.1.1, M-H-G2, AH-M-4-1.3.8

Objective: Students are sent on a scavenger hunt around campus in search of terms which they have encountered in the course. This could be the geometric shapes and terms associated with parallel lines and angles. Provide each group with a camera and a 20-30 minute deadline. Send the students out to find real examples of each term that they will document with the camera. Most of the items should be easy to find examples of while a few should be more challenging.

Another option is to create a multimedia presentation like a geometry tour of the campus that highlights the interesting geometry that is all around us in our daily life.

Follow-up: Commission students to document geometric terms in other locations like their homes, downtown area or on a university campus that they plan to visit. They would then prepare multimedia presentations to be viewed on the computer or slide shows shown through the VCR or television., Any television presentation could have sound or music added and be recorded on tape by the VCR.

Camera Lesson Plan MS10

Title: Insect Life Cycles/Complete Metamorphosis

Author: Timothy Rayburn

Grade Level: 5th and higher

Core Content: Science, Life Science, NSS4.3, SC-H-2.4.3, SC-E-3.2.1, 3.2.2

Objective: Upon completion of this lesson the students will show an understanding of the stages of the complete metamorphosis.

Procedure:

1. Introduce students to metamorphosis
2. Describe the steps of complete metamorphosis
3. Divide the students into groups
4. Give each group a cocoon (collected or ordered from a supply company)
5. Have students place the cocoon in a container where it can be observed and photographed daily
6. Have students use the digital camera to photograph the insect daily
7. Allow students to upload pictures into the computer each day
8. After the insects have become adults, have students complete one of two activities listed below

Activity 1: Have students use their photographs to create a labeled poster showing the life cycle of an insect.

Activity 2: Have students convert all of their pictures into gif format. Use a gif animation program to create an animated gif showing all of the groups photographs in order. This is time lapsed “video” of complete metamorphosis that could be include in a web page.

Assessment: Have groups present their projects to the class. This demonstrates the student’s understanding of complete metamorphosis.

Follow-up: Have groups compare insect life cycles to other cycles studied.

Camera Lesson Plan MS11

Title: Geometry in Nature and Man-made Constructions

Author: Sally A. Johnson, Pine Ridge Middle School (Naples, Florida)

Grade Level: 6th and higher

Core Content: Mathematics**,** Geometry, M7-GM-7

Objective: To demonstrate geometric shapes are everywhere around us, and to encourage students to be more aware of the geometry in their lives.

Procedure: At the beginning of class there will be a collection of geometric shapes that were found in our community or from pictures in books. The pictures will be displayed, at first in a time sequence without stopping. Next, we will observe each picture, discuss and name the geometric shapes.

Lesson Assignment: At the end of the unit, the same pictures will be used as a test by numbering the frames to match the numbers on the test. Students will be required to name the geometric shape of each frame.

Follow-up: Students will be asked to find pictures of geometric shapes in their life and either bring the picture to school so we can take pictures with the digital camera or check out the camera to take pictures at home.

Camera Lesson Plan MS12

Title: How Do You Measure Up?

Author: Alan Landon, Redwood High School (Visalia, California)

Grade Level: 4th and higher

Core Content: Mathematics**,** Geometry, MA-E-2.1.5, 2.2.5, 2.3.3, 2.2.8, 2.2.7

Objective: To give students experiences in nontraditional measurement systems, measurement, data collection, data analysis, ratio and proportion, surface area and volume.

Abstract: By photographing your students as they are lined up in front of a brick wall or other surface which had horizontal line pattern to it, you can create a scaled record to be used for may mathematics lessons.

Procedure: On a well-lit day, line as many of the students up against a brick wall which has easy to see horizontal lines in it. If one is not available on the school campus, take a field trip to some large building like a library or bank that is close by. Also document the actual spacing of the lines on the wall before leaving. Once in class, retrieve the photo and make enough copies so each group of students has at least one.

Create activities that require the students to draw horizontal lines on the photos using the brick lines to create a vertical scale. Simple lessons at lower grades could ask the following questions: What is the ratio of students who are taller than Joe to students shorter than Joe? (Draw the line at Joe's height and compare heights to answer it); What is the ratio of girls taller than Joe to girls shorter than Joe? Boys taller than Joe to boys shorter than Joe? etc. Interesting questions could involve students the same height as Joe. Students might estimate how many "Joes" it would take to equal the height of the building.

Other students with more skill might try to answer how tall the building is, how long the wall is or how may bricks are in the wall.

You could define a "Joe" as your unit of measure. This could lead to requiring students to organize a whole measurement system that would help them better understand the metric system. Maybe one Joe is not he best unit on which to base a measurement system. They could decide what they prefer to use by some democratic means. An important discussion that would probably come up would be how to break up the unit into fractions of a unit. Which is better? Decimal or portions based on one-half, one-fourth, one-eighth, etc.?

Once the unit is chosen, they could use the camera to photograph several convenient items to be included in a booklet. They could take front, right side, and top view photos. They would use their unit of measure and create a complete set of vital statistics for their objects including all measurements. Students can draw dimensions right on the digital photos that are included in the reports. Depending on the level of skills, they could calculate surface area and volumes. Word processors and spreadsheets could be used to automate the surface area and volume calculations. They must be sure to include the photos of the master unit of measure in their booklet.

Assessment: Introduce a new common item like a pencil or paper clip to be defined as the master unit of measure. Have students measure your test of items with the new master unit. Use the camera to document the items and produce photos with the dimensions drawn on them. Include a photo of the master unit. Increase the requirements as allowed by the skills of the students.

