

4-17-2009

# Putting "Teaching to the Test" to the Test: Is This Really a Problem in Arkansas?

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## Recommended Citation

Buck, Stuart and Ritter, Gary W., "Putting "Teaching to the Test" to the Test: Is This Really a Problem in Arkansas?" (2009). *Arkansas Education Reports*. 44.  
<http://scholarworks.uark.edu/oepreport/44>

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**ARKANSAS EDUCATION REPORT**  
**Volume 6, Issue 1**

**PUTTING “TEACHING TO THE TEST” TO THE TEST: IS THIS REALLY  
A PROBLEM IN ARKANSAS?**

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**April 17, 2009**

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## I. EXECUTIVE SUMMARY

As we enter the time of year when thousands of students in Arkansas take state and national tests, it seems particularly relevant to address the “teaching to the test” criticism that is perennially raised during testing season. In particular, since the advent of the federal No Child Left Behind Act, many people have criticized the education system in America for focusing too much attention on academic testing, primarily claiming that it encourages or rewards *teaching to the test*. The notion of “teaching to the test,” however, is rarely evaluated with any rigor.

This report intends to put this contention to the test by dissecting the meaning of the concept, illustrating the content of the actual tests, and analyzing the logical argument behind criticisms of standardized tests.

First, we describe the tests taken by Arkansas schoolchildren each year, as well as the way in which those tests correspond to the Arkansas Curriculum Frameworks for various grades. We also point out that one national non-partisan organization has praised Arkansas for leading the nation in adopting curricular standards that prepare students for college.

Next, we identify different types of “teaching to the test” that might occur, such as:

- Cheating
- Focusing too heavily on test-preparation skills
- Narrowing the curriculum
- Changing classroom teaching to focus too heavily on rote memorization

We conclude that there is no convincing evidence that the first two types of “teaching to the test” are currently a problem in Arkansas. In addition, the latter two types of “teaching to the test” are not likely to be a problem as Arkansas standards and tests appear to be so comprehensive that teaching real academic content will be the most effective way of preparing students to do well on the Arkansas tests. If teachers focus on the academic content required by the Arkansas curriculum standards, then what they are doing is simply *teaching*, not “gaming” the tests.

Finally, we end by recommending that Arkansas reading tests be aligned with all other Arkansas curricular standards, so that students will be given reading passages that deal with subjects they have already studied. This sort of alignment will produce synergy between reading and other substantive subjects.

## II. ARKANSAS STANDARDS AND ASSESSMENTS

### A. What Tests Are Taken Each Year?

Arkansas's state standardized tests have changed over the past few years. Since the ACTAAP legislation of 1999, Arkansas students have taken criterion-referenced Benchmark Tests based on the state's curricular standards along with national norm-referenced exams each year. Prior to 2004, students in grades 4, 6, and 8 were administered the Benchmark tests in Mathematics and in English Language Arts. Starting in 2005, the odd-numbered grades were added so that students in grades 3-8 took the week-long Benchmark tests, in accordance with the requirements of the federal No Child Left Behind act.

In addition to the Benchmark exams, all students in grades K-9 took the national norm-referenced tests throughout this period. Prior to 2004-05, the nationally norm-referenced test used was the Stanford Achievement Test-Version 9 (SAT-9). In 2004-05, the statewide standardized test was switched from the SAT-9 to the Iowa Test of Basic Skills, which was administered to students across the state for three years. These norm-referenced tests have all been administered to gauge Arkansas students' progress against the progress of students nationwide.

In spring 2008, state policymakers implemented the new Arkansas "Augmented Benchmark" exam. As described by the Arkansas Department of Education (ADE), "Arkansas legislation calls for students to take two forms of tests each year; a criterion-referenced one that tests students' knowledge of the state's curriculum, and a norm-referenced one which allows for comparison of Arkansas students' performance to that of students across the country. In the augmented version of the test, both sets of test items were incorporated into one examination, which allowed students to take one test instead of two." In other words, "Beginning with the 2007-2008 school year, the state-mandated criterion-referenced testing was combined with norm-reference testing, presently the Stanford Achievement Test, Tenth Edition (SAT-10), to form the Augmented Benchmark Examinations at grades 3-8."<sup>1</sup>

Finally, high school students take mid-year End-of-Course (EOC) exams in January in Algebra, Geometry, and Biology and the actual EOC in these subjects in April. All students also take the Literacy exam in March of their 11th grade year.<sup>2</sup>

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<sup>1</sup> See [Hhttp://arkansased.org/testing/assessment.html](http://arkansased.org/testing/assessment.html)H.

