



Multistate Standard-Setting Studies

The ETS Multistate Standard-Setting Study process assists states when new and regenerated tests require new passing scores. This approach, designed by ETS researchers, convenes practitioner panels to recommend a passing score for states to consider. The panels simulate a test-taking experience prior to recommending a passing score. The panels also confirm that the content is important and relevant to entry-level practice. Multistate Standard-Setting Studies are important because they:

- reduce the state burden of recruiting educators
- gain greater educator input into the passing score recommendation — up to 50 educators
- provide a more efficient process for moving states from old to new tests
- allow for multiple rounds of panel judgments, feedback and discussion
- add support for states seeking greater interstate portability

Each state maintains valuable control by setting its own passing score, while the Multistate Standard-Setting Study provides practitioner judgments and documentation to inform that decision.

For more information about the Multistate Standard-Setting Studies, email us at teachingandlearning@ets.org or call **1-866-243-4088**.

Core Academic Skills for Educators

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Core Academic Skills for Educators Mathematics (5733)	February 2019	March 2019	150	Alaska, Alabama, Arkansas, Connecticut, Georgia, Hawaii, Idaho, Iowa, Kansas, Louisiana, Maryland, Mississippi, Nebraska, Nevada, New Jersey, North Carolina, Pennsylvania, South Carolina, Tennessee, Washington, D.C., West Virginia

Early Childhood Education

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Early Childhood (5026)	December 2020	January 2021	Reading and Language Arts and Social Studies (5027)–161 Mathematics and Science (5028)–160	Alaska, Arkansas, Delaware, Hawaii, Indiana, Nevada, New Mexico, Washington, D.C., West Virginia

Early Childhood Education (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Education of Young Children (5024)	February 2014	February 2014	160	Arkansas, Connecticut, Delaware, Hawaii, Kansas, Louisiana, Maine, Mississippi, Nebraska, Nevada, New Hampshire, Rhode Island, South Carolina, Tennessee, West Virginia, Wyoming
Early Childhood Education (5025)	February 2015	February 2015	156	Alabama, Arkansas, Hawaii, Idaho, Iowa, Kentucky, Maryland, Montana, Nevada, New Hampshire, New Jersey, North Carolina, North Dakota, Rhode Island, Utah, Washington D.C., Wyoming

Elementary Education

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Elementary Education (5006)	December 2020	January 2021	Reading and Language Arts and Social Studies (5007)–160 Mathematics and Science (5008)–158	Alaska, Arkansas, Idaho, Indiana, Nevada, Washington, D.C., West Virginia
Elementary Education: Content Knowledge (5018)	January 2014	February 2014	163	Delaware, Guam, Iowa, Louisiana, Mississippi, Montana, Nevada, South Dakota
Elementary Education: Curriculum, Instruction, and Assessment (5017)	January 2014	February 2014	153	Maryland, Mississippi, Nebraska, Nevada, North Dakota, Tennessee, Wyoming
Elementary Education: Content Knowledge for Teaching (7811)	March 2019	April 2019	Social Studies (7815)–161	Arkansas, Delaware, Hawaii, Idaho, Kentucky, Louisiana, Maryland, New Jersey, South Dakota, Tennessee, West Virginia
Elementary Education: Math Specialist (5037)	December 2021	December 2021	153	Idaho, Indiana, Nevada, Rhode Island, Virginia, West Virginia

Elementary Education (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Elementary Education: Multiple Subjects (5001)	February 2014	February 2014	Reading & Language Arts (5002)–157 Mathematics (5003)–157 Social Studies (5004)–155 Science (5005)–159	Arkansas, Delaware, Hawaii, Idaho, Kentucky, Louisiana, Maine, Maryland, Nevada, New Hampshire, New Jersey, North Dakota, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Virginia, West Virginia, Wyoming

Middle School Education

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Middle School English Language Arts (5047)	March 2013	March 2013	164	Alaska, Arkansas, Delaware, Hawaii, Kansas, Kentucky, Louisiana, Maryland, Nevada, New Hampshire, North Carolina, North Dakota, Rhode Island, South Dakota, Utah, Vermont, Washington, D.C., West Virginia, Wyoming
Middle School Mathematics (5169)	February 2013	February 2013	165	Alaska, Arkansas, Idaho, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, North Dakota, New Hampshire, New Jersey, Nevada, South Carolina, South Dakota, Utah, Vermont, Washington, D.C., West Virginia, Wyoming
Middle School Mathematics (5164)	January 2021	February 2021	157	Alabama, Delaware, Idaho, Indiana, Kansas, Kentucky, Mississippi, Rhode Island, South Carolina, South Dakota, Tennessee, Washington, D.C., West Virginia
Middle School Science (5442)	December 2019	January 2020	152	Arkansas, District of Columbia, Hawaii, Idaho, Indiana, Kentucky, Louisiana, Maryland, Nebraska, New Jersey, New Mexico, North Carolina, Rhode Island, South Carolina, South Dakota, Utah, Virginia, West Virginia