Camera Lesson Plan MS13

Title: Plant Growth From Seeds to Mature Plant

Author: Bradd Bush, Arizona Intermediate School (Riverside, California)

Grade Level: 5th and higher

Core Content: Science**,** Life Science, SC-M-3.1.2, SC-E-3.1.1, 3.1.2, 3.1.3, 3.2.1, 3.3.1

Objective: Repeated use of a camera and computer to manipulate images using the growth of different plants

Abstract: Students will record the growth of a plant (or weed) from germination to death. Using the computer, they label images (1 day, 2 days, 2 weeks, 9 weeks, etc). and store them. Students can use this knowledge to compare new plantings to previous, identifying problem. Identify unknown plants (or weeds) and build their own "portfolio."

Procedure:

1. Take pictures as plant is growing
2. Transfer images to computer, label with date
3. Store images in "portfolio" of plant
4. Organize data upon completion

Camera Lesson Plan MS14

Title: Fungal Growth Over Time

Author: Mike Ferrari, Summit Intermediate School (Etiwanda, California)

Grade Level: 5th and higher

Core Content: Science**,** Life Science, Math, SC-E-3.1.1, 3.1.2, SC-M-3.1.2, MA-M-4.2.5

Software Used: Adobe PhotoDeluxe®

Objective: To show the growth of fungi on the surface of a tomato

Abstract: Take a poll to have the students predict how long it will take for fungus to grow on the surface of a tomato. Have the students record their predictions in a log book. Math connection: You can also make a graph of the class prediction.

Procedure:

1. Select a ripe tomato (do not wash it) and take a photo of it.
2. Using the “title” function on the digital camera, superimpose “Day 0” on the image.
3. Using the video connect cable, display the image on a monitor and have the class make notes describing what they see into a log book.
4. Take a new photo every two days repeating step 2 with a new day count. (Day 2, Day 4, etc).
5. Repeat step 3 with every new photo until fungi appears.
6. Discuss what is happening to the tomato. The fungus is breaking down the tomato so it can provide nutrients to the fungus.
7. When the fungus is well established, take a sample and view it under a microscope. Have the students record their observations in their log books.
8. Using PhotoDeluxe®, you can download all the photos and rearrange them into whatever order you wish and/or save the presentation for a later time. Use the editing features to polish up images.
9. In addition to written descriptions, students can draw what they see and place the drawings next to their descriptions.

Camera Lesson Plan MS15

Title: Field Trip to Los Angles County Museum or a Museum Near You

Author: Barbara Islas, Westminster School (Westminster, California)

Grade Level: 5th and higher

Core Content: Science**,** Earth Science, SC-E-2.1.3, 2.1.1, S-7-ESS-4

Objective: To have students experience using the digital camera while learning about fossils and reviewing crystals and minerals

Abstract: At the museum, each student was to take a picture of fossils, crystals and minerals they liked. They were to copy information about their subject. Upon returning, the camera would play back their picture and the student would report to other class members about their picture.

Procedure:

1. Before leaving for the museum, set up a title page in the camera.
2. Give basic instructions to students the day before leaving.
3. Take pictures as students get ready and on the way up in Normal setting.
4. Once the tour begins, work with individual students taking pictures in Fine setting.
5. Take pictures of the students at the end of the tour and on the return trip in Normal setting.
6. On the return ride, set the title on the pictures, edit what is necessary , set the timing.
7. Use the RCA cable between the camera and television.
8. Connect the transformer to the camera.
9. Show the pictures and have the students narrate.

Other Comments: The students enjoyed using the new camera technology and became more responsible for presenting information about their picture(s). They even helped one another in preparing for the presentations.

Camera Lesson Plan MS16-17

Title: Live Storybook

Author: Polly Underwood, Ocala Middle School (San Joe, California)

Grade Level: 6th and higher

Core Content: Language Arts, Reading and Writing, WR-E-1.4, ELA-4-R-3, RD-M-3.01.6, 3.0.8

Objectives: To have students increase awareness of their role as models for younger students, to improve student writing in content area of science, to provide practice in sequential writing skills through storyboarding techniques, to provide opportunities for student-generated literature, to make students aware of methods of persuasion used by the tobacco industry, to increase the use of technology in student presentations, to provide practice with dialogue writing

Procedure: Students will brainstorm a scenario for a short book for younger students. The setting will be outside or in a public place. The actors will be students in the class. The scenes will involve some students using or trying to purchase tobacco products (All tobacco usage will be alluded to, not done). The antagonists will be using methods of persuasion such as glamour, adventure, inclusion, peer pressure, fear, or pleasure. The protagonists will correctly counter each method with a refusal and an explanation of what the method is and why it will not work on them. The scenes will be written in a book form, with shots being laid out in a storyboard. The story must be written with dialogue and have a satisfactory conclusion of refusals and reasons.

The camera will be used to take photographs to illustrate the stories. Using Adobe PhotoDeluxe®, the storyboard can be uploaded to the computer to allow captions to be added. The finished images can be presented on a television one image at a time. This presentation can be recorded on a VCR tape and used to be viewed by other classes. The images can also be used in conjunction with a computer program such as: PowerPoint, HyperStudio®, ClarisWorks®, etc. and presented in a slideshow or hyperstack format.

The photographs can be downloaded as part of the text program and will be used to illustrate the book. The idea of the book is to make students aware that their actions will be viewed as a role model for others, that they will be victims of methods of persuasion, not just from the media, but from friends, and what the correct forms of refusal are.

