



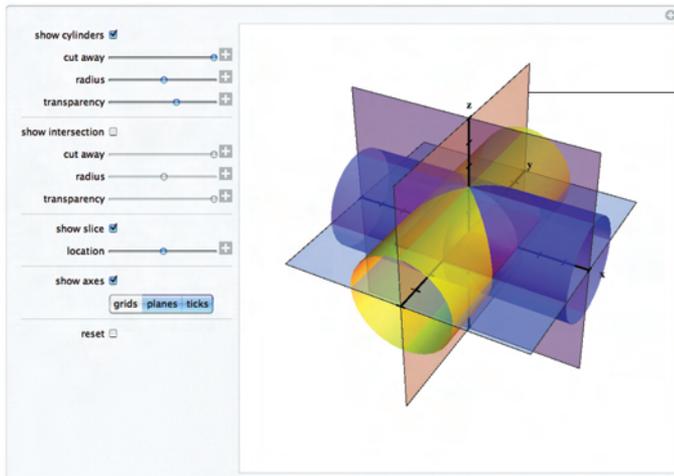
EXPERIENCE *MATHEMATICA*[®] IN EDUCATION

FROM CONCEPT TO CLASSROOM TO CLUSTERS

INSTANTLY MAKE LESSONS INTERACTIVE

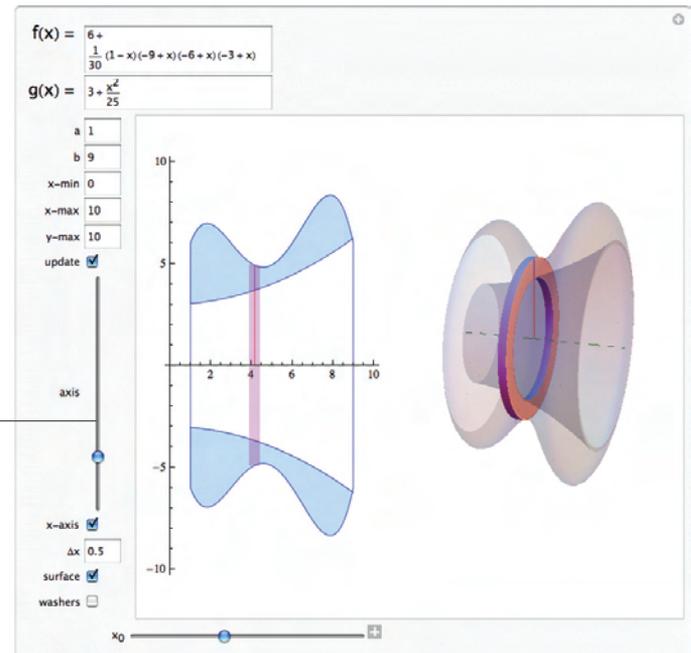
Everything from sine waves to planetary motion paths and even algebraic equations can be interactive in *Mathematica*. With a single function, *Manipulate*, *Mathematica* gives you immediate access to a huge range of powerful interactive

capabilities to produce compelling educational content. You can easily create sophisticated interfaces that you and your students can control to see results in real time, often with a single line of code.



INTERSECTION OF TWO CYLINDERS

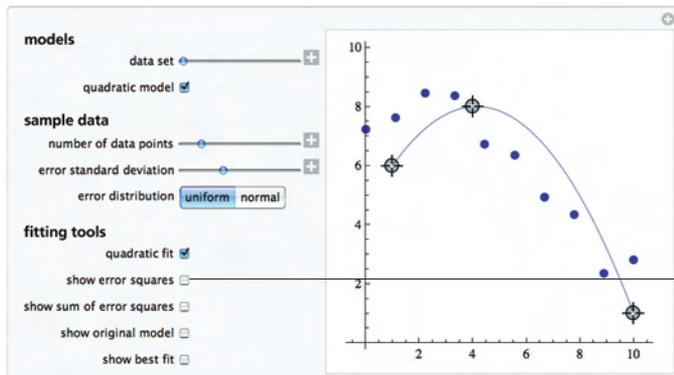
Real-time 3D graphics can be rotated and controlled or exported to all standard 3D graphics formats.