Secondary Education

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Agriculture (5701)	October 2013	November 2013	147	Arkansas, Delaware, Iowa, Kansas, Kentucky, Louisiana, Maryland, Nebraska, Nevada, North Dakota, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, West Virginia, Wisconsin, Wyoming

Secondary Education (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Algebra I (5162)	September 2016	October 2016	157	Alaska, Colorado, Hawaii, Kansas, Louisiana, Maryland, New Jersey, South Carolina, South Dakota, Tennessee, Virginia, West Virginia, Wyoming
Biology (5236)	November 2021	November 2021	154	Delaware, Idaho, Indiana, Kansas, Maryland, North Carolina, Nevada, New Jersey, Rhode Island, Tennessee, Utah, Vermont, Virginia, West Virginia
Business Education: Content Knowledge (5101)	September 2009	October 2009	154	Connecticut, Hawaii, Idaho, Indiana, Kentucky, Louisiana, Maryland, Missouri, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, Tennessee, Utah, Wisconsin, Wyoming
Chemistry (5246)	May 2021	May 2021	146	Arkansas, Delaware, Indiana, Kansas, Kentucky, Louisiana, Maryland, Montana, Nevada, New Jersey, North Carolina, South Dakota, Utah, Virginia, Washington, D.C., West Virginia
Computer Science (5652)	January 2018	February 2018	149	Alabama, Arkansas, Georgia, Idaho, Kentucky, Maryland, Nevada, New Jersey, North Dakota, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Virginia, Washington, D.C., West Virginia, Wisconsin
Earth and Space Sciences (5572)	December 2021	December 2021	154	Arkansas, Delaware, Iowa, Indiana, Kansas, North Carolina, New Jersey, Tennessee, Virginia, West Virginia
Economics (5911)	September 2011	October 2011	150	Maryland, Mississippi, North Dakota, Wisconsin and Wyoming
English Language Arts: Content Knowledge (5038)	March 2013	March 2013	167	Alaska, Arkansas, Delaware, Guam, Hawaii, Idaho, Kansas, Louisiana, Maine, Mississippi, Montana, Nevada, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Washington, D.C., West Virginia, Wisconsin
English Language Arts: Content and Analysis (5039)	March 2013	March 2013	168	Alaska, Arkansas, Delaware, Guam, Hawaii, Idaho, Kansas, Louisiana, Maine, Mississippi, Montana, Nevada, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Washington, D.C., West Virginia, Wisconsin

Secondary Education (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
English to Speakers of Other Languages (5362)	December 2015	December 2015	155	Alabama, Arkansas, Connecticut, Guam, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maryland, Maine, New Hampshire, Nevada, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Dakota, U.S. Virgin Islands, Utah, Virginia, Vermont, Wisconsin, West Virginia, Wyoming
Family and Consumer Sciences (5122)	October 2013	October 2013	153	Arkansas, Connecticut, Delaware, Idaho, Kansas, Kentucky, Louisiana, Maine, Maryland, Nebraska, Nevada, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Dakota, Utah, Virginia, Wisconsin, Wyoming
General Science (5436)	February 2022	March 2022	141	Arkansas, Delaware, Indiana, Kansas, New Jersey, Nevada, Rhode Island, South Dakota, West Virginia, Wyoming
Geometry (5163)	April 2019	May 2019	148	Arkansas, Hawaii, Kentucky, Louisiana, Pennsylvania, West Virginia
Government/Political Science (5931)	October 2011	October 2011	149	Maryland, North Dakota, South Dakota, Utah, Wisconsin, Wyoming
Journalism (5224)	February 2021	March 2021	153	Arkansas, Indiana, Kansas, South Dakota
Physical Science (5485)	February 2021	March 2021	157	Arkansas, Delaware, Idaho, Indiana, Maryland, New Jersey, Nevada, South Dakota, West Virginia
Physics (5266)	October 2021	November 2021	145	Delaware, Idaho, Indiana, Kansas, Maryland, Mississippi, Rhode Island, Tennessee, Utah, Virginia, West Virginia, Western Governors University
Psychology (5391)	June 2012	June 2012	154	North Dakota, Nevada, South Carolina, South Dakota, Utah, Wisconsin, Wyoming
Social Studies: Content and Interpretation (5086)	July 2010	August 2010	153	Arkansas, Kentucky, Louisiana, Montana, New Hampshire, Pennsylvania, South Carolina, Vermont, Washington, D.C.
Technology Education (5051)	September 2010	October 2010	159	Arkansas, Connecticut, Idaho, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Nevada, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, Utah, Wisconsin, Wyoming

