

# 58 Ways Teachers Use Document Cameras

## Teachers Use Document Cameras To:

1. Demonstrate new material.
2. Show students how to do assigned work. Things are more easily explained when they can see the problems worked out in front of them.
3. Demonstrate with 3-dimensional items. Resulting in less time spent passing an item around to view.
4. Give immediate feedback by displaying student work.
5. Enlarge text for students with vision impairments.
6. Show and score student or sample work.
7. Look at all the objects up close. Almost like having a projection microscope!
8. Increase effectiveness in communicating to large group 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.
9. Model what is expected in the steps included in a math concept.
10. Allow up-close and detailed observations of objects, mechanics of movement, manipulatives, etc. by the entire class.
11. Lead students in dissection by clearly demonstrating what the students should do, and point out the organs students needed to locate in their own fish. This would not have been possible with an overhead projector.
12. Enlarge all workbook pages, and worksheets. It is invaluable when reading directions, teaching and sharing student work.
13. Save pictures of a student's work that is not created in electronic form and add it to the student's portfolio.  
In this way, I save time in scanning!
14. Use in staff meetings to display forms while explaining procedure and initiatives.
15. Manage grading and the daily points on the wall projected from the document camera - to show missing assignments, absences.
16. Display entry tasks.
17. Show student work. They love to show off their work.
18. Project graphics and text on an entire wall. Students love seeing thing BIG when they can see/discuss illustrations.
19. Do extemporaneous demonstrations.
20. Zoom in on parts of a thermometer, and ruler, showing the smallest units and degrees.
21. Demonstrate activities so all the children can see.

22. Look over drawings and examples in the book, not having to recreate complicated problems.
23. Decreases prep time (don't have to make overheads, etc.) Use quality imagery.
24. Focus 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.
25. 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.
26. Zoom in the document camera to show the ingredients on packs of gum we were comparing, as the students did a scientific investigation on the mass of gum after it had been chewed.
27. As 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 problems.
28. Showing while we are doing....it's much better than trying to hold something up for them to see.
29. Display pictures of current events that we are discussing.
30. Take 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.
31. Look closely at fish scales, pennies, salmon eggs (and have seen the embryos moving inside!) since the document camera has a nice "zoom" feature.
32. Have students bring objects for "sharing" and place them on the document camera, zooming in where needed.
33. Have students use it as they teach the class.
34. Enhance group discussion and help challenged learners "keep up with the pack."
35. Enable showing real assignments and objects so that the assignments and lessons are extremely clear.
36. Easily display an object, a written paper, a handout, a text..... No more burning transparencies and erasing the writing on them in order to use them again.
37. Place newspaper articles, magazine topics, student work on the document camera to share with the whole class.
38. Utilize 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. Display graphs and charts or visual performances of student work.
40. Work with "at risk" students who require a significant amount of direct instruction.
41. Show pictures in color. I used it extensively for my housing project.

42. Provide full class immediate feedback about answers to questions.
43. Display a variety of examples, shorten lesson planning time, and display student examples.
44. Show documents immediately and appropriately sized for students to see, read and discuss.
45. Show slides.
46. Display relevant pictures from many sources.
47. Easily place examples from the book up on the board or graphs that are needed for solving different problems.
48. Demonstrate how to do hands-on projects in science (constructing objects).
49. Include visuals to enhance the lecture.
50. Put problems on the white board using the document camera. I also use it to put coordinate planes on the white board for students to use.
51. Zoom in on units of measurement to enlarge and demo how to use  $1/16$ ,  $1/8$ ,  $1/4$  etc.
52. Have the visual of student work put up immediately is a huge impact for students and the teacher.
53. Demonstrate how to properly and easily use a compass to make circles of all sizes
54. Give all students a bird's eye view.
55. Go over tests with students to show correct answers.
56. Bring a lesson to life with the fact that all students are able to see what is being explained or modeled. Before I would have students gather around me in tiers so students could see the demonstration of math, reading, or science.
57. Model note-taking.
58. Show lab set ups and to make electronic boards and components more visible.

### **101 Ways K-12 Teachers Use Document Cameras**

1. The most important use is to demonstrate new material.
2. Show students how to do assigned work. Things are more easily explained when they can see the problems worked out in front of them.
3. Demonstrating 3 dimensional items. Resulting in less time spent passing an item around to view.
4. Immediate feedback by displaying student work.
5. Enlarging text for students with vision impairments.
6. Showing and scoring student or sample work.
7. Great to look at all the objects with Food Chemistry, MicroWorlds, Ecosystems. Almost like having a projection microscope!
8. Increased effectiveness in communicating to a large group 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.
9. Model what is expected in the steps included in a math concept.
10. Allows up-close and detailed observations of objects, mechanics of movement, manipulatives, etc. by the entire class.

11. I had a scientist lead 42 students in fish dissection. He was able to clearly demonstrate what the students should do, and point out the organs students needed to locate in their own fish. This would not have been possible with an overhead projector.
12. Enlarge all math workbook pages, and worksheets. It is invaluable when reading directions, teaching math games and sharing student work.
13. I will save pictures of a student's work that is not created in electronic form and add it to the student's portfolio. In this way, I save time in scanning!
14. Use in staff meetings to explain forms.
15. I do the grades and the daily points on the wall projected from the document camera - everyday to show missing assignments, absences.
16. I use it to display lessons, literature books, group activities, group lessons, speeches, demonstrations, hands on teaching etc.
17. Displaying entry tasks.
18. I do daily writing instruction, math lessons, and science activities.
19. Showing student work. They love to show off their work.
20. In Kindergarten, storybooks are projected on an entire wall. Students love reading words they know.
21. Extemporaneous demonstrations.
22. We have used the document camera to zoom in on parts of a thermometer, and ruler, showing the smallest units and degrees.
23. Demonstrate activities so all the children can see.
24. Reading picture books to the class has been so much better when the students can see/discuss illustrations.
25. Looking over drawings and examples in the book, not having to recreate complicated problems.
26. Decreases prep time (don't have to make overheads, etc.) Has quality imagery.
27. 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.
28. 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.

29. 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.
30. Recently we have been able to zoom in the document camera to show the ingredients on packs of gum we were comparing, as the students did a scientific investigation on the mass of gum after it had been chewed.
31. One of the most important things is for phonics instruction. I use the draw feature to focus on specific things.
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. Showing while we are doing....it's much better than trying to hold something up for them to see.
34. Display pictures of historical events that we are discussing. I also use it for political cartoons in Current World Problems discussions.
35. Critique student work for Six-Trait Writing.
36. 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.
37. 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.
38. Interactive lessons with students.
39. Students bring objects for "sharing" and place them on the document camera, zooming in where needed.
40. Kindergarten children learn the direction of reading, sight words, and many other important things.
41. Have students use it as they teach the class.
42. We share the student's published books daily. The children's illustrations improve greatly when they know their peers are going to look at their work.
43. Tremendous asset to enhance group discussion and help challenged learners "keep up with the pack."
44. It enables me to show real assignments and objects so that the assignments and lessons are extremely clear.
45. Ease of displaying: an object, a written paper, a handout, a text..... No more burning transparencies and erasing the writing on them in order to use them again.

46. Placing newspaper articles, magazine topics, student work on the document camera to share with the whole class.

47. 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.

48. To display graphs and charts or visual performances of student work.

49. To work with “at risk” students who require a significant amount of direct instruction.

50. Show pictures in color. I used it extensively for my housing project.

51. Provide full class immediate feedback about answers to questions.

52. To show 3-D objects: pattern blocks in math from all sides and science experiments.

53. I have used it to demonstrate how to fold a paper crane.

54. Display a variety of examples, shorten lesson planning time, and display student examples.

55. Show documents immediately and appropriately sized for students to see, read and discuss.

56. Show slides.

57. Displaying relevant pictures from many sources.

58. Display, analyze, and edit student work.

59. The most beneficial thing with the document camera has been the ease of placing examples from the book up on the board or graphs that are needed for solving different problems.

60. Use for School Board presentation to share assessment data.

61. Demonstrate how to do hands-on projects in science (constructing objects).

62. For writing: being able to edit much easier during instruction.

63. Visuals to enhance the lecture.

64. I put problems on the white board using the document camera. I also use it to put coordinate planes on the white board for students to use.

65. Students are able to visually see what is written - no messy overhead markers.

66. Zoom in on units of measurement to enlarge and demo how to use  $1/16$ ,  $1/8$ ,  $1/4$  etc.

67. Having the visual of student work put up immediately is a huge impact for students and the teacher.

68. Demonstrate how to properly and easily use the compass to make circles of all sizes (4th grade Everyday Math).
69. I use the document camera so all students can see examples, pictures in books, zoomed in pictures of objects, etc. from anywhere in the classroom. Visual learners really benefit from the document camera!
70. Gives all students a bird's eye view.
71. Math problem solving. I freeze the pane and can take the book or materials with me as I walk around the room.
72. Go over tests with students to show correct answers.
73. The document camera enables me to bring a lesson to life with the fact that all students are able to see what is being explained or modeled. Before I would have students gather around me in tiers so students could see the demonstration of math, reading, or science.
74. The most important daily use is for instruction and letting students come to the document camera and "be the teacher."
75. Being able to show student solutions and discoveries to the rest of the class or allow students to show how they got their answers.
76. I use it almost every day for math. It really lends itself to our math lessons because we use so many different types of "math manipulatives."
77. Modeling note-taking.
78. I can easily show how to do a lesson. It also shows what I need them to do and how. I use it when ever they need direction in a subject. It makes it easy for them to follow along during the lesson.
79. It is important to me to be able to display pictures and maps from texts. This camera gives me the ability to show these maps and pictures in color and I can zoom in to show specific areas of interest. I use this everyday in some form to give my students a visual description.
80. Walking students through the steps of an assignment.
81. Put text books on the screen so I can read them while moving around the room.
82. Use as a microscope.
83. I am able to demonstrate how to fill out forms that are specific to my program; this would be very difficult without this equipment.
84. Just being able to display and discuss student work is very powerful.
85. 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.

86. Show small pictures for all to see.
87. I put reading and writing samples on the screen for discussion. It allows me to use the classroom textbook and student work on short notice.
88. Display books for reading, when class sets are not available.
89. The whole class can do an assignment together when I may not have had time to make individual copies.
90. Displaying student work as they relate to WASL rubrics and individual performance.
91. Showing the illustrations when I read books out loud.
92. Display, analyze and interpret student work with the whole class IMMEDIATELY!
93. Displaying emerging work from students as exemplars raises the standard for production for that group.
94. Use as a reward for students. They are excited to write for the class and participate more enthusiastically when I allow them to take part in the instruction (first grade).
95. Reviewing pages out of the book or previewing questionnaires for videos.
96. Instead of having to redraw Geometry sketches I project them onto the white board and then work out the problem. Some of our Geometry sketches can take a lot of time to draw so this is a real time saver. I also put my notes up every day for the students to follow and copy.
97. I can use examples of student work on the spot instead of having to make a transparency. It eliminates the time and expense of making overhead transparencies.
98. As a Library teacher, sharing a story with the students so that they can see more details in the artwork.
99. Show students how to work a math problem, share 3 x 5 cards of WASL examples, and the use of colors when explaining various games or manipulatives.
100. As a science teacher it allows me to show lab set ups, make electronic boards and components more visible.
101. It's probably the best way to teach how to use context clues to determine the meaning of unfamiliar words. The book goes on the camera and the teacher and student can together look at the words around the subject word to determine meaning. The teacher can wander the room to check that every student is learning context skills.



