ARKANSAS SOAR

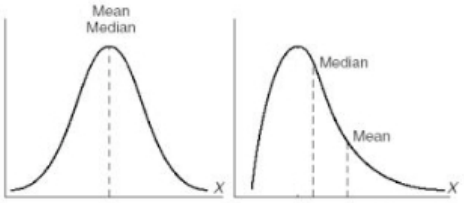
Technical

1. **How are student growth percentiles used to create teacher SOAR values?**

Student SOAR values:
Student SOAR values are calculated using the statewide assessment results for students at each grade level, or for each EOC (Algebra and Geometry).

- *Match students with a current year scale score to their prior year scale score.*
- *Group all students at each grade level who scored the same scale score on the previous year's assessment. Within each prior scale score group, order the students' scale scores on the current year's assessment.*
- *Apply percentiles to this distribution with the following formula SOAR = P/ (n+1) where P is the position of the score in the distribution n. A constant value of 1 is added to the n count in order to center the percentiles for all groups. This SOAR percentile is simply a measure of student performance in the current academic year relative to their academic peers.*

Teacher SOAR values:
To assign a growth value at the teacher level, a roster of students is built for each teacher based on course codes. The median SOAR value is the middle score of students assigned to the teacher. The median is used because extreme values on either side of the distribution can shift the mean (average) away from the center, demonstrated here:



The median is a measure of center (half above, half below) regardless of the shape of the distribution.

A teacher's SOAR is the middle value for his/her students. This is a simple indicator of how well the typical student performed relative to academic peers. This is the median growth percentile. The median is useful when describing a group or distribution of students' percentiles because one or two students' extreme scores will not have a great impact.

2. How can students who perform at the top range of the *Advanced* performance level show growth?

Growth is a way of describing change in performance rather than describing performance at one point in time. SOAR values are one of many different ways to measure student academic growth. Because SOAR values describe growth relative to a students' academic peers based on the previous year's scale scores. In any given testing year, each student has an equal opportunity to grow at the highest percentile independent of whether the student was at a particular performance level.

3. What does the median SOAR value for a teacher represent?

The teacher's median SOAR value represents the middle SOAR ranking for his or her students. Since each student receives a SOAR value for individual performance, the students' SOAR values are aggregated for the teacher and the middle value becomes the teachers SOAR. The SOAR is the percentile rank of the middle ranked student, so ½ of the students have a SOAR value above the teacher's median SOAR value and ½ of the students have a SOAR value below the teacher's median SOAR value. Median SOAR values are calculated for teachers with ten or more students. A single SOAR value is not enough to derive meaning for overall performance of a teacher; therefore, the SOAR value must be considered with the effectiveness rating an educator receives based on his/her professional practice.

4. What does the median SOAR value at my school represent?

A school SOAR value is the median SOAR value for all of the students within a school who took a particular assessment. Based on the median value, ½ of the students who took an assessment have a SOAR value above the median and ½ of the students have a SOAR value below the median. While a single SOAR value does not tell the school's entire story, when combined with other data, SOAR can be useful in analyzing student growth at the school level.

5. Can the SOAR value be interpreted the same way regardless of year?

To summarize student growth rates by grade, school, or district level, individual SOAR Values can be aggregated. The most appropriate measure for reporting growth for a group is the median SOAR Value (the middle score if one ranks the individual SOAR Values from highest to lowest). The average or mean is not an appropriate measure when comparing percentiles.

No matter how SOAR Values are aggregated, the statistic and its interpretation remain the same. For example, if the students with disabilities in your district have a median SOAR Value of 53, that particular group of students, on average, achieved higher than their academic peers—a group of students who may or may

not be students with disabilities. The median SOAR Value does not indicate that your students with disabilities improved more than 53 percent of other students with disabilities. It does not indicate that your students with disabilities improved more than 53 percent of students without disabilities. The comparison group is always the students' academic peers: students with the same past performance.

6. Why do two different students with different score histories have the same SOAR?

The students' SOAR values will be the percentile rank achieved by each student when compared to their academic peers. Individuals with the same SOAR will be compared to different groups of students because they have different prior scale scores. Their academic peer groups will be different. Therefore, the ranking of each student will be dependent on the scores of the students in each group, allowing for two students to have the same overall ranking. These two students have not been compared to each other.

7. Research shows that there are correlations between a student's demographic group and their performance on the state assessments. Is the same true with SOAR growth?

External research studies were conducted to determine whether SOAR values explained differences in student performance over and above what students' demographic groups might explain. The researchers found that SOAR scores do explain differences in student performance over and above what is explained by student demographics. Between schools, teachers' median SOAR values explain approximately 45% of the differences in student performance in math, literacy and science. Within schools, teachers' median SOAR values explain from 12% (math) to 28% (literacy) of the differences in student performance.

8. How does the median SOAR value relate to a student's level of proficiency?

External research studies based on 2011, 2012, and 2013 teacher median SOAR values indicated that in the case of teachers with a median SOAR value of 30 or lower, 50% or more of students assigned to these teachers were declining in their performance levels from one year to the next. This is how the median SOAR value of 30 was determined for use in teacher evaluation.

Additional research studies are planned to study the relationship between SOAR values and college and career readiness once two years of scores from the PARCC assessment are available.

9. If my school's status or percent *Proficient* is increasing, will its median SOAR value increase also?

The SOAR values for students are based on comparisons with academic peers independent of students' performance levels. This provides a growth measure that gives all students, no matter the scores they earned on past state tests, an equal chance to demonstrate growth at any of the 99 percentiles on the next year's test. This is a desirable quality in a growth measure that is used for teacher evaluation because each student acts as his/her own control or baseline. The trade-off is that the relationship between the percent proficient and the median SOAR value is not as direct, and therefore it is possible that the percent proficient may increase and the median SOAR may or may not.

Teachers and leaders are encouraged to use the data available in the SOAR data portal to get a better understanding of students' SOAR scores. The SOAR student tables provide a students' scale score alongside the students SOAR value. In the 2014 SOAR student table, the students' prior year scale scores and the 2014 scale scores are provided with the SOAR values to help teachers reflect on the students that are included in their median SOAR value along with the students' performance from one year to the next. This may help teachers and leaders develop a deeper understanding of the connection between the students' change in performance and students' SOAR scores.

10. If my school made AMO, does that mean my students are growing faster than their academic peers?

Schools' growth AMOs are based on the growth-to-standard model used in ESEA Flexibility. The growth-to-standard model compares students' individual progress to expected progress needed to meet grade level standards by Grade 8. This is a different model that provides different information about students' change in performance. The SOAR value provides information about students' growth relative to students' academic peers. If your school has a median SOAR value greater than 50 then the typical student in your school has grown or progressed as much as or more than 50% of his/her academic peers.