<sup>2</sup> Despite the number of tests, the actual amount of time spent in tests is rather small: as the Office for Education Policy pointed out in an April 2008 policy brief, even the students in our most heavily tested grades (5 and 7) participate in standardized assessments for only 12 hours of the approximately 900 instructional hours available each year. "Time Spent on Testing," available at [Hhttp://www.uark.edu/ua/oep/policy\\_briefs/2008/Time\\_Spent\\_on\\_Testing.pdf](http://www.uark.edu/ua/oep/policy_briefs/2008/Time_Spent_on_Testing.pdf)H.

## B. Arkansas Curricular Frameworks

Arkansas has adopted Curriculum Frameworks, which are available in full at <http://arkansased.org/teachers/frameworks.html>. These Frameworks are lengthy standards that describe all of the materials and skills that should be mastered in each grade. The ADE notes that these Frameworks are “the work of a committee of Arkansas educators representing every facet of Arkansas education, including geographic region, grade, school size and fiscal status, gender, ethnicity, and education experience.”

For grades 1-4, Arkansas introduced a plan called “Smart Start” in 1998 to organize curriculum, professional development for teachers, and testing with the goal that “all children will meet or exceed grade-level requirements in reading and mathematics by Grade 4.”<sup>3</sup> For grades 5-8, Arkansas has a plan known as “Smart Step,” which maintains the same curricular goals so as to prepare students to enter high school.<sup>4</sup>

For high schools, Arkansas has adopted the “Smart CORE” curriculum standards that will be in place for the graduating class of 2010. At that time, all high school students in Arkansas will be expected to complete a core curriculum consisting of academic classes in English (4 years), Social Studies (3 classes), Math (4 classes), Physical Science (3 classes), and several other areas (Oral Communications, Physical Education, Health & Safety, Fine Arts, and Career Focus).<sup>5</sup>

Arkansas’ Frameworks have received mixed reviews from outside organizations. Achieve, Inc., a non-partisan organization dedicated to improving curricula across many states, noted in a 2006 report that “One year ago, only two states – Arkansas and Texas – required students to take the courses considered to represent a rigorous college- and work-ready curriculum in order to graduate.”<sup>6</sup> On the other hand, the Fordham Foundation’s report on all 50 states’ standards in 2006 gave Arkansas’ standards low grades.<sup>7</sup>

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<sup>3</sup> See [Hhttp://arkansased.org/smart\\_arkansas/smart\\_start/index.html](http://arkansased.org/smart_arkansas/smart_start/index.html)H.

<sup>4</sup> See [Hhttp://arkansased.org/smart\\_arkansas/smart\\_step/index.html](http://arkansased.org/smart_arkansas/smart_step/index.html)H.

<sup>5</sup> See [Hhttp://arkansased.org/smart\\_arkansas/smart\\_future/html/students/students\\_what\\_is.html](http://arkansased.org/smart_arkansas/smart_future/html/students/students_what_is.html)H.

<sup>6</sup> See [Hhttp://www.achieve.org/node/90](http://www.achieve.org/node/90)H.

<sup>7</sup> See [Hhttp://fordhamfoundation.org/doc/State%20of%20State%20Standards2006FINAL.pdf](http://fordhamfoundation.org/doc/State%20of%20State%20Standards2006FINAL.pdf)H.

### C. Content of Arkansas Tests

The current Arkansas tests are drawn from the Arkansas Curriculum Frameworks. In the following paragraphs we describe examples of two recent benchmark tests as released on the Arkansas Department of Education's website.<sup>8</sup>

We first examine the math portion of the 4th grade test administered in spring of 2007.<sup>9</sup> There are a wide variety of math skills that 4th grade students are expected to know: the difference between parallel and perpendicular lines, how to read pictographs and bar graphs, to combine shapes visually to form a parallelogram, to read clocks and calendars, to identify the principle by which a mathematical series was constructed, to solve inequalities, to be familiar with place value notation, to be familiar with simple operations involving fractions, to estimate simple probabilities, to calculate the area of a rectangle, to identify a simple algebraic equation that represents the answer to a story problem, and to be familiar with angles and degrees.

Not only are these valuable skills for schoolchildren to learn, they are the very skills that Arkansas has decided to include in the school curriculum. The Arkansas Department of Education's booklet on this test includes three detailed pages (at pp. 42-44) explaining how each math question was specifically designed to coincide with the Arkansas Mathematics Curriculum Framework.<sup>10</sup>

Similarly, the reading portion of the 8th grade test administered in spring 2007 appears to be well-rounded and to reflect the material that Arkansas has decided 8th graders should learn.<sup>11</sup> The first item on the reading portion is a biography of Alexander the Great, starting with his childhood in the Persian Empire, his tutors (including Aristotle), his horse Bucephalus, his ascent to the throne, and the reasons he wanted to build an empire. The reading comprehension questions are often subtle and are aimed at whether the students grasp the underlying concepts in the story. For example, students are asked about Aristotle's reasons for teaching, Aristotle's educational philosophy, and why the passage discussed Alexander's horse.