Principles of Learning and Teaching

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Principles of Learning and Teaching: Early Childhood (5621)	February 2011	March 2011	157	Arkansas, Hawaii, Indiana, Kansas, Louisiana, Maryland, North Dakota, Ohio, South Carolina, South Dakota, Utah, Washington, D.C.
Principles of Learning and Teaching: Grades K–6 (5622)	February 2011	March 2011	160	Arkansas, Hawaii, Indiana, Kansas, Kentucky, Louisiana, North Dakota, Rhode Island, South Carolina, South Dakota, Utah, Washington, D.C., West Virginia
Principles of Learning and Teaching: Grades 5–9 (5623)	January 2011	March 2011	160	Arkansas, Indiana, Kansas, Kentucky, Louisiana, North Dakota, Ohio, South Carolina, South Dakota, Tennessee, Utah, Washington, D.C.
Principles of Learning and Teaching: Grades 7–12 (5624)	January 2011	March 2011	157	Arkansas, Indiana, Kansas, Kentucky, Louisiana, Maryland, North Dakota, Ohio, Rhode Island, South Carolina, South Dakota, Utah, Washington, D.C., West Virginia
Principles of Learning and Teaching: PreK–12 (5625)	November 2020	December 2020	157	Arkansas, Indiana, Kansas, Kentucky, Nebraska, Nevada, Oregon, South Dakota, Washington, D.C., West Virginia

All Grades

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Art: Content Knowledge (5134)	November 2010	November 2010	158	Alabama, Arkansas, Connecticut, Kentucky, Louisiana, Maine, Maryland, Mississippi, Missouri, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Washington, D.C., West Virginia, Wisconsin
Art: Content and Analysis (5135)	November 2010	November 2010	161	Alabama, Arkansas, Connecticut, Kentucky, Louisiana, Maine, Maryland, Mississippi, Missouri, New Hampshire, New Jersey, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, Tennessee, Utah, Vermont, Washington, D.C., West Virginia, Wisconsin
Braille Proficiency (0633)	January 2016	January 2016	169	Colorado, Mississippi, Rhode Island, South Dakota, Utah, Virginia, West Virginia

All Grades (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Health and Physical Education: Content Knowledge (5857)	November 2013	December 2013	160	Arkansas, Delaware, Guam, Kentucky, Louisiana, Nebraska, Nevada, North Carolina, Pennsylvania, Tennessee, Vermont, Virginia, Washington, D.C.
Mathematics: Content Knowledge (5161)	February 2013	March 2013	160	Alaska, Arkansas, Delaware, Idaho, Kentucky, Louisiana, Maine, Maryland, Mississippi, Nevada, New Hampshire, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, D.C., Wisconsin, West Virginia, Wyoming
Mathematics (5165)	January 2021	February 2021	159	Alabama, Arkansas, Delaware, Idaho, Indiana, Kansas, Maryland, Mississippi, Nevada, South Carolina, South Dakota, Tennessee, Washington, D.C., West Virginia
Music: Content and Instruction (5114)	November 2011	November 2011	162	Arkansas, Connecticut, District of Columbia, Hawaii, Idaho, Kentucky, Maine, Maryland, Missouri, North Carolina, New Hampshire, Nevada, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont
Music: Content Knowledge (5113)	November 2011	November 2011	161	Arkansas, Connecticut, District of Columbia, Hawaii, Idaho, Kentucky, Maine, Maryland, Missouri, North Carolina, New Hampshire, Nevada, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont
Music: Instrumental and General Knowledge (5115)	March 2021	April 2021	150	Arkansas, Indiana, Kansas, Kentucky, North Carolina, Nevada, Utah, Virginia, West Virginia
Music: Vocal and General Knowledge (5116)	March 2021	April 2021	153	Arkansas, Indiana, Kansas, North Carolina, Nevada, Virginia, West Virginia
Physical Education: Content and Design (5095)	June 2010	July 2010	169	Arkansas, Connecticut, Indiana, Kentucky, Maryland, New Hampshire, South Carolina, Tennessee, Vermont, Washington, D.C., Wyoming
Reading Specialist (5301)	August 2011	September 2011	164	Alabama, Arkansas, Idaho, Kansas, Kentucky, Maine, North Carolina, North Dakota, Nevada, Pennsylvania, Rhode Island, Vermont, West Virginia