## **Document Camera Magic: Eleven Dozen Ways to Transform Teaching**

Take a moment to think about how you might use a document camera in the classroom. Can you think of a dozen ways? Two dozen? Whatever the academic subject or student demographic, there are innumerable ways to creatively use your equipment (whether you are a novice or a pro) to add dynamic elements to your teaching, streamline lesson prep, and reach your students more effectively.

Document cameras provide a powerful enhancement to accepted teaching principles and technique, such as the guidelines offered by the "*Classroom Instruction That Works*:" method created by Robert Marzano, Debra Pickering, and Jane Pollock. For example, for educators who use Marzano's principles of "Pause. Prompt. Praise." will appreciate that the document camera allows for the customization of teaching to the student's learning pace by pausing the lesson and playing back portions of the presented material to prompt better learning.

Peruse the list below to extend your document camera repertoire in new directions... and, if you have found uses for your document camera that we haven't listed, let us know!

### **Get Students Involved in Class**

Interactive lessons provide a better learning experience for students. Using a document camera allows teachers to build in seamless opportunities for collaboration, sharing, and other types of student involvement. The visual stimulus provided by the document camera also increases students' brain activity and allows for students to work more readily in cooperative works for overall better learning.

1. Create opportunities for group sharing of individual and group work.
2. Share student artwork to provide an opportunity for students to get a broader understanding of creativity.
3. Create a pre-lecture opportunity for students to volunteer what they know and project it to allow all students to access the information.
4. Give students a new tool to enhance student group presentations to the class.
5. Sharing dioramas created by students without interrupting the flow of the lecture by making students get up and move about.
6. Integrate brainstorming exercises into all lectures and capture student ideas.
7. Do quick polls and surveys to get the pulse of student thought and then display it visually.
8. Offer clear and concise direction to ensure that students understand the expectations of a lesson without multiple repetitions of the information.

### **Offer Meaningful Assessment and Guidance**

Assessment and guidance are important activities that often get streamlined due to time constraints. Strategic use of a document camera provides for more comprehensive and useful guidance of student efforts.

1. Readily present classroom quizzes for more frequent evaluation of student understanding of materials.
2. Regularly share lesson rubrics with students as part of the lesson.
3. Bring open house demonstrations alive for parents and other interested parties.
4. Offer digital flash cards to enhance learning during class breaks or as part of a lesson.

### **Leverage Audio/Video Recording Capabilities**

By recording lessons, either in part or as a whole, teachers can leverage their teaching beyond the normal class time and capture a broader range of material than ever before.

1. Use as a video camera to record interviews with anyone, from the students to primary research sources.
2. Allow students to create documentary footage of discussions and thoughts on the presented material.
3. Record dissection to allow students to experience the material even if they cannot participate themselves.
4. Do readers' theatre exercises – from playbooks, magazines, or student-written plays.
5. Record students' performances (such as plays and recitals) to allow performers to see themselves and improve their performances.
6. Record students reading a book while pointing at the words to let new readers experience reading help from another student.
7. Record class participation.
8. Record teacher best practices.
9. Record demonstrations to allow students to review the materials as many times as needed for complete understanding of the materials.
10. Record your own narrated digital stories.
11. Create lessons ahead of time for use in a learning center.
12. Create and archive lessons and post them online.
13. Use as Web cam to create lesson podcasts for student review "on the go".
14. Video conference to provide "visiting scholars" to give in geographically remote locations.

### **Use Image Capture**

Image capture capabilities, which include image capture, time-lapse photography, and the slide show function, offer myriad new ways for presenting and experiencing information.

1. Capture classroom/student photos for projects, identification, records and special days.
2. Teach students to create stop-motion animation using time-lapse photography.
3. Save time by taking snapshots to post online rather than using a separate scanner.
4. Use time-lapse photography to document plant growth from seed to green plant or flower blooming and then create a fast-forward sequence to share with students.

## **Do Visual Comparison and Examination**

By comparing and contrasting different items and materials to identify similarities and differences, students benefit from the increased stimulus and brain activity from the visual prompts provided by the camera and gain a deeper understanding of the presented

topic. Graphics and visualization is a good way to represent similarities and differences.

1. In Biology class, allow students to compare different species (mammals, amphibians, fish, reptiles, etc.) and discuss their similarities and differences.
2. Share 2-D and 3-D objects simultaneously.
3. Offer a side-by-side comparison of animal and plant cells under a microscope.
4. Compare book images with live materials.
5. Examine the parts of mechanical or technical equipment.
6. Share live animals (mealworms, earthworms, insects, snakes, fish, etc.) which cannot be easily passed around the class.

## **Illustration/Diagramming/Charting**

Charts and graphs have more impact when projected and discussed – a crucial opportunity for students to work at identifying similarities and differences by comparing and classifying items.

1. Demonstrate market trends for an Economics class.
2. Provide visuals of time frames and historical happenings (such as the evolution of dinosaurs). Display a variety of charts/graphs, including bar, pie and fever charts.
3. Present Venn diagram work.

## **Sharing**

Document cameras allow teachers to share visual information naturally and dramatically in the course of a lesson. Be creative about the types of data that might inspire students to

greater analysis and thinking, including:

1. Pictures of famous people or historical events.
2. A quote or thought for the day.
3. A visual presentation of the different branches of government.
4. Exploration timelines.
5. A snapshot of other countries, including products, flags, maps, monetary units, geography, history, population, etc.
6. Images for documenting stories/school days.

## **Elementary Education Basics**

Even the youngest students can benefit from the use of a document camera in their classroom. These early learners depend heavily on visual cues for learning, so that the use

of a document camera meshes naturally with their preferred learning style.

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1. Recognize the student of the day or of the week.
2. Create a digital word wall.
3. Assemble a puzzle as a class.
4. Do calendar work to teach the concept of days, months, and years.
5. Perform a puppet show and let students do the same.

6. Share a favorite picture book with the whole class.
7. When reading aloud, use the camera to show students real examples of items mentioned in the book.
8. Drill students on common “sight words” to help them learn the basics of reading.
9. Place two objects under the camera and ask student to identify similarities and differences (or teachers can use the picture-by-picture function to compare a picture with a live image and have the same practice.)
10. Practice sorting and identification

### **Make Math Mesmerizing**

Math class creates many opportunities for sharing visual information, over and above basic math operations such as addition, subtraction, multiplication, and division.

1. Start a pattern and ask students to predict the next element in it.
2. Let students see geometric shapes, so they can readily identify polygons, quadrilaterals, polyhedrons and more.
3. Share advanced math processes.
4. Illustrate fractions with numbers and pictures.
5. Help students work through word problems.
6. Illustrate place values (i.e. units, tens, hundreds, etc.)
7. Count money/coins together as a class.
8. Show students how to use common math tools, such as rulers, compasses and calculators.

### **Make Science Scintillating**

Students are most likely to get excited about science when it moves from the abstract to the real. Science, in particular, has many opportunities to integrate the use of physical models, real-life demonstrations and the use of movement to create educative opportunities. Bring science to life with creative use of your digital camera.

1. Do more dissection (owl pellets, cow’s eyes, frog, sheep’s brain, cat, etc.) without incurring the cost of providing each student with materials.
2. Rotate/zoom objects/images without touching them.
3. Use the microscope lens to show students the smallest items close up (such as pond water).
4. Allow students to observe habitats – such as a fish tank, ant farm or bird feeder – closely and over time.
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5. Provide advanced anatomy lessons to illustrate skeletal structure, bone articulation, etc.
6. Visualize reflection of lines through a prism.
7. Investigate fossils.
8. Demonstrate a litmus test (acid/base).
9. Freeze action in an experiment at a critical moment for better observation.
10. Introduce and share foundational physics concepts, such as the periodic table, atoms, molecules, elements, bonding, etc.
11. Illuminate geology concepts such as rock types or plate tectonics.

Use as a budget stretcher. When budget permits only a single demonstration of an experiment, record it for playback to other classes on the same day and for future classes.

## **Translate Reading/Phonics/Language Art/Languages**

Reading and language should encompass more than just books. Use the digital camera to introduce students to content in new ways or to encourage reluctant students to improve skills.

1. Share the steps to writing letters or e-mails
2. Let the entire class take turns reading aloud from the pages of a single book projected on the screen. Expand your book choices to anything on your bookshelf!
3. Demonstrate proper letter formation for improved penmanship.
4. Help students get the hang of looking up words in the dictionary by doing it together.
5. When reading aloud, project the correct page on the screen to ensure that everyone is on the correct page.
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6. Share a writing prompt or edit it with the help of the class.
7. Open each class with daily sentence work or common grammar and spelling mistakes.
8. Share words for early reading skill or foreign language classes.
9. Demonstrate sign language and finger spelling.
10. Compare literary styles and genres.
11. Demonstrate the requirements for a standard five-paragraph essay.
12. Do interactive character sketches.
13. Demonstrate poetry styles and construction, and then write as a class, by putting the emerging class composition side by side with a classic form.
14. Show students' writing example to provide positive feedback, reinforce effort, or provide recognition.

## **Make Music and Art Beautiful**

The plethora of auditory and visual stimuli provided in music and art classes fit naturally with the addition of audio-visual prompts provided by a document camera.

1. Introduce new music, songs, composers, artists, etc.
2. Teach students to read music.
3. Demonstrate an art color wheel.
4. Demonstrate art techniques and record for repeated viewing.

## **Non-Traditional Uses Throughout the School**

Although document cameras are incredibly useful when demonstrating science experiments, displaying 3-D objects or projecting student work, you should think beyond these everyday applications to enrich offerings and streamline activities in every part of your school.

1. Project instructions and presentations for guidance counseling.
2. Enhance AP class work in all areas.
3. Bring storyboards alive in animation and film classes.
4. Create step-by-step "how-to" lessons in elective classes, such as a recipe in cooking or other world skills (fixing an engine, knitting, etc.)
5. Share books, research articles, and offer story time in the library to get students excited about trying new genres.

6. Introduce the basics of games or exercises in physical education classes.
7. Supplement special education by providing visual prompts to students.
8. Share brochures about upcoming educational opportunities, camps and extracurricular programs.
9. Discuss college admissions and provide guidance with small groups to give students more guidance in selection.
10. Enlarge text for students with vision impairments.
11. Record the speech of students learning English as a second language so they can play back for enhanced learning and later practice.

