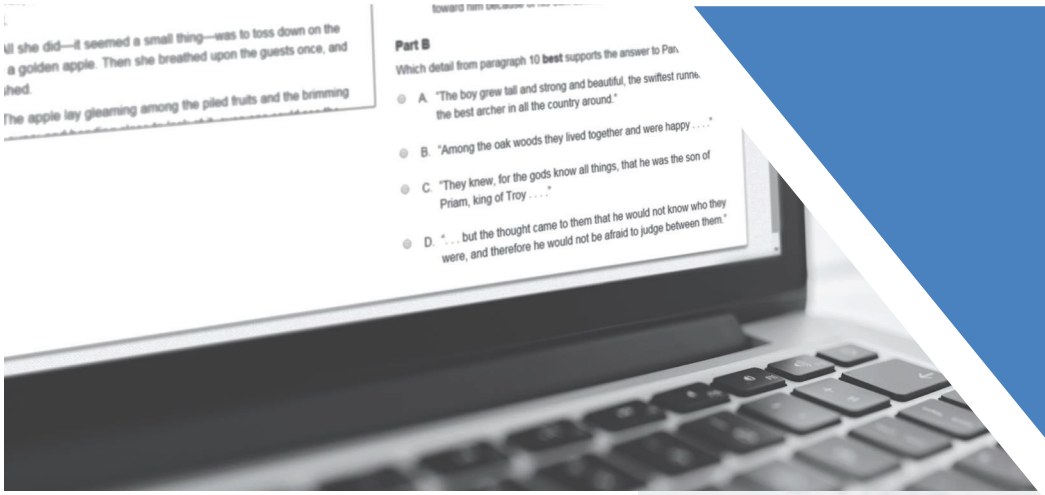
Spring 2025

Maryland
STATE DEPARTMENT OF EDUCATION



MCAP Science (MISA) Score Interpretation Guide for Educators

Table of Contents

1.0 General Information for Educators

1.1 Background

The Maryland Comprehensive Assessment Program (MCAP) will provide students, parents/caregivers, educators and the community with better student information at a faster pace. The goal is to gather information that helps Maryland schools strengthen our instruction and improve student performance so that our graduates are ready to move into the workforce or a postsecondary institution.

1.2 MCAP Science (MISA) Assessments

The primary purpose of MCAP is to provide high-quality assessments to measure students' progress toward college and career readiness.

The MCAP Science (MISA) assessments were administered in either computer-based or paper-based format. The tests assessed student mastery of the three dimensions necessary to understand science: Disciplinary Core Ideas (DCI), Science and Engineering Practices (SEP), and Crosscutting Concepts (CCC). Students demonstrated their mastery by interacting with a stimulus such as a video, chart, or diagram, and then responding to several items supported by the stimulus.

1.3 Confidentiality of Reporting Results

Individual student performance results on the MCAP are confidential and may be released only in accordance with the Family Educational Rights and Privacy Act of 1974 (20 U.S.C. Section 1232g). Aggregated student performance data are made available to the public and do not contain the names of individual students or teachers.

1.4 Purpose of this Guide

This guide provides information on the individual student reports, school reports, and Local Education Agency (LEA) reports provided for MCAP results. Section 2.0 outlines and explains elements of the individual student report. Section 3.0 outlines and explains elements of the school and LEA reports. Individual state policies and calculations for accountability reporting may differ from the policies and calculations used for assessment reports. A separate score interpretation guide is available for parents/caregivers.

Sample reports included in this guide are for illustration purposes only. They are provided to show the basic layout of the reports and the information they provide. Sample reports do not include actual data from any test administration.

2.0 Understanding the MCAP Individual Student Report (ISR)

2.1 Types of Scores on the MCAP ISR

Student performance on the MCAP Science assessment is described on the individual student report using scale scores, performance levels, and subclaim performance indicators. State, LEA, and school average results are included in relevant sections of the report to help parents/caregivers understand how their student's performance compares to that of other students. In some instances, a note will appear in place of average results for a school and/or LEA. This indicates that there are too few students to maintain student privacy and therefore results are not reported.

