



November 21, 2006

Dr. Henry Johnson, Assistant Secretary for  
Elementary and Secondary Education  
U. S. Department of Education  
400 Maryland Avenue, S.W.  
Washington, D.C. 20202

Dear Dr. Johnson:

Enclosed is the State of Arkansas' proposal to adopt a growth model to be used for determining whether schools, school districts, and the state are making adequate yearly progress under the No Child Left Behind Act of 2001 (NCLB) for the 2006-07 school year. This proposal revises a previous proposal that we had submitted to you February 17, 2006, which had proposed to implement a growth model under NCLB for the 2005-06 school year. It incorporates changes that we had submitted September 14, 2006, in response to issues raised in the peer review process.

Implementation of a growth model is a high priority for the Arkansas Department of Education. The model implements state law mandates and will better align federal and state accountability procedures, which will improve public understanding and support for Arkansas' accountability system.

I believe strongly that use of this model will strengthen our accountability system. In particular, it will enhance the system's ability to achieve one of its central purposes: namely, to close the achievement gap based on race, ethnicity, and poverty. Our proposal is fully consistent with and will enhance our success in meeting the underlying purpose and core principles of NCLB.

Thank you and your staff for your consideration of this proposal, and I would be happy to provide additional information or answer any questions.

Sincerely,

T. Kenneth James, Ed.D.

Commissioner of Education

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# **ARKANSAS GROWTH MODEL PROPOSAL**

*Submitted to the United States Education Department  
By the Arkansas Department of Education*

**November \_\_, 2006**

# **ARKANSAS GROWTH MODEL PROPOSAL**

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## **I. Introduction**

Arkansas proposes to adopt a growth model to be used for determining whether schools, local educational agencies, and the state are making adequate yearly progress (AYP) under the No Child Left Behind Act of 2001 (NCLB) for the 2006-07 school year. Arkansas' proposal is to adopt a growth model to add to the current status and safe harbor system that is used under Section 1111 of the Elementary and Secondary Education Act, as amended by NCLB. The Arkansas Department of Education (ADE) is prepared to cooperate fully with USED in evaluating the growth model.

### **A. Arkansas Has a Strong Educational Rationale for Using a Growth Model**

A growth model of accountability fits squarely within established state law and educational policy. It reflects Arkansas legislative policy to measure annual learning gains of all students through longitudinal tracking in order to improve the public schools and inform parents of the progress of their children. As amended in 2003, state law calls for rating schools based in part on their success in raising the achievement of individual students from year to year. *Arkansas Code*, secs. 6-15-402; 6-15-419(5); 6-15-419(18); 6-15-2102. Use of a growth model in making AYP determinations under NCLB will thus enable the state to better align federal and state accountability measures and enhance public understanding and respect for our accountability systems.

Our growth model proposal is purposely conservative in this first, pilot year of implementation. To preserve the stability and public understanding of our accountability system and to avoid prejudicing schools and districts that are succeeding under current measures tied to AYP, we propose to continue using the status and "safe harbor" models under the NCLB statute. But we also propose to use student growth as a third measure by which to evaluate and understand school and district performance. In effect, the growth measure will supplement each of these other models by examining increasing annual measurable objectives based on students who are making significant growth in achievement.

In this way, schools and districts with substantial student populations performing below the proficient level will face meaningful accountability decisions based on their success in placing students on a pathway to proficiency and in closing achievement gaps. Previously, many of these schools and districts had limited opportunity to demonstrate AYP in particular years – based on the high proportions of at-risk students in the school or district – and therefore limited incentive based on NCLB to improve their instructional program. Our proposed growth model addresses this limitation by providing schools with the opportunity to make AYP if they succeed in showing significant achievement gains in the same students over time. That, we submit, is a fairer, more valid, and ultimately more effective way to hold many schools accountable – particularly schools with significant proportions of at-risk students. In addition, we have amended our proposal to measure academic growth among students who are at or above proficiency so that schools and districts are held accountable based on whether these students gain or lose ground on achievement assessments.

Our proposed model also enables the state to target interventions on schools that are not doing an effective job in improving the achievement of their students and closing achievement gaps. ADE plans to focus more intensive technical assistance and more rigorous interventions on these schools. The ADE has adopted a comprehensive school reform design program for low performing schools/districts. The program focuses on five key areas: standards and assessments; aligned instructional systems; high-performance leadership, management and organization; professional learning communities; and parent and community engagement. Highly skilled literacy and mathematics coaches will be assigned to the schools to provide on-going support to classroom teachers. A leadership team will participate in strategic professional development to build leadership capacity. It is ADE's plan to give priority in targeting these interventions and Title I school improvement funds, on schools that fail to make AYP under the growth, status, and safe harbor accountability models.

