| **Advisory Board on Teacher Education** **and Licensure** | **Seal of the Commonwealth of Virginia** |
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**AGENDA ITEM: 3**

**DATE: October 27, 2020**

**TOPIC: Recommendation for a Passing Score for the Praxis® Chemistry (5256) Test for the Science – Chemistry Endorsement**

# **Statutory and Regulatory Authority**:

The *Code of Virginia* provides the authority for the Board of Education to promulgate *Licensure Regulations for School Personnel*.

Section[**22.1-298.1**](https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-298.1/) of the *Code of Virginia*, states in part, the following:

§ [**22.1-298.1**](https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-298.1/) **Regulations governing licensure.**

*C. The Board of Education's regulations shall include requirements that a person seeking initial licensure:*

*1. Demonstrate proficiency in the relevant content area, communication, literacy, and other core skills for educators by achieving a qualifying score on professional assessments or meeting alternative evaluation standards as prescribed by the Board;*

*2. Complete study in attention deficit disorder;*

*3. Complete study in gifted education, including the use of multiple criteria to identify gifted students; and*

*4. Complete study in methods of improving communication between schools and families and ways of increasing family involvement in student learning at home and at school.*

*Code of Virginia,* Section [22.1-16. Bylaws and regulations generally.](https://law.lis.virginia.gov/vacode/title22.1/chapter2/section22.1-16/)

*Code of Virginia,* Section [22.1-299. License required of teachers.](https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-299/)

*Code of Virginia,* Section [22.1-305.2. Advisory Board on Teacher Education and Licensure.](https://law.lis.virginia.gov/vacode/title22.1/chapter15/section22.1-305.2/)

The [*Licensure Regulations for School Personnel*](https://law.lis.virginia.gov/admincode/title8/agency20/chapter23/) state, in part, the following:

## [8VAC20-22-40](https://law.lis.virginia.gov/admincode/title8/agency20/chapter23/section40/). Conditions for Licensure.

*… B. All candidates who hold at least a baccalaureate degree from a regionally accredited college or university and who seek an initial Virginia teaching license shall obtain passing scores on professional teacher's assessments prescribed by the Virginia Board of Education. With the exception of the career switcher program that requires assessments as prerequisites, individuals shall complete the professional teacher's assessment requirements within the three-year validity of the initial provisional license….*

## [8VAC20-22-70](https://law.lis.virginia.gov/admincode/title8/agency20/chapter23/section70/). Additional Endorsements.

1. *An individual who holds a teaching license may add an additional teaching endorsement to the license by passing a rigorous academic subject test for endorsements in which a test is prescribed by the Virginia Board of Education. This testing option does not apply to individuals (i) who are seeking an early/primary education preK-3 or elementary education preK-6 endorsement, special education endorsements, or a reading specialist endorsement or (ii) who hold a Technical Professional License, Vocational Evaluator License, Pupil Personnel Services License, School Manager License, or Division Superintendent License.*

**Background:**

Currently, the Board of Education requires the following assessments for initial licensure:

• Virginia Communication and Literacy Assessment (VCLA);

• Praxis Subject Assessments; and

• Reading for Virginia Educators (RVE) for specified endorsements.

The Board prescribes the Praxis Subject Assessments as a professional teacher’s assessment requirement for initial licensure in Virginia. The current Board of Education’s prescribed assessment for chemistry is the Praxis® Chemistry: Content Knowledge (5245).

The Praxis® Chemistry (5246) test will replace the Praxis® Chemistry: Content Knowledge (5245) test. This new assessment is designed and developed through work with practicing chemistry teachers, teacher educators, and higher education chemistry specialists to reflect the science knowledge teachers need to teach the chemistry curriculum and to reflect state and national standards, including the National Science Teacher Association Preparation Standards for chemistry. Content and practices measured reflect the Disciplinary Core Ideas (DCIs) and Science and Engineering Practices (SEPs) established by the National Research council in A Framework for K1-12 Science Education and included in the Next Generation Science Standards.

In May 2021, a multistate standard-setting study was designed and conducted by the Educational Testing Service (ETS) to support the decision-making process of education agencies establishing a passing score (cut score) for the Praxis® Chemistry (5246) test. Panelists from 15 states and Washington, D.C., participated on the panel. The education agencies recommended panelists with (a) experience as either chemistry teachers or college faculty who prepare chemistry teachers and (b) familiarity with the knowledge and skills required of beginning chemistry teachers.

A detailed summary of the study, Multistate Standard-Setting Technical Report -- Praxis® Chemistry (5246) is attached. The technical report contains three sections. The first section describes the content and format of the test. The second section describes the standard-setting processes and methods. The third section presents the results of the standard-setting study.

An advanced copy of the Praxis® Chemistry Study Companion is attached. This document describes the purpose and structure of the test. In brief, the test measures knowledge and competencies that are important for safe and effective beginning practice as a chemistry teacher. The two-hour and 30 minute assessment contains 125 selected-response items covering five content areas: *Nature and Impact of Science and Engineering* (approximately 17 items), *Principles and Models of Matter and Energy* (approximately 31 items), *Chemical Composition, Bonding, and Structure* (approximately 25 items), *Chemical Reactions and Periodicity* (approximately 29 items), and *Solutions and Acid-Base Chemistry* (approximately 23 items). As described in the test description, more than 40 percent of questions integrate a *Science and Engineering Practice*, and approximately 25 percent of questions assess content applied to a *Task of Teaching of Science*. The reporting scale for the Praxis Chemistry test ranges from 100 to 200 scale-score points.

### Multistate Standard-Setting Study

The Multistate standard-setting study for the Praxis® Chemistry (5246) test is detailed in the attached report.

The following table presents the estimated conditional standard error of measurement (CSEM) around the recommended passing score. A standard error represents the uncertainty associated with a test score. The scale scores associated with one and two CSEM above and below the recommended passing score are provided. The conditional standard error of measurement provided is an estimate.

**Conditional Standard Error of Measurement Summaries**

**PRAXIS® CHEMISTRY (5246)**

|  | Raw Score | Scale Score Equivalent |
| --- | --- | --- |
| Recommended passing score (CSEM) | 56 (4.99) | 146 |
| - 2 CSEM | 47 | 133 |
| - 1 CSEM | 52 | 140 |
| +1 CSEM | 61 | 153 |
| +2 CSEM | 66 | 160 |

ETS provides a recommended passing score from the multistate standard-setting study to help

education agencies determine an appropriate operational passing score. For the Praxis Chemistry test, the recommended passing score is 56 out of a possible 100 raw-score points. The scale score associated with a raw score of 56 is 146 on a 100–200 scale.

Information regarding the multistate standard-setting process will be presented to the Advisory Board members by Malik K. McKinley, Sr.,Director of Client Relations, Professional Educator Programs, Office for Teacher Licensure and Certification, Student and Teacher Assessment Division, Educational Testing Service.

## **Action**:

The Advisory Board on Teacher Education and Licensure is to receive the presentation by

Mr. McKinley on the multistate standard setting and recommend to the Board of Education a passing score for the Praxis® Chemistry (5246) test.