2.1.1 Scale Score

A scale score is a numerical value that summarizes student performance. Not all students respond to the same set of test items, so each student's raw score (actual points earned on test items) is adjusted for the slight differences in difficulty among the various forms and administrations of the test. The resulting scale score allows for an accurate comparison across test forms and administration years within a grade. For example, a student who earns an overall scale score of 750 on one form of the grade 5 science assessment would be expected to earn an overall score of 750 on any other form of the grade 5 science assessment. Furthermore, the student's overall scale score and level of mastery of concepts and skills would be comparable to a student who took the same assessment the previous year or the following year.

2.1.2 Performance Level

Each performance level is a broad, categorical level defined by a student's overall scale score and is used to report overall student performance by describing how well students met the expectations for their grade level/course. Each performance level is defined by a range of overall scale scores for the assessment. There are four performance levels for the MCAP:

- Level 4: Distinguished Learner
- Level 3: Proficient Learner
- Level 2: Developing Learner
- Level 1: Beginning Learner

Students performing at levels 3 and 4 have demonstrated readiness for the next grade level/course, and ultimately, are likely on track for college and careers. Additional information pertaining to the test performance levels can be found in Appendix A.

2.1.3 Dimensions of Science Performance Indicators

The dimensions of science are subclaims that provide additional information about student performance. Subclaim performance is represented by a graphic that identifies the student's performance category. Each category includes a description of student performance at that level.

Performance is reported using categories rather than scale scores or performance levels. The three categories are: Distinguished or Proficient Learners, Developing Learners, and Beginning Learners.

2.1.4 Sample of Science (MISA) ISR

Maryland Comprehensive Assessment Program

GRADE 5 MISA

A

FIRSTNAME Z. LASTNAME

Date of Birth: 11/02/2017 ID: 1100000040 **Grade: 5**
Local Education Agency (LEA): SAMPLE DISTRICT NAME
SAMPLE SCHOOL NAME
MARYLAND
SPRING 2025

B

Science Assessment Report, 2024-2025

This report shows whether FIRSTNAME20 met grade band expectations in science and is on track for the next grade band. The items on the assessment measure your student's understanding of concepts and practices in science and require critical thinking to find solutions to problems. The Maryland Integrated Science Assessment (MISA) is one of several ways to help families and teachers understand how well your student is acquiring science concepts and practices.

C

How Can You Use This Report?

Ask your student's teachers:

- What do you see as my student's strengths and areas for improvement in science?
- How can these assessment results be used to help my student make progress in science?

5

To learn more about the Maryland Science Program visit http://marylandpublicschools.org/about/Pages/DCAA/Science/index.aspx.
For Practice Tests visit Test Preparation on http://support.mdassessments.com.
MCAP Public Release Items - https://itempra.org/public/

How Did FIRSTNAME Perform Overall?

Performance Level 4

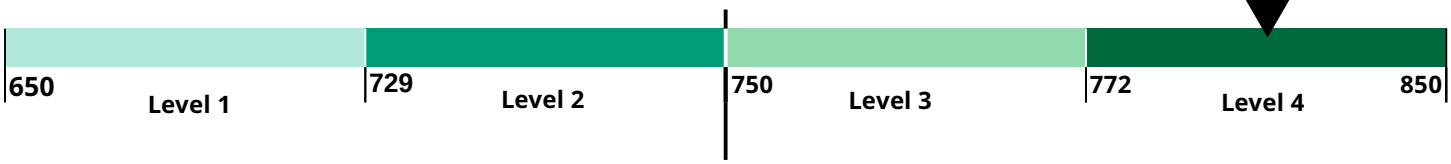
D

A description of the Performance Levels can be found on the back of this page.

Level 4 Distinguished Learner
Level 3 Proficient Learner
Level 2 Developing Learner
Level 1 Beginning Learner

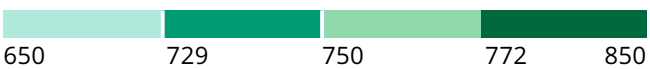
E

Your student's score
811



F

School Average
718
LEA Average
728
State Average
736



How Students in Maryland Performed

G

32%	12%	31%	25%
Level 1	**Level 2**	**Level 3**	**Level 4**

Percent of students at each performance level

C

How are assessment results used?