We believe that it is not a prudent use of limited state and district staff and other resources to intervene in schools that may not yet be meeting annual measurable objectives for proficiency, but in fact are making significant progress in raising the achievement of students, including students who are not at the proficient level. Such progress, we believe, is adequate to determine that the school is effectively doing its job in educating children, in particular at risk children who may face greater educational challenges. We absolutely do not propose to hold these students to lower standards than other children, but in identifying which schools are or are not making adequate progress, we believe it is most valid, fair, and efficacious to measure many schools according to how effective they are in raising the achievement of individual students who come to school below, and often well below, proficiency standards.

Arkansas law also requires schools to develop academic improvement plans for individual students who are not proficient. *Arkansas Code*, secs. 6-15-404(g)(4)(B); 6-15-419(2); 6-15-420; 6-15-2004; 6-15-2009. Currently, the data used in developing the student improvement plans derive from status performance based on the criterion-referenced tests. With a growth model, additional data can be included in the plans with indicators for increases, not just status. Thus, measuring the growth of these students towards proficiency reinforces the integrity and importance of these plans and fosters the use of assessment results in diagnosing and acting on individual student needs. Growth measures will provide teachers new information that will assist in planning remediation and prioritizing additional work for the student. A growth model also fosters more targeted and effective professional development at the district, school, and classroom levels. Specifically, ADE plans to use individual student growth results on assessments to assess which teachers most need professional development, mentoring, or other assistance and the nature of that professional development and assistance. We believe that the tracking of individual student growth is a much more reliable and effective way to determine how to target these professional development interventions than an accountability system that focuses on comparing different cohorts of students from year to year. In conjunction with LEAs, ADE will implement professional development interventions on this basis

### **B. Arkansas Meets USED's New Equation for NCLB Flexibility**

For the reasons summarized below, Arkansas essentially meets all of the elements of USED's "new equation" for providing flexibility under NCLB. The achievement of Arkansas students is rising. And this is true for all student groups, as demonstrated by disaggregated test results (See

Tab A). This is no accident. ADE and the Arkansas government as a whole have put educational reform at the top of our agenda.

Arkansas is meeting the core requirements of NCLB. In particular, Arkansas adopted and implemented beginning in 2004-05 year new standards and new assessments for reading/language arts and mathematics in grades 3-8, and completed a standards-setting process that was used to make AYP determinations at the beginning of school year 2005-06. Standards were set for mathematics to include grades 3, 5, and 7. Even though new standards were being set, ADE petitioned and was approved to determine AYP based on grades 4, 6, and 8 and high school assessments, as previously approved. (See letter of June 29, 2005 from Raymond Simon to Dr. James, Tab B.) Beginning with school year 2006-07, based on assessments administered in 2005-06, AYP determinations were based on all of grades 3-8 and high school assessments. This put Arkansas ahead of most states in meeting the NCLB assessment and accountability requirements in all required grades. We are committed to continuing assessments and accountability determinations for all public schools and districts on an annual basis.

In addition, Arkansas informs parents and guardians of children enrolled in Arkansas public schools by providing them with information to judge the quality of their schools, by preparing and publishing a School Performance Report for each public school and distributing the report to every parent or guardian of a child in kindergarten through grade 12 in the public schools of Arkansas. The Annual School Performance Report is based on reliable statistical information, which is published in a format that can be easily understood by parents or guardians and made available to parents via the postal service and the Internet. Arkansas schools and parents are also notified through Commissioner's Memos, teleconferencing, individual letters to superintendents, parents, and school personnel regarding the importance of and the requirements regarding school choice and supplemental services. ADE notifies each school that is identified in School Improvement – Year 1 of the requirements for choice. ADE requires that local schools report the number of students who opted for choice and to document that parents were informed of the student's options. Likewise, schools identified in School Improvement – Year 2 are notified of both the choice and supplemental service requirements and instructed in ways to access service providers approved by the state. Districts must also report the number of students enrolling in supplemental service opportunities. These obligations are addressed in ADE's manual on its website, in state training, and in the comprehensive school planning process. ADE regularly monitors district compliance with these requirements through state monitoring instruments and has also monitored the provision of supplemental services by providers through site visits. ADE administers a proactive process for reviewing and approving SES providers (32 are currently approved) and disseminating information about them to districts, schools, and parents.