Prerequisites:

1. Lesson on forms of persuasion: American Lung Association has good ones for free

2. Practice on refusal skills: QUEST by Lions Club International has an excellent program

3. Practice on how to name problems and give alternatives. “That’s trouble, that’s a minor in possession of cigarettes. You’re trying to make me think that you’re all tough, but you’re really wanting me to give you $ for cigarettes. That’s not right. If I wanted to be tough, I could take Karate. Instead of smoking, let’s play basketball.”

4. Practice on storyboarding. Make up a storyboard for a familiar story or poem first.

5. Practice with a computer program.

Assessment:

1. Completion of books and presentations that will be evaluated by peers using a student generated rubric.

2. Copies of the storyboards and book text.

3. Self/peer feedback forms.

4. Daily journals and logs of student work.

5. Portfolio assessment of project.

Follow-up Activities: A perfect follow-up to the digital book would be to make a video where the students would teach refusal skills to others. There are several other lessons on the tobacco industry and methods they use to "hook" students into tobacco. Another activity would be for small groups, to each target one particular method, and to produce a digital book or slide show. This would teach and illustrate their method as well as give alternative activities for students to do other than start or continue to use tobacco and tobacco products.

Camera Lesson Plan MS18

Title: History Through Their Eyes

Author: Bob Schaal, Kraemer Middle School (Placentia, California)

Grade Level: 5th and higher

Core Content: Social Science**,** Arts, AH-4-VA-4, AH-E-4.1.37, SS-8-H-6, NS-G-6

Objective: Engage students in the drama of history and help connect that history to their own lives

Abstract: Utilizing the digital camera, teachers capture images from textbooks, newspaper photos, reference books, great works of art, etc. The captured images are then projected by a projector on a screen or wall. Overheads can also be printed and projected. Students are asked to analyze the image for the geographic and historic significance. Students then "superimpose" themselves upon the picture. Students act out various roles discussing possible dialogue and the thoughts of the characters.

Procedure:

1. Capture images with the digital camera.

2. Transfer the images to the computer and or floppy disk.

3. Project the images with a projector.

Comments: This is a great lesson design to actively engage students in the process of understanding history from a unique perspective. By placing students "within" the historical image, students learn to empathize with characters and have a better understanding of the period being studied.

Camera Lesson Plan MS19

Title: Field Trip to Joshua Tree National Park or Other Locations in Your Area

Author: Betsy Goza and Vic Machinski, La Contenta Junior High School (Yucca Valley, California)

Grade Level: 5th and higher

Core Content: Science**,** Nature Study, NSG-16, NSS4-6, SC-E-3.3.2

Objective: Students will narrate a field trip and nature study video.

Abstract: A digital camera was used to capture images of relevant landmarks (flora, geological, and historical). Students provide narration (written and oral) describing their perception of the experience and analysis of Samuelson's views.

Procedure: Two digital camera were used. Images were saved to a disk, rearranged, deleted, rotated, etc. Images were returned to a single camera and videotaped on AutoPlay.

Other Comments: We are working on adding audio to our videotape.

Camera Lesson Plan MS20

Title: Georgia O'Keefe: Working With Abstraction

Author: Tina Pesch, Vista Heights Middle School (Morena Valley, California)

Grade Level: 6th and higher

Core Content: Arts and Humanities**,** Abstraction, AH-H4-2.3.9

Objectives/Abstract:

1. Students will learn about Georgia O'Keefe and view a slideshow of her art.

2. Students will be able to define abstract painting as selecting a few interesting shapes and colors within an object, rather than trying to reproduce the entire object with every detail.

3. Students will create an abstract composition using the digital camera. Then turn that composition into a pastel painting.

4. Students will view a slideshow of the pastel paintings done by the class. Each student will choose their favorite painting and write about why they like it.

Procedure:

1. Photograph examples of Georgia O'Keefe's paintings to be used for a slideshow.

2. Students use the camera to photograph compositions for their paintings. These photos are stored in the computer and copies are printed for students to use while doing their pastel paintings.

3. The finished paintings are photographed and shown to the students using a slideshow format.

Other Comments:

1. This lesson can be adapted for math by focusing on geometric shapes. Another emphasis of the lesson could be plotting points on a grid and proportion.

2. This lesson can be adapted to science by focusing on the nature element. For example, students could do close-up photographs of flower parts and identifying them.

3. This lesson could be modified for any grade level.

Camera Lesson Plan HS21

Title: Digital Camera Uses in Science

Author: J. Vigerust, La Cuerva High School

Grade Level: 6th and higher

Biology Lessons:

1. To show pictures of live animals for class viewing
2. To show plant and animal growth rates on a set program, SC-M-3.5.4, SC-H-3.5.4
3. To collect pictures through a microscope for a slide show
4. To record a dissection
5. To show rare or native plants

Chemistry Lessons:

1. To show the setup of lab apparatus, NSS8-7.2
2. To show reactions for demo or presentation
3. To show experimental and lab mistakes to learn from
4. To record strange outcomes from reactions

Geology/Astronomy:

1. To show rare fossils
2. To record and present the last field trip
3. To show different mountain formations
4. To show crystal formations as they form
5. To show night sky constellations
6. To record telescope images
7. To show the planets and motion through time
8. To record lunar eclipse

Camera Lesson Plan HS22

Title: Visual Periodic Table

Author: Christina Smith-Libbey, Lely High School (Naples, Florida)

Grade Level: 6th and higher

Core Content: Physical Science, Chemistry, SC-H-1.2.2, NSS12-2.6

Objectives:

1. The student will identify elements on the periodic table by symbol and digital photograph.

2. The student will classify elements according to atomic number and atomic mass.

3. The student will learn how to write the electron configuration for each element on the periodic table.

Procedure: The teacher will take as many pictures as possible of the elements from the periodic table to introduce this aspect of periodicity with chemistry students.

