

# Wolfram Alpha

Data

Cognitivism

[Wolfram|Alpha](#) is an online tool that strives to make all knowledge computable and accessible ([About Wolfram, 2020](#)). This tool can provide the answer to numerous questions, such as “how many calories are in a potato?” and “how many planes are flying overhead?” and “how much money do you need to retire?” (see [20 Ways Everyday Life is Easier with Wolfram Alpha](#)). Wolfram|Alpha can also compute and present extensive data on everything from shoe sizes, to lottery odds, to dinosaur comparisons (explore [10 More Fun Questions Kids Can Answer with Wolfram|Alpha](#) and [23 Cool Non-Math Things You Can Do With Wolfram Alpha](#)). It allows anyone with access to the Internet to have the answers to their questions at their fingertips at a moment’s notice.

The screenshot shows the Wolfram Alpha website interface. At the top, the logo "WolframAlpha" is displayed in red and orange, with the tagline "computational intelligence." below it. A search bar is present with the placeholder text "Enter what you want to calculate or know about". Below the search bar, there are several buttons: "NATURAL LANGUAGE", "MATH INPUT", "EXTENDED KEYBOARD", "EXAMPLES", "UPLOAD", and "RANDOM". A banner below the search bar reads "Compute expert-level answers using Wolfram's breakthrough algorithms, knowledgebase and AI technology" and "Now Available through ChatGPT [PLUS]". Below this, there are four main categories: Mathematics, Science & Technology, Society & Culture, and Everyday Life. Each category has a grid of sub-categories with icons and text labels.

Mathematics	Science & Technology	Society & Culture	Everyday Life
Step-by-Step Solutions	Units & Measures	People	Personal Health
Elementary Math	Physics	Arts & Media	Personal Finance
$x^2-1$ Algebra	Chemistry	Dates & Times	Surprises
Plotting & Graphics	Engineering	Words & Linguistics	Entertainment
Calculus & Analysis	Computational Sciences	Money & Finance	Household Science
Geometry	Earth Sciences	Food & Nutrition	Household Math
$y''(x)$ Differential Equations	Materials	Political Geography	Hobbies
Statistics	Transportation	History	Today's World

## Tool Snapshot

<b>Price</b>	Free with paid options available. Pro for <a href="#">Students (features)</a> (\$5/mo.). Pro Premium for Students (\$8.25/mo.). Pro for <a href="#">Educators (features)</a> (\$5/mo.). Pro Premium for Educators (\$8.25/mo.)
<b>Learning</b>	<a href="#">Cognitivism</a>
<b>Ease of Use</b>	★★★★★
<b><a href="#">Privacy</a></b>	★★☆☆☆
<b><a href="#">Accessibility</a></b>	★★★★☆
<b>Class Size</b>	Unlimited
<b>Login Required</b>	Free version: No Paid version: Yes
<b><a href="#">ISTE*S</a></b>	Knowledge Constructor, Computational Thinker
<b>COPPA/ FERPA</b>	No COPPA/FERPA policy found. Check with your school IT administrator.

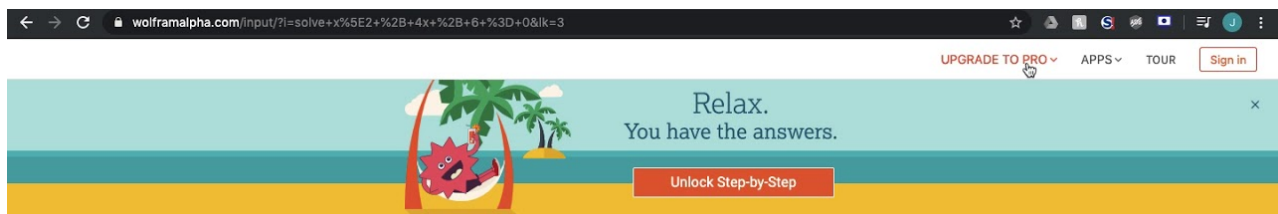
### Ease of Use

We gave Wolfram|Alpha 5 stars for ease of use because the website has a clean, simple user interface. The main page features a search box and a list of subjects to explore. As you start to type in what you want to calculate, it will offer suggestions for you. The website provides a helpful [tour page](#) that explains how to use the tool at home, at work, or for fun!