Another reading item includes a long passage discussing George Washington's farming practices. Again, most of the questions are aimed at finding out whether students grasped the purpose and concepts of the passage, such as why Washington believed in the importance of farming and whether particular statements from the passage were opinion or fact. This section also includes an open response item that asks students to write an essay on the following:

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<sup>8</sup> See the "Released Items Booklets" here: [Hhttp://arkansased.org/testing/benchmark\\_iowa.html](http://arkansased.org/testing/benchmark_iowa.html)H.

<sup>9</sup> See [Hhttp://arkansased.org/testing/pdf/rib\\_gr4\\_spr07.pdf](http://arkansased.org/testing/pdf/rib_gr4_spr07.pdf)H.

<sup>10</sup> For additional sample questions from the 4th grade reading test, see Appendix A.

<sup>11</sup> See [Hhttp://arkansased.org/testing/pdf/rib\\_gr8\\_spr07.pdf](http://arkansased.org/testing/pdf/rib_gr8_spr07.pdf)H.

“George Washington invented the barrel plow. Describe how this farm tool was used. Explain how the invention improved life for farmers.”<sup>12</sup>

The reading test also includes a writing portion that asks students to write two essays, one about what the student would do if made President for a day, and one about a “great event in the history of the world.” These essays are graded for organization, ideas, style and tone, ability to form correct sentences, as well as grammar and punctuation. The reading test concludes with eight questions that ask students to identify correct usage of punctuation and grammar.

Similar to the 4th grade math test, the 8th grade reading test is accompanied by a chart explaining how every item on the test measures some aspect of the Arkansas English Language Arts Curriculum Framework. Thus, an analysis of samples from the Arkansas Benchmark Tests shows that they do seem to measure meaningful skills, rather than mere rote memorization.

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<sup>12</sup> For more samples from the 8th grade reading test, including the full reading passage about Alexander the Great, see Appendix B.



### III. DEFINING “TEACHING TO THE TEST”

We may distinguish between a few different types of “teaching to the test.” Some kinds of “teaching to the test” are unambiguously wrong, but others simply represent *educating children* (assuming that the tests are validly constructed).

#### A. “Teaching to the Test” as Cheating

“Teaching to the test” might be taken in a literal sense: obtaining a copy of a test ahead of time, and teaching children the specific questions that will be on the test. In this sense, “teaching to the test” is more accurately described as “cheating.” As yet, we are not aware of any strong evidence that cheating is common in Arkansas.

A close cousin to literal cheating involves unduly focusing on specific items that are *predicted* to be on the test. For example, a recent *New York Times* story described a teacher who engaged in this sort of “teaching to the test”:

Significant historical episodes are often reduced to little more than sound bites. “You don’t really need to know anything more about the Battle of Britain, except that it was an air strike,” Ms. Cain told one class. “If you see a question about the Battle of Britain on the test, look for an answer that refers to air strikes.”<sup>13</sup>

While this example does not rise to the level of actual cheating, it is uncomfortably close because it shows a teacher telling students how to guess at an answer for a specific question on a specific topic. If the test actually did ask a question about the “Battle of Britain” and if the correct answer mentioned “air strikes,” then the teacher’s students will be more likely to answer the question correctly – not because they had obtained a broad and meaningful education (they might not even know what an “air strike” is), but merely because they had been advised on how to answer that specific question. In such a situation, the fundamental purpose of testing – to let teachers, administrators, and the public know how well students are actually learning – would be undermined.

The answer to this type of teaching to the test is not to get rid of academic testing. Rather, the answer is to ensure that tests are not so completely predictable that teachers are able to feed students the predicted answers ahead of time. If a test is broad enough and varied from year to year, teachers will not be able to use such tactics.

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<sup>13</sup> Ginger Thompson, “Where Education and Assimilation Collide,” *New York Times* 14 Mar. 2009, available at <http://www.nytimes.com/2009/03/15/us/15immig.html?sq=hylton&st=cse&scp=1&pagewanted=all>H.

9. Pam created the table below using a 2-step rule.

$x$	$y$
2	5
3	7
4	9
5	11

What did Pam do to create her set of numbers?

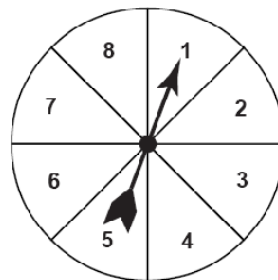
- A. Add 4 to the  $x$ -value, and then subtract 1.
- \* B. Multiply the  $x$ -value by 2, and then add 1.
- C. Add 2 to the  $x$ -value, and then add 1 more.
- D. Multiply the  $x$ -value by 2, and then subtract 1.