SOLIDS OF REVOLUTION

Built-in controls allow you to create powerful interfaces complete with sliders, checkboxes, buttons, and more.

Immediately explore parameters, using dynamic controls to manipulate your computations in real time.



LINEAR AND QUADRATIC CURVE FITTING PRACTICE

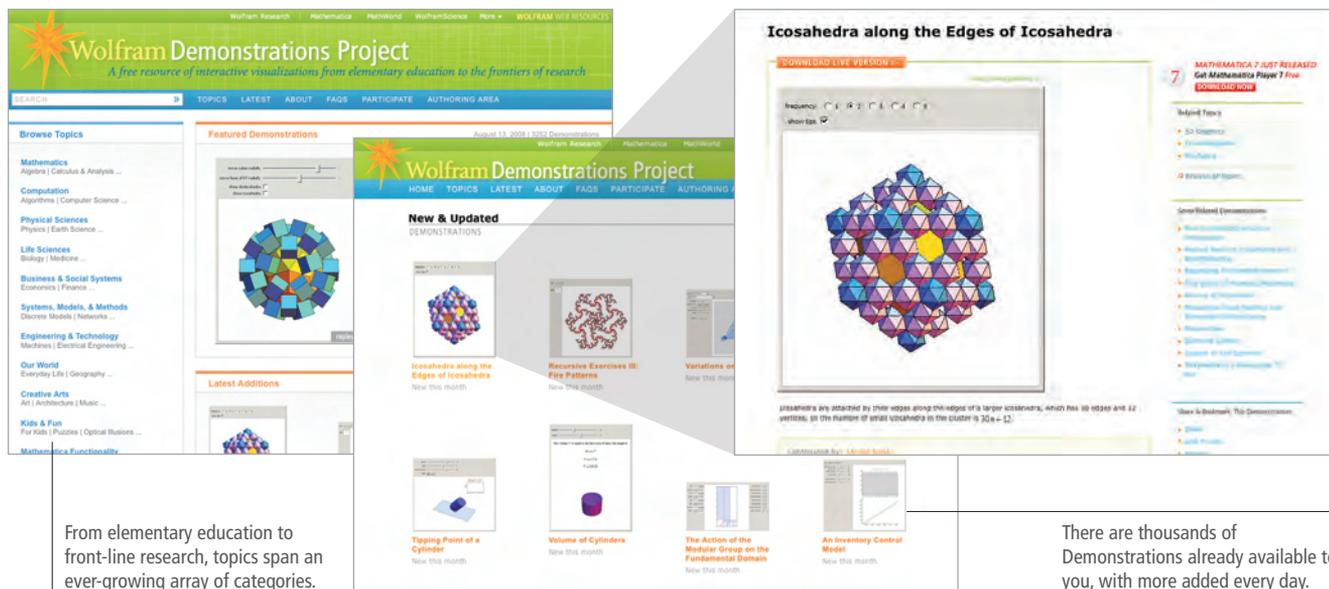
UTILIZE EXISTING DEMONSTRATIONS

THE WOLFRAM DEMONSTRATIONS PROJECT

demonstrations.wolfram.com

The Wolfram Demonstrations Project is an open-code resource of thousands of ready-to-use models for your classroom. These Demonstrations use dynamic computation to bring to life concepts in mathematics, science, engineering, art, finance, and a remarkable range of other fields. Use these Demonstrations to

find sample code and examples of *Mathematica* technology at work, or to help you visualize classroom concepts. They can also shed new light on your cutting-edge research, or help you create your own sophisticated mini-applications to publish online.



