

New features in Problem-Attic – Mar. 2014

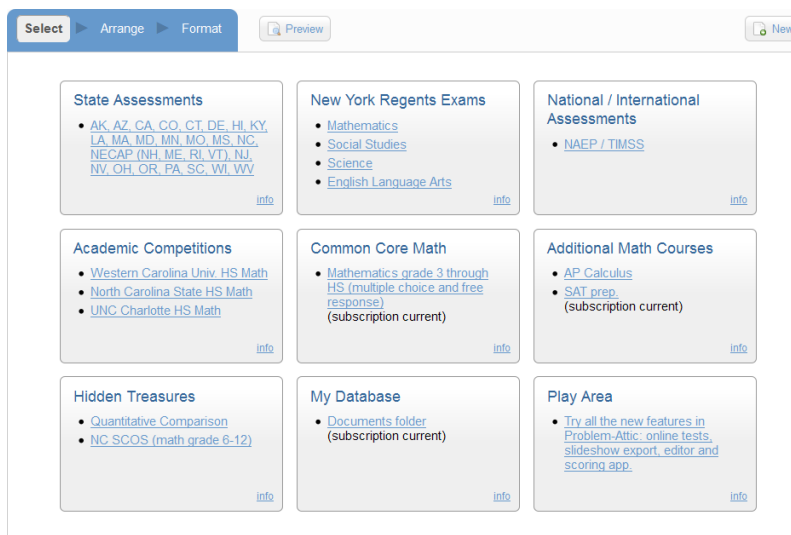
This document explains recent changes to Problem-Attic. Here is a brief overview:

- **Three new selection panels**, which are called Hidden Treasures, Additional Math Courses, and My Database.
- **Thousands more free questions**, including a sample curriculum framework (math grade 6–12) and quantitative comparison.
- **5,000+ AP Calculus and SAT math prep. questions.**
- **Create your own database.** With this new option, you can organize Problem-Attic's questions just the way you want.

Important: Some of the new options are for individual and school subscribers only. See links below for samples and information about what is free and what is for-pay on the website.

1 New Selection Panels

The main Select page in Problem-Attic now has nine panels, as shown here:

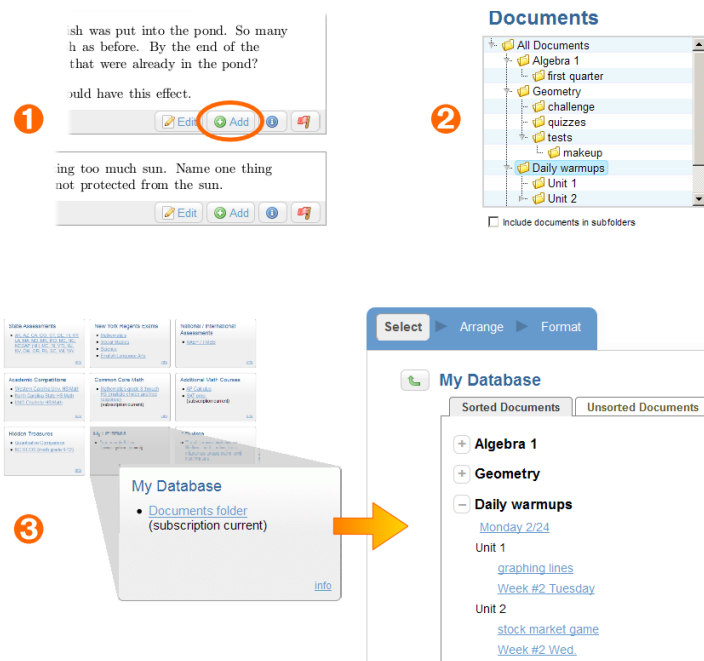


The previous six panels are still on the page. They have been moved around but otherwise are the same. You'll find details about the three new panels in the following sections.

2 My Database

This may be the most important new feature in Problem-Attic since the website launched a year-and-a-half ago. Now it is possible to create a fully customized bank of questions. This might be done to match state and national standards, your local curriculum, chapters of a textbook, etc.

