



STATE OF TENNESSEE  
**DEPARTMENT OF EDUCATION**  
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COMMISSIONER

**To:** State Board of Education Members and Staff  
**From:** Erin O'Hara, assistant commissioner for data and research  
**Re:** SBE Agenda Item - Chemistry Standard Setting and Performance Levels  
**Date:** July 11, 2014

The Tennessee Department of Education and its vendors, Pearson and ETS conducted Tennessee Comprehensive Assessment Program (TCAP) performance level panel meetings for the TCAP End of Course (EOC) Chemistry assessment in June 2014. The performance level standard setting process is used to determine the depth and breadth of the content standards a student must have to demonstrate competency at each achievement level (Below Basic, Basic, Proficient and Advanced).

The panels, comprised of Tennessee teachers, were chosen for their knowledge in the tested content, their familiarity with the students, and their diverse backgrounds, experience and regions of the state.

The Bookmark Method was used to set performance levels for chemistry. The Bookmark Method is a three-round standard setting process that requires panelists to independently examine test items and place bookmarks at the points at which they consider students to have demonstrated sufficient knowledge and skills at each achievement level. Additionally, reference data were provided showing Tennessee students' performance on 10<sup>th</sup> grade PLAN, 11<sup>th</sup> grade ACT and the TCAP Biology assessment. The panelists' work concluded with starting points for discussion and determination of performance at the achievement levels of Below Basic, Basic, Proficient and Advanced.

The Technical Advisory Committee (TAC), comprised of seven nationally recognized assessment experts, was convened on July 3, 2014 to review the chemistry standard setting process. The chemistry standard setting process had been discussed and approved by the TAC at two prior meetings in October 2013 and April 2014. The July 3 meeting of the TAC included a discussion of the process during the meetings, the composition of the panelists, the panel discussions, panel recommendations, and associated reference data. The TAC determined that the process was of high standards, was carried out well, and that the department and state board should feel comfortable with the panelists recommendations.

The recommendations from the standards setting and TAC meetings as well as department analysis of the relationship with reference assessments were aimed at ensuring sufficiently rigorous performance levels that reflect the recommendations of educators. The recommendations were provided to department staff including the commissioner for final review and recommendation to the state board.

The table below summarizes the performance levels as recommended for final discussion that would lead to SBE approved performance levels for the 2013-14 TCAP Chemistry assessment and until such time as a change in standards and assessments are required in future years.

**Table 1.**  
**Performance Levels for TCAP End of Course Chemistry**  
 (Total number of students assessed in 2013-14 = 60,456)

TCAP End of Course (EOC Chemistry) 55 Items				
Achievement Levels	Below Basic	Basic	Proficient	Advanced
Scale Score Levels	500 - 683	684-725	726 - 757	758 - 900
% and Number of Students at Level	32.7% 19,790	29.8% 18,022	23.1% 13,993	14.4% 8,741