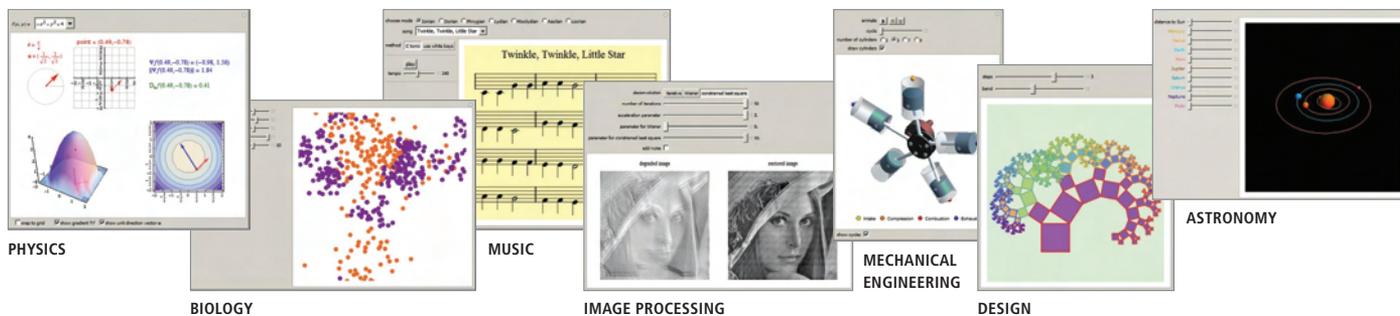
The image shows a collage of the Wolfram Demonstrations Project website. On the left is the main site navigation with categories like Mathematics, Computation, Physical Sciences, Life Sciences, Business & Social Systems, Systems, Models, & Methods, Engineering & Technology, Our World, Creative Arts, and Kids & Fun. The center features a 'New & Updated DEMONSTRATIONS' section with thumbnails for 'Icosahedra along the Edges of Icosahedra', 'Recursive Exercises III: Fire Patterns', 'Variations of...', 'Tipping Point of a Cylinder', 'Volume of Cylinders', 'The Action of the Modular Group on the Fundamental Domain', and 'An Inventory Control Model'. On the right is a detailed view of the 'Icosahedra along the Edges of Icosahedra' demonstration, showing a complex geometric structure of interconnected triangles in various colors. Below the main site screenshot, there are two text boxes:

From elementary education to front-line research, topics span an ever-growing array of categories.

There are thousands of Demonstrations already available to you, with more added every day.

DEMONSTRATIONS SPAN MANY DIFFERENT DISCIPLINES AND DEPARTMENTS

Mathematica brings computational explorations to the widest possible audience. Here are just a few examples:



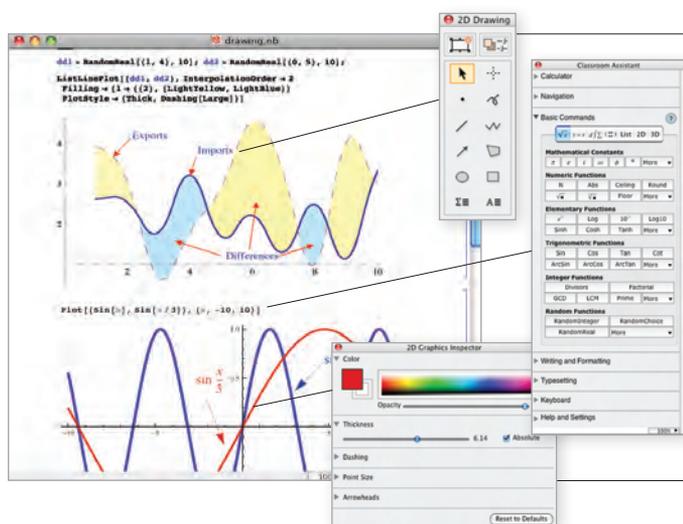
The image displays a row of six demonstration thumbnails, each labeled with a discipline:

- PHYSICS**: A 3D surface plot of a mathematical function.
- BIOLOGY**: A scatter plot of data points in various colors.
- MUSIC**: A musical score for 'Twinkle, Twinkle, Little Star'.
- IMAGE PROCESSING**: Two grayscale images of a woman's face, one showing the original and one showing a processed version.
- MECHANICAL ENGINEERING**: A 3D model of a mechanical assembly with various components.
- DESIGN**: A colorful, abstract geometric pattern resembling a stylized tree or a complex fractal.

On the far right, there is a thumbnail labeled **ASTRONOMY** showing a diagram of a solar system with a central star and several planets in orbit.