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12. For a home economics class, record a particular sewing technique so that students can see the correct operation of the sewing machine.
13. Record the correct method of holding or demonstrate proper fingering for a musical instrument.

### **Play Games**

Sometimes a bit of fun can transform a lesson.

1. Bring in a mystery object and have students guess its use.
2. Play trivia games to test students on current events.
3. Ask students to race to identify different kinds of leaves, rocks or other science examples. May the best team win!
4. Score classroom games.

### **Modeling and Demonstration**

Seeing and knowing are closely linked for many students, especially the youngest. Make

it a regular practice to give students a close look at how things are done.

1. Teach students how to tell time.
2. Show the parts of a flower.
3. Explain electrical wiring, batteries, wires, resistors, capacitors and bells.
4. Help students with summarizing and note-taking skills by first projecting a set of essential points and then modeling note-taking or summarizing the information in front of the camera.
5. Demonstrate how to measure things, from liquids to solids, length, width, and temperature, using both standard and metric measurements. Use the camera to zoom in on the ruler or thermometer to show the smallest units and degrees.
6. Cook/prepare a favorite recipe in cooking class.
7. Show how to sort items to teach organizational skills.

### **Mastering Classroom Management and Teacher/Parent Communication**

By streamlining and improving the nuts and bolts of the day-to-day running of the classroom, you can give yourself more time to teach while still getting the "housekeeping chores" done.

1. Speed up morning roll call by letting students see the list.
2. Share the daily schedule to get everyone on the same page.
3. Provide morning warm-up exercises to make the most of the first moments after the students enter the classroom.
4. Share a main point or essential question at the start of a lesson. Gather questions

from students about the subject at hand, past lessons or other topics of interest.

5. Summarize a lesson, chapter or unit with the class or individual students.

6. Give students a look at important announcements.

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7. Help classroom aides and paraprofessionals with lessons and training.

8. Correct homework – display the correct answers and allow students to self-correct their work.

9. Post assignments and things to remember so students can take responsibility for assignments and expectations.

10. Capture images of student work to share at parent/teacher conferences.

### **Leverage the Internet**

Increasingly, the Internet has become part of the student experience. Use a document camera to create content that makes the most of this valuable tool.

1. Take pictures of student work, classroom examples and other materials and post online as student study aids.

2. Record lessons and make available online for later review by students who missed class.

3. Train students effectively on the elements of Internet safety.

4. Document daily classroom activities using the recording function for posting to the Web.

### **Transform School Administration**

Although useful in the classroom, the document camera can help even at the highest administrative levels of the school. Bring your document camera to:

1. Board of Education presentations.

2. Budget meetings to show everyone the financial plans for discussion.

3. Faculty meetings and talks to help teachers learn better, too.

4. PTA meetings to aid discussion, or to present agenda and other materials.

5. Volunteer training: Use document camera to train parent volunteers in groups for consistency and shared understanding of rules and protocols.

6. Staff meetings to explain complicated forms.

7. Teacher training and peer coaching to let teachers share their experience and resources. Educators can save time, reduce duplication of effort and focus on improving content by using a document camera to share information and teaching materials with each other.

8. Share images among multiple media devices (a digital camera and document camera, for example) for quick access to compelling teaching examples.

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*Teaching and Learning Resources from Federal Agencies*

## [Technology Resources for Teaching Science](http://edtechteacher.org/index.php/teaching-technology/tswt)

url: <http://edtechteacher.org/index.php/teaching-technology/tswt>

### Why Use Technology in the Classroom?

Technology, when used appropriately, can help make science classroom a site of active learning and critical thinking, furthering student inquiry and connections with the materials. Teachers can use technology to enable students to explore fundamental curriculum issues and answer core questions. Students can use the Internet, electronic databases, applets and other online sources to gather information. They can use spreadsheets, virtual labs, and other programs to store, organize, and analyze information. Students can also integrate multimedia desktop publishing, web publishing, video and audio editing, as well as graphics programs to create and present information in innovative and engaging ways.

There are scores of educators and researchers deeply concerned with how our schools, largely the product of 19th century industrial society, are going to prepare students for the 21st century. Researchers like Howard Gardner (2006), Tony Wagner (2008), Henry Jenkins (2007), Frank Levy and Richard Murnane (2004), and others have produced a lists of the skills and competencies for our students in the future. While the lists and frameworks are diverse, they all tend to recognize a few major competencies: creativity, critical thinking, cross-cultural communication and collaboration, and digital age literacy. To develop these skills, we need classrooms where students are working in teams and using technology to build creative, meaningful content that reflects their understanding and learning. In these environments, teachers act often as facilitators and mentors rather than always fonts of authoritative knowledge. These classrooms are dramatically different from the ones where our most current teachers grew up, apprenticed, and taught. As a result, helping teachers effectively use new technology to support innovative, student-centered, inquiry-based learning will involve leveraging these emerging technologies.

### General Science Resources

#### [iTunesU](#)

More than 600 universities distribute lectures, slideshows, PDFs, films, exhibit tours and audiobooks are available through the iTunesU Store. The Science section contains multimedia content on topics including agriculture, astronomy, biology, chemistry, physics, ecology and geography.

#### [PBS.org](#)

PBS provides a great source of information and activities on a myriad of topics. This online compilation offers an assortment of lessons and activities for educators and students alike. The Media Infusion Blog in particular showcases strategies and resources to help teachers create engaging learning experiences using multimedia. Other science sites from PBS include:

- **PBS Science & Nature:** <http://www.pbs.org/science/>
- **PBS Nova:** <http://www.pbs.org/wgbh/nova/>



- **PBS Teachers:** <http://www.pbs.org/teachers/>
- **PBS Teachers Media Infusion Blog:** <http://www.pbs.org/teachers/blogs/>

#### [MIT Blossoms](#)

Initially seeded by MIT faculty members, this website has since partnered with educators in Jordan and Pakistan to create a large, free repository of video modules for high school math and science classes.

#### [5 TED Talks on Science](#)

Five "mind-blowing" presentations on the world of science.

#### [Wolfram Alpha](#)

Much like Wikipedia, Wolfram Alpha, in essence, is never really complete. It is a computational search engine (unlike general "textual" search engines like Google) that provides mathematical, logical, and factual responses to search items. Wolfram is particularly helpful in mathematics and science research for understanding terms, rules, laws, and statistical analysis.

#### [Refseek](#)

Much like Google, Refseek is an extensive search engine, but strips out non-scientific and non-academic results for more educationally applicable resources. Search "flowers" in Refseek vs. Google to see the difference.

#### [SCRATCH at MIT](#)

Scratch is a website created by MIT to provide a simple programming language for younger students to utilize and create their own websites, animations, and story-telling. Visit the main Scratch community site, where people can share and browse Scratch projects created by their fellow community members. You can also get help from the Scratch forums, and find out about upcoming Scratch events.

#### [Science Netlinks](#)

Science Netlinks provides resources for K-12 science educators and standards-based online experiences for students. Check out the Lessons page for helpful and engaging internet lesson plans for all different sciences.

#### [PhET Simulations](#)

The PhET Interactive Simulations project at the University of Colorado provides a free website of research-based simulations that are designed to support student learning through active engagement. It features simulations such as Energy Skate Park, Salts and Solubility, Gas Properties, Density, Circuit Construction Kit, and Build an Atom.

#### [BrainPop – Science](#)

A very creative and engaging animated website for students between middle and early high school level. BrainPop provides a wide variety of curriculum-based content in an accessible and fun format, and is a highly recommended and extensive resource for teachers and students.

### [Molecular Workbench](#)

Molecular Workbench features visual, interactive, critical-thinking simulations and course modules provided by the Concord Consortium. By clicking on the “Showcase” link, one has access to hundreds of problem animations and example simulations from a variety of textbooks and academic websites in the subjects of physics, chemistry, biology, biotechnology, and nanotechnology.

### [Natural and Cultural History Activities and Lesson Plans](#)

The “teaching resources” section of the Interactive Earth website lists a variety of online natural and cultural history lesson plans and activities for teachers to use in web-based classrooms. Many of these lesson plans come with interactive games for students to engage in as well.

### [Science Daily](#)

Science Daily is a well-established news website for the latest information on scientific research and resources for all levels of interest. It includes popular articles, videos, images, book recommendations, and more. Topics include health & medicine, the mind & brain, plants & animals, earth & it’s climate, space & time, matter & energy, computers & math, and fossils & ruins. A good example of a featured news story is the “[Little Shop of Physics](#).”

### [Turning the Pages](#)

The British Library’s online gallery provides access to engaging, interactive virtual tours of classic books. The library includes science-related works such as Elizabeth Blackwell’s Botanical illustrations, Vesalius’s stunning 16<sup>th</sup> Century anatomy history, and scientific sketches by Leonardo Da Vinci. Many of these works represent perfect examples of classic scientific journals and illustrations of the past.

### [Kinetic City](#)

Kinetic City is an online collection of interactive Science Experiments, Games and Projects for late elementary/early middle school grade level. Although the games in general are very rudimentary in nature, after completion, be sure students click on the “Learn More” feature that goes into a succinct yet informative explanation of the topics summarized in the activities.

### [Skool Math & STEM](#)

Skool is an online learning and teaching technology tool dedicated to student development through middle and high school age levels. By providing interactive science and math activities, students can not only explore material currently being covered in their classrooms but can expand on their learning for the future as well. The Teachers section includes skill development, a technology literacy review, using ICT in mathematics, and issues in building schools and curricula. Main subjects include Maths, Biology, Chemistry, and Physics, as well as Exam A and B prep (for students in the U.K.).

### [MyExperiment](#)

MyExperiment makes it easy to share digital items, workflows, and other objects associated with your scientific

research with colleagues and communities. Although it requires registration, for more advanced students, this website provides a great opportunity to see what research is currently being done on topics of interest.

#### [Science Alive! wiki](#)

Although most wikis in science education seem to be created by teachers for teachers, *Science Alive!* was created by two middle school students for the benefit of other students. For each experiment they undergo, students write an introduction to the experiment, an overview of previous knowledge about the topic, discuss thoughts and questions from themselves and others, and talk about what they have learned in the experiment.

#### [Science and Technology of World War II](#)

This highly impressive online exhibit of science and technology of WWII contains an animated timeline, activities (such as sending encrypted messages), expert audio responses to science and technology questions, lesson plans, quizzes, introductory essays, a virtual field trip, and more. Explore not only the applications of science and mathematics during WWII, but also discuss the real-world ethical and moral implications of their uses.

#### [Michigan 4-H Children's Garden Tour](#)

Although this virtual tour is aimed towards younger students (elementary ages), the interactive landscape of this Garden Tour also provides teachers with mini lesson plans and activities involving a variety of maps and videos.