### Privacy

Wolfram|Alpha collects information such as “real name, alias, postal address, unique personal identifier, online identifier, Internet Protocol address, email address, account name, Social Security number, driver’s license number, passport number or other similar identifiers” ([Wolfram|Alpha, 2020. Para 3](#)) They use this information for themselves and they say in their privacy policy that they do not sell the information to third parties.

## Wolfram|Alpha Overview Video



[Watch on YouTube](#)

## Wolfram|Alpha & the SAMR Model

Dr. Ruben Puentedura's [SAMR model](#) offers a lens for examining how technology is adopted in a classroom. As you strive to incorporate online tools into your classroom, we encourage you to use this model as an analytic tool.

Here is an example of how **Wolfram|Alpha** might fit within the SAMR model:

- **Substitution:** Students use Wolfram|Alpha to find the answer to questions instead of using their textbook.
- **Augmentation:** Wolfram|Alpha provides real time data that allows students to see what is happening in the world at that moment, such as what planes are flying overhead right now!
- **Modification:** Students may discover information serendipitously (i.e., that they didn't set out to learn specifically) by exploring the many topics below the search bar or reviewing all the information, charts, and data provided in the search results.
- **Redefinition:** With the pro/paid options students can customize and manipulate their learning experience.

Far too often, technology is used as a direct substitute for other low-tech tools (e.g., pencil and paper). While substitution has some benefits (e.g., students develop their technology skills and knowledge), we encourage you to think about how you might use **Wolfram|Alpha** to modify or redefine learning.

## Learning Activities

### Math

The free version of Wolfram|Alpha allows students to see the answer to complex mathematical equations. In the paid versions of Wolfram|Alpha students are able to see step-by-step solutions for questions. Students could compare and contrast their step-by-step problem solving process with the one provided by Wolfram|Alpha to extend their mathematical knowledge.

### How to Do Unit Conversions with Wolfram|Alpha Video (by WolframAlpha)

# WolframAlpha® *converts*



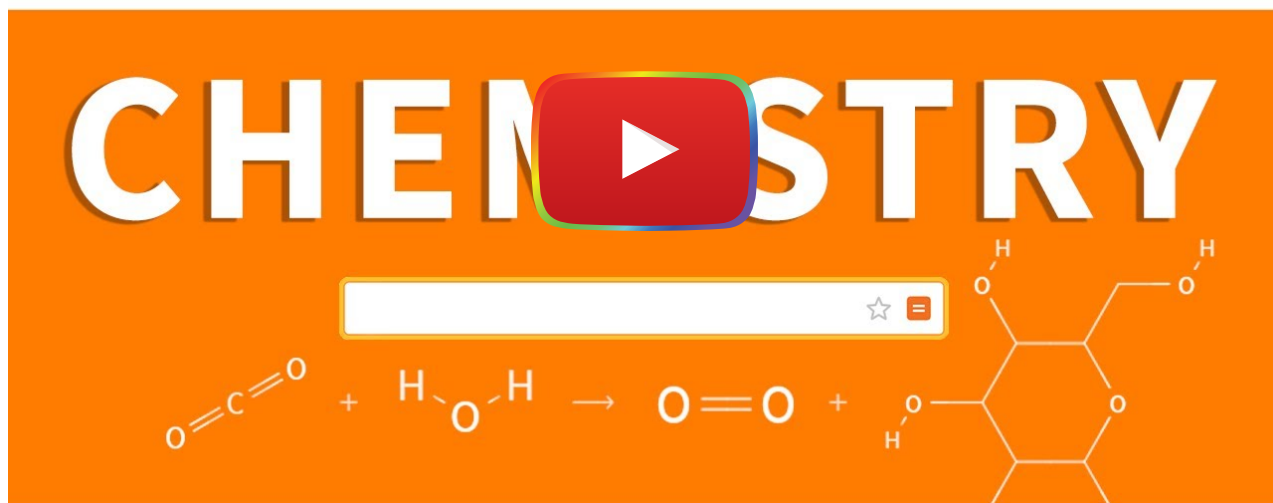
[Watch on YouTube](#)