EASILY ADD NEW TECHNOLOGY INTO YOUR CLASSES

EASE OF USE



Use the **2D Drawing Tools** palette to easily create and annotate 2D graphics for quizzes, presentations, and more.

The **Classroom Assistant** palette lets you quickly enter calculations with the click of the mouse.

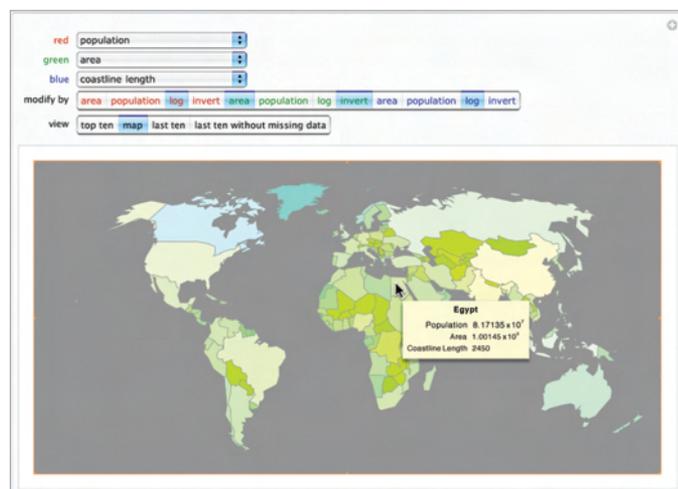
The **2D Graphics Inspector** allows you to interactively change graphic styles like color, line thickness, and dashing.

Mathematica offers a collection of Assistant palettes and graphical user interfaces that provide immediate point-and-click access to an extensive range of *Mathematica* capabilities. The Assistant palettes serve as convenient entry points for novice users, especially in education, and provide shortcuts for experienced users.

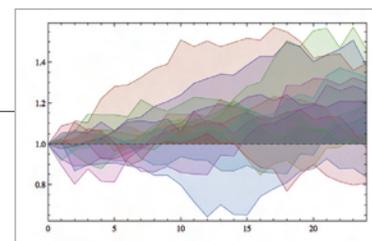
wolfram.com/screencasts/classroomassistant

INTEGRATED DATA

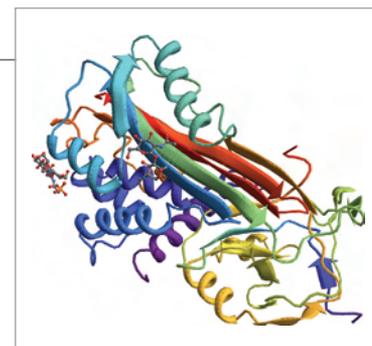
Mathematica provides instant access to an expanding library of data collections, including geography, linguistics, chemistry, human genome, weather, finance, and many more. You can access these from right inside *Mathematica* and seamlessly incorporate current data in any computation or classroom example.



Current and historical financial data on stocks, funds, indices, and currencies—in immediately computable form.



Extensive data on all standard human proteins, including built-in 3D protein structure data and visualization.

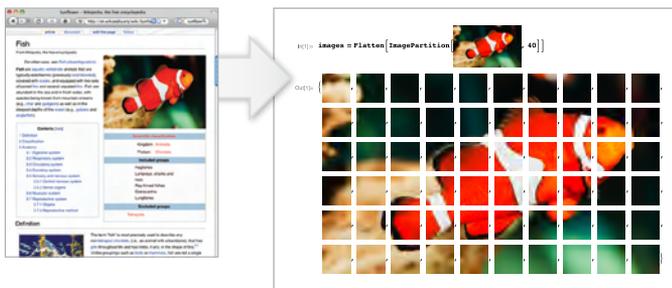


Over 150 economic, demographic, geographic, and other properties of countries and country groups.