Further, ADE has established Rules Governing Highly Qualified Teachers (HQT) that were approved by the State Board of Education on May 9, 2005 (revised and finalized on August 8, 2005). These rules include definitions of HQT consistent with federal law and the mechanism by which teachers establish HQT status. ADE also published a Q&A document to help teachers and school districts understand the intricacies of HQT status. ADE is also in the process of producing a Q&A document on the applicability of HQT requirements to special education teachers. All Arkansas school districts have been informed of and received guidance on the requirements to establish the HQT status of all teachers teaching core academic content classes. The ADE Data Administration Unit designed a data collection instrument that allows school

districts to report these data in one of their regularly scheduled annual reports. Data Administration has also offered and delivered training to school district personnel to assist in the accurate reporting of these data. ADE has communicated with all school districts, and as appropriate, will take leadership in collaboration with districts regarding steps needed to increase the number and/or percentage of Highly Qualified Teachers. ADE has provided a process to all districts that will assist the local schools in meeting the requirements of Highly Qualified by the end of the 2006-2007 school year.

**C. Arkansas Has All the Essential Elements in Place to Implement a Growth Model for This School Year.**

Arkansas is ready and able to implement a growth model this year and is required to do so as a matter of state law. Arkansas has vertically aligned standards and assessments. The Arkansas Benchmark Exams for grades 3-8 were developed with items embedded across grades to allow performance at all grade levels to be expressed in terms of a scale score that increases from grade 3 to grade 8 and has common meaning across grades. (See Tab C and TAC memorandum of January 23, 2006, Tab D) Arkansas' data system permits following student progress from grade to grade. As noted above, we administered assessments in grades 3-8 beginning in school year 2004-05, so we will have more than two years of assessment data to compare for individual students once this year's assessments are administered. Baselines for grades 3-8 in Reading and Mathematics were established in 2005. Using these 2005 baselines, which show the vertically aligned scale scores needed for Proficient at each grade, it will be possible to determine the extent to which schools and districts have met growth expectations in 2006-07.

**D. Arkansas Support for the Proposed Growth Model.**

We believe there is strong support in Arkansas for our growth model proposal. The ADE has consulted with the Accountability Task Force for the purpose of reviewing the Growth Model plan and will continue and expand these consultations. The Accountability Task Force, whose membership represents the business, higher education and general education communities, was formed for the purpose of advising the ADE on state and federal laws that impact the AR accountability system. In addition, the Committee of Practitioners participated in the review. (See attached letter of support from Arkansas Association of Educational Administrators, Tab E)

**E. Arkansas Will Transparently Report Data and Cooperate in USED Evaluation of the Pilot.**

Arkansas will increase reporting to parents and the public to include additional analysis based on the growth model. Data on the results of our growth model (of course, protecting the privacy of individual students) will be included in state and local report cards and reported to USED. We assure USED that we will cooperate fully in evaluating the growth model, including comparing AYP determinations and school and district identifications under the growth model with those under the status and safe harbor models, which will continue in effect, and continuing review of psychometric issues.

## II. Arkansas' Proposed Model

Arkansas proposes to use a growth model in addition to the current statutory status and "safe harbor" models in making AYP determinations and identifying districts and schools for improvement or escalating sanctions under NCLB. Use of all three models is not designed to water-down school and district accountability. Rather, without abandoning the current models – which appropriately determine high-achieving schools and measure the success of schools and districts with regard to the proportion of their students who are achieving at the proficient level – the growth model will give credit to schools and districts that are successful in improving the achievement of individual students who may or may not yet be at the proficient level but who are showing significant gains. In this way, the model avoids false negative identifications of schools and districts, particularly those that are responsible for educating significant proportions of at-risk students who are achieving below the proficient level and that are doing an effective job in raising the bar for these students and closing achievement gaps. It thus literally measures not only whether a school is leaving any subgroup behind, but whether the school is leaving any individual child behind.