Samples of questions taken from the 4th and 8th grade questions (see Appendices A and B) indicate that the Arkansas Benchmark tests are not sufficiently predictable to allow teachers to “teach to the test” in this sense.

For example, consider the 4th grade math question to the left. Students are given two columns of numbers, in which the second column was created using some sort of “rule” (or function) applied to the first column. Assuming that teachers are not provided with that specific problem ahead of time, the only way to prepare students for such a problem would be to teach them how to recognize numerical patterns generally.

For another example, consider the question to the right. Similar to the previous question, teachers are not likely to be able to “teach to the test” by teaching students how to answer this precise problem. Instead, the best way to prepare students for such a question would be to introduce them to the general concept of probability and to teach them about how to represent probabilities in terms of fractions. Appendix A and B provide additional examples of math and reading problems found on the Arkansas Benchmark tests.

6. What is the probability of spinning a number less than 4 on the spinner below?



- \* A.  $\frac{3}{8}$
- B.  $\frac{4}{8}$
- C.  $\frac{8}{4}$
- D.  $\frac{8}{3}$

## **B. Teaching Test-Taking Skills**

“Teaching to the test” could also imply that the teacher instructs students on basic test-taking skills, such as the importance of reading the instructions carefully, the need to consider each answer to a multiple choice question rather than seizing on the first answer that seems plausible, and how to use the process of elimination.

In reality, there is no inherent problem with this method if teachers devote a modest amount of time and attention to these skills. Indeed, these test-taking skills can be viewed as a form of *critical thinking*. The ability to read carefully and then to think methodically and logically before answering a question will come in handy everywhere, not just in a test-taking situation. *Everyone* uses the process of elimination to make decisions in their daily lives, not just schoolchildren taking tests (consider an automobile mechanic or electrician who must consider which of three possible parts could be causing a particular malfunction).

In any event, most teachers are probably aware that even though many test-taking skills can be broadly useful, students will be left adrift on an actual test unless they have spent the majority of their time learning the content matter being tested. Thus, teachers have a strong incentive to teach the actual academic subjects that are tested, in accordance with the Arkansas Frameworks.

## **C. Narrowing the Curriculum**

### ***1. Narrowing Within a Specific Subject Area***

Suppose that a teacher in fourth grade has 30 or 40 math concepts that she needs to teach during a given school year as part of a well-rounded mathematical education. Suppose further that students are required to take an academic test that is too narrow and focuses overwhelmingly on only one of these skills, such as long division. The teacher might then face an unfortunate incentive to spend too much time on long division, while ignoring other important mathematical concepts.

The real issue in this scenario is not that teachers are preparing students for a test. The underlying problem arises *because the test is too narrow*. If a test fails to measure the broad sweep of materials and skills that we want children to learn, then it will create an incentive for teachers to narrow their lesson plans accordingly. But this merely means that the test should be written more broadly to test more of the things that we want children to learn.

In this respect, no one has yet attempted to show that Arkansas Benchmark tests are currently too narrow, or that they fail to test a wide scope of material. To the contrary, the Arkansas tests *do* seem to measure a broad sweep of skills and materials that children are supposed to learn. As noted above, the 4th grade math test evaluates students on a wide range of math skills that are important for 4th graders to learn. If teachers in Arkansas are teaching 4th grade students all of

the math skills they need to pass this test, *then the teachers are doing exactly what they are supposed to do.*

The same is true for the 8th grade test described above: it sweeps broadly, asking students to be able to handle everything from identifying minor punctuation mistakes, to identifying the theme of a written passage, to writing their own essays. If teachers in Arkansas successfully teach their students all of the reading and writing skills necessary to do well on this test, they are doing their job.

## **2. *Narrowing the Subjects Taught***

Some have argued that because standardized tests tend to focus on math and reading, schools now have an incentive to shortchange other important subjects such as art, history, and music. While there are some anecdotal reports of schools doing just that, although a government-sponsored survey found that 90% of elementary school teachers nationwide stated that arts education had *not* decreased between the 2004-05 and 2006-07 school years.<sup>14</sup>

The answer to this critique is that there is no inherent conflict between trying to achieve high reading scores and teaching a broad range of academic subjects. To the contrary, as E. D. Hirsch has repeatedly pointed out over the years, the best way to help children do well on reading comprehension tests is precisely to teach them a great deal of academic content. As Hirsch points out in a recent *New York Times* op-ed, a 1988 study confirmed this:

Experimenters separated seventh- and eighth-grade students into two groups – strong and weak readers as measured by standard reading tests. The students in each group were subdivided according to their baseball knowledge. Then they were all given a reading test with passages about baseball. Low-level readers with high baseball knowledge significantly outperformed strong readers with little background knowledge.