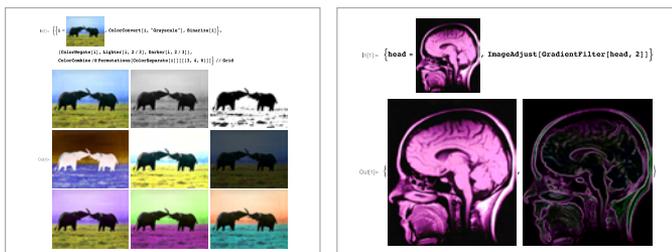
wolfram.com/screencasts/integrateddata

USE CUTTING-EDGE TOOLS IN RESEARCH & DEVELOPMENT

BUILT-IN IMAGE PROCESSING & ANALYSIS



Simply drag and drop image files into your notebook to begin manipulating the image.



Import graphics into your existing *Mathematica* program code to process image data using hundreds of existing built-in functions, then share your results right within *Mathematica*.

The image processing environment of *Mathematica* was designed from the ground up to become the system of choice for imaging research and applications in science, engineering, medicine, and education. Industrial-strength, high-performance functions for image composition, transformation, enhancement, and segmentation combine with the existing *Mathematica* infrastructure to make a uniquely versatile image processing solution.

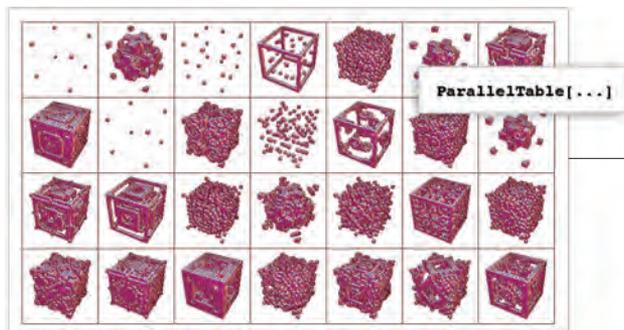
wolfram.com/screencasts/imageprocessing

BUILT-IN PARALLEL COMPUTING

Parallel computing is no longer just for experts. Every copy of *Mathematica* comes standard with the technology to parallelize computations over multiple cores or over networks of *Mathematica* deployed across a grid. With zero configuration, *Mathematica* automatically runs multiple parts of a computation concurrently—and makes parallel computing easy enough that it can be used in seconds as a routine part of everyday work.

Mathematica supports speculative parallelism by trying different computations in parallel and giving the first result obtained.

Method	Minimum	
Newton	-2.92917	Speculative Result
QuasiNewton	-2.46	
ConjugateGradient	-2.46	
InteriorPoint	63.2173	



The **Parallel Kernel Status** display gives you the ability to monitor the parallel efficiency of your computations.

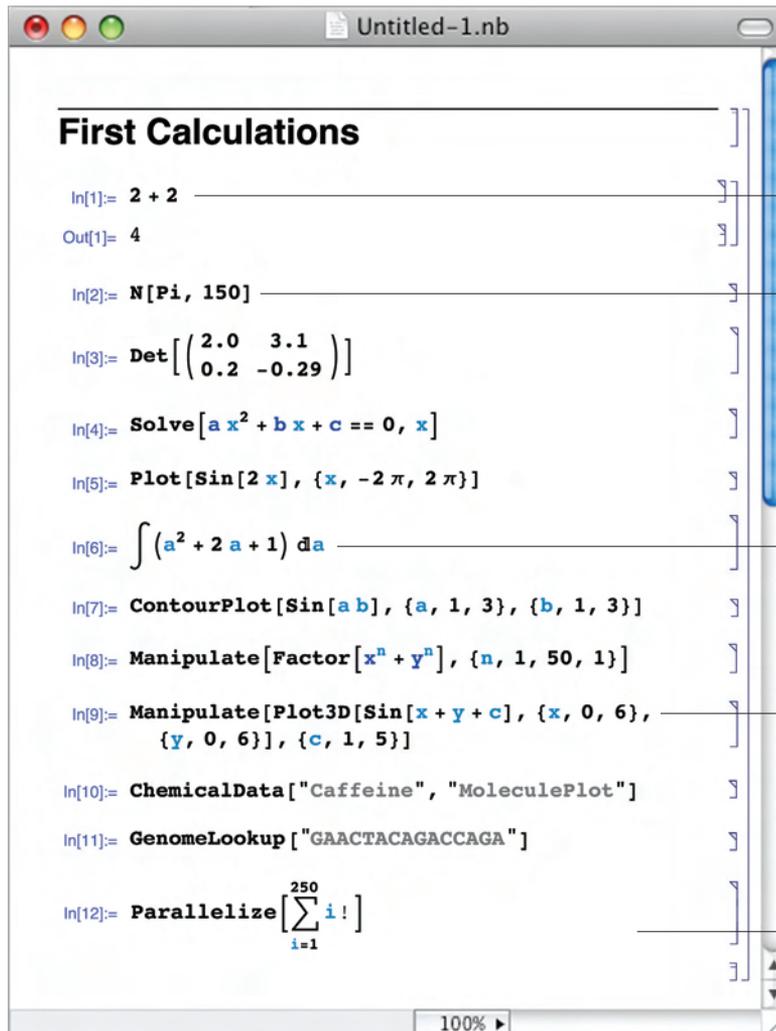
Automatically distribute different evaluations among different processors to create tables of results in parallel.