A school or district will be determined to make AYP if it meets the annual measurable objective under the status model, satisfies the "safe harbor" model tests, or meets the standards for individual growth described below. In addition, the school or district must meet participation rate requirements and the additional academic indicator used to determine AYP. As indicated above – although interventions such as choice and supplemental services will not be differentiated – the growth model will also be used to target technical assistance and improvement interventions with districts and schools; to target professional development, mentoring, and other assistance for teachers; and to shape student improvement plans required by state law for students performing below the proficient level.

The proposed growth model will be based on assessment scores in the 3<sup>rd</sup> through 8<sup>th</sup> grades, with assessment scores in the third grade constituting a baseline for measuring growth in successive grades, as described below. Third grade assessments and high school assessments will continue to be used for AYP purposes under the status and safe harbor models.

Under the proposed growth model, a school would make AYP if – for the school as a whole and for each subgroup within the school that meets minimum "n" size – the percentage of students who make the requisite growth in achievement is equal to the annual measurable objective (AMO) for proficiency that applies to the status model or meets the safe harbor standard. For example, under the Arkansas status model, the AMO for grades K-5 mathematics is that 64.08% of the students in each school and subgroup within a school should be proficient in 2007-08. Under the proposed growth model, then, 64.08% of the students in these grades in a school and in each subgroup in the school must make the requisite assessment gains in mathematics for the school to be making AYP for 2007-08, or the percentages of such students must meet the safe harbor standard. Required growth will be calculated for all students, including those currently below Proficient and for those at the Proficient level or above according to the procedures described in the following paragraphs.

**For students below Proficient,** Arkansas proposes to define the expected growth rate as requiring annual achievement gains that will make the student proficient by Grade 8. Each

student will have an individual trajectory, based on how far he/she is from the proficiency level and his/her grade. Students who are further from proficiency, in particular those students who score below basic, will need to make larger annual gains to meet the growth expectation. The growth target for a student who is below proficient is not reset each year. Each student who is below proficient will have the same growth target--namely, reaching the proficient level of performance by the 8<sup>th</sup> grade. The increments of growth along individual students' pathways to proficiency may vary, however. That these increments along the pathway vary is a mathematical artifact of the scaling procedures used for the language arts and mathematics tests and necessarily related to how far below proficient a student is. The following paragraphs and attached tables and figures explain this more fully.

It is important to note that growth along both the language arts and mathematics scales is nonlinear (see the sets of three curved lines representing Basic, Proficient, and Advanced cut scores across grades 3-8) as shown in Tabs F and G, attached. For purposes of setting growth targets, we refer only to the growth lines for proficient in each subject.

Because these growth trajectories are not straight lines, the differences between cut scores at any two adjacent grade levels represent unequal amounts of growth between grade levels. This is perhaps most easily seen in Tab H, which shows the amount of growth across the grades, in scale score units, that would be required for a student to maintain a consistent trajectory toward proficiency. The non-linearity of the scale makes it apparent that it would be an error for Arkansas to establish a single growth increment across grades 3-8: the use of a fixed growth increment would demand an inappropriately small amount of growth at some grade levels and an inappropriately large amount of growth at other grades.

For individual students below proficient, specified growth increments defining a student's pathway to proficiency are obtained by calculating the difference between the student's initial scale score and the scale score associated with proficiency at 8<sup>th</sup> grade (i.e., 700), then multiplying that difference by the ratio of the amount of difference and the total difference in proficient scale scores associated with the student's current grade and grade 8. The formula for calculating growth increments is shown in Tab I. To illustrate the calculation, a hypothetical case for a below-proficient 3<sup>rd</sup> grade student, "Amy," is presented in Tab J.

**For students who are proficient or above**, their growth will be included in the growth accountability system as well. The Arkansas Growth Model uses the same procedure for these students as is used for students who are below Proficient. However, in the formula for computing growth, the Arkansas Growth Model establishes a **Proficiency Threshold** for students who are Proficient or above (as opposed to a growth increment as is used for students who are below Proficient). Nonetheless, the actual formula is the same (see formula, Tab I)

In essence, the calculation of the Proficiency Threshold (PT) formalizes the expectation that students who are already proficient or above must remain functioning at their current level, or be improving, in order to be counted as making progress. Thus, the single, fixed proficiency target of 700 at Grade 8 remains in place for all students. The PT created by the formula establishes a line below which a student's performance--even though he or she may still be proficient or above--may not fall. Performance below the line is judged to be unsatisfactory growth. Tab K

provides a graphical illustration of the PT performance line. To illustrate the calculation of the PT values, Tab J also presents a hypothetical case for Proficient 3rd grade student, "Bill."<sup>1</sup> We may continue to examine how to operationalize our model, in consultation with our TAC.