Results from the assessment give your student's teacher, school, and school district information about their science performance, and provide you with some insight as to your student's level of learning. These results never stand alone, but can be used with other assessments and class work when gauging student performance.

02252025-Sp-Z9999999-R-55-557777-S-- - 0000000

How Did Your Student Perform on the MISA?

H

Physical Sciences

Your student performed about the same as other **Proficient or Distinguished Learners.** Students demonstrate proficiency by exhibiting an understanding of matter and its interactions, motion and stability, forces and interaction, energy, waves and their applications in technologies for information transfer.

Earth and Space Sciences

Your student performed about the same as other **Proficient or Distinguished Learners.** Students demonstrate proficiency by exhibiting an understanding of Earth's place in the universe, Earth's systems, and Earth and human activity.

Life Science

Your student performed about the same as other **Proficient or Distinguished Learners.** Students demonstrate proficiency by exhibiting an understanding of how the structures and processes function from molecules to organisms, the interactions, energy, and dynamics of ecosystems, the inheritance and variation of traits in heredity, and the unity and diversity of biological evolution.

Investigating Practices

Your student performed about the same as students who are **Proficient or Distinguished Learners**. Students meet expectations by asking questions and conducting experiments.

Sensemaking Practices

Your student performed about the same as students who are **Proficient or Distinguished Learners**. Students meet expectations by analyzing data for patterns and relationships.

Critiquing Practices

Your student performed about the same as students who are **Proficient or Distinguished Learners.** Students meet expectations by evaluating and arguing about different explanations and models.

LEGEND

Your student performed about the same as:

Distinguished or Proficient Learners | **Developing Learners** | **Beginning Learners**

I

Science Performance Level Descriptions

J

Level 4 Distinguished Learners: *Distinguished learners demonstrate advanced proficiency* in applying scientific thinking to understand the natural world and apply engineering design to find solutions to problems. Learners at this level *think critically* about the effects of chemical reactions, forces, and energy on the world around them; the ways different organisms and the environment interact; the ways the geosphere, biosphere, and hydrosphere interact; and how engineering design can be a regular part of problem solving. Distinguished learners *are well prepared* in asking questions that lead to explanations supported by evidence, using mathematics to analyze data, and applying scientific ideas to develop, test, compare, and improve design solutions.

Level 3 Proficient Learners: *Proficient learners demonstrate proficiency* in applying scientific thinking to understand the natural world and apply engineering design to find solutions to problems. Learners at this level *explain* the effects of chemical reactions, forces, and energy on the world around them; the ways different organisms and the environment interact; the ways the geosphere, biosphere, and hydrosphere interact; and how engineering design can be a regular part of problem solving. Proficient learners *are prepared* in asking questions that can lead to reasonable predictions, using mathematics to describe data, and applying scientific ideas to evaluate a design solution.

Level 2 Developing Learners: *Developing learners demonstrate partial proficiency* in applying scientific thinking to understand the natural world and apply engineering design to find solutions to problems. Learners at this level *describe* the effects of chemical reactions, forces, and energy on the world around them; the ways different organisms and the environment interact; the ways the geosphere, biosphere, and hydrosphere interact; and how engineering design can be a regular part of problem solving. Developing learners *need additional academic support* in asking questions about changes in an investigation, organizing simple data sets that reveal patterns, and identifying scientific evidence used to support a claim.

Level 1 Beginning Learners: *Beginning learners do not yet demonstrate proficiency* in applying scientific thinking to understand the natural world and engineering design to find solutions to problems. Learners at this level *identify* the effects of chemical reactions, forces, and energy on the world around them; the ways different organisms and the environment interact; the ways the geosphere, biosphere, and hydrosphere interact; and how engineering design can be a regular part of problem solving. Beginning learners *need substantial academic support* in asking questions about changes in an investigation, organizing simple data sets that reveal patterns, and identifying scientific evidence used to support a claim.

2.1.5 General Description of Individual Student Reports

A. Identification Information

An Individual Student Report lists the student's name, date of birth, state student ID, grade level when assessed, LEA name, school name, and state. The grade level when assessed is also shown in a box on the left side of the report.

B. Description of Report

The description of the report provides the grade level/course assessed, content area assessed, and assessment year. It also provides a general overview of the assessment and score report.