ID	Name	Process	CPU	RAM	Close	Act. Time	Elapsed: 1.781s, speedup: 6.55
0	master	5268	2.301	16M		0.062	
1	server1	7794	23.172	7M	X	1.468	
2	server1	6824	21.453	7M	X	1.484	
3	server2	4976	21.793	7M	X	1.357	
4	server2	1040	22.854	7M	X	1.436	
5	server2	4672	22.089	7M	X	1.513	
6	server2	4632	22.402	7M	X	1.419	
7	local	3776	22.469	7M	X	1.438	
8	local	2480	27.672	7M	X	1.547	

wolfram.com/screencasts/parallelcomputing

TRY IT OUT FOR YOURSELF

Here is your chance to begin to explore *Mathematica* for yourself. Try the following basic calculations in your license of *Mathematica*.



```
In[1]:= 2 + 2
Out[1]= 4

In[2]:= N[Pi, 150]

In[3]:= Det[{{2.0, 3.1}, {0.2, -0.29}}]

In[4]:= Solve[a x^2 + b x + c == 0, x]

In[5]:= Plot[Sin[2 x], {x, -2 Pi, 2 Pi}]

In[6]:= Integrate[a^2 + 2 a + 1, da]

In[7]:= ContourPlot[Sin[a b], {a, 1, 3}, {b, 1, 3}]

In[8]:= Manipulate[Factor[x^n + y^n], {n, 1, 50, 1}]

In[9]:= Manipulate[Plot3D[Sin[x + y + c], {x, 0, 6}, {y, 0, 6}], {c, 1, 5}]

In[10]:= ChemicalData["Caffeine", "MoleculePlot"]

In[11]:= GenomeLookup["GAACTACAGACCAGA"]

In[12]:= Parallelize[Sum[i!, {i, 1, 250}]]
```

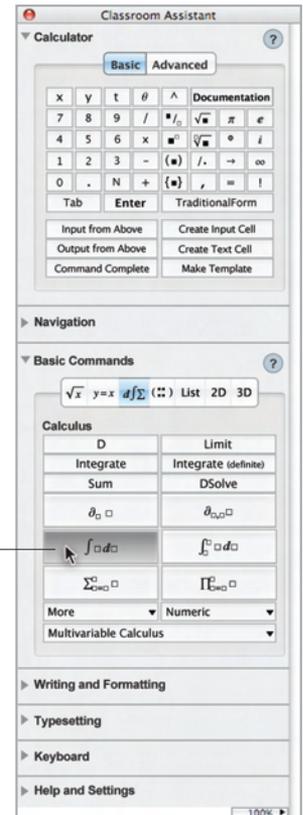
After you type your expression, press **SHIFT** + **ENTER** to evaluate.

Functions start with capital letters, and arguments are surrounded by square brackets.

The Classroom Assistant palette can be used to typeset your expressions.

Lists or ranges are represented by curly braces.

If you can do these calculations, you will be ready to integrate *Mathematica* within your own classroom!