Third grade assessment results will be counted as part of the status and safe-harbor models, and as a baseline for measuring subsequent growth of individual students who are first assessed in the third grade. High school assessments will be counted under the status and safe-harbor models, but will not be counted in the growth model.

### III. CORE PRINCIPLES

#### 1. Goal of All Students Proficient by 2013-14; Closing the Achievement Gap.

Arkansas' proposal is faithful to the NCLB goal of achieving proficiency for all students by 2013-14 and is designed to more effectively address the achievement gap than the existing accountability system. Arkansas will retain the status model under NCLB, which uses a trajectory of annual measurable objectives tied to proficiency of all students in 2013-14. Our proposed growth model also has the goal that all students will be on a pathway to proficiency by Grade 8 and ties AYP under the growth model to the same annual measurable objectives reflected in the AYP bar, such that a school will only demonstrate AYP under this model if all its students are proficient or on a pathway to proficiency by 2013-14. As noted above, our proposed growth model provides that a student is on a pathway to proficiency only if he/she is closing the gap to proficiency at an annual rate that significantly exceeds one year of progress for each year of instruction and that will achieve proficiency in Grade 8. See Tab K. There is no "backloading" or deferral of expected gains under our proposed model. On the contrary, larger annual gains are expected in the initial years.

ADE proposes no change at this time in the approved statistical process for determining AYP based on status and safe harbor, but no confidence intervals will be used for the growth model. ADE proposes no change in its approach to minimum group size, which generally is 40 for subgroups, a number approved when tests were administered only in grades 4, 6, and 8. Arkansas law requires that each school receive an AYP determination regardless of the number of students assessed. The addition of testing in more grades will mean that fewer subgroups in

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<sup>1</sup> An important point must be made about the Proficiency Thresholds (PT) and Growth Increments (GI) illustrated in Tab K. It is apparent that the slope of the line plotting GIs for below-proficient students is greater than the slope of the line plotting PTs for students at proficient or above. One possible misinterpretation of the different slopes is that the Arkansas growth model demands less of higher achieving students.

However, the GIs for below-proficient students are necessarily large: students who are below the proficiency standard may have a lot of ground to make up. Because of their low initial score status, however, there is ample room in the score scale to do so. On the other hand, it is a psychometric fact that, because of ceiling effects, students who are at proficient or above have relatively less "room" to make gains. In addition, our use of GIs and PTs takes into account the effects of regression toward the mean for all students: Growth Increments for students who are far below proficient are necessarily larger than for students who are closer to proficiency; Proficiency Thresholds for students who are far above proficient are necessarily greater than for students who are closer to proficiency.

The Arkansas growth model incorporates both of these demands into the system. Our assumption (both educationally and, as can be seen from the PT trajectory) is that proficient and above students must continue to increase in achievement. However, the amount of increase that can be mandated must necessarily become smaller as the proficient or above student approaches the ceiling of the score scale. Thus, it should be clear that the series of PTs are not goals in any sense, but rather provide a set of "floors" below which the student—despite increasing in achievement—would be judged to be making inadequate growth. The area *above* the Proficiency Threshold line defines the region of acceptable growth for the proficient or above student.

schools will fall below the minimum group size and thereby enhance school accountability for the performance of subgroups. Under Arkansas' approved AYP Workbook, schools are held accountable based on the current year's assessment results or the average of three years' results. For growth model purposes, however, no averaging across years will be used.

## **2. Growth expectations will not be moderated based on group or school characteristics.**

Group or school characteristics will play no role in growth expectations under the proposed model. Growth expectations will be uniform for all students under the proposed model, and AYP determinations (including growth determinations) will be made for all subgroups above the minimum "n" for AYP. The growth model is squarely tied to the success of schools and districts under the state's achievement standards, not to typical or historical growth patterns of particular schools or groups of students.