#### [TED: Science](#)

TED (Technology, Entertainment, Design) is a nonprofit organization dedicated to *Ideas Worth Spreading*, often hosting conventions, talks, and speaker series aimed to promote new ideas in areas of Technology, Entertainment, Design, Business, Global Issues, and Science. On the bottom left of the homepage, under "Show Talks Related To," click on "Science" to see the latest in science presentations and discussions.

#### [Twenty Four Seven Science!](#)

This kid site from the Lawrence Hall of Science provides projects, activities, and games for young science students. The *Citizen Science Activities* provide interactive ways for students to experiment, design, and discover about the world around them. An Educator's Page is in the works as well.

## Physics & Mathematics

#### [Physics Central](#)

The American Physical Society presents this student-oriented hub of information on physics – how it works, why it's important, and how we can apply it to current events. By providing examples of physics in action, famous people in physics, pictures, podcasts, a writer's gallery, and an "ask & experiment" feature, Physics Central creates an in-depth interactive community that is fun and accessible to students. In particular, Physics in Pictures features exciting illustrations of nature's physical beauty as well as humankind's ingenuity.

<http://www.physicscentral.com/explore/pictures/>

### [Math, Physics, and Engineering Applets](#)

This site provides some educational java applets to help visualize various concepts in math, physics, and engineering. Topics include oscillations and waves, acoustics, signals, electricity and magnetism, electrodynamics, quantum mechanics, thermodynamics, and more. Be sure to check out the bottom of the homepage as well for an impressively extensive list of other resources in Physics and other science and math fields.

### [MyPhysics Lab](#)

MyPhysics Lab does not just provide a large variety of classic physics simulations using Java, but also includes puzzles, puzzle answers, physical explanations (including different methods), definitions, numerical solutions, analytical solutions, as well as the ability to adjust the size and speed of each simulation. This site is a perfect resource for in-class supplementary material, as well as individual student work.

### [Peanut Software](#)

The "Peanut Software Homepage" provides several open source applications used to draw mathematical graphs in a coordinate system. Click on each of the options to see what they are used for and download them for free.

### [AP Physics wiki](#)

This detailed teaching wiki from a Massachusetts high school teacher provides not only resources and experiments from his AP Physics class, but also showcases links to archived assignments and references for teachers. Be sure to click under "Experiments" for detailed lesson plans and instructions on student projects.

### [Physics.org](#)

Physics.org is a guide to all things physics provided by the Physics in Society team at the Institute of Physics. Search from over 4,000 handpicked physics websites, read special features, play games, ask questions, try an experiment, search news articles relating to physics, and get help on homework and useful study tips. Check out the "Explore" page for highly rated websites related to Physics or the "Study" page for experiments and study-help separated by high school and college level courses.

### [The Physics Classroom](#)

Developed as an online tutorial for high school physics students, The Physics Classroom is an impressive tutorial covering everything from basic to more advanced physics topics in an organized and accessible manner. Teachers will find the breakdown of each lesson and sub-lesson helpful, as well as the site's ability to link topics from current and past subjects (an essential feature in the study of the physical world). As well as detailed lessons, students can access the "Mind on Physics" section for over 1300 carefully constructed questions to help understand basic concepts in the classroom. As well as photo galleries, animations, problem sets, and curriculum ideas, The Physics Classroom is a highly valuable resource for any high school physics teacher.

### [Rader's Physics4Kids](#)

An introductory site to Physics for younger students, Physics4Kids provides a resourceful, informative website to

explore topics such as motion, heat, electricity, light, modern studies, and more. Check out the sections at the bottom of the homepage for activities and quizzes, as well as real-world examples of physics in action.

### [NOVA | Physics & Math](#)

This webpage presented by NOVA is a helpful link between the studies of Physics and Mathematics, often undermined in practices. Read articles, audio stories from physicists, expert Q&A, interviews, and episodes of a physics & math series produced by NOVA teachers. Explore mysterious dark matter, unbroken coded structures, and nuclear chemists' quest for new elements.

## Chemistry

### [Middle School Chemistry - big ideas about the very small](#)

A webpage created by the American Chemical Society (ACS), Middle School Chemistry is a collection of activities, multimedia, resources, and detailed lesson plans for teaching chemistry to middle school students. Lesson plans from several chapters include matter, changes of state, density, the periodic table, bonding, water properties, and chemical reactions.

### [Chemistry Education - American Chemical Society](#)

The American Chemical Society's Education Center provides an enormous amount of resources for teachers and students alike. Explore chemistry resources for high school through graduate level studies, including textbook/homework help, fun games and puzzles, and current event resources for research and student projects.

### [Rader's Chem4Kids](#)

Chem4Kids is a resourceful, informational website for students of elementary and middle school ages to explore topics such as matter, the atom, elements and their properties, reactions, biochemistry and more. Check out the sections at the bottom of the homepage for activities and quizzes, as well as real-world examples of chemistry in action.

### [Chemistry Lecture Notes](#)

This database created by a biochemistry professor from RPI outlines 20 chapters of chemistry and biochemistry lecture notes in tremendous detail - from basic atomic structures to organic chemical processes. Click on "Educator Resources" at the top of the page to see lab experiments, chemistry tests, and access to interactive tutoring software for student help.

### [Chemistry Guide](#)

Chemistry Guide is customized search engine and directory of chemistry related sources on the Internet. Click on any of the subtopic links towards the bottom of the page for a more specified search. Also check out their Top 10 Chemistry websites link at the top of the page for the best-reviewed sites.

### [ChemGameTutor](#)

ChemGame is an extensive chemistry game for students in middle school and high school to refine their chemistry

skills in a fun, interactive way. Your goal: Rescue 12 of the most famous chemists in history by completing 12 levels based on different topics in basic chemistry (Balancing Equations, Moles, Acids and Bases, Equilibrium, and more).

## Biology

### [Scitable](#)

This online library from Nature Publishing Group offers classroom resources and learning tools in topics such as genetics, cell biology, and evolution. Options include building learning paths and personal online classrooms, as well as an *ask the expert* feature staffed by PhD students. Scitable is routinely peer-reviewed for journal-level quality, but also allows opportunity for personal student development on their student blogs page:

<http://www.nature.com/scitable/blog/student-voices>

### [Extreme Biology](#)

Ms. Baker's Biology class may be just a blog, but *Extreme Biology* has quickly become a highly visited and resourceful compilation of a New England High school teacher's lesson plans and activities for her biology class. This engaging science blog is both informative and accessible to students, and serves as a model for classrooms looking to explore the world of blogging.

### [The Virtual Body](#)

A virtual tour of the human body produced by MEDtropolis. Detailed descriptions, animations, images, and narrated tours present the brain, skeleton, heart, and digestive tract in an informative way. \*Tip: The font for this website has generally been very small in the past, so be sure to enlarge the text from your menu bar!

### [Biology in Motion](#)

Biology in Motion is an online resource of exhibits and activities created by Dr. Saul. He includes animations, interactive activities, and cartoons designed to make learning biology a richer, more engaging experience. Be sure to check out the "Tips for Teachers" section for useful advice on using technologies in the classroom.

### [Monterey Bay Aquarium Research Institute](#)

As one of the leading research institutes in the world, MBARI is consistently dedicated to furthering multicultural, interdisciplinary collaboration in the marine sciences. Explore exciting current research, as well as MBARI's collection of data and image galleries. Under the "News and Information" heading, be sure to check out the "Education" section for internship and career information, educational webpages, seminar series, and MBARI's very own "Education And Research: Testing Hypotheses (EARTH)," a long-term teacher workshop program that will give educators complete access to real-time and near-real-time data in the classroom.

### [Monterey Bay Aquarium Teacher's Place](#)

It is no secret that the Monterey Bay Aquarium is often hailed as the best aquarium in the world. Its dedication to research, public awareness, activism, and education has made it a benchmark in the ocean sciences and is a favorite visit for ocean-lovers. This section of the MBA website, "Teacher's Place" provides trip-planning, teacher/student programs through the aquarium, an educator newsletter, as well as a host of classroom resources (located on the

right side of the page) including games, self-guided exploration, ocean explorer guides, curriculum/lesson plans, and much more.

### [Census of Marine Life](#)

For anyone even remotely interested in the wonders of the world's oceans, COML is an invaluable resource. Click on the link above for the Census' image galleries and witness astounding photography of newly discovered, alien-like species of the deep ocean. For more information, check out "Census Resources" at the top of the page for educational and program resources. COML's video galleries, publications, and research are also available for public viewing.

### [Courseworld: Biology References](#)

Although this site is a bit scarce in design, Courseworld is a great resource for high school biology teachers. Click on the articles sections on the left side of the page to get a list of chapter topics with lessons and sub-lessons within each. Each lesson is clear and concise, and the Ocean section in particular provides visually engaging and properly cited slideshows for each of its topics. Overall, this is a good resource for overviews of biology topics and lessons for teachers.

## **Environmental & Earth Sciences**

### [Science Courseware project](#)

This interactive, online simulations project produces activities for the life sciences or earth science field study laboratories. The site allows students to be hands-on without physically being in a lab, and prompts students to make inquiries and ask questions about the material they are learning.

### [Teaching with Google Earth](#)

Not since the creation of Google itself has anything truly demonstrated its wealth of knowledge towards the public quite like Google Earth. As a vast virtual geographic simulation, it has come to be used for finding locations, analyzing terrain, and even taking a look into the past using archived satellite photography. For Earth Sciences especially, Google Earth has allowed geologists to map transects, calculate changes in terrain over time, and plot geologic hazards in a matter of minutes. This section outlines potential uses of Google Earth for students and teachers, shows how to get started, provides a user guide, and offers examples.

### [EcoKids](#)

EcoKids is an award-winning website for kids that teaches about the environment through interactive, fun and educational games and activities. Categories include wildlife, climate change, energy, exploring the north, water, waste, land use, the first nations, and the inuit community. Be sure to check out the EcoKids Teacher's Lounge at the top of the home page. Sign-up for a free account and receive access to lesson plans, printable handouts, activity sheets, as well as class kits and resources for working with ESL students.

### [The USGS and Science Education](#)

The U.S. Geological Survey Education website provides info on natural resources, natural hazards, geospatial data,

and issues affecting quality of life. Not only does it feature lessons, data, maps, support teaching, and support learning for education (K-12), but it also provides up-to-date inquiry and research for more advance students at the university level. Some highlights include GIS Lesson Plans, USGS Fact Sheets, podcasts and online lectures for teachers.

### [Teaching with GIS in the GeoSciences](#)

It is hard to imagine our current level of expansive scientific resources without GIS (Geographic Information Systems). GIS represents a graphical, analytical, computer-based means of exploring and developing data. This section of "Starting Point: Teaching Entry Level Geoscience" introduces teachers to applications, methods, and reasons for integrating GIS in Education. Although primarily geared towards undergraduate students, this resource can be a good starting point for anyone interested in learning more about GIS and it's uses.