The experiment confirmed what language researchers have long maintained: the key to comprehension is familiarity with the relevant subject. For a student with a basic ability to decode print, a reading-comprehension test is not chiefly a test of formal techniques but a test of background knowledge.<sup>15</sup>

Hirsch's point can be confirmed by recalling the reading passages discussed above. Students who had learned world history and American history and have a thorough grasp of concepts ranging from Aristotelian philosophy to farming implements would have been much better prepared to read the passages on the Arkansas 8th grade reading test in 2007.

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<sup>14</sup> See GAO Report, "Access to Arts Education" (Feb. 2009), available at [Hhttp://www.gao.gov/new.items/d09286.pdf](http://www.gao.gov/new.items/d09286.pdf)H.

<sup>15</sup> E. D. Hirsch, Jr., "Reading Test Dummies," *New York Times*, Mar. 22, 2009, available at [Hhttp://www.nytimes.com/2009/03/23/opinion/23hirsch.html?\\_r=1&ref=opinion](http://www.nytimes.com/2009/03/23/opinion/23hirsch.html?_r=1&ref=opinion)H.

Thus, it would be shortsighted and counterproductive for schools or teachers to set aside subjects like history or art to focus instead on reading. Children are not tested merely on “reading skills” in the abstract. They are tested primarily on their ability to read and write lengthy essays that are actually *about something* – history, farming, etc. Thus, students who have a wide range of knowledge about those subjects will be far more likely to pass a reading test than students lacking a strong knowledge base.

#### **D. “Teaching to the Test” as Encouraging Rote Memorization**

Some have argued that with the advent of wider testing, teachers are no longer able to teach in a creative and inspirational manner. Instead, their teaching style morphs into doing little more than checking off a list of items that will likely be tested later in the year. As Bill Ferriter (a 6th grade teacher from North Carolina) puts it, “There is real pressure in today’s schools for instructors to conform----and conformity strangles creativity.”<sup>16</sup>

As for whether this phenomenon is occurring in Arkansas, we are not aware of any hard evidence showing that teachers are being compelled to change their teaching practices. Instead, as discussed in further detail above, the Arkansas Benchmark tests (along with the Arkansas Curriculum Frameworks from which they are drawn) look at a wide variety of skills and knowledge that students ought to learn. The mere fact that these skills and knowledge are going to be tested should not, in principle, do anything to affect anyone’s teaching *style*.

Consider, for example, the 4th grade math test analyzed above. According to the test, 4th grade students should be able (among many other things) to read pictographs and bar graphs, to identify the principle by which a mathematical series was constructed, to solve inequalities, to be familiar with place value notation, and to be familiar with simple operations involving fractions.

*But nothing about this framework forces teachers to adopt any particular teaching style.*

Teachers are still free to be as creative and imaginative as they can possibly be – as long as, at the end of the day, the children have still been taught the necessary concepts and skills. Indeed, teachers who work hard to deliver creative and interesting lessons are likely to have students who do quite well on our state assessments.

### **IV. RECOMMENDATIONS AND CONCLUSIONS**

Our first recommendation is that Arkansas’ reading tests should be more closely aligned with the rest of the curriculum. In the *New York Times* op-ed cited above, E.D. Hirsch argued that reading passages on a state’s tests should be directly tied to the academic curriculum for that state, rather than being based on random subjects that may or may not have been taught in school. Thus, if the 5th grade curriculum in Arkansas expects (as it does) that children will learn about the physical geography, the three branches of government, Hernando de Soto, etc., the

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<sup>16</sup> See [Hhttp://teacherleaders.typepad.com/the\\_tempered\\_radical/2009/02/creativity-is-dead-ken-.html](http://teacherleaders.typepad.com/the_tempered_radical/2009/02/creativity-is-dead-ken-.html)H.

reading test for that year should contain reading passages that are about one or more of those subjects. In this way, all children will have a fairer or more equal chance to pass the reading test, because they will not be distracted by complete unfamiliarity with the subject matter.

We are not yet aware of any deliberate attempts to align Arkansas Benchmark reading tests with all of the other curricular standards for history, and social studies.<sup>17</sup> Indeed, while the 8th grade reading test describe above had a passage on Alexander the Great, the Arkansas Curriculum Frameworks mention Alexander the Great only in the 7th grade curriculum, not 8th grade. This may work to the advantage of students who have a keen memory from year to year, but it would be better if each grade's reading tests were aligned not just with that grade's reading standards but with that grade's content standards as well.