1. The students will be introduced to an element on the periodic table and with the assistance of the digital camera to be able to visualize what the element looks like.

2. The students will be able to see similarities of elements according to which group they are in and what the element looks like.

Assessment: The students will be able to match the element name, symbol, and photograph. We will use the first in a game setting (matching, etc). and then will test the student with multiple choice, matching, true/false test. I will also print copies of the pictures and use them as part of a lab practice exam.

Follow-up: As a start-up activity, I will show various (science-related) digital pictures on a television and have students identify and list as many characteristics as they can. Also, I will break the students up into groups and allow them to photograph additional items that are made up of combinations of elements (compounds). This will not only reinforce their learning of elements, but will also introduce the combination of two or more elements as compounds.

Camera Lesson Plan HS23

Title: Snippet Presentations in Laboratory Safety

Author: Gregory H. Peck, Upland High School (Upland, California)

Grade Level: 6th and higher

Core Content: Science, Laboratory Safety, S-HS-SI-3, NS-PE-2.5.1, S-5-SI-2

Objectives: Use of the digital camera to create a digital sponge activity, a review visual, a pop quiz, and/or student demonstration of laboratory safety procedures. Students will design a digital imaging laboratory safety demonstration.

Materials: Digital camera, video cable, safety goggles, aprons, various lab equipment, etc.

Practice the Following: Indoor/Outdoor settings, manual exposure, normal vs. macro settings, delete key, and/or the protect key.

Hint**s:** BE CAREFUL of bright/white backgrounds as well as bright lights. Use just like a regular camera. If the image does not appear clear on the LCD view screen, then the image will not get better when you transfer it to the computer. Remember, to get rid of any image, push the round delete key (DEL) on top of the digital camera and follow the directions on the menu. If you like the images, then protect them from deletion by pushing the protect key found on top left side of the camera and following the directions on the menu.

Camera Lesson Plan HS24

Title: Snippet Presentations in the Skeletal System

Author: Gregory H. Peck, Upland High School (Upland, California)

Grade Level: 6th and higher

Core Content: Life Science, Skeletal System, S-8-LS-1, NSS8-3.4

Objectives: Use of the digital camera to take pictures of a recent laboratory exercise such as identifying the bones of the human skeleton. Then, after taking these images, save them on the computer or onto videotape to b used at a later date for a laboratory makeup exam, a student tutorial, laboratory review, and/or as a replacement to hands-on animal dissections. Think about the flexibility of having the students designing their own digital laboratory exercise. It can even enhance student laboratory reports by replacing diagrams with digital images of their very own laboratory experiences. Students will design a digital laboratory exercise based on the skeletal system.

Materials: Digital camera, video cable, real or plastic human skeletal bones, cross-section slides of human bones , and dark background (construction paper will work)

Practice the Following: Indoor/Outdoor (Aperture Switch) settings, manual exposure, normal resolution and/or lens rotation

Hints: BE CAREFUL of bright/white backgrounds as well as bright lights. It is usually best to place the specimen or subject in front of a solid dark background such as blue or black backdrop. The details of any object such as skeletal bones can be increased by darkening the exposure manually using the plus and minus keys on the camera.

Camera Lesson Plan HS25

Title: Snippet Presentations in Microscopy

Author: Gregory H. Peck, Upland High School (Upland, California)

Grade Level: 6th and higher

Core Content: Life Science, Microscopes, S-HS-SI-3, NSS4-1.3a

Objectives: Use of the digital camera with any light microscope or hand lens. Use it to design a quick pop quiz, add visuals to a lecture, and/or as a digital laboratory exercise. The students can record their microscope observations directly on the digital camera and save them onto a computer. Then they can add these images to their written laboratory reports. The students can even make real-time videos of their laboratory experience by using the camera in conjunction with a VCR and share it with the class. Students will design a digital laboratory report taken from a light microscope.

Materials: Digital camera, video cable, light microscope, various microscope slides of plants and animals

Practice the Following: Indoor/Outdoor (Aperture Switch) settings, manual exposure, normal vs. macro fine vs. normal resolution, lens rotation, and/or effect key

Hints: No special lens or adapter is needed to record images from the light microscope to the digital camera. Hand lens, like the magnifying glass, can be used to collect images on the digital camera. Try several light settings on the microscope to get the best images on the camera. A lower light or a lower diaphragm setting on the microscope seems to produce the best images on digital cameras. The main factor attributing to digital microscopy imaging success is a steady hand and a little practice.

Camera Lesson Plan HS26

Title: Snippet Presentations in Dental Health

Author: Gregory H. Peck, Upland High School (Upland, California)

Grade Level: 5th and higher

Core Content: Health, Teeth, HE-8-3

Objectives: Use of the digital camera for most of your visual needs. Link all your visuals to the television in the classroom. Any image from a computer, textbook, or from a laboratory activity, can be saved on the camera and played directly on the television. It can even be linked through the VCR and saved onto videotape for future reference. Students will use digital images of teeth projected on a television to enhance their presentation.

Materials: Digital camera, video cable, various digital images from CDs, camera images, etc.

Practice the Following: Indoor/Outdoor (Aperture Switch) settings, manual exposure, normal vs. macro fine vs. normal resolution, lens rotation, effect key, and video cable adapter

Hints: BE CAREFUL of bright/white backgrounds as well as bright lights. It is usually best to place the specimen or subject in front of a solid dark background such as blue or black backdrop. When choosing to take images from the television, it is best to use large bold letters (larger/bolder fonts will work the best).