### [The Ecological Society of America](#)

The ESA is a nonprofit science organization founded in 1915 devoted to the promotion and appreciation of the ecological science community. It's website provides a vast amount of science resources from other organizations, as well as it's contributions to news and media. Check out "Educator Resources" and "Student Resources" under the "Education and Diversity" section to learn more about the ESA, other organizations, and meetings and conventions.

### [Discovery: Environmental Lesson Plans](#)

Provided by the Discovery Channel online, these Environmental Studies Lesson Plans are just a few examples of the many lesson plans that Discovery has to offer. Separated by K-5, Middle School, and High School lesson plans, teachers can search based on specific topics, grade levels, and student interests. Although there is only a small selection on this page, be sure to the click the Lesson Plans link under the "Teachers" tab at the top of the page for many more resources.

### [EPA Teacher Resources and Lesson Plans](#)

This page produced by the EPA (Environmental Protection Agency) lists an array of environmental and science based lesson plans, activities, and experiments. Play games, get homework help, get involved in community service, participate in earth day, and much more. Click on any of the EPA or External resources listed on the page, and be directed to several different lesson plans and activities for each one.

## **Space Science - Astronomy & Astrophysics**

### [NASA](#)

The National Aeronautics and Space Administration provides an impressive slew of resources for educators, students, and the public that is both accessible to all ages as well as richly informative. The *For Educators* section includes galleries, videos, podcasts, and more. The *For Students* section also offers research tools, podcasts, Facebook pages, videos, and interactive activities.

### [Space.com](#)

*Space* contains a massive repository of knowledge including space flight mission information and space-related



technologies. Check out videos of solar eruptions or view photographic galleries of Saturn's rings. A weekly video series entitled, "This Week in Space," provides information on recent events in Space exploration and study. Other provided links include:

- **Virtual Tours of the Moon:** <http://www.fullscreenqtv.com/moon/>
- **Hubble site photo gallery:** <http://hubblesite.org/gallery/>
- **Tour of the Moon in Google Earth:** <http://earth.google.com/tour.html>
- **Virtual Tour of International Space Station:** [http://www.boeing.com/defense-space/space/spacestation/ISS%20360%20Virtual%20Tour/Boeing%20ISS\\_ISS%20360%20Virtual%20Tour.html](http://www.boeing.com/defense-space/space/spacestation/ISS%20360%20Virtual%20Tour/Boeing%20ISS_ISS%20360%20Virtual%20Tour.html)
- **U.S. Army Astronauts on Facebook:**  
<http://www.facebook.com/usarmyastronauts?v=wall#!/usarmyastronauts?v=wall>
- **Mike Massimino (@astro\_mike):** [http://twitter.com/#!/astro\\_mike](http://twitter.com/#!/astro_mike)
- **Asteroid Watch (@asteroidwatch):** <http://twitter.com/#!/asteroidwatch>

#### [Rader's Cosmos4Kids](#)

Cosmos4Kids is a resourceful, informational website for students of elementary and middle school ages to explore topics in astronomy such as the universe, galaxies, stars, systems, solar system details, exploration and more. Check out the sections at the bottom of the homepage for activities and quizzes, as well as real-world examples of astronomical science in action.

#### [Space Science Institute – Resources for Educators](#)

The Space Science Institute (SSI) is a nonprofit organization formed in 1992 dedicated to the betterment of research and education collaboration. This "Resources for Educators" page lists good resources and games for astronomy and space science for middle and high school students. In particular, check out current SSI research projects on the right side of the page.

#### [The Space Place](#)

This NASA sponsored student website is a great resource for students in middle school and high school interested in space science and astronomy. The "Parents and Educators" section provides an extensive list of resources including other websites, activities and lesson plans for the classroom, newsletters, games, image galleries, question and answer forums, and much more.

## Medicine & Nanoscience

#### [UVA Virtual Lab Website / Hands-on Intro to Nanoscience Class Website](#)

This virtual lab website created by the University of Virginia offers an introduction to Nanoscience with a large backlog of resources. Among them include online homework help for high school students, college freshman, and upper division college students. Virtual Lab also guides students through 50 experiments presented with text and vivid animations in order to explain the processes and designs behind things like semiconductors and generators.

### [EdHeads](#)

EdHeads creators believe that the internet represents a powerful and innovative educational tool, and that teachers should promote student educational exploration outside of the classroom. EdHeads helps students learn through educational games and activities designed to meet state and national standards. Featured activities include virtual hip and knee replacements, stem cell research, brain surgery, and prosthetic research.

### [GetBodySmart](#)

Since 2000, GetBodySmart has been an online anatomy & physiology textbook using animations and in-depth explanations to describe the functions of the human body. Be sure to check out the "Histology" section for several links to well-received medical professional websites, as well as the "Anatomy and Physiology Quizzes" section for helpful teacher resources.

### [Clinical Diagnosis Search Engine](#)

This customized search engine powered by Google was created by an anatomy and physiology teacher. Much like Google Scholar, this customized search engine will only produce medical and professional research results for anything from the common cold to rare viruses.

### [InnerBody](#)

This online anatomy guide for middle to early high school students is designed to provide an interactive experience exploring the numerous systems of the human body. Sponsored by Lumosity, learn about the human body, in particular the brain, and how it is responsible for visual recall, spatial reasoning, problem solving, stress, reaction time, language acquisition, and much more. Just for fun, try the "Brain Training Games" listed on the left side.

### [The Anatomy & Physiology Place](#)

An invaluable resource for students, the Anatomy & Physiology Place is an online accompaniment database for textbooks published by Pearson. Click on any of the textbooks to see their online versions, with additional quizzes, chapter outlines/summaries, and graphics.

## **iPad Apps**

Recently, iPads have taken center-stage in schools looking to move towards 1-to-1 learning environments or mobile platforms. The resources below come from a [Diigo](#) feed that EdTechTeacher maintains. The most recent resource will always appear at the top of the list.

- [iPads in the Science Classroom: The Bad, The Ugly, and The Good – Greg Laden's Blog](#)
- [Vernier Video Physics](#)
- [3D 360 interactive education images](#)
- [WolframAlpha](#)
- [Exoplanet](#)
- [Molecules](#)
- [Coaster Physics](#)

- [iTeach Chemistry](#)
- [iTeach Physics](#)
- [Star Walk for iPad - interactive astronomy guide for iPad](#)
- [Free Technology for Teachers: Google Earth Gallery Now Available on iPads & Android Tablets](#)
- [40 Most Awesome iPad Apps for Science Students - Best Colleges Online](#)
- [Science360](#)
- [Best Science Apps for iPad - WSS Wiki](#)
- [Murky Reef Lite - 1st - 2nd Grade Reading, Science & Math for iPad on the iTunes App Store](#)
- [Wolfram|Alpha App](#)
- [Back to School: 40 Best Science iPad Apps for Students](#)
- [TimeLapse - Free](#)
- [Star & Planet Finder](#)
- [Leafsnap App](#)

## Virtual Middle School Library

### Resources for Teachers and Parents

**Url:** <http://www.sldirectory.com/teachf/scied.html>

Go Back: [Virtual Middle School Library Home](#) / [Resources for Teachers and Parents Menu](#) / Science

## Science

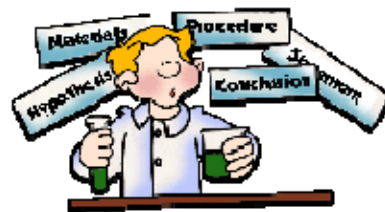
Science Education Menu: [General Science Resources](#) | [Astronomy and Space Exploration](#) | [Biology](#) | [Chemistry, Physics and Technology](#) | [Ecology and Environment](#) | [Energy](#) | [Geology](#) | [Meteorology](#) | [Oceanography](#)

### General Science Resources for Teachers

- [The National Science Education Standards](#) - Prepared by the National Research Council. The text includes standards for teaching, content, assessment, and professional development.
- [Benchmarks for Science Literacy](#) - What students should know about science, math, and technology by the time they graduate from high school. This guide to instruction and the writing

of a curriculum has been developed by the American Association for the Advancement of Science.

- [Science NetLinks](#) - Lesson plans and web resources of K-12 science teachers from the American Association for the Advancement of Science.
- [Middle School Science](#) - Lesson plans for the physical and life sciences.
- [The Middle School Portal](#) - Math and science information and collaboration.
- [Science and Technology](#) - Lesson plans and web links from PBS.
- [Science Lesson Plans](#) - For all grades from Education World.
- [The National Science Digital Library](#) - Links to science resources for teaching.
- [125 Great Science Videos](#) - From Astronomy to Physics and Psychology. These are videos which may be found on YouTube, and this list is from the Open Culture web site.
- [Learning Science](#) - Here you will find links to new online technologies for teaching science, links to science sites which are related to the science learning standards, and cool learning tools for math. This is a collaborative project of Temple University, and teachers in Bucks County (PA) schools.
- [Learner.org](#) - Professional development and teaching resources. Videos marked VoD may be watched online. This site is by the Annenberg Foundation.
- [42 eExplore](#) - Teaching ideas and related web sites for a variety of science topics.
- [Science Daily](#) - Online magazine with breaking news about science.
- [SciCentral](#) - This site helps you to keep up with science in the news.
- [Popular Science Magazine](#) - What's new in the worlds of science and technology.
- [Science Fair Central](#) - Help with science fair projects, and a guide to running a science fair. From Discovery School.
- [Nova Online for Teachers](#) - Lesson plans for using the PBS television show NOVA in the classroom.
- [Teaching with Trade Books](#) - Perhaps your students could read outside of the textbook.
- [Outstanding Science Trade Books for Grades K -12](#) - Selected by the National Science Teachers Association.
- [Finding the Science Behind Science Fiction through Paired Readings](#) - A middle school lesson plan from Read Write Think.
- [The National Science Teachers Association](#)
- [Freebies for Science Teachers](#) - By the National Science Teachers' Association.
- [Science Printables](#) - worksheets and other printables for many science topics - all free.
- [The Case Files](#) - The case files highlights individuals from the history of science and technology.
- [1001 Inventions and the Library of Secrets](#) - An award winning video starring Sir Ben Kingsley which is about the Moslem contributions to science in the middle ages. You may watch it online.