As indicated above, the growth model generally will not assign different values for growth at different performance levels, except that growth for students who already are proficient is measured differently. Rather, comparable annual gains will be expected for a student at any level below proficiency to be on a pathway to proficiency. Each student who makes the expected gain and is found to be on a pathway to proficiency and each student who has made proficiency and meets the proficiency threshold for growth will be equally counted under the growth model in determining whether the school and each subgroup in the school makes AYP. ADE plans to evaluate the growth model and its impact on Arkansas' overall accountability system each year. Our evaluation will focus particularly on the impact that the growth model has on school and district AYP determinations and whether those determinations are fair and valid and result in determinations leading to interventions in the right schools and districts. During the 2004-05 school year, ADE secured the services of WESTED to conduct an independent review of the AYP process and ADE's data contractor; to advise on a procurement process for AYP data management services; and to audit Arkansas' assessment system. ADE plans to continue using WESTED's advice in evaluating its data management system and assessments for AYP purposes.

## **3. Separate Accountability Determinations Based on Reading/Language Arts and Mathematics**

Separate student achievement determinations will be made for reading/language arts and mathematics, under each model of the Arkansas accountability system. By focusing accountability measures on schools with many students below the proficiency level, the proposed growth model is designed to close the achievement gap in reading/language arts and mathematics. It will do this by, in effect, targeting school improvement consequences, which are consistent for all schools and districts in the state, on schools that are not only failing to meet status and safe harbor annual objectives, but also failing to raise significantly the achievement growth of individual students who are below proficiency. Basing accountability determinations in part on separate growth determinations for reading/language arts and mathematics will facilitate ADE's plans to target school interventions and professional development and assistance interventions for teachers, with specific regard to particular needs in reading/language arts and mathematics.

We believe that Arkansas has developed a strong capacity for tracking students as they move from school to school and district to district. We are one of several states that received a longitudinal data system grant from the Institute for Educational Sciences in 2005.

Further, the growth model is based on a vertical scaling plan developed in response to instructions from Arkansas' Technical Advisory Committee (TAC) and reviewed and approved by that same TAC. It thus satisfies all the technical requirements of growth expectation plans. Validity, we believe, is fully addressed through a review by the TAC; statistical calculations for AYP determination performed by the National Office for Research on Measurement and Evaluation Systems (NORMES) at the University of Arkansas, which is anchored by a PhD statistician who customized the data management for ADE and external evaluation by WESTED psychometricians of the statistical procedures used to compute AYP. The SEA believes that use of the proposed growth model will further contribute to the reliability and validity of the accountability system in that it will further ensure that schools that are successful in securing substantial growth for their students are not misidentified for interventions.

We do not propose at this time to use assessments in subjects other than reading/language arts and mathematics for AYP determinations, so there is no issue presented respecting scores on other assessments compensating for low scores on reading/language arts and mathematics assessments.

#### **4. Inclusion of All Students, Schools and Districts; Accountability for Subgroup Performance.**

Arkansas will clearly meet each aspect of this core requirement. Every school and district will be included in our accountability system. Since we will continue to use the status and safe harbor models, use of a growth model will not cause schools or districts to be excluded from accountability based on missing data. As indicated above, our tracking system will enable us to track these students and account for them under each of our accountability models. The model is robust enough that it will not be necessary to impute values. We are hereby amending our proposal to preclude imputation. As noted above, students in the first tested grade will be measured under the status and safe harbor models, not under the growth model, except that their scores will serve as a baseline for measuring their subsequent growth in achievement under the growth model. Arkansas defines "full academic year" as meaning enrollment from the beginning of the school year through the administration of spring assessments, so we do not see this definition causing any specific obstacles to use of the proposed growth model. A student who is enrolled for a full academic year will have his/her performance attributed to the current school under the status, safe harbor, and growth models.

Moreover, Arkansas meets NCLB participation rate requirements for students with disabilities and limited English proficiency students. We will continue to do so. We do not believe that use of the growth model will alter this challenge or our success in meeting it. Arkansas will hold all schools and districts accountable for the achievement of all student groups, using the status, safe harbor, and growth models of accountability.

Following is a description of how Arkansas will address particular situations raised in the peer review guidance. Schools that do not have at least one tested grade (a K-2 school) will be treated

as described in the current approved AYP Workbook. Schools that have only one tested grade (a K–3 school) will be subject to an AYP determination based solely on the status and safe harbor models. A student who changes subgroup status and joins a subgroup (e.g. new special education determination) between October 1 and the test date will be included in the total school AYP determination, but will not (similar to mobile students) be included in a subgroup determination for one year. The Arkansas Workbook defines AYP for schools that are reorganized, closed, or are classified as new schools. These provisions will apply to the proposed growth model.