Our second recommendation is that the Arkansas Department of Education let Arkansas teachers know that the mere existence of tests covering the Arkansas Frameworks should not be taken as a prescription of any particular teaching practice. That is, Arkansas teachers are not being ordered to eschew creativity and focus on rote memorization, nor is there any reason to think that such teaching techniques would bring success on the Arkansas Benchmark tests. Instead, the best way to prepare students for the state tests is to teach a wide range of academic content and academic skills, something that can be done in a creative and thoughtful manner.

In conclusion, as discussed above, we have identified four possible definitions of “teaching to the test”:

- Cheating: There is no evidence of widespread cheating on Arkansas Benchmark tests.
- Undue focus on test-prep skills: At least some focus on test-prep skills is defensible, and there is little reason to think that teachers are ignoring the academic content that is required by the Arkansas Frameworks and that is tested on the Arkansas Benchmark tests.
- Narrowing the curriculum: While there are anecdotes of schools that are limiting the study of subjects outside of reading and math, there is no systematic evidence of such a phenomenon in Arkansas. Moreover, our analysis suggests that the best way to prepare for reading tests is precisely for schools to teach a wide range of academic subjects (such as history, art, etc.).
- Limiting teachers' creativity: Again, although there is anecdotal evidence that some teachers feel that their creativity is stifled by state tests, we see no systematic evidence or reason that the Arkansas Curricular Frameworks would prevent teachers from using any creative teaching methods they like.

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<sup>17</sup> Those curriculum standards are listed here: <http://arkansased.org/teachers/frameworks2.html>.

In short, Arkansas policymakers have democratically agreed as to what children ought to be learning in each grade by adopting the Arkansas Frameworks and the Arkansas tests have been specifically designed to test those skills and subjects. Teaching a broad range of academic content that will happen to be tested is not the same as “gaming” the test. If the Arkansas tests are fairly examining what we have decided children ought to learn, then “teaching to the test” actually means little more than *teaching*.

## V. APPENDIX A

### Selections from 4th Grade test, 2006-07

9. Pam created the table below using a 2-step rule.

$x$	$y$
2	5
3	7
4	9
5	11

What did Pam do to create her set of numbers?

- A. Add 4 to the  $x$ -value, and then subtract 1.
  - \* B. Multiply the  $x$ -value by 2, and then add 1.
  - C. Add 2 to the  $x$ -value, and then add 1 more.
  - D. Multiply the  $x$ -value by 2, and then subtract 1.
10. It took Sara 1 hour and 30 minutes to do her homework, and she practiced piano for 45 minutes. What was the total amount of time Sara spent doing homework and practicing piano?
- A. 1 hour and 15 minutes
  - B. 1 hour and 30 minutes
  - \* C. 2 hours and 15 minutes
  - D. 2 hours and 25 minutes

**IMPORTANT:** This item appeared in the *Grade 4 Benchmark Examination* test booklet as item 12 and again as item 48. Students were required to answer this item correctly **only once**. Answering correctly for item 12 but incorrectly for item 48 (or vice versa) resulted in a student receiving credit for the item. The student's score was not harmed by the duplication of the item.

11. José attended a science program that lasted 1 hour and 10 minutes. The program ended at 3:20 P.M. What time did the program begin?

- A. 4:30 P.M.
- B. 4:20 P.M.
- C. 2:20 P.M.
- \* D. 2:10 P.M.

12. Kim wrote the following number sentence (inequality) on the board.

$$3 \times 6 - 4 < 6 \square 3$$

Which symbol will make the number sentence true?

- A. +
  - B. -
  - \* C.  $\times$
  - D.  $\div$
13. Which shows the expanded form of the number below?

**656,094**

- A.  $60,000 + 56,000 + 90 + 4$
- B.  $600,000 + 56,000 + 90 + 4$
- C.  $600,000 + 50,000 + 6,000 + 94$
- \* D.  $600,000 + 50,000 + 6,000 + 90 + 4$



## VI. APPENDIX B

Selected reading portion from 8th Grade test, 2006-07

### PART II Released Reading Items—2007 Benchmark Grade 8

Read the following passage about Alexander the Great. Then answer multiple-choice questions 1 through 8 and open-response question A.

# EDUCATING A CONQUEROR: HOW ALEXANDER BECAME THE GREAT

by Shulamith Levey Oppenheim

One day, when he was six or seven, two Persian envoys<sup>1</sup> arrived at the palace. King Philip was away subduing warring tribes, and Alexander greeted the men. The envoys saw a boy who carried himself proudly. He had fair hair waving about his face and across his shoulders, and his features were near perfect, with deep-set violet eyes. As he spoke, a flush of excitement blushed his cheeks.