- [Why are Things Colored?](#) - This site could be used for anatomy, art, physics, or several other disciplines. There are lesson plans. This a Smithsonian Web Exhibit.
- [Who Done It?](#) - Using forensics to hone science and laboratory skills. This is a unit for middle or high school science students. It is an introduction to laboratory investigation which would be appropriate for general science, biology, or bio-technology. It is from Teacher's First.
- Science Study in the Philadelphia Area
  - [The Franklin Institute Online](#)
  - [The Academy of Natural Sciences](#)
  - [The Schuylkill Center for Environmental Education](#) - Educational programs for teachers and students.
  - [The Morris Arboretum](#) - Of the University of Pennsylvania.
  - [The Chemical Heritage Foundation](#)

## Astronomy and Space Exploration

- [NASA Search Engine](#) - Locate teaching materials for all grades and many subjects at this NASA site.
- [The Center for Science Education](#) - Space Sciences. A directory of educational projects funded by NASA which may be searched by topic or grade level. This site is provided by the University of California at Berkeley
- [Goddard Space Flight Center](#) - Lesson plans and other materials for teachers.
- [The Challenger Center for Space Science Education](#)- Uses the theme of space exploration to improve student learning in science and mathematics.
- [Earth and Sky](#) - Activities to accompany the daily radio program, and also links to lesson plan and science sites.
- [Amazing Space](#) - Astronomy lessons, teaching tools, and a video about the night sky.
- [Space.Com](#) - This site provides current news of the space program, and also information on space, astronomy and Project SETI. It is a commercial site and sells books, astronomy programs and other materials.
- [Space and Astronomy Lesson Plans](#) - From Teachnology.
- [Astronomy and Space Lesson Plans](#) - From Discovery School.
- [Exploring Planets in the Classroom](#) - Hands on activities for studying earth, the planets, and geology.
- [NASA/MSU CERES Project Educational Activites](#) - Lesson plans for grades K-12.
- [Google Sky](#) - Google's pictures of the universe.
- [Celestia](#) - This is a space exploration program which can be run on Mac, Linux, or Windows computers. It is free.
- [Build the Solar System](#) - This site has a calculator so you can get the distances right.



- [Eyes on the Sky, Feet on the Ground](#) - Hands on Astronomy Activities for Kids. There are activities for studying the rotation of the earth, mapping, time and calendars, and the solar system and the moon.
- [Astronomy Workshop](#) - Online astronomy problems to solve, and solar system viewers.
- [Paper Plate Education](#) - The use of paper plates to demonstrate many of the concepts of astronomy. Good site when your supply budget is low.
- [Astronomy with a Stick](#) - Astronomy activities that can be done during the daytime. These activities which track the movement of the sun are for elementary and middle school students.
- [The Women of NASA](#) - Meet the women scientists at Ames Research Center. This is a K-12 initiative by NASA to interest more girls in careers in science.
- [Astronomy Cast](#) - a podcast which is a great way for you and your students to learn about astronomy.
- [Sky Maps](#) - A free monthly sky map.
- [Good Astronomy Activities on the Web](#) - This list of links is by the Astronomical Society of the Pacific.
- [Online space and Astronomy Games](#) - From NASA

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## Chemistry, Physics and Technology

- [American Chemical Society](#) - Web site for chemistry teachers and students.
- [SMILE Chemistry Lesson Plans](#) - For all grade levels from the Illinois Institute of Technology
- [Chalkbored](#) - High school level resources which includes Power Point lessons, lesson handouts, labs, and other material.
- [Chemistry Lesson Plans](#) - From Teachology.
- [Chemistry Lesson Plans](#) - From Middle School Science.
- [Chemistry Lesson Plans for Middle Schools](#) - a directory of lesson plans from The Lesson Plans Directory.
- [Creative Chemistry](#) - You will find worksheets and online chemistry games at this British site.
- [Chemistry at About.Com](#) - lesson plans, experiments, and other chemical information.
- [The Periodic Table of Videos](#) - There is a video for each chemical element. This is by the University of Nottingham.
- [School Chemistry Laboratory Safety Guide](#) - From the National Institute of Occupational Safety and Health.
- [Physical Science Lesson Plans](#) - From Discovery School.
- [Physics Lesson Plans](#) - From Teachology.
- [Exploring the Nanoworld](#) - Lesson plans for nanotechnology and materials science by University of Wisconsin Materials Research Science and Education Center.
- [Nanotechnology Lesson Plans](#) - Plans for middle and high school from UnderstandingNano.Com.



- [SMILE Physics Lesson Plans](#) - From the Illinois Institute of Technology.
- [Physical Science Lesson Plans](#) - for all grades from Reach Out Michigan.
- [Physics Central](#) - Some teaching ideas, a middle school competition, free posters and coloring books. By the American Physical Science Society.
- [Technology Lesson Plans](#) - Links to lesson plans web sites. From Internet4Classrooms.
- [The K-8 Aeronautics Internet Textbook](#) - Explanations of aeronautics principles and lesson plans.
- [The Science of Speed](#) - A fun way to learn the physics of NASCAR racing. These videos will appeal to the car-loving students. This is by the National Science Foundation.
- [Teach Engineering K - 12](#) - This site has curriculum and lesson plans for many areas of science. It has a great many lessons for physical sciences and technology.
- [Technology Lesson Plans](#) - From Discovery School.
- [Inventors and Inventions](#) - Lesson Plans from About.Com.
- [Molecularium](#) - Site for teaching about atomic structure. There are lesson plans for you and interactive activities for students.
- [The Particle Adventure](#) - This is a great site if you need to brush up on your knowledge of atomic or nuclear physics. It has a few worksheets for students, too.

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## Energy

- [Energy Lesson Plans](#) - For all grade levels from the US Department of Energy.
- [Energy Production](#) - A lesson plan for grades 6 - 12. The plan includes the use of videos which are available at the lesson plan web site. From WGBH in Boston.
- [The Energy Kid's Page](#) - an energy timeline, classroom activities, energy facts, and an energy glossary.
- [Renewable Energy Lesson Plan](#) - From the Texas State Energy Conservation Office.
- [Energy Lesson Plans](#) - From the Society of Petroleum Engineers.
- [Teaching Resources](#) - on alternative forms of energy from the Tennessee Valley Authority.
- [Marcellus Shale Lesson Plans and Resource Guide](#) - For teachers in Pennsylvania.



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## Geology

- [Geology Educational Resources](#) - From the U.S. Geological Survey. Projects in earth science for students and teachers.
- [Geology Lesson Plans](#) - From ProTeacher.
- [Earth Science Lesson Plans](#) - from Teachnology.

- [Geology Lesson Plans](#) - for grades K - 12 by the Illinois State Museum.
- [Geology.Com](#) - Geology articles, maps and satellite images, a geological dictionary, and teaching materials.
- [Understanding Geologic Time](#) - This online unit for students has a teachers guide.
- [How Volcanoes Work](#) - This is a good site if you need to brush up on your knowledge of volcanoes. There are links to volcano lesson plans on the Volcano Links page.
- [Earthquake Topics: Lessons Online](#) - From the US Geological Service.
- [Earthquakes: Getting Ready for the Big One](#) - a middle school lesson plan from Discovery School.
- [Mineral Information Institute](#) - Free teaching materials and lesson plans.
- [Mining](#) - Links to web sites about mining and mine safety. There are also ideas for student activities.
- [Cavern Geology Lesson Plans](#) - by Cave and Mine Adventures.
- [The Geological Society of America](#) - Lesson plans for grades k-12.
- [Dinosaur Detectives](#) - A middle school paleontology lesson from Discovery School.
- [Explorations Through Time](#) - Units for paleontology and life sciences from the University of California Museum of Paleontology.
- [Dinosaurs!](#) - Activities and teaching ideas from Scholastic.
- [Learning From the Fossil Record](#) - Lesson plans for paleontology.
- [Geology of Pennsylvania](#) - lesson plans and other materials by the Pennsylvania Department of Conservation and Natural Resources.
- [The Geology of Pennsylvania](#) - Information (no lesson plans) from Geology.com.



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## Meteorology

- [Weather Lesson Plans](#) - From the University of Oklahoma. These are mainly for middle school students.
- [Weather Lesson Plans for Elementary Teachers](#) - Lesson plans and links to weather web sites.
- [Weather Lesson Plans](#) - From Discovery School
- [Weather Wiz Kids](#) - This site, by a meteorologist, has lots of information and some lesson plans and weather activities.
- [Weather Education](#) - This site has teaching materials and ideas for activities for students. This is by the NOAA's National Weather Service.
- [The University of Michigan Weather Underground](#) - Weather information.
- [Great Sites for Teaching About Hurricanes](#) - From Education World.
- [Lightening Safety](#) - There are Tools for Teachers to assist in teaching these safety measures.



- [Tornado Lesson Plans](#) - From A - Z Teachers Stuff.
- [A Blizzard of Winter Lessons!](#) - For elementary grades from Education World.
- [Be a Meteorologist for a Day](#) - A Weather unit for middle school students.
- [Project SkyMath](#) - A six-weeks middle-school mathematics unit which incorporates real weather data.

## Science (Biological, Environmental, and Oceanography)

Science Education Menu: [General Science Resources](#) | [Astronomy and Space Exploration](#) | [Biology](#) | [Chemistry, Physics and Technology](#) | [Ecology and Environment](#) | [Energy](#) | [Geology](#) | [Meteorology](#) | [Oceanography](#)

### Biology

- [Action Bioscience](#) - Articles on the impact of bioscience research on our lives. There are high school lesson plans and charts of NSES correlations
- [BioZone Bio Links](#) - This is a directory of web sites dealing with many aspects of biology such as ecology, biotechnology, animal behavior, cell biology and many more.
- [Living Things](#) - Links to websites on animals, plants, and ecosystems. There are also tips for teachers. This site is prepared by the Franklin Institute in Philadelphia.
- [SMILE Biology Lesson Plans](#) - For all grade levels from the Illinois Institute of Technology.
- [Biology Lesson Plans](#) - From Teachnology.
- [Lesson Plans Inc.](#) - Biology lesson plans for all grades.
- [The Biology Corner](#) - Lesson plans, lab plans, and quizzes.
- [The Science Behind Our Food](#) - Lesson plans for many aspects of biology from the College of Agricultural and Environmental Sciences of the University of Georgia.
- [Biology 4 Teachers](#) - Mainly, lesson plans for high school students, but there is also material for elementary and middle school students.
- [The Genetic Science Learning Center](#) - Background information on current developments in genetic science, and lesson plans.
- [Teaching Evolution](#) - Information about evolution and possible perils and pitfalls to avoid while teaching about it. By the University of California Museum of Paleontology
- [The Marian Koshland Science Museum](#) - Activities and lesson plans for infectious diseases, global warming, and DNA and genetics.
- [The National Institute of General Medical Sciences](#) - Interactive games and quizzes.
- [The Entomology Index](#) - Recommended entomology sites on the web for K-12 educators.
- [US Department of Agriculture for Teachers and Students](#) - There is so much offered at this site that it is hard to describe. Visit Smokey the Bear, check out the food pyramid, and don't miss RUS the Surfing Squirrel.