Camera Lesson Plan HS27

Title: Snippet Presentations in Spectral Lines

Author: Gregory H. Peck, Upland High School (Upland, California)

Grade Level: 6th and higher

Core Content: Physical Science, Physics, SC-H-1.2.5, NSS12-2.1.3

Objectives: Use of the digital camera to record digital images of the bright line spectra given off from various gases such as Hydrogen, Helium, and Neon. Through digital imaging, one can record their observations for the various bright line spectra of gases and use these images in lieu of traditional demonstrations. The teacher could even use these images as a pre-lab demonstration that can focus the students' attention on what should be observed in the laboratory situation. Students will digitally record their observations for the bright line spectra of Hydrogen, Helium, and Neon, and compare these results to the known spectra for these gases.

Materials: Digital camera, video cable, gas spectral tubes, electric source, spectral transparent paper

Practice the Following: Indoor/Outdoor (Aperture Switch) settings, manual exposure, normal vs. macro fine vs. normal resolution, lens rotation, effect key

Hints: BE CAREFUL of bright lights being given off by the gas tubes. These tend to disrupt the images being sent to the camera thus distort or obliterate the spectral lines that are trying to be observed. It is usually best to place the demonstration in front of a solid dark background such as blue or black backdrop in a completely darkened room. Also, try the outdoor aperture setting as well as the manual exposure as adjustments (plus and minus keys) to increase resolution details. This digital process takes a little more skill and a little more patience. If one were to use a spectral transparent paper, then no tripod is necessary. However, in either case, using a darker room will give the best results.

Camera Lesson Plan HS28

Title: Microscope and Other Lab Equipment Proper Use

Author: Arthur M. Piersall

Grade Level: 6th and higher

Core Content: Life Science, Microscope, NSS4-1.3.9, S-HS-SI-3

Objective: To show the proper use of the microscope (or other equipment) used in the classroom

Materials: Digital cameras, television

Procedure:

1. The teacher/student will photograph the microscope (or other piece of equipment) at various positions showing all parts and angles.

2. The teacher/student will record the photos onto a VCR and add narration.

Modifications: Students might create their own presentations to demonstrate their understanding of the functions of various pieces of lab equipment.

Camera Lesson Plan HS29

Title: Mode, Median, Mean, and Range

Author: Beth Bobay

Grade Level: 5th and higher

Core Content: Mathematics, Averages, MA-E-3.2.6, 3.1.1, 3.2.3, M-6-PS-7

Objective: Students will find the mode, median, mean, and range with respect to the heights of the students in the classroom.

Procedure:

1. Students will measure the height of everyone in their group.

2. Their group information will be recorded on the board or in a spreadsheet.

3. The student groups will then find the mode, median, mean, and range for the entire class.

4. Pictures will be taken and displayed for each person who was the mode, median, and mean of the class. A group photo will be taken with the students in order from shortest to tallest to help display the range of the group.

Assessment: Students will find the mode, median, mean, and range for a given set of numbers on a test.

Follow-up: The same procedure will be used with regard to shoe size.

Additional Comments: This lesson could easily be adapted to higher level courses by including charts, tables, and plots (plotting shoe size and height on a coordinate system and any relationship found). Standard deviation and variance could also be found in the data. After the data has been recorded on a chart, pictures can be displayed on the television with the group's members included with their charts.

Camera Lesson Plan HS30

Title: Photo Enhanced Speeches

Author: Ted Torres, Redwood High School, (Visalia, California)

Grade Level: 6th and higher

Core Content: Language Arts, Reading, RD-E-2.0.10, ELA-EIV-W4

Objective: To reduce student anxiety during a speech of introduction, to increase understanding of the importance of proper preparation, and to give students experience at interacting with unfamiliar students.

Procedure: My students are divided into groups of three for the purpose of interviewing one another as they prepare to do a speech of introduction to the class. Each student has to interview a person in their group and take notes on note cards. Their goal is to find out as mush as they can about their person so they can introduce the person to the class. There is the regular set of information like name, age, grade, number of people in their family, their interests or hobbies. The things they dislike, their favorite music or things they like to do for fun. They must also find out one thing that is unusual or especially interesting about their person.

While the interviews are under way I move from group to group and take a picture of each of the interviewees. This capturing process takes about five to ten minutes. Anyone who is shy about being photographed, can easily be persuaded by noting that everyone is being photographed, no just then. Before connecting to the television, I cycle through them to make sure that they are all good photos. With all of the images in the camera, I display them on the television.

Students refine their notes from the interview and condense the information on a single five by eight card for their speech notes. Proper preparation is emphasized to reduce anxiety during the speech.
With their one note card in hand students make their introduction speeches. During each speech the photo of the person being introduced is displayed on the television. This process of showing their picture is mush less threatening for both people involved.

Assessment: The focus of the speech is to make a good presentation to the class. The speaker is graded on eye contact, proper use of their notes, voice level, and projection.

Follow-up: Each student creates a short written article from their notes that is incorporated into the class gazette. This form of speech lesson was enhanced by incorporating the digital camera.

Camera Lesson Plan HS31

Title: Seasonal Movement of the Sun

Author: Keith Thompson, Fontana High School, (Fontana, California)

Grade Level: 6th and higher

Core Content: Earth Science, Solar Movements, S-P-ESS-5, NSS4-4.8

Objective: To Demonstrate the seasonal movement of the sun

Abstract: Take sunset photos of the sun every 7-10 days to show movement of the sun as you approach the winter solstice. Usually the class makes weekly drawings, but the accuracy is so much better with a digital camera, not to mention some nice sunsets.

Also take “time-lapse” photographs of mold growth- bread and orange on a daily basis.