The envoys were amazed. The child did not ask about the legendary Hanging Gardens of Babylon or the kinds of games Persian children played. Instead, he asked about the size of the Persian Empire, its customs, and how fast its armies could travel across vast regions. The two diplomats came away more than impressed with the young prince.

At this time Alexander's world included his parents, tutors, servants, and boys his own age from noble families. He learned very early on that he was born to be a king and a commander of armies. He excelled in swordplay, archery, javelin throwing, and horsemanship, riding almost before he could walk.

Besides his military training, supervised by his first tutor, Leonidas, Alexander was taught to read and write. Special emphasis was put on thinking logically and expressing himself clearly. An accomplished musician, he played the lyre, a stringed instrument.

When Alexander was almost ten, a new tutor took over his education. His name was Lysimachus. This man was far less cultured than Leonidas, but he held one great advantage. He knew that Alexander's mother, Olympias, proudly traced her

ancestry back to Achilles, hero of the Trojan War, and that Alexander even now was trying to become another Achilles. So the clever Lysimachus called his pupil "Achilles." He referred to King Philip as "Peleus," the father of Achilles, and called himself "Phoenix," Achilles' legendary tutor.

About three years later, an incident took place that showed Alexander's ability to see what others, much older and more experienced than he, often missed.

It was a beautiful spring day, and father and son stood together, observing a majestic black stallion. His name was Bucephalus, and his purchase price had been beyond anything paid before—about \$75,000 in today's terms. Alexander felt his heart race in his chest. He adored horses, and this was indeed a glorious creature. But Bucephalus refused to be mounted, rearing and bolting and raging at the slightest attempt. In a fit, Philip ordered the horse to be returned to the merchant Philonicus.

Suddenly Alexander asked his father if he might try mounting the horse. Philip answered that no one had been able to do so. Alexander insisted. His father relented, asking what he planned to do if he failed. Alexander replied that he would buy the horse himself.

Without hesitation, Alexander took hold of the bridle and turned the magnificent animal directly into the sun. He spoke softly to Bucephalus, and slowly the horse's panting and rearing ceased. As the great stallion lowered his head, Alexander sprang onto his back and rode him. What Alexander had noticed was that, when Bucephalus had his tail

<sup>1</sup> envoys: diplomatic messengers

## PART II Released Reading Items—2007 Benchmark Grade 8

to the sun, the horse's shadow lay before him, and as he moved, so did the shadow, growing larger and larger, plunging and rearing, terrifying the horse.

As the onlookers cheered, Philip, filled with relief and pride, uttered these prophetic words: "My son, seek out a kingdom for yourself. Macedonia has no room for you."

From that day, Alexander and Bucephalus became inseparable. Even years later, when the grand creature had grown too old to ride into battle, Alexander would mount him for a few minutes and trot him gently before the troops, then dismount and kiss him. When Bucephalus died, seventeen years after that radiant spring day, he was given a royal burial and a city was named for him. The ruins of that city, Bucephalia, still remain in what is today Kashmir.

After Alexander's dazzling success with Bucephalus, Philip realized his exceptional son needed an exceptional teacher. And so he chose Aristotle, the brilliant philosopher whose father had been physician to Philip's father.

Aristotle was already celebrated as one of the greatest minds of his time, a reputation that has not lessened to this day. He had a thorough knowledge of geometry, mathematics, botany, zoology, geology, astronomy, and medicine.

4 Eager to further his son's education, Philip set up an ideal environment for study and contemplation in a place called Mieza, not far from the capital city of Pella. In the calm of shady walks and secluded nooks, stone benches beckoned Alexander and his companions, all sons of nobles, to sit beside the master Aristotle, to listen and debate. Alexander's mind expanded beyond his father's fondest hopes. He loved to learn and, especially, he loved the healing arts.

Aristotle taught that all knowledge was essential to the pursuit of a fruitful life, not just the

sciences but also literature and music. First and foremost, however, was the sharpening of the mind. Aristotle encouraged his pupil to observe, to think through, to reason. Alexander had already proven himself when he brilliantly observed Bucephalus and then tamed him. Now Aristotle strengthened this ability. He taught Alexander the advantage of seeing both sides of a problem and of being able to argue successfully in favor of either.

The one area of disagreement between teacher and student was Aristotle's belief that all who were not Greek were barbarians and possessed the nature of slaves. He counseled Alexander to be a leader to Greeks and a tyrant to all others. Alexander did not agree. He believed in taking each human being on his or her own merit.