The following picture shows how documents get turned into a database. The process is automatic, and everything that you're accustomed to doing is the same. ❶ Create documents and add questions. ❷ On your home page, organize documents into folders. ❸ Go to the main Select page and click on My Database. You'll see the names of your documents and folders, but the questions are now individually selectable.



You can use My Database for many purposes:

- You can organize questions to match your local curriculum or scope and sequence.
- You can use the feature to select (or re-select) questions for review worksheets, make-up tests, final exams.
- You can split and merge previously-saved documents by selecting some or all of the questions for a new document.
- You can mark or hide questions that you have written or edited. (You will notice the Filter button has a slightly different set of options than elsewhere in Problem-Attic.)

My Database is available to subscribers only, either single-user or school-wide. By late spring we expect Problem-Attic to have features for sharing a database (or documents) with other teachers in a school or district. That will make it possible to do joint development of curriculum, common assessments, and brand-new alignments, say for science or social studies standards. There may also be an option for publishing a database more widely. Now please stop reading this PDF for a moment and give it a try. It's practically magic!

4 Hidden Treasures

Hidden Treasures is the name we've given to question banks which have fallen out of public view but which remain very valuable to classroom teachers. They don't fit easily in the categories of released tests, academic competitions or regular coursework, so we dusted them off and gave them their own panel in Problem-Attic. As of this writing, there are two treasures: Quantitative Comparison questions and NC Standard Course of Study.

4A Quantitative Comparison questions

For many decades "quantitative comparison" questions were part of the SAT. In 2004, the College Board, which makes the SAT, decided to eliminate that type of question. However, it still appears on the GRE (graduate school exam) and remains useful for regular classroom instruction and assessment, for several reasons:

- The questions are excellent for teaching higher-order thinking skills.
- Many of the questions can lead to discussions, be solved in small groups, or be used for peer-to-peer learning.
- Quantitative comparisons are a valuable alternative to multiple-choice questions. They make just as good use of classroom technology (handheld devices or clickers) and can be much more engaging.
- The questions work with all of the document templates in Problem-Attic—not just tests and worksheets. For example, you can print them as flash cards or overheads and use them for daily warmups or closure.

A typical question looks like this, with the quantities in boxes:

1.56×10^6	$156,000,000 \div 10^2$
--------------------	-------------------------

or like this, with some introductory information centered above the two quantities:

A bag contains 5 blue marbles and 6 red marbles. Three marbles are selected at random, one after the other. (The marbles are not put back in the bag after they are selected.)

probability of drawing 1 blue marble and 2 red marbles

probability of drawing 2 blue marbles and 1 red marble

Additional samples, which show a broad cross-section of topics and levels of difficulty, are available here:

www.problem-attic.com/resources/quantc-sample-questions.pdf

The questions often involve tricks, but the idea behind them is simple. Students are supposed to compare the quantities and determine which is greater, whether they are equal, or if there is not enough information to decide. Usually the four answers are assigned to the letters A–D, which means students can submit answers with handheld devices. You can use Problem-Attic’s built-in scoring app (if you are a subscriber) or almost any student response system.

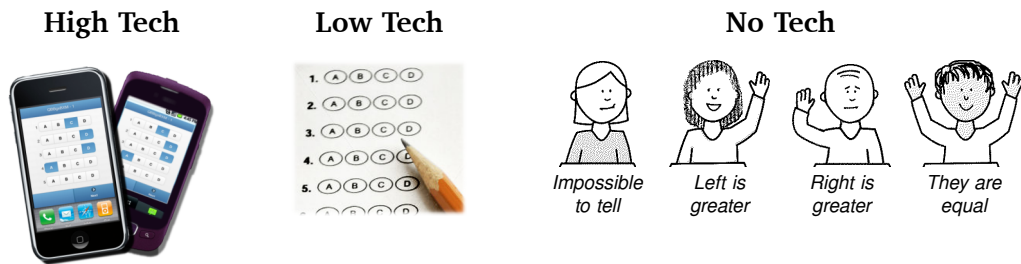
If you assign the questions, you will need to tell students what to do. You can give the following instructions out loud. Or, if you are going to make a test or worksheet in Problem-Attic, you can put the instructions in the Memo field (Format page > Headers).