Used the camera to take photographs of the sun and sunspots through the telescope. If done on a daily basis, a sunspot group can be followed and rotational speed of the sun can be determined. This is similar to the sunset exercise, and is useful for demonstrating the phases of the moon and lunar features. Detail is very good.

Procedure: Nothing difficult for any of these, just point and shoot. Solar shots and lunar shots did require a telescope and for the sun a protective Mylar filter (DO NOT PHOTOGRAPH THE SUN WITHOUT A FILTER). For the mold shots, I used a light stand and a tripod to hold the camera.

Other Comments: Use the digital camera with all labs and projects. Put video together at the end of the activities. On test day, I just let the camera play as students watch each other and it was a good review of the work we do in our class. Would be a good “back to school” night. Printed up some shots and displayed them in class. The students love to see themselves in action. Several asked for copies to put on the front of their notebooks. Several students asked questions from their parents as to how they could get a digital camera.

Camera Lesson Plan HS32

Title: Introduction to the Kingdom Plantae

Author: Pam Raymond, Palm Springs High School (Palm Springs, California)

Grade Level: 6th and higher

Core Content: Life Science, Botany, NSS4-3.1

Objective: Teacher/students will use digital images of plants to supplement plant group presentations to class

Abstract: Assign groups of 3-4 students a different division of the Plant Kingdom (i.e., non-vascular, vascular seedless, vascular seed, angiosperm, and gymnosperm), As part of their informational presentation to class, they will use digital images to illustrate members/examples of their particular plant group.

Procedure:

1. Download photos from the internet and save on a floppy.
2. Open files on the floppy. Select desired .jpg files.
3. Load images. Use fine resolution.
4. For photos taken, connect the camera to the computer. Download the .jpgs to the computer, edit, and title.
5. Once in camera, play directly on television via the VCR jack or record to a VCR tape.

Other Comments: For excellent plant photos go to http://www.wisc.edu/botany/ from the University of Wisconsin at Madison, Wisconsin. And for another great biology link for to http://science.nhmccd.edu/biol/ from North Harris College, Houston,TX.

Camera Lesson Plan HS33-34

Title: Animation

Author: El Dorado High School, (Placerville, California)

Grade Level: 5th and higher

Core Content: Language Arts, Speech, Economics, SS-E-3.2.3, ELA-EIII-T-1

Abstract: Your assignment is to create a thirty-second commercial. This commercial will show the product on the screen and use sprites and soundtrack to sell the product. The presentation will illustrate one of the "Principles of Animation" and culminate on a sprite (animation or icon) doing a "take" on the product while the soundtrack hits the punch line. You will have fourteen days for this assignment.

Your Major Responsibilities Are As Follows:

1. Create a storyboard for your presentation. This is due the second day of the assignment. Be certain to include your "Principle of Animation," "take," and "punch line."

2. Create the sprites used in the presentation.

3. Record the sound files.

4. Using the video camera, record an image of your product with an appropriate background that will be used as the background frame for your presentation.

5. Engineer the final animation.

Your Presentation Should Incorporate the Following Features:

1. A still that shows the title of your presentation. This isn't counted against your thirty seconds.

2. A cut to your presentation.

3. A cut to credit. Not counted against the thirty seconds.

Process:

1. Design your animation and select the music and design the voice track upon which your production will be based. Record as aif files.

2. Read the Principles of Animation from the following web sites: http://www.evl.uic.edu/ralph/508S99/, http://www.spicycricket.com/princeples.html, or http://www.multiliteracy.com/persist/

3. Your sprites and backgrounds must be created by you.

4. Your background will be created by you with the product as the focus.

5. Your sprites may be from photos that you have taken, or drawn by you. These my be scanned into or drawn on the computer.

Final Evaluation:

1. Animations: (20 points) Sprites (number, quality, animated), articulate with “take,” sprite action appropriate to soundtrack.

2. Sound: (20 points) Sound Aif Files properly recorded, musical background appropriate to commercial, “voice-over” appropriate to sell, and punch line coordinated with “take.”

3. Backgrounds: (20 points) Product appropriately displayed on background, Snappy used to obtain good images.

4. Overall Performance: (40 points) Overall composition of advertisement (appropriate transition, title, credits, timing, length of commercial, overall impact.

5. Storyboard: (20 points) Must be presented on second day of the project for credit

Camera Lesson Plan HS35

Title: Digital Imaging of Minerals

Author: Barbara Bailey, Alta Lorna High School, (Rancho Cucamonga, California)

Grade Level: 5th and higher

Core Content: Earth Science, Geology, SC-E-2.1.1

Objective: Teacher/students will use digital images of minerals to use in reports

Procedure: Use the digital camera to record images of various mineral specimens for classroom instruction for visual recognition of such things as: identification, crystal arrangement, luster, color, form/shape, fracture, and cleavage. The latter being especially useful to prevent the destruction of mineral samples by eliminating breakage of specimens by students. Images of rare, valuable, or radioactive minerals can be digitized thus giving students the opportunity to have access to them. Students would also have access to these sets of minerals via floppy disk or videotape for make-up work. These digital images could be used for reports thus replacing hand drawn pictures of dubious quality.

Hints: Be careful of backgrounds that are light or dark when imaging specimens. For small samples, the macro focusing may still result in blurry images if taken too close. Use of an accessory lens (magnifier) in front of the camera lens can eliminate this problem.

Ideas for Using Digital Cameras in Your Classroom

http://coekate.murraystate.edu/camera/ideas.htm

Arts & Humanities

Make photo postcards. Glue light colored paper to the back of your photographs. Draw a line down the middle of the postcard. Your message goes on the left and the address goes on the right.