- [Penn State Lesson Plans](#) - Plans for all grades for forest resources, water, earth science and wildlife from the School of Forest Resources at Penn State University.
- [Flower Delivery](#) - There is information here on gardening for kids, plant classification, photosynthesis, gardening safety, and much more. Thanks go to Abby for suggesting this site.
- [KinderGarden](#) - Gardening in the curriculum for all grades levels. This is a good starting point for any teacher interested in starting a gardening project.
- [Out! Out! Damp Sprout!](#) - A lesson plan for growing seeds which are found in the supermarket. This lesson is by Vicki Cobb.
- [Real Trees 4 Kids](#) - Activities and lesson plans for grades 3 through high school. This site is by the National Christmas Tree Association.
- [Kids Gardening](#) - Resources and grant information for teachers. By the National Garden Association.
- [Plants for Kids](#) - Experiments in botany for children from the Delaware State University.
- [Bird Sleuth](#) - A project in bird watching for middle school students. Sponsored by the Cornell Lab of Ornithology.
- [Online Biology Book](#) - If your knowledge of biology is a bit shaky, you may need to refer to this text by M. J. Farabee

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## Ecology and Environment

- [Lesson Plans from EELink](#) - Environmental and ecology lesson plans for all grades.
- [Environmental Protection Agency](#) - Environmental education web site.
- [The Environmental Education Network](#)
- [Exploring the Environment](#) - This site has modules for students to use to explore various aspects of the environment such as hurricanes, rainforests, the Everglades, and the weather. There are teacher help pages, too.
- [Teaching about Waste and Recycling](#) - Lesson plans from the EPA.
- [Community Science Action Guides](#) - Teaching units and lesson plans for grades K-12. These lessons deal with water, energy, and health sciences.
- [Beyond Penguins and Polar Bears](#) - An online magazine for teachers of grades k - 5. The purpose is to integrate science, literacy, and the polar regions. There are lesson plans and links to relevant web sites.
- [The Rainforest Alliance](#) - Rainforest information and activities for kids and teachers.
- [The Rainforest Action Network](#) - Dedicated to preserving the rainforests.
- [Educational in Nature](#) - Environmental education units for 4th and 5th graders. This site includes lesson plans and worksheets.
- [Forest Food Webs](#) - An ecology lesson plan from Discovery School.



- [Activities to Celebrate Earth Day](#) - From Education World.
- [All About Global Warming](#) - In case you need to brush up on your knowledge of global warming.
- [Teachers' Guide to High Quality Educational Materials on Climate Change and Global Warming](#)- Global warming facts and lesson plans from the National Science Teachers Association.
- [Climate Change Education](#) - News and lesson plans.
- [The Pennsylvania Department of Environmental Protection](#) - Information on Pennsylvania's environment for teachers and students.

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## Oceanography

- [The Ocean Portal](#) - Lesson plans for oceanography from the Smithsonian Institution.
- [Treasures@Sea](#) - Teaching oceanography through art and literature.
- [Reef Ball Educational Projects](#) - 50 ideas for teaching about oceanography.
- [National Geographic Blue Frontier](#) - Oceanography lesson plans for all grades.
- [NOAA Ocean Explorer](#) - Curriculum and lesson plans.
- [Classroom Resources from the Monterey Bay Aquarium](#) - Lesson plans, videos, and podcasts.
- [National Marine Sanctuaries](#) - This sites provides a curriculum, lesson plans and other activities.
- [Sea World/Bush Gardens](#) - Lesson plans and teaching guides.
- [The Gulf of Maine Research Institute](#) - Information and lesson plans for aquatic life.
- [Oceanography for Kids](#) - Links to lesson plans and oceanography sites by Kathi Mitchell.
- [The Intertidal Zone](#) - A lesson plan for middle school students.
- [Coral Seas](#) - A middle school lesson plan on coral reefs.
- [The COOL Classroom](#) - A project to link middle and elementary school classrooms with the Rutgers Marine and Costal research program.
- [The Jason Project](#) - Visit the ocean with this popular interactive science project.



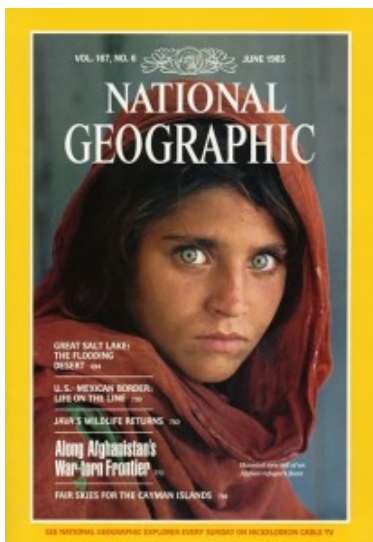
## 100 Best Websites for Science Teachers

With science and math in the headlines, teachers are under more pressure than ever to keep kids up to date. But with shrinking budgets and growing class sizes, it is getting more and more difficult to do so.

You could always go to the internet for help, but digging through all of those sites could take hours. Save yourself the hassle and worry. We have done the work and provided the 100 best websites for science teachers below.

## Best Websites for Science Teachers

These science sites have loads of resources for science teachers at every level.



1. [Exploratorium](#) : Get a virtual museum of science, art, and the human perception here. You can explore straight from the homepage or get webcasts. Be sure and click on the Educate tab for tons of teaching tools such as activities, science snacks, and the Iron Science Teacher.
2. [How Stuff Works](#) : This leading science website does just what the title promises. It takes everyday subjects such as cars, snowstorms, and loads of others and puts them in an easy to understand context. Choose from subjects such as animals, electronics, geography, and several expert blogs.
3. [Discovery Science](#) : Stop here for the website of a leading science channel. There are games, quizzes, and much more. They even have an exclusive interview with the creator of “Avatar” and the science behind it.
4. [Extreme Science](#) : Here you’ll find world records in natural science, including earth science and the plant and animal kingdom. There are also challenges, lessons, and loads more.
5. [Federal Resources for Educational Excellence](#) : Get free science teaching resources from the U.S. Department of Education. Science tools include those for applied, Earth, life, and physical sciences. There are also options in other subjects.
6. [Nova](#) : This leading science show has been a staple of PBS for decades. Stop by to check out the archives on subjects such as anthropology, disasters, flight, and more.
7. [MadSciNet](#) : The 24 hour exploding laboratory, there is a collective of scientists to provide answers to science questions. With an archive of over 36,000 answers, you can find challenges for students of all ages.

8. [Science Learning Network](#) : Visit this science website to get news, museums, and resources. Funded by the NSF, they include flight, the sun, oceans, and more.

### Best Websites for Science Teachers by a Publication

Use the resources found at these top magazines to teach students like never before.



9. [Scientific American](#) : A must visit science website for its “60 Second Science” podcast alone. Teachers can also choose to read expert articles on space, energy, the mind, and much more. There are also various contents and challenges featured on the site.

10. [National Geographic](#) : The photo of the day and pop quiz can have science teachers visiting the website daily. They also have tons of articles and videos to choose from including The Science of Speed and Test Your Travel Smarts.

11. [New Scientist](#) : This leading publication has many resources on their website. Choose articles on a wide array of topics, blogs, opinion, videos, and galleries.

12. [Science Mag](#) : This science website also has a regular podcast on purely scientific subjects. You can also click on Multimedia to get videos, slideshows, and images.

13. [Nature](#) : This magazine focuses on both science and medicine. The Open Innovation challenges are excellent for students and there are many articles on hot science topics such as stem cells and climate change.

14. [Science News](#) : A publication by The Society for Science & The Public, there are loads of features and columns to read. Must see entries include 2009 Science of the Year and Black Holes Powering Starships.

15. [Technology Review](#) : This scientific journal is published by the experts at MIT. Technology is often featured, and teachers can get useful videos, blogs, and more.

### Best Websites for Animal Science Teachers

Because kids love animals, get them to know the scientific side of our furry friends by stopping at the below.

16. [Nature](#) : With a special section for educators, this animal science website is a must visit. There are also video clips and slide shows with much more.
17. [ARKive](#) : Click here to get a look at some of the world's most endangered species in both plant and animal form. They also have updates, slideshows, and more.
18. [Animal Planet](#) : Both animal lovers and science teachers will enjoy this site. There are resources on pets, wildlife, animal causes, and more.
19. [Infrared Zoo Gallery](#) : View all sorts of animals through a thermal infrared camera. Students can actually see the difference between hot and cold blooded animals, along with many other interesting facts.
20. [Zoobooks](#) : Stop here to get a virtual zoo full of primates, birds, reptiles, and more. There are also quizzes, games, and more for teachers.
21. [Animal Games](#) : Get your students to learn about animals by playing these games. They include Animals of the World and Animal Adventure.
22. [National Aquarium](#) : Located in Baltimore, they have resources on many water dwelling animals. Choose from amphibians, birds, fish, and more to get a detailed description of many species.
23. [The Insects Home Page](#) : Called "the most successful life form on the planet," this website is devoted to the science of insects. Get guides, anatomy, and even specialty topics such as the strongest or fastest insect.
24. [Animal Land](#) : The ASPCA provides this site to teach more to kids who love animals. There is a spotlight animal, careers with animals, and ask Azula.

### **Best Websites for Chemistry Science Teachers**

Get science students excited about the lab with the help of these websites.

25. [Chemistry Guide](#) : Stop here first to get loads of tools for chemistry teachers. They include databases, dictionaries, encyclopedias, and much more. You can even do a search for your own specific need.
26. [Royal Society of Chemistry](#) : Both British and other science teachers can use this website to support their chemistry teaching in a number of ways. Choose from resources, career information, activities, and even competitions.

27. [The Atoms Family](#) : Visit here for a website that teaches chemistry to students with monsters. Mummies, vampires, and more teach about energy, light, atoms, and conservation.

28.. [The Comic Book Periodic Table of Elements](#) : If your students have trouble memorizing the table, click here. Superheroes and cartoon characters are used to teach all about them.

29. [Chemical Week](#) : Have students that say “when am I going to have to use this?” Then stop here to get a look at how chemistry effects everyday life.

30. [Organic Chemistry Practice Problems](#) : More advanced science teachers should stop here to have a look at complex science problems. The same as used by the students at Michigan State Universities, they include nomenclature, conformations and stereochemistry, and others.

### **Best Websites for Life Science Teachers**

Learn more about the human body and other forms of life with these science websites.

31. [Discovery Health](#) : Science students of all ages can find life science items on this site. There are guides for diseases, tips for healthy living, and more. Kids can also get games and fun.

32. [Neuroscience for Kids](#) : Have students who wonder how the brain works? Then take them here for a website just for them.

33. [Human Genome Project](#) : Completed in 2003, the Human Genome Project was a 13-year project coordinated by the U.S. Department of Energy and the National Institutes of Health. Its goals were to identify the approximately 25,000 genes in human DNA, determine sequences, and more. See how the results turned out by visiting the site.

34. [Inner Body](#) : Get a guide to human anatomy completely online here. Simply choose from eight different systems including male and female reproductive.

35. [Biointeractive](#) : Part of the Howard Hughes Medical Institute, they help you teach ahead of the textbook. You can get topics, lectures, animation, and virtual labs.