C. How to use the Report

This section provides guidance on how parents/caregivers can use the report to start a discussion with their student's teacher(s). It is important for parents/caregivers and educators to have regular check-ins to ensure students are learning the necessary skills to stay on track. Parents/Caregivers can use the information in the report to understand their student's strengths and needs and to work with educators to identify resources to support his or her education.

2.1.6 Overall Assessment Scores

D. Overall Scale Score and Performance Level

This section of the report provides the student's overall scale score and performance level (refer to Section 2.1). Students receive an overall scale score and based on that score, are placed in one of four performance levels, with Level 4 indicating a Distinguished Learner and Level 1 indicating a Beginning Learner.

E. Graphical Representation of Overall Performance: Overall Scale Score and Performance Level

This graphic provides an illustration of the four performance levels and where the student's overall scale score is positioned along the performance scale. The student's score is indicated by the black triangle positioned along the range of overall scale scores that define each performance level. The ranges of overall scale scores are indicated underneath the graphic. The scale scores needed to reach each performance level vary slightly between grades 5 and 8. Refer to **Appendix A** for the full list of scale score ranges for each performance level.

F. Average of School, LEA, State

The average overall scale scores of the school, LEA, and state are shown below the overall scale score and performance level graphic. This allows for comparing a student's overall scale score to the average overall scale score of students at the school, LEA, and state level for the same grade level.

G. Percentage of Students at Each Performance Level

This section provides a bar graph showing the percentage of students within the state who performed at each of the four performance levels.

2.1.7 Performance by Reporting Category

H. Dimensions of Science Reporting Categories

The report shows the student's performance for the two Dimensions of Science Subclaim Reporting Categories. The Disciplinary Core Idea (DCI) subclaim is separated into Physical Science, Earth and Space Science, and Life Science. The Science and Engineering Practices (SEP) subclaim is separated into Investigating Practices, Sensemaking Practices, and Critiquing Practices.

I. Dimensions of Science Reporting Categories

Student performance for each dimension is represented by a graphic and includes a description of the student's performance in that category.

- **A completely filled in circle** for the specified dimension indicates the student as a "Distinguished Learner" or "Proficient Learner".
- **A half filled in circle** for the specified dimension indicates the student as a "Developing Learner".
- **An empty circle** for the specified dimension indicates the student as a "Beginning Learner".

J. Science Performance Level Descriptions

The report provides the performance level descriptions for the MCAP Science assessment.

3.0 Understanding the MCAP School & LEA Level Reports

3.1 Purpose and Use of MCAP Results

The primary purpose of MCAP is to provide high-quality assessments to measure students' progress toward college and career readiness. These results are a helpful tool in evaluating educational programs and student reports by

- Summarizing student achievement
- Describing student performance relative to meeting standards
- Supporting LEA and school level improvement planning