### **5. Two Years of Annual Assessments (Peer-Approved) in Reading/Language Arts and Mathematics in Grades 3-8.**

Arkansas assessments meet all of the elements of this core requirement, including administration for two years, stability, comparability, reliability, and validity. We will have three years of assessment results for grades 3-8 once results are in from this year's assessments. As indicated above, Arkansas administered assessments in grades 3-8 in school year 2004-05. Standards were established and scores were available to calculate student growth beginning last year, which puts Arkansas in a leadership position in implementing grades 3-8 testing. Arkansas also administers the required standards-based assessments at the high school level in algebra, geometry, and literacy. Arkansas is in the final stages of the standards and assessments peer review process. With the recent submission of evidence, ADE expects a favorable review that will move the state standards and assessments system to full approval.

Comparable results from year to year are assured through a rigorous test equating procedure using an item response theory (IRT) model, under the supervision of the state's TAC. The scale was smoothed in the extremities to avoid scale scores below zero or above 1,000.

Having adopted new and revised assessments in 2005, including having implemented a standards-setting process at that time, we fully expect that our assessments and our scoring and other assessment procedures will be stable for purposes of implementing the growth model. Also, we do not expect any significant problems for implementation of the growth model with regard to students with disabilities switching between different tests over time. Students who take Arkansas' regular assessment are assessed against grade level standards, whether or not they receive accommodations. Alternate assessments aligned to alternate achievement standards are administered to students with the most significant cognitive disabilities. However, based on the nature of their disabilities, almost none of the students with the most significant cognitive disabilities switch to assessments based on grade level standards. Our tests are carefully equated and scaled under the close supervision of the TAC. Regarding the reliability and validity of our assessment system, reliability coefficients in 2005 ranged from .81 (grade 5 literacy) to .87 (grade 3 literacy). Validity, as measured by curriculum alignment and freedom from bias, has been extremely high since the inception of the program.

### **6. Arkansas' Data System and Proposed Accountability System will Track Individual Students.**

Arkansas has in place an individual student identifier longitudinal data system that can track individual students, and that contains key demographic and performance data for each student, as well as procedures to address matching problems. In order to coordinate the analysis,

dissemination, and reporting of student achievement data, Arkansas legislatively mandates the longitudinal tracking and trend data collections as established by the State Board for purposes of improving student achievement. Arkansas uses three integrated data systems, including the National Office for Research on Measurement and Evaluation Systems (NORMES), the Arkansas School Information Site (AS-IS), and established ADE data sources.

Arkansas has developed and operates a statewide database for all schools and all students that permits it to track student performance over time and across schools and districts throughout the state. Each student has a unique student identifier, which is used by the school to report demographic (including subpopulation data). Student achievement data are electronically warehoused at the NORMES Center at the University of Arkansas. The system provides for tracking of student data to the item level if necessary for tracking purposes. The data system is sufficiently robust to enable tracking of student performance over time, as required to implement the growth model.

We also have a process that has achieved near perfect matching. Over the last several years, Arkansas has devoted substantial resources to its data warehousing system. One aspect of that commitment includes a contract with a data management firm (Triand, of Austin, Texas) to perform student matching. At the time of the submission of our original growth model proposal, complete results demonstrating our matching capability were not yet available. Under previous approaches, a high match rate of between 85 and 95 percent was achieved. However, we are now able to demonstrate near perfect match rates.

Based on data from all NCLB-related tests administered in our 2005-2006 testing cycle, we now achieve a total match rate of 99.8%.<sup>2</sup> The method used by Triand to achieve this rate involves a patented, proprietary statistical modeling and analysis termed “probabilistic neural-net discernment” (PNND). The PNND procedure greatly increases the speed and accuracy of the matching process. The process is almost entirely computer-automated so it can be relied upon to produce matched student data files very shortly after the close of each annual testing cycle.

Tab L provides a complete breakdown by grade, subject, and demographic groups of the matching results for the 2005-2006 school year tests administered in Arkansas for which matching was performed using the PNND procedure. As the information in the table demonstrates, the capacity of Arkansas to match students is clear and the match rates – for total group and across all subgroups – are consistently extremely high.