36. [Online Biology Book](#) : Visit here for just what the title promises. This online biology textbook contains 59 chapters on everything from cells to the development of evolutionary theory.

### **Best Websites for Space Science Teachers**

A science favorite, these websites help teachers in astronomy.





37. [NASA](#) : With loads of images, videos, and podcasts, be sure to make time for this massive site. You can get loads of information on missions, solar system, the Earth, and more. There are also interviews with astronauts and leading NASA officials.

38. [Astronomy Picture of the Day](#) : Start off each science class by checking out the pictures here. Both a picture and detailed description are featured. The archive dates back for years if you need more.

39. [Astronomy](#) : Astronomy For Kids and an Intro to the Sky are just a few of the reasons space science teachers should visit the site. They can also get news, blogs, videos, and other guides.

40. [Sky & Telescope](#) : This magazine also has many tools for space science teachers. You can get interactive star charts, observing highlights, podcasts, the sky at a glance, and more.

41. [Space.com](#) : Breaking news and multimedia are featured on the homepage of this science website. Highlights include a video show of Endeavor's mission, daily reports, and even a black hole waltz.

42. [NASA TV](#) : The eleventh most visited channel on YouTube, there are hundreds of historic videos to view. They even have several sub channels such as Ares, Chandra X-ray, research, and more.

43. [Windows to the Universe](#) : Get pictures and guides for all segments of space including the Earth, solar system, and beyond. There are also guides for life, geology, and physics.

44. [SEDS](#) : The Students for the Exploration and Development of Space have a special section where they share all of their projects. A good choice to view, and even emulate, leading space science projects.

45. [Astrobiology](#) : Life in space? See how space can affect both human and animal life with this science website.



46. [Space Ref](#) : If you need to do a chapter on a planet such as Jupiter or Mars, stop here for a link to it. There are also loads of other information including the history and future of science.

### **Best Websites for Earth Science Teachers**

Get back to Earth with the help of these science websites for teachers.

47. [Earth History Resources](#) : Here you will find many graphic images designed for use in the development of either an online internet or interactive multimedia project related to Earth History. These images consist of photographs of dioramas, fossils and models, and computer generated images and drawings.

48. [Exploring Earth](#) : Explore Earth Science chapter by chapter by stopping here. Eight units cover everything from the history of the Earth to space.

49. [National Ocean Services](#) : Get resources for science teachers from this site for students from grades three through twelve. There are charts, tutorials, and even a lesson plan library.

50. [Archaeological Adventure](#) : Accompany scientists as they go on digs with the help of this science website. There is also information on past digs.

51. [Voyage to the Deep](#) : The Alvin explored hydrothermal vent sites in the Sea of Cortes and invites you to join along. You can also learn more about geology, sea creatures, and chemistry.

52. [EPA Teaching Center](#) : The Environmental Protection Agency offers free lesson plans and activities to science teachers. They can also get free publications, apply for grants, and more.

53. [Hurricane: Storm Science](#): Teach kids all about this natural disaster by clicking here. View a hurricane from the inside, learn about instruments, and get interviews with survivors.

54. [Earthquakes for Kids](#) : Students can learn all about the science behind earthquakes on this site. The site has information on the latest quakes, puzzles, projects, and more.

55. [The Disaster Area](#) : Visit this FEMA site to teach kids all about disasters from floods to volcanoes and more. Simply click on a disaster to learn more about it.

### **Best Websites for Science Teachers with Younger Students**

Children early on in their studies of science and their teachers will enjoy these science websites.

56. [Brain POP](#) : A guide to how the world works, they have resources for many teachers including science. Choose from help with genetics, energy, matter, and much more. You can even get free movies and webinars just for teachers.

57. [Kapili](#) : Get an online introduction for many different sciences including chemistry, biology, geography, cosmos, and physics. Each short section has an introduction, activities, and more.

58. [Nat Geo Kids](#) : National Geographic maintains this site just for kids. Travel, animals, geography, and much more are included. They also have activities and interviews with scientists.

59. [The Yuckiest Site on the Internet](#) : If you have students with a gross science questions, take them here. It contains a Whack-A-Roach game along with all you need to know about barfing, belching, and more.

60. [The Science Club](#) : Visit this non-profit site to get ideas for projects and fairs. There are also other resources such as books and services for teachers.

61. [Try Science](#) : Get science fair projects and ideas by stopping here. There are also ideas for field trips and finding a science center near you.

62. [Great Thinkers and Visionaries](#) : Get the biographies for many scientific leaders by stopping here. They include everyone from Isaac Newton to Stephen Hawking.

63. [Funology](#) : Teachers can get a science website that makes it all fun by stopping here. There are jokes, riddles, games, magic tricks, and a Boredom Buster.

64. [Planet Pals](#) : Helping kids be friends of the Earth, there are crafts, games, and music. Teachers can also get lesson plans and other downloads.

### **Best Websites for Science Teachers with Older Students**

High school students and beyond can use these science websites.

65. [Frank Potter's Science Gems](#) : There are many tools for advanced students, along with younger ones on this site. Additional class resources include science web quests, reference desk, and great discoveries.

66. [BBC Science](#) : Get previews of top science shows by stopping here. They also have other interesting tools such as a personality test, profiles of science explorers, and more.

67. [Interactives](#) : Learner helps educators by providing strategies, content, and activities that can enhance skills in a variety of areas, including science. Lessons include DNA, garbage, the periodic table, and others.

68. [Earth Sky](#) : Millions of visitors stop here to learn more about the earth, space, health, and much more. There are interviews of the week with scientists in different subjects and they feature several on the homepage.

69. [McRel Products](#) : Visit here for a list of scientific experiments that can be done in your very own lab. Promising ones include air cannon, dancing penny, nickel karate, along with others.

70. [Why Files](#) : Because many students want to know why, teachers can stop here for scientific queries. In addition to useful articles, teachers can also get activities and stories for science standards.

71. [Strange Science](#) : Show older students the history of science with the help of this website. Highlights include a Goof Gallery where science got it wrong.

72. [PhysLink](#) : They have been providing online education since 1995. Students get education resources such as essays, grad advisor, theories, and even an ask the expert section.

73. [Science Friday](#) : Adults make science user friendly for students and teachers. There are podcasts, blogs, and even a Kids Zone with loads more.

74. [PopSci](#) : Gadgets, cars, and technology are just some of the science topics here. Teachers can also get galleries and videos with much more.

### **Best Museum Websites for Science Teachers**

If you can't afford a field trip to the science museum of your choice, visit these websites for the next best thing.

75. [Smithsonian Institute](#) : With a special tab for teachers, you can get lesson plans, a resource library, and even tools for professional development. There are also lessons for art, history, and language.

76. [American Museum of Natural History](#) : This museum has both news and podcasts to get with just a click. There are also resources for kids, exhibit information, and more.

77. [The Franklin Institute](#) : Located in Philadelphia, they have resources for scientific learning. There are regular "braindrops" to help students learn, case files, and even competitions for fourth through eighth grade students.

78. [Museum of Science and Industry](#) : In addition to learning about the current exhibits, you can also click on Online Science to get more. Tools include videos, games, and how-to's.

79. [Intrepid](#) : This sea, air, and space museum is located in New York. Visit to get online projects or more information on programs for teachers.

80. [National Air and Space Museum](#) : This top science website offers a variety of free educational programs for school groups and organized youth groups. There are also classroom activities, including electronic field trips.

81. [The Museum of Unnatural Mystery](#) : Not a traditional museum, there are still resources for science teachers here. Choose from the stranger topics such as cryptozoology or UFO mysteries.

82. [National Zoo](#) : Part of the Smithsonian, you don't need to visit to get the experience. There are actual live animal cams to show what is happening in real time. There are also photo galleries with more information on the animals.

83. [San Diego Zoo](#) : A world famous zoo, they also have live cams to view the animals with. You can also click on Education to get curriculum, classroom kits, and activities.

### **Best Websites Just for Science Teachers**

Use these websites to increase your own knowledge of science.

84. **Science Daily** : Hear about a breaking news in science but don't know where to read about it? Then click on this site to get all science headlines, all the time.

85. [ScienCentral](#) : Both science videos and news are featured here. In addition, they have relevant articles such as on naps and creativity, as well as the difference between girls and boys when it comes to math.

86. [EurekAlert!](#) : If you need scientific news by subject, this is your website. Choose from archaeology, biology, chemistry, and many more.

87. [Science Dictionary](#) : If you need help understanding a word or term, stop here. You can also get glossaries for science subjects such as chemistry, physics, biology, and more.

88. [First Science](#) : Stop here for another website loaded with science headlines. Teachers can also get poems, quotes, games, and quizzes.

89. [National Science Teachers Association](#) : Even if you aren't a member you can still get resources and news. You can also get classroom specific information for elementary, middle, high school, and college students.

90. [Sci Tech Daily](#) : Simply clicking on the Brain Food section alone can give you dozens of scientific topics to share with your students. There are also questions, portholes, and news.

**91. [NY Times Science](#)** : Get just the science headlines from “The New York Times” by clicking here. There are special columns, a place to send in your questions, Science Times podcast, and most popular articles.

**92. [CNN Science and Technology](#)** : Similar to the above, get just the science and technology news with a visit to this sub site of CNN. There are featured stories, a blog, and loads of videos.

## **Best Tools for Science Teachers**

Use these tools from websites to help teach science.

**93. [Scirus](#)** : Use this search engine the same way you would with Google, but for scientific information only. There is also an advanced search and preferences.

**94. [WebElements](#)** : Click here for a tool that every science teacher needs: a periodic table. Click on any element to get more information, or get more information on topics such as isotopes, bond enthalpies, and more.

**95. [Calculator.com](#)** : Show students how to use their calculators by visiting this site full of free ones. Choose from scientific, standard, or dozens more.

**96. [Sheffield ChemPuter](#)** : If you need more advanced scientific calculators, stop here. There are options for isotope patterns, element percentages, reaction yields, and others.

**97. [Atlas of the Human Body](#)** : This free tool is provided by the American Medical Association to help educate patients. However, science teachers can use it to show students various systems such as nervous or endocrine.

**98. [Scanning Electron Microscope](#)** : If your school has one, visit here to learn what to expect from it. You can also click on teacher resources for interesting projects such as how to build your own microscope.

**99. [The Science Explorer](#)** : If you have a few common household items, this science website can help you create fun and exciting projects for kids. Choices include static, mirrors, mixtures, and more.

**100. [The Internet Encyclopedia of Science](#)** : David Darling lets teachers and all visitors browse through this scientific encyclopedia for free. He also has an encyclopedia just for kids and for renewable energy and sustainable living.

<http://www.science-teachers.com/life.htm> for activities, worksheets and a few lesson plans

<http://school.discoveryeducation.com/schrockguide/sci-tech/scigs.html> to reach Kathy Shrock's curriculum materials