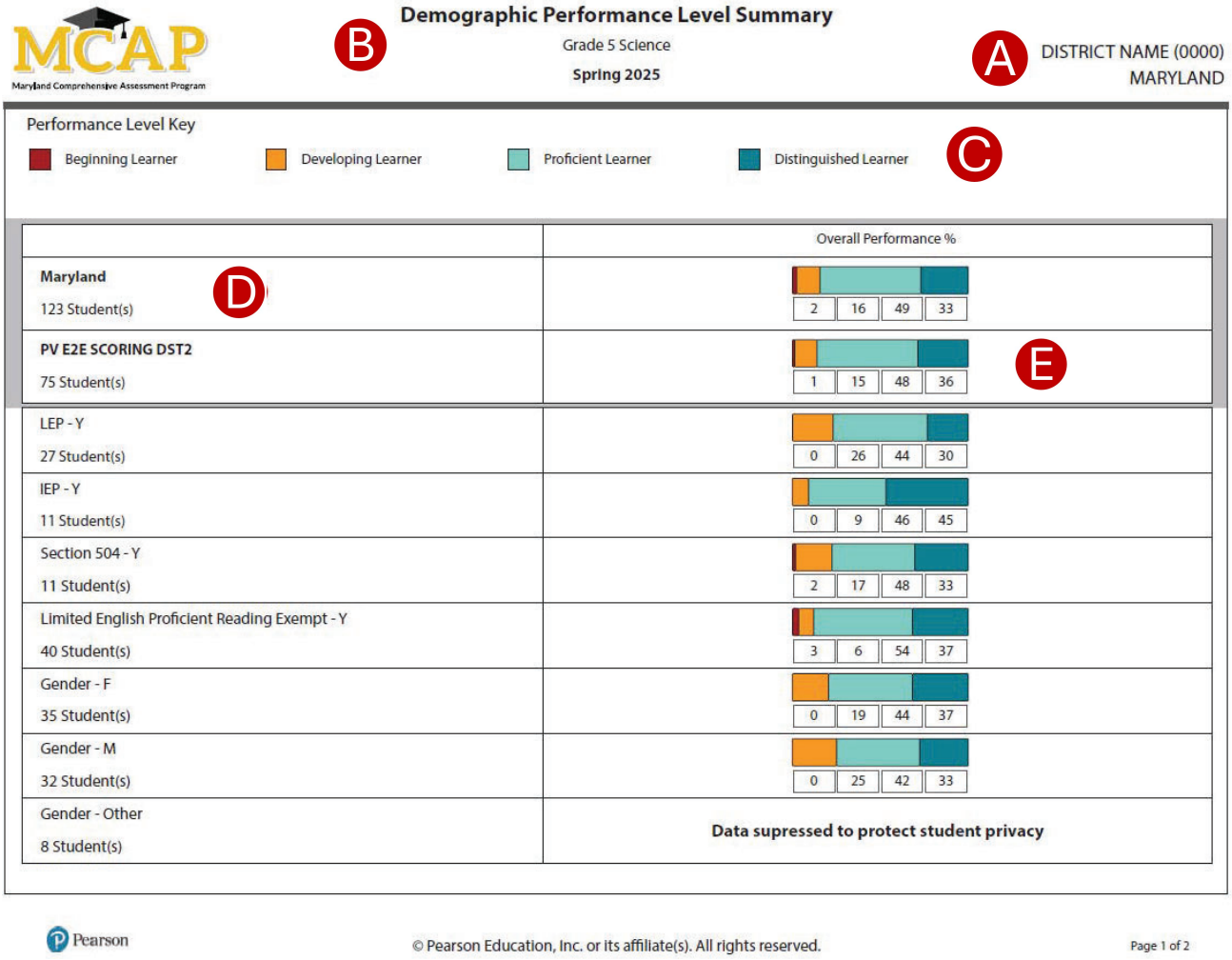
3.2 MCAP School and LEA Reports

In addition to Individual Student Reports, schools will receive a school level and LEA level Demographic Performance Level Summary and Evidence Statement Analysis.

3.2.1 Understanding the Demographic Performance Level Summary (DPLS)

The Demographic Performance Level Summary reports are provided at the School and LEA Level. This report breaks out the performance aggregations into subcategory levels. In some instances, the overall performance will show as "Data suppressed to protect student privacy" in place of results for a school and/or LEA. This indicates that there are too few students to maintain student privacy and therefore results are not reported.

3.2.2 Sample of the Demographic Performance Level Summary



MCAP
Maryland Comprehensive Assessment Program

Demographic Performance Level Summary
Grade 5 Science
Spring 2025

DISTRICT NAME (0000)
MARYLAND

Performance Level Key
Beginning Learner | Developing Learner | Proficient Learner | Distinguished Learner

	Overall Performance %
Maryland 123 Student(s)	2 16 49 33
PV E2E SCORING DST2 75 Student(s)	1 15 48 36
LEP - Y 27 Student(s)	0 26 44 30
IEP - Y 11 Student(s)	0 9 46 45
Section 504 - Y 11 Student(s)	2 17 48 33
Limited English Proficient Reading Exempt - Y 40 Student(s)	3 6 54 37
Gender - F 35 Student(s)	0 19 44 37
Gender - M 32 Student(s)	0 25 42 33
Gender - Other 8 Student(s)	**Data supressed to protect student privacy**

Pearson

3.2.3 Description of the Demographic Performance Level Summary

A. Identification Information
The report identifies the LEA and School name.

B. Description of Report
The content area of the report, the grade of the assessment, and the administration year are identified.