When studying colors, walk around the classroom, school, or outside and take pictures of a certain color. Insert the pictures into a PowerPoint booklet called, for example, “Things That Are Blue”.

When studying composer in music, have students write an essay entitled “The Day I Met…”. They will choose a composer to write about and then insert a picture of him/herself beside the picture of the composer.

Math

When studying numbers, take the number assigned to you and make pictures of that amount of objects in your photos. (For example, if you are assigned the number “4”, take pictures of 4 books, 4 chairs, 4 students, etc.)

When studying shapes, take pictures of various shapes and create a shape book or PowerPoint presentation using the photos you take.

Have students take pictures of their favorite foods, colors, etc. Create a pictograph, bar graph, and circle graph from the information.

Practical Living

Take photos demonstrating a particular physical education exercise. Post it to a PowerPoint presentation before beginning the activity with the students. Walk them through the activity using the pictures in the presentation.

Have older students studying careers create business cards with their pictures on them.

Reading

When studying the alphabet, create an alphabet book by having the students take pictures of objects that begin with each letter.

When studying rhyming words, have students take pictures of objects that rhyme. Place the pictures in a Rhyming Book.

Science

Make a classification book in which the students include pictures of objects that are alike. (For example, “Things That Are Hot”, “Things That Are Cold”, “Natural Objects vs. Objects Made By Humans”, “Common Plants”, “Common Flowers”, “Simple Machines”, etc.

Make a “Body Parts” book. Take pictures of head, arms, shoulders, legs, knees, trunk, toes, fingers, etc.

When studying weather, have students take pictures daily of the weather outside. At then end of the week/month, have students create a calendar using the digital photos of the daily weather.

Create your own "nature trail" by taking photos on a nature find. Study mammals, birds, reptiles, insects, and spiders. Learn to identify trees, flowers, and other plants. Students can then write a story or create a presentation with original photos and writing.

Study the growth and structure of crystals and capture their development through digital photos. Students will have a permanent record of these delicate formations at various stages.

Social Studies

Create a photo essay about your neighborhood. Take photographs and write a description for each photo. Mount the photos on a large piece of brown wrapping paper or banner paper.

Create a brochure about your town using photographs of interesting places and people.

Create a “Day in the Life” photo time capsule of your class. Take photographs every half hour during the school

day. Write descriptions of what was happening during each photograph. Mount into a booklet or publish using Microsoft PowerPoint.
Make a photographic family tree. Take photographs of your family members. Crop the faces and create the document in Microsoft Word or Microsoft PowerPoint using the correct organizational chart.
If you are identifying careers or community helpers, children should be able to take pictures of people in different careers and create a “Careers” or “Community Helpers” or “Places In Our Neighborhood” publication.
Create a “Symbols” publication…have students take pictures of a stop sign, handicap parking sign, American flag, bald eagle, ladies’/men’s restrooms, etc. How many symbols do we have in our school; our neighborhood; our community?
Have students create an electronic time capsule to describe our world and our culture at the present time. Students should write to justify why they made the choices they did to put in the capsule. After they are saved on disks, hold a discussion about how technology has changed and will continue to change our world.
Students learn about their community by creating a community awareness booklet, brochure or presentation. They study and photograph their community's government and services, agriculture, industry, retail businesses, and recreational and social facilities. In the process, they learn what makes a city work and they can share their findings with others.

Writing
Take photos to illustrate a favorite story or poem. Put the photos and words together in a book.
Be a photojournalist! Photograph events at school or in your community. Write a news story to go along with the photos. Use Microsoft Publisher to create an illustrated newsletter.
Make a proper noun-common noun publication. The students are to take a picture of something that is a common noun and then find its proper noun companion.
Have students create “thank you” cards that include digital pictures.
Use a photo as a prompt for narrative or descriptive writing.
Write a class novel with photos as illustrations.
Create a sequencing book. Using a digital camera is especially useful to sequences which cannot be brought to school for students to experience.
Take photos on field trips and have students write about the experience later.
For younger students, create an “All About Me” book or presentation. Have students take photos of themselves and others and write about them for the publication.
When studying writing perspectives or points-of-view, have students take a picture of an inanimate object and write a piece from its point of view.
Allow older students to check out the camera for a 24-hour period. Have students take pictures to document their lives and write about each picture. They can create a book or presentation for the final assessment piece.

Other
As students are learning the names of the days of the week or calendar months, create a slide presentation demonstrating what they do on particular days. For the months, take pictures of things that could happen during each month.
Take pictures to illustrate the steps in a procedure. (For example, a lab experiment, PE exercise, etc.)
Create a virtual tour by having students take pictures while on a field trip. Insert the photos into a PowerPoint presentation and have the students narrate the slide show with facts about the trip and descriptions of each photo.
Capture classroom activities for a school/class newsletter, web page, or student portfolio.
Provide the substitute teachers with a seating plan that includes a photo of each student.
Take digital pictures of items in your classroom for insurance purposes (for example, computers, supplies, software, etc.)

Present a slide show on parents' night of students at work and play.
Take pictures of your students to create digital ID's for them.
Scan in examples of your students' work and insert them into a PowerPoint. Set the presentation to loop and display it at Parents' Night or Open House.
Allow students to study details of small objects by scanning and resizing them. For example, put a penny on the scanner and play with the settings to enlarge it to the size of a dinner plate and allow your students to study the details.
Create a catalog of extra classroom resources that can be used by your students. (They can help with this!) Have them take pictures of all instructional materials that might be checked out (books, calculators, protractors, etc.) and create a catalog of supplies. Have a student librarian keep track of who has signed for each item.