JOIN OUR GROWING COMMUNITY

A TOOL FOR A LIFETIME

Mathematica is used at virtually every university and institution of higher education around the world. In fact, thousands of universities in 54 countries have signed campus agreements with Wolfram Research.

With recent versions of *Mathematica*, however, users of *Mathematica* have expanded greatly and vary in age from 9 to 90. From young students learning in the classroom to serious research using some of the world's largest clusters, the scope and breadth of *Mathematica* has now revolutionized the cross-discipline approach to integrating software into educational curricula.

QUICK FACTS

- 100% of the world's 200 top-ranked universities are using *Mathematica* and over 90% have organization site licenses.
- 43 of the top 50 liberal arts colleges in the United States have site-licensed *Mathematica* for integration in courses.
- Thousands of schools worldwide use *Mathematica* in their classrooms, including the #1 ranked U.S. high school.
- *Mathematica* is present in Fortune 500 companies, government research labs, universities, high schools, and homes, on all seven continents and beyond.

FIND OUT MORE

Contact us today to discuss what licensing benefits you already have available and/or what new options will work best for you and your students.

We will help you mix and match from all eligible Wolfram products to build the optimal solution for your organization.

LICENSING MATHEMATICA

Wolfram Research's licensing programs offer the most economical and easy-to-administer options for equipping your office, classroom, and campus with *Mathematica* technology.



For over 20 years, we have worked with educational institutions to provide solutions for curricula and research.

Our flexible licensing programs are backed by top-notch technical support and provide large discounts off list prices, with lower starting costs and more benefits than ever before:

- **Free upgrades**
- **Free technical support**
- **Free additional home-use licenses for faculty and staff**
- **Student home-use solutions available**

WOLFRAM RESEARCH, INC.
info@wolfram.com
1-800-WOLFRAM (965-3726)
+1-217-398-0700
(outside U.S. & Canada)

**WOLFRAM RESEARCH
EUROPE LTD.**
info@wolfram.co.uk
+44-(0)1993-883400

EXPLORE OUR ONLINE RESOURCES

VIEW THE QUICK OVERVIEW



A short slide show provides an instant look at the features and functions of *Mathematica*.

wolfram.com/mathematica

WATCH A VIDEO SCREENCAST



Brief screencasts show you how to incorporate *Mathematica* into your everyday tasks immediately.

wolfram.com/screencasts

FIND A MATHEMATICA-RELATED BOOK



The latest *Mathematica*-related books, covering topics as diverse as programming, art, engineering, finance, computer science, and much more.

wolfram.com/books

ATTEND A FREE SEMINAR



Free online seminars led by senior Wolfram Research technical staff provide live answers to your questions.

wolfram.com/seminars

FIND INSTRUCTIONS IN OUR "HOW TOS"



"How tos" give simple step-by-step instructions to solve specific problems in *Mathematica*.

reference.wolfram.com/howtos

READ ONE OF OUR TUTORIALS



Tutorials provide in-depth instruction on using *Mathematica* and how it pertains to your work.

wolfram.com/tutorialcollection

OTHER WEB RESOURCES

- Access full *Mathematica* documentation at reference.wolfram.com
- Explore the web's most popular and extensive mathematics resource at mathworld.wolfram.com

➔ wolfram.com/screencasts/utilizingresources

Vertrieb durch:

ADDITIVE GmbH • Max-Planck-Straße 22b • 61381 Friedrichsdorf
<http://www.additive-mathematica.de> • eShop: <http://eshop.additive-net.de>

Verkauf: +49-6172-5905-30 mathematica@additive-net.de

Support: +49-6172-5905-20 support@additive-net.de

WOLFRAMRESEARCH

© 2009 Wolfram Research, Inc. *Mathematica* is a registered trademark and *MathWorld* is a trademark of Wolfram Research, Inc. All other trademarks are the property of their respective owners. *Mathematica* is not associated with Mathematica Policy Research, Inc. or MathTech, Inc. MKT1101/1524173 02.09M8

additive-net.de
ADDITIVE
SOFT- & HARDWARE FÜR TECHNIK & WISSENSCHAFT