All Grades (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Reading Specialist (5302)	January 2020	February 2020	165	Arkansas, Hawaii, Idaho, Kansas, Kentucky, Maryland, Nebraska, Nevada, North Carolina, North Dakota, South Dakota, Utah, Washington, D.C., West Virginia
Sociology (5952)	December 2013	December 2013	154	Nevada, South Dakota, Tennessee, Utah, Wisconsin, Wyoming
Teaching Reading: Elementary (5205)	February 2019	March 2019	159	Alabama, Arkansas, Colorado, District of Columbia, Hawaii, Idaho, Maryland, Mississippi, Oregon, Pennsylvania, South Carolina, Tennessee, Utah, West Virginia
Teaching Reading: K-12 (5206)	February 2019	March 2019	156	Arkansas, Iowa, Kentucky, Louisiana, Maryland, Montana, North Carolina, Pennsylvania, South Dakota, West Virginia

World Languages

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Chinese (Mandarin): World Language (5665)	April 2012	May 2012	164	Arkansas, Hawaii, Kansas, Kentucky, Louisiana, Maryland, Maine, Mississippi, Montana, North Carolina, North Dakota, New Hampshire, New Jersey, Rhode Island, Tennessee, Utah, Vermont, Virginia
English to Speakers of Other Languages (5362)	December 2015	December 2015	155	Alabama, Arkansas, Connecticut, Guam, Hawaii, Idaho, Iowa, Kansas, Kentucky, Louisiana, Maryland, Maine, New Hampshire, Nevada, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Dakota, U.S. Virgin Islands, Utah, Virginia, Vermont, Wisconsin, West Virginia, Wyoming
French: World Language (5174)	July 2009 August 2009	October 2009	162	Connecticut, Hawaii, Kentucky, Louisiana, Maine, Maryland, Mississippi, Missouri, Nevada, New Hampshire, North Carolina, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, D.C., West Virginia, Wisconsin
German: World Language (5183)	July 2009 August 2009	October 2009	163	Alabama, Delaware, Kentucky, Maryland, Mississippi, Nevada, North Carolina, North Dakota, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, West Virginia, Wisconsin, Wyoming

World Languages (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Japanese: World Language (5661)	March 2021	April 2021	156	Alaska, Arkansas, Iowa, Idaho, Indiana, Virginia
Spanish: World Language (5195)	July 2009 August 2009	October 2009	168	Alabama, Delaware, Hawaii, Kentucky, Louisiana, Maine, Maryland, Mississippi, Missouri, Nevada, New Hampshire, North Carolina, North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, D.C., West Virginia, Wisconsin
World Languages Pedagogy (5841)	September 2009	October 2009	158	Connecticut, Idaho, Louisiana, Maryland, South Carolina, South Dakota, Washington, D.C.

Special Education

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Gifted Education (5358)	November 2013	November 2013	157	Arkansas, Delaware, Idaho, Kentucky, Maine, North Dakota, Tennessee
Special Education: Core Knowledge and Applications (5354)	January 2010	February 2010	151	Connecticut, Delaware, Indiana, Kentucky, Louisiana, Maryland, North Carolina, North Dakota, Ohio, South Carolina, South Dakota, Utah, Washington, D.C., West Virginia, Wyoming
Special Education: Core Knowledge and Mild to Moderate Applications (5543)	February 2010	March 2010	158	Connecticut, Hawaii, Idaho, Indiana, Kentucky, Louisiana, North Carolina, South Carolina, Tennessee, Utah, Washington, D.C., West Virginia
Special Education: Core Knowledge and Severe to Profound Applications (5545)	February 2010	March 2010	158	Hawaii, Indiana, Kansas, Kentucky, Louisiana, Missouri, North Carolina, Tennessee, Utah, Washington, D.C., West Virginia
Special Education: Early Childhood/ Early Intervention (5692)	November 2021	December 2021	159	Delaware, Kansas, Nevada, South Carolina, South Dakota, Tennessee, Utah, West Virginia
Special Education: Education of Deaf and Hard of Hearing Students (5272)	October 2011	November 2011	160	Arkansas, Guam, Hawaii, Idaho, Kentucky, Louisiana, Maine, North Dakota, Rhode Island, South Carolina, Tennessee, Washington, D.C., West Virginia