Nonetheless, Alexander thrived under Aristotle's guidance. When he was older, he confided to a friend,

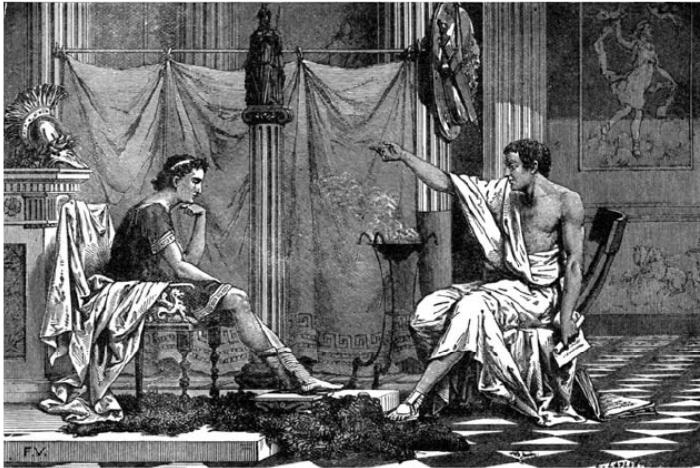
"My father gave me life, but it was Aristotle who taught me how to live the noble life."

When Alexander was sixteen, Philip decided it was time his son had a taste of the responsibility that would someday be his alone. The king left Alexander in charge of Macedonia while he went off on an expedition.

The moment Philip's back was turned, an unruly tribe in the north began a revolt, believing their chances of success against a sixteen-year-old boy to be excellent. They were wrong! Alexander subdued the rebels, captured their city, and renamed it Alexandropolis.

Four years later, just as Philip was mounting a campaign to invade Persia, he was assassinated, and Alexander became king. He was twenty years old.

Now began an unparalleled journey of conquest for this brilliant, at times recklessly courageous—but more often calculating—young man.



**PART II Released Reading Items—2007 Benchmark Grade 8**

1. How did Alexander prove that he was a successful leader?
  - A. He revealed his athletic skills.
  - \* B. He stopped the revolt of a northern tribe.
  - C. He mounted the horse that others failed to ride.
  - D. He showed that he could see both sides of a dispute.
  
2. On what issue did Alexander and Aristotle disagree?
  - A. the most effective weapons for battle
  - B. the overall strategy for decisive warfare
  - C. the proper technique for military training
  - \* D. the correct treatment of conquered people
  
3. Why is the story of Alexander’s mounting of the horse Bucephalus included in the passage?
  - A. to show his strength
  - B. to point out that he is reckless
  - C. to demonstrate his leadership abilities
  - \* D. to emphasize his powers of observation
  
4. Based on the passage, with which statement would Aristotle agree?
  - A. All people should be considered equal.
  - B. Literature is an unimportant subject for study.
  - C. The most important skill for a future king is training in warfare.
  - \* D. Education should include knowledge of sciences, literature, and art.
  
5. According to the passage, what was a recurring problem that Philip and Alexander faced while ruling?
  - A. acquiring sufficient horses
  - \* B. subduing unruly, warring tribes
  - C. adequately equipping the army
  - D. treating conquered people fairly
  
6. Based on the passage, which is an accurate description of Aristotle?
  - \* A. He believed in teaching his students to reason.
  - B. He believed that all people are equally endowed.
  - C. He wanted Alexander to become a fierce warrior.
  - D. He wanted Alexander to concentrate on the study of literature.
  
7. Which detail **best** identifies the third-person point of view used in the passage?
  - \* A. the use of the pronoun “he”
  - B. the detailed connection to Achilles
  - C. Alexander’s interview with the Persian envoys
  - D. the relationship between Alexander and his father
  
8. Based on its use in paragraph 14, what is the meaning of secluded?
  - A. dark
  - \* B. hidden
  - C. obvious
  - D. uncomfortable

## READING OPEN-RESPONSE ITEM A

- A. The passage describes three different tutors who taught the young Alexander. Identify two of these tutors and explain the contributions each made to Alexander’s education. Use information from the passage to support your answer.

## RUBRIC FOR READING OPEN-RESPONSE ITEM A

SCORE	DESCRIPTION
4	The response identifies two tutors and explains the contributions each made to Alexander’s education using specific details from the passage.
3	The response identifies two tutors and explains the contributions each made to Alexander’s education using general details from the passage.
2	The response identifies one tutor and explains the contributions he made to Alexander’s education using limited or inappropriate details from the passage.
1	The response demonstrates a minimal understanding of the role of the tutors. <b>OR</b> The response provides limited or inappropriate details from the passage.
0	The response is totally incorrect or irrelevant. There is no evidence that the student understands the task, or the response may be off-topic.
B	Blank—No Response. A score of “B” will be reported as “NA.” (No attempt to answer the item. Score of “0” assigned for the item.)