Document Cameras In the Classroom

"A document camera is basically a small camera mounted on a stand which is hooked up to an LCD projector. Then, a presenter is able to place objects or documents under the camera and project its image onto a screen for the audience to see. It functions somewhat like an overhead projector on steroids. However, a document camera offers enormous advantages over an overhead projector. The cost of a document camera is about $700 and up. LCD projectors cost about the same, bringing the total cost to about $1500 or more per teacher/setup. That's a lot of money. However, because the impact on students is so amazing, I believe there are very few better investments." ~ Tim Bedley

Top Ten Features to Know:

1. Auto Focus: A great time saver that focuses the lens for the sharpest image
2. Auto Tune: Another great time saver that automatically adjusts to ambient lighting and produces the best possible image
3. Remote Control
4. Rotating Gooseneck Arm to capture images from all angles
5. 64 image storage inside the camera for full screen JPEG slideshow capability
6. Freeze and Zoom
7. 20,000 hour bulb life
8. Analog output to a TV or VCR and DVI output to a computer with projector
9. USB output to transfer images from the camera to a computer for editing or saving
10. USB 335 Software for direct capture to a computer and for editing

Favorite 50 Uses for a Document Camera

1. Replace the overhead projector- ditch the messy overhead markers and say goodbye to transparencies!

2. Worksheets, Forms, Text Book Rather than wasting precious class time running around making sure all the students know where you are in the book, on the worksheet, etc. you can simply point if you use a document camera. Having the students fill in forms is now a snap!

3. Shows students how to do assigned work. Things are more easily explained when they can see the problems worked out in front of them.

4. Demonstrating 3 dimensional items. Less time spent passing an item around to view.

5. Enlarging text for students with vision impairments.

6. Showing and scoring student or sample work using the software's drawing features

7. Freeze an image from a textbook (a map or a math problem, etc.) and can take the book or materials with you as you walk around the room. No more need for huge pull down maps!

8. Capture math instruction one day and revisit it the next for review and for absent students.

9. Science Demos: When the teacher does a science experiment, point the document camera at the materials for all to see. For example, let's say your experiment measures liquid in a measuring cup. Tilt the camera so that it points at the side of the cup. Now all of your students can easily read the measurement and more clearly understand how to determine an accurate measurement. Now you can even easily lead an entire class through fish dissection with ease!

10. A document camera is great to use in a science lab because you can put the lens of the camera up to a microscope and display what you are viewing through the microscope to the whole class at once. This is really nice if you have a limited budget that does not allow you to purchase a microscope for every child to use. Even without a microscope, the ZOOM feature does a great job with magnification.

11. Drama Stage: Set Students can draw the background scenery for a play or skit they will perform in class. Move your projector at a 45 degree angle to the white board. Project the drawing onto the white board, angling it behind the actors. The image will naturally distort, but the overall effectiveness is well worth it.

12. Giant Timer Use the document camera to project a countdown timer. Sure you can buy an overhead timer for about $40. But when you have a document camera, the old kitchen timer works just fine. Use it to keep the kids focused on the task, knowing that the clock is ticking, and they will soon be out of time for that assignment.

13. Dictionary Skills Teachers and students can easily model dictionary usage, layout, etc. by placing an actual dictionary under the camera.

14. Modeling Writing and Note Taking: A document camera makes that modeling very genuine because no longer is the teacher writing on a transparency or a giant piece of paper. She is writing on a paper just like the students will be writing on! She is then able to model correct paper organization, handwriting, etc.

15. Off-Task Student? Have a student who struggles focusing on his/her work do the assignment under the document camera. With a writing assignment, there are no "right" answers, so it doesn't really matter if the other students can see. Using this method, the teacher is able to check progress on this student from anywhere in the room with a quick glance.

16. Whiteboard Lines: Project a blank piece of lined paper onto your white board. Now you and your students can write directly on the whiteboard and keep the writing straight and neat.

17. Math manipulatives can be placed under the camera for all to see clearly. Consider how easily you can teach using a ruler and protractor as well as base 10 blocks, clock, etc.

18. Allows up-close and detailed observations of objects, mechanics of movement, manipulatives, etc. by the entire class.

19. Shared Reading: Every book is a big book when you have a document camera! I use the document camera daily for shared reading with 4th and 5th graders. This means that my students can all see the text that I'm reading aloud. They are expected to read along mentally. Every couple of sentences, I drop a word as I'm reading and expect the students to all chorally fill in that word. The students and I are able to intelligently discuss text features, comprehension strategies, spelling rules, and new vocabulary when all students are able to see the text. Every page or so, I stop reading aloud and tell the students to read a certain section mentally. I then hold students accountable for their reading through journal responses, pair share, and whole class discussion. These methods also improve reading fluency as students are encouraged to decode more rapidly than they normally do in order to keep up with the teacher's reading pace. Another bonus is that all students can quickly and easily see the pictures during a read aloud.

20. Increased effectiveness in communicating to a large group…no more crowding around a table

21. Information from a commonly held document. Example: a page from a book can be viewed by entire group to ensure that all students are on the correct page in the correct place.