Special Education (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Special Education: Preschool/Early Childhood (5691)	September 2011	October 2011	159	Delaware, Guam, Idaho, Louisiana, Maine, Maryland, Nevada, North Dakota, Ohio, Rhode Island, South Carolina, South Dakota, Tennessee
Special Education: Teaching Students with Behavioral Disorders and Emotional Disturbances (5372)	July 2012	July 2012	154	North Carolina, North Dakota, Pennsylvania, South Carolina, West Virginia
Special Education: Teaching Students with Intellectual Disabilities (5322)	October 2013	October 2013	156	District of Columbia, Hawaii, Maine, Nevada, North Carolina, North Dakota, South Carolina, Tennessee
Special Education: Teaching Students with Learning Disabilities (5383)	February 2012	March 2012	151	District of Columbia, Guam, Hawaii, North Carolina, North Dakota, Nevada, South Carolina, Vermont, West Virginia
Special Education: Teaching Students with Visual Impairments (5282)	December 2011	December 2011	163	Arkansas, Hawaii, Kentucky, Louisiana, Maine, North Carolina, Pennsylvania, Rhode Island, Tennessee, West Virginia

Administrator/School Leader

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Educational Leadership: Administration and Supervision (5412)	January 2018	February 2018	146	Alabama, Arkansas, Connecticut, Delaware, Hawaii, Idaho, Kansas, Kentucky, Maryland, Mississippi, Nebraska, New Jersey, North Dakota, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, Virginia, Washington, D.C., West Virginia
School Leaders Licensure Assessment (6990)	January 2018	February 2018	151	Alabama, Arkansas, Connecticut, Delaware, Hawaii, Idaho, Kansas, Kentucky, Maryland, Mississippi, Nebraska, New Jersey, North Dakota, Pennsylvania, Rhode Island, South Dakota, Tennessee, Utah, Virginia, Washington, D.C., West Virginia

Administrator/School Leader (continued)

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
School Superintendent Assessment (6991)	December 2018	January 2019	162	Idaho, Kansas, Louisiana, Maryland, Mississippi, New Jersey, Pennsylvania, Rhode Island, South Carolina, West Virginia, Wyoming

Instructional Support Personnel

Study	Study Date	Report Date	Recommended Study Value	States Involved in Study
Audiology (5343)	February 2020	March 2020	162	California, District of Columbia, Georgia, Indiana, Louisiana, Minnesota, Missouri, Nebraska, New Jersey, New York, Pennsylvania
Professional School Counselor (5421)	March 2012	April 2012	156	Alabama, Arkansas, District of Columbia, Delaware, Hawaii, Kansas, Louisiana, Maine, Missouri, Mississippi, Montana, North Carolina, North Dakota, Nevada, Ohio, Rhode Island, South Carolina, Tennessee, Utah, Vermont, Washington, Wisconsin, West Virginia
School Counselor (5422)	September 2021	October 2021	159	Alabama, Arkansas, ASCA, Delaware, Georgia, Nevada, North Carolina, Rhode Island, South Carolina, Tennessee, Wisconsin, West Virginia
School Librarian (5312)	September 2021	October 2021	154	Indiana, Kansas, Mississippi, Nevada, North Carolina, South Carolina, Tennessee, West Virginia
School Psychologist (5402)	November 2013	November 2013	147	Alabama, Kentucky, Maryland, Massachusetts, Minnesota, Mississippi, Missouri, New Jersey, New Mexico, North Carolina, North Dakota, Pennsylvania, Tennessee, Texas, Utah, Vermont
School Psychologist (5403)	January 2022	February 2022	155	Alabama, Arkansas, Delaware, Kansas, Maryland, North Carolina, Rhode Island, Tennessee, Utah, West Virginia, Wyoming
Speech-Language Pathology (5331)	January 2014	February 2014	162	Arkansas, Georgia, Hawaii, Indiana, Iowa, Maryland, Massachusetts, Michigan, New York, North Dakota, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Wisconsin

[Learn more](#) about the Multistate approach for setting standards for the Praxis® tests.