

## **QAMA™ Estimating Calculator Goes Online**

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It's the calculator that "thinks" only if you think, too - and now it's available online.

QAMA™, or Quick Approximate Mental Arithmetic, is a new kind of calculator designed and developed by Ilan Samson, an "inventor-in-residence" at the University of California, San Diego's California Institute for Telecommunications and Information Technology (Calit2).

Having prototyped and tested a hand-held version of the calculator at UC San Diego and San Diego's High Tech High School, Samson has now launched an online version of the device ( [www.QAMAc calculator.com](http://www.QAMAc calculator.com) ) that allows users to perform any calculation, from simple arithmetic to complex calculations involving scientific functions. But here's the twist: The result is shown only if the user first keys in a reasonable mental estimation of the answer.

"The purpose of QAMA™ is to bring back the full involvement of the mind without having to give up the virtues of the calculator," Samson says. "There is very little use in doing things that does not involve understanding. Students have been trained increasingly to perform correctly without necessarily understanding what they're doing and why. This is wrong not just in a general sense, but in a very pragmatic way."

Since developing a hand-held prototype of QAMA™ (pronounced "kaama") last December, Samson has been searching for a suitable calculator manufacturer willing to produce the devices on a large scale and at a universally affordable cost. In the meantime, he launched the online version of QAMA™ earlier this month to generate public interest and enable use of the software on personal computers. The Web interface, which was developed by a leading software company, allows users to access the QAMA™ software on a remote server and use the calculator as if it resided on their computer.

The fee for a six-month online subscription to QAMA™ is \$8.88 - a fraction of the amount suggested to Samson after he polled a large number of parents about what they considered to be a fair price for a calculator that helps their children better understand math.

"Many parents said, 'What do you mean - for what that calculator does, I would pay anything!' Samson recalls. "This is a rare case of a product with absolutely nothing else like it on the market, and yet no one has any doubt about why it is badly needed."

Samson said he realized he had to show prospective manufacturers that people will pay a fee for using the online version of QAMA™, but not a fee so low that it would pose too much competition for the prospective hand-held version of the calculator. Once he can secure a manufacturer, Samson expects the QAMA™ calculators to retail for about \$15.

But why buy a new calculator in the first place, especially one that requires you to use your brain when the calculator on every computer will do all the hard work for you?

"Well, yes, the immediate response is that one would rather jump out of closed window than do math in one's head to provide an acceptable estimation," jokes Samson. "But I have not found one person who thought that it was a bad idea to get kids to think, and furthermore, many teachers do not allow traditional calculators in the classroom to begin with, for this very reason.

"In the case of adults," he adds, "so many use a traditional calculator and are totally unaware of when they key in the wrong data and the result is senseless. As anyone who plays piano knows, it's very difficult not to hit the wrong key from time to time. In any case, the users of QAMA™ will discover very quickly that they are better at providing estimates than they thought. I dare say it's worth it just for that added user confidence."

The proceeds from the QAMA™ Web site go toward the company Samson has established, QAMA LLC, which will eventually put those funds toward the production, introduction and distribution of the hand-held versions. Hand-held devices are crucial, Samson says, because many classrooms lack enough desktop computers for each child to use the built-in calculator, and something like an iPhone app isn't feasible because students could use its already existing 'non thinking' calculator (and many teachers ban mobile phones in their classrooms anyway).

"Besides" notes Samson, "every computer has several calculators - the Microsoft version, for example, and even the Google search bar will do basic calculations - but people continue to buy and routinely use hand-held calculators. While it's true that calculator sales these days are mainly a replacement market, the prospect of having a completely new product that enhances our ability to think - now that is something. It's difficult to imagine that QAMA™ will not end up in the hands of every pupil on the planet."

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