## **7. Student Participation Rates and Achievement on an Additional Academic Indicator.**

Arkansas meets and will continue to meet these core requirements. Arkansas assures USED that it will continue to meet the participation requirements related to all students in the tested grades, and that schools and districts will be held accountable for meeting these requirements as a

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<sup>2</sup> For example, for the 2005-2006 data for which processing is now complete, the PNND procedure failed to achieve matching records for only 248 students out of approximately 200,000 students tested. (In fact, the remaining 248 records could probably never be matched without extensive telephone interviewing of school personnel. Of the 248 records, 36 were missing the student’s first name; 1 was missing the student’s last name; and 211 were missing the student’s SSN/state identification number and birth date.)

required element of AYP accountability. Furthermore, Arkansas will continue to use the other academic indicators of attendance rates for elementary and middle schools and graduation rates for high schools as required elements of AYP accountability.

#### **IV. Additional Questions Raised in USED Peer Review Guidance**

Arkansas has responses to each of the additional questions raised in the USED peer review guidance, as follows:

- Arkansas will continue to use **uniform averaging** across grades in making AYP determinations, but will not average across years for purposes of the growth model. In using the growth model, we will consider only one year of data in determining whether a student is showing adequate growth for AYP purposes.
- Arkansas' **minimum group size** will not change under this proposal. Arkansas' minimum group size for AYP purposes is 40 for schools and districts with enrollments of 800 or less. For schools and districts with enrollments greater than 800, the minimum group size is 5% of average daily attendance, not to exceed 200. This policy will be applied in each of our accountability models, including the proposed growth model. Students with disabilities and limited English proficient students are treated the same as all other groups for purposes of minimum group size.
- Arkansas applies a limited **confidence interval** in determining AYP status (applied to the overall AYP bar, not individual school or subgroup performance levels). However, Arkansas will not apply a confidence interval with regard to its growth model.
- As indicated above, the issue of **different assessments** will not prevent appropriate implementation of the growth model. There is only one alternate assessment and it applies only to students with significant cognitive disabilities. Very few students with the most significant cognitive disabilities who are assessed against alternate achievement standards switch to regular assessments.
- The growth model has been amended to include measurement of the growth of students who are proficient.
- Arkansas will continue its current **reporting** policies. Transparent reporting to our districts, schools, parents, and the public is a core priority for ADE. Individual score reports will be provided to parents, and summary score reports by school and subgroup will be provided on the report card published in print and on ADE's website. Parents will be given information on student performance with reference both to status and growth. We are developing a specific format for these reports.
- **V. Conclusion.**

ADE appreciates the opportunity to submit this growth model proposal to USED. We believe strongly that it will help Arkansas further the underlying purposes of NCLB, as well as meeting state law requirements. In particular, use of a growth model in conjunction with the current

statutory models of AYP accountability will provide significant incentives for schools that educate substantial populations of at-risk students to do a better job in enhancing the academic achievement of these students. As noted above, we also believe that addition of a growth model will enhance the understanding and respect of educators, parents, and the public for our accountability system. By addressing how well a district and school are doing in improving the achievement of the individual students they educate, the growth model will be perceived as enhancing the fairness and integrity of NCLB's accountability system.

### List of Attachments

A -- Tables showing Arkansas student achievement gains



Score matrix -  
2003-2005.xls

B – January 29, 2005 letter from Deputy Secretary Simon

Double-click on text: (pdf)

usdoe letter.pdf

C – Technical information on aligned scale scores



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D – TAC memorandum of January 23, 2006 re use of scaled scores



TAC Memo Jan 2006  
Operational Vertical S

E – Letter of support from Arkansas Association of Educational Administrators

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AAEA.pdf

F - Figure 1 Literacy Scale Cut Scores



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G – Figure 2 Mathematics Scale Cut Scores



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H – Table I Proficient Scale Score Standards (Cut Scores) and Growth Expectations for AR Benchmark Assessments in Literacy and Mathematics



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I – Table 2 Formulas for Calculating Proficiency Growth Increments (GI) for Below-Proficient Students and Proficiency Thresholds (PT) for Students AT or Above Proficiency



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J – Table 3 and Table 3 (b) Illustration of Growth Increment Calculation for Hypothetical Below-Proficient and Proficiency Threshold Calculation for Hypothetical Proficient Students Across Grades 3 - 8



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K – Figure 3 Illustration of Growth Increments for Below-Proficient Student (Amy) and Performance Thresholds for Proficient Student (Bill) across Grades 3-8, with Corresponding On-Grade Scale Score Cuts Shown



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L – Table 4 Number Matched, Number Tested, and Match Rates by Subject for Total Group and Demographic Subgroups, AR Midyear and Spring Statewide Benchmark Testing, 2005-2006 School Year



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