Resources

Digital Cameras in the Curriculum
http://www.watertown.k12.ma.us/dept/prodev/cameras/cameras.html

Digital Photography and the K-12 Educator
http://www.fcae.nova.edu/~burmeist/FETC99.html

Digital Photography and the K-12 Educator
http://www.fcae.nova.edu/~burmeist/FETC99.html

Scanner Comparison…
Technology definitions related to using digital cameras and scanners.
http://biology.fullerton.edu/rlallen/courses/ed364/definitions.html

Bob's Tips for Scanning…
This is a general guide to scanning, intended to help you make the best choices for your particular use.
http://biology.fullerton.edu/rlallen/courses/ed364/scan-guide.html

Bob's Scanning Guidelines…
Four major questions to think about when scanning an image.
http://biology.fullerton.edu/rlallen/courses/ed364/scanners/scanning.html

1001 Uses for a Digital Camera…
This site is designed as a reference tool for putting educators in touch with creative educational applications for digital cameras in educational settings.
http://pegasus.cc.ucf.edu/~ucfcasio/qvuses.htm

Classroom Photography Goes Digital…
Article about the recent trend of using digital cameras in classrooms. Includes information on choosing a digital camera, sharing digital photos, and defining digital camera terms.
http://www.virtualblackboard.com/library/digphoto.htm

A Short Course in Using Your Digital Camera…
Great tutorial on maximizing the use of your digital camera.
http://www.shortcourses.com/using/index.htm

Teacher to Teacher…

List of ideas on using digital cameras in the classroom to integrate the curriculum with current technology.
http://www.brunswick.k12.me.us/lon/lonlinks/digicam/teacher/home.html

Getting Digital: Choosing the Best Camera for the Classroom…
Short article reviewing the main issues to consider when purchasing a digital camera for educational purposes.
http://www.telepath.com/edtechreview/Archive/April/Digital_Cameras/digital_cameras.html

Digital Cameras for the Classroom…
Tips about uses, cost, features, and brands of digital cameras to consider for the classroom.
http://www.fhighschool.org/tema/digcam.html

Enhancing Learning Through Imaging…
Great resource on effectively using digital cameras in the classroom.
http://www.kodak.com/US/en/digital/edu/education.shtml

Using Digital Cameras for Classroom Projects…
Engage your students by involving your students in classroom projects using digital cameras.
http://www.4teachers.org/techalong/anderson/index.shtml

How to Use the Sony Mavica Digital Camera…
Quick tutorial on using this popular digital camera.
http://scnc.perry.k12.mi.us/Mavica.html

Using Digital Cameras in the Classroom…
An Internet hotlist on digital cameras.
http://www.kn.pacbell.com/wired/fil/pages/listdigitalp.html

Snappy Ideas for Using Scanners in the Classroom…
More and more teachers are discovering how valuable a scanner can be as a teaching tool. Take a look at a few of these ideas!
http://teacher.scholastic.com/professional/childdev/snappyscannerideas.htm

Digital Cameras Enhance Education…
Digital cameras are one of the single most successful information and communications technology purchases you can make in a school. Visit the following sections: quick start, possible uses, selected models, helpful hints, when buying, downloading photos, edit photos, file formats, image resolution, future trends, special requirements, additional resources, PDF version, and site audience.
http://members.ozemail.com.au/~cumulus/digcam.htm

Classroom Uses of Digital Cameras…
With their ease of use and instant access to images, digital cameras are well suited for classroom use. This site lists ideas for teacher and student use in the classroom and on the Web.
http://cuip.chicago.edu/wit/99/mentors/McAllister/classroom.htm

Going Digital in the Classroom…
Lots of uses for digital cameras in the classroom. Includes authentic photos.
http://www.forsyth.k12.ga.us/sbeck/digital/goingdigital.htm

Using a Digital Camera in the Classroom…
Includes a how-to section as well as a list of ideas and links for using digital cameras in the classroom.
http://www.richardson.k12.tx.us/schools/lhe/lhecamera.htm

Photography Module: Related Classroom Activities…
Science, Social Studies, Language Arts, and Art ideas for using digital cameras in the classroom.

http://www.virtualblackboard.com/modules/x_curric/photo/photo-ca.htm

Digitizing the Primary Classroom…
Tons of marvelous ideas for using digital cameras in classrooms with younger students.
http://www.techlearning.com/db_area/archives/WCE/archives/heese6.htm

Using the Digital Camera in the Primary Classroom…
15 great ideas for utilizing the digital camera in your classroom.
http://www.hardin.k12.ky.us/res_tech/TEC/digitalcamera/primary.htm

Digital Cameras…
In this tutorial you will learn about the following topics: "What is a digital camera?", "Using digital cameras", "Downloading pictures from digital cameras", "Using digital pictures in a lesson or project", "Ideas for using digital pictures in the classroom", and "WWW Resources for Digital Cameras".
http://www.uwf.edu/~coe/tutorials/technolo/digitalc/digitalc.htm

Digital Camera Resource Page…
Camera/Accessory Manufacturers, Where to Buy a Camera and Accessories, Price Tracking Sites, Photo Sharing/Printing Sites, Digital Imaging Software Links, and Other Digital Camera Sites.
http://www.dcresource.com/links/links.html

A Few Scanning Tips…
For those who have not worked with a scanner before, here is a very basic introduction to get started, a brief overview of how it works, and how you would actually "use" a scanner.
http://www.scantips.com/begin.html

Basics of Digital Images…
Answers for questions about digital cameras and scanners.
http://www.l-i-s-t.net/technotes3.htm