## [Science](#)

Wolfram|Alpha is known for its ability to solve very complex equations in mathematics and physics. However it is capable of much more. For example, students can compare different elements in the periodic table, explore computations for engineering problems, and discover information about living organisms.

How to Balance a Chemical Equation with Wolfram|Alpha Video (by WolframAlpha)

# WolframAlpha® *solves*



[Watch on YouTube](#)

## History

“With comprehensive data about people, places and events throughout history,” Wolfram|Alpha streamlines the research process for students ([Wolfram|Alpha, 2020, para. 1](#)). With the free version of Wolfram|Alpha, students can compare and contrast two different time periods or explore historical timelines or learn more about famous inventions.

## Language

Wolfram|Alpha allows students to not only find the definition of words, but also learn complex grammar of the English language. It can also be used as an interactive dictionary! And, it can translate words to any other language!

The screenshot shows the Wolfram|Alpha interface. At the top right, there are links for 'UPGRADE TO PRO', 'APPS', 'TOUR', and a 'Sign in' button. The main header features the Wolfram|Alpha logo with the tagline 'computational intelligence.'. Below the logo is a search bar containing the text 'word discovery'. Under the search bar are links for 'Extended Keyboard', 'Upload', 'Examples', and 'Random'. The main content area displays the 'Input interpretation:' for 'discovery (English word)'. It lists four definitions: 1. noun: the act of discovering something; 2. noun: something that is discovered; 3. noun: a productive insight; 4. noun: (law) compulsory pretrial disclosure of documents relevant to a case; enables one side in a litigation to elicit information from the other side concerning the facts in the case. Below the definitions are sections for 'Pronunciation: d,ɪsk'uhvɛəri (IPA: d,ɪsk'ʌvɛəri)', 'Hyphenation: dis-cov-er-y (9 letters | 4 syllables)', and 'Overall typical frequency: written: 3224<sup>th</sup> most common (1 in 32258 words) (> 99% nouns); spoken: 4182<sup>nd</sup> most common (1 in 200000 words)'. A 'Definitions' link is visible at the bottom right of the main content area. On the right side, there is a 'Step-by-Step Solutions for...' sidebar with icons and links for Calculus, Algebra, Trigonometry, Equation Solving, and Chemistry, along with a 'Student pricing' button.

Screenshot of Wolfram Alpha language section

## How to Use Wolfram|Alpha

Go to [www.wolframalpha.com](http://www.wolframalpha.com). If you want to use the free version, begin typing your question into the search area or tap on one of the topics below the search bar to learn more.

### Part 1: Original Intro to Wolfram|Alpha (by Stephen Wolfram)

WolframAlpha<sup>™</sup> computational knowledge engine

running 4 mph 30 minutes 5'8" 160 lbs age 40 male

Assuming speed | Use pace instead  
Also include: slope | elevation angle

Search the Web  
Q running 4 mph 30 minute ...

Input information:

exercise type	running
duration of exercise	30 minutes
speed	4 mph (miles per hour)
gender	male
age	40 years
height	5' 8"
weight	160 lb (pounds)

Energy expenditure: [Show metric units](#) | [Show plots](#)

total calories	272 Cal (dietary Calories)
fat burned	0.078 lb (pounds)

[Watch on YouTube](#)

## Research

Dimiceli, V. E., Lang, A. S., & Locke, L. (2010). [Teaching calculus with Wolfram|Alpha](#). *International Journal of Mathematical Education in Science and Technology*, 41(8), 1061-1071.

The Educational Purposes of Wolfram|Alpha: <https://www.wolfram.com/wolfram-u/catalog/edu011/>



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