22. Enlarge all math workbook pages, and worksheets. It is invaluable when reading directions, teaching math games and sharing student work.

23. Use in staff meetings to explain forms

24. I do the grades and the daily points on the wall projected from the document camera - everyday to show missing assignments, absences.

25. I use it to display lessons, literature books, group activities, group lessons, speeches, demonstrations, hands on teaching etc.

26. We have used the document camera to zoom in on parts of a thermometer, and ruler, showing the smallest units and degrees.

27. Looking over drawings and examples in the book, not having to recreate complicated problems.

28. On all the lessons, it focuses the students on what I'm pointing out because they can all see it well, whether it's words, letter combinations, coins and their details, or items from our science liquids and solids kit.

29. Music books, sheet music and other teaching materials are used on the document camera. This is a great tool to help teach music reading skills and literacy too.

30. Math tools (rulers, compasses, calculators) show well on the document camera and the fact that it shows color makes color-coding and maps much more significant.

31. We share the student's published books daily. The student's illustrations improve greatly when they know their peers are going to look at their work.

32. As math students are working on problems I have them share their work with the class. This immediate feedback enables other students to understand how one student solved a problem and allows a class to review a student's work for accuracy and completeness. This really encourages writing detailed solutions to math problems.

33. Display pictures of historical events that we are discussing. I also use it for political cartoons in Current World Problems discussions.

34. I have taken still shots with the document camera of isopods, crickets, cloud fish eating snail eggs on the walls of a student-built eco-column, and other live creatures.

35. We've looked closely at fish scales, pennies, salmon eggs (and have seen the embryos moving inside! since the document camera has a nice "zoom" feature.

36. Students bring objects for "sharing" and place them on the document camera, zooming in where needed. This is especially great for sharing items you don't want passed around (fragile items, living critters, etc.)

37. Placing newspaper articles, magazine topics, student work on the document camera to share with the whole class. Remember that you can zoom in on small items.

38. I use the document camera to display samples of maps, workbook pages, art projects, etc., so that the kids can follow along. In a class where English is not spoken as the native language this reduces the confusion for the children. They are able to successfully attempt the assignment because the document camera provides an effective filter to the barriers presented by giving oral directions.

39. Go over tests with students to show correct answers.

40. I have shown students different graphs which they were able to read and compare, zooming in on fine print such as the "source" of the graph data, using the document camera.

41. Display books for reading, when class sets are not available.

42. The whole class can do an assignment together when I may not have had time to make individual copies.

43. I started using a digital camera to document about everything last year. I could end up with 30 photos a day. I used these photos to help students to reflect on activities/work so they could remember the process and explain why they did things in a certain way. When the projects were finished the documentation helped the students to explain their project and it's process to their parents during the student led parent conference. This was amazing! All parents were very impressed how well their children could explain the project and process. The photo documentation was very helpful.

44. Save images from one year to another to introduce and model similar activities to my new students.

45. Support Math Investigations work: Children have to write the processes that they use to solve math problems in their math journals. As a teacher, I then share the students journals with the class using the document camera so that other students can learn how to organize information by observing what other children write. We also share examples that are not clear so that children can see what not to do.

46. We have our 5th graders run their own parent conferences. They use a PowerPoint Portfolio of their work in all areas. The Document camera is used to turn written work into a digital format for linking to the PowerPoint. Much faster than a scanner. Once it is focused in, the process is just place the work, snap the picture and save.

47. We have inverted the camera so children can appear "on television" as if in a newscast for book reviews, reading and poetry.

48. For lots of great ideas on using document cameras in the early childhood classroom visit: http://www.pre-kpages.com/elmo.html

49. "We used to have one teacher in this classroom--but with the presenter, we now have 23 teachers," she said. "My students' effort and pride are evident as they display their work to each other. They are learning so much from each other. It's amazing how attentive the entire class is when the presenter is being used. The images can be seen clearly even by children in the back of the room." Having students share strategies and discoveries is powerful!

50. Essay Writing: Students write for homework. The following day, the teacher randomly selects 3 students' papers. These 3 papers are placed under the document camera one at a time for grading. The teacher does a "think-aloud" grading of each paper, and, when the students are ready, calls on them for input. The assignments are given a letter grade on the spot. These three students receive a grade and all others receive credit/no credit. If a student is called upon for grading and he does not have the assignment, he receives an F on that assignment. This procedure sends a clear message to the students, "Your writing may be published at any time, so you better do your best work just in case. The quality of work increases greatly, and the students benefit so much more from the teacher's hard work grading papers. The teacher is able to do impromptu mini-lessons based on student weaknesses.

Resources

Classroom Uses for a Document Camera by Tim Bedley
http://www.timbedley.com/articles/article05.htm

101 Uses of a Document Camera by the Kennewick School District
http://www.ksd.org/hhh/h3ms/tech_support/101_ways_booklet.pdf

Stanford School of Medicine Video Explanation of Fetal Heart Anatomy
http://lane.stanford.edu/services/teaching/documentcamera.html