DIRECTIONS FOR COMPARISON QUESTIONS

Answer:

- A, if the quantity on the left is greater;
- B, if the quantity on the right is greater;
- C, if the quantities are equal; or
- D, if it is not possible to determine which is greater

Another option is not to score the questions at all. For a more lively activity, you might consider old-fashioned hand-raising, as shown here:



EducAide Software proudly makes available more than 1000 quantitative comparison questions through Problem-Attic. They are all original and completely free of charge. You merely have to sign up for the website to use them.

Very important: the questions are not just for high school or college-bound students. They are excellent for all students, and most of the questions work quite well in middle school grades. Some involving arithmetic can be used all the way down to fifth or sixth grade. Like other databases in Problem-Attic, the questions are organized by topic, so it is easy to select what you like and make them part of your regular instruction.

4A NC Standard Course of Study

This collection of questions comes from a document that is more than 20 years old, but which many people (including those of us who make Problem-Attic) hold in high regard. It is the North Carolina Standard Course of Study for Mathematics, 1992–1993 revision.

NCSCOS was published soon after the release of the NCTM Curriculum and Evaluation Standards for School Mathematics (1989). This was a fertile period for development of alternative assessments (non-multiple-choice) and a major milestone toward standards-based instruction.

The NCSCOS has two particular qualities which make it an exemplary and useful document after so many years:

- The writers did not just produce a curriculum framework, they gave examples of what students should know and be able to do for every single objective from kindergarten through high school calculus.
- For nearly all objectives, the writers provided both a multiple-choice and free-response or open-ended question, to show alternative forms of assessment.

With the addition of My Database in Problem-Attic, which is a way to create a fully-customized bank of questions, NCSCOS is doubly-useful. It is a source of a large number of questions, most of which hold up very well, and an illustration of how to create a curriculum framework with high-level, representative questions.

As of this writing, Problem-Attic has only the secondary math questions from NCSCOS. That is about 1750 questions for grades 6–12. Very soon the kindergarten to grade 5 questions will be added.

Also, Problem-Attic does not include as extensive a breakdown of questions as they originally appeared in the Standard Course of Study. To make navigation easier (so you don't have to go up and down as many levels), we show only the major categories, which were called "competency goals", not the objectives underneath them. If you're curious, you can download the full set of objectives here:

www.problem-attic.com/resources/NCSCOS-math-objectives.pdf

5 Additional Math Courses

This panel has additional math questions for school subscribers. Currently there are two subjects which are oriented toward high school, though many of the SAT questions can be used for math instruction down to sixth grade.

This selection area in Problem-Attic will grow considerably in the coming months, starting with about 20,000 questions for pre-algebra through geometry (roughly grades 6 to 10).

All questions for additional math courses were written by EducAide Software, the maker of Problem-Attic. There is no overlap with any other question banks, such as academic competitions or state released tests.

AP Calculus

This database has nearly 3000 questions for AP Calculus (AB level with some coverage of BC). You can view the table of contents and 50 sample questions with these links:

www.problem-attic.com/resources/APC-table-of-contents.pdf

www.problem-attic.com/resources/APC-sample-questions.pdf

SAT Math Prep.

This database has more than 2400 questions for the SAT college entrance examination. We have already begun a revision based on recently-announced changes, and we expect to add support for the ACT as well by summer 2014.

www.problem-attic.com/resources/APC-table-of-contents.pdf

www.problem-attic.com/resources/APC-sample-questions.pdf

If you are a school subscriber, we hope you like having these additional questions. If you are not a subscriber, please consider it for just a month to see all that Problem-Attic offers. Or better yet, encourage your school to come on board for Common Core Math, editing, online tests, slideshow export and many of the new features and question banks described above. Thank you!

For information about subscribing, please go here:

www.problem-attic.com/learnmoreschools

As always, we value your feedback. Please let us know what you think of the changes and how we make the website even better.

—The Problem-Attic Team at EducAide Software