C. Performance Level Key
The report shows the performance level key.

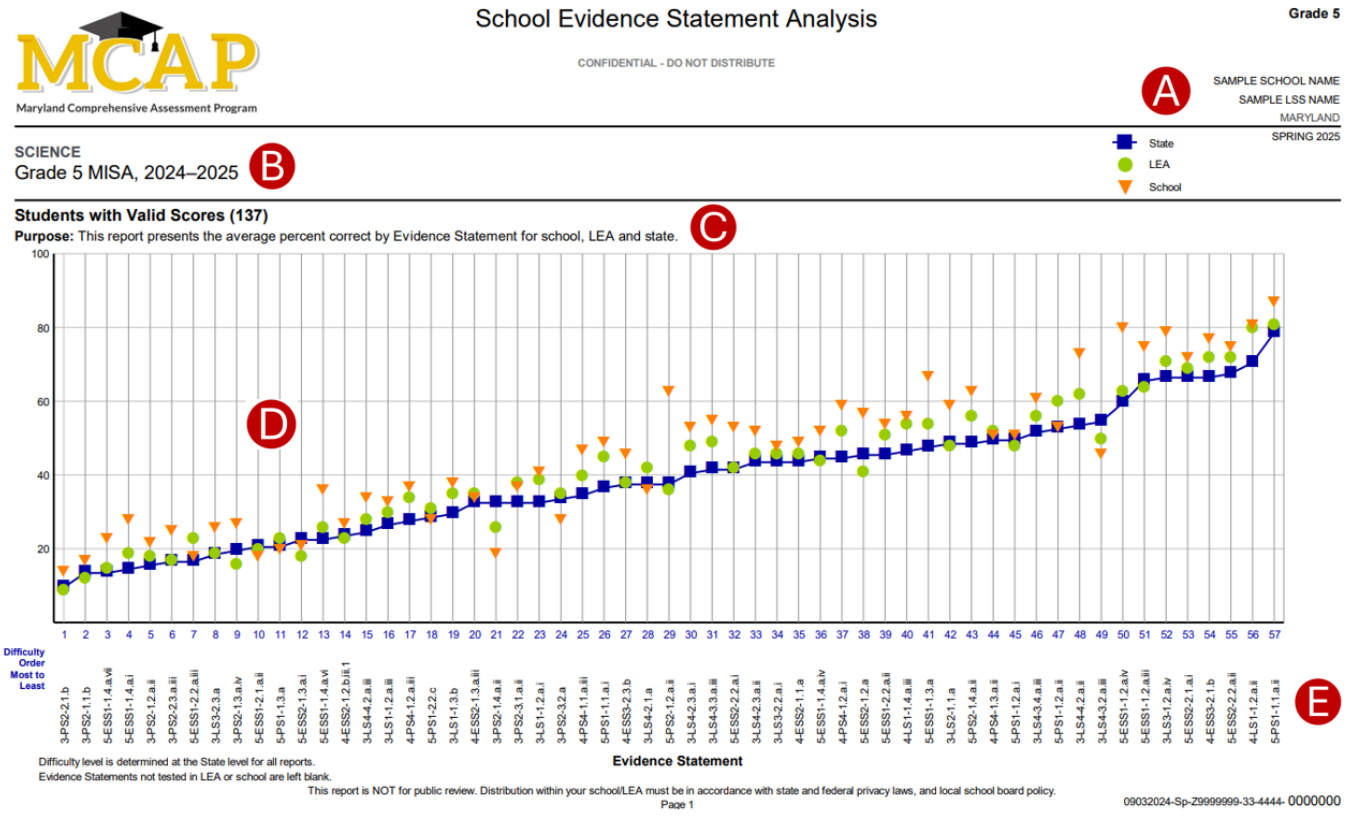
D. Demographic, Program Categories, and Number of Valid Scores
The demographic and program categories with student groups are listed on the left side of the table. The number of valid scores appears below the demographic or program category. This includes students with a valid score. Students with no score or who were deleted from ADAM are not included.

E. Performance Level Results
The percentage of students who performed at the Distinguished Learner, Proficient Learner, Developing Learner, and Beginning Learner are displayed for each demographic or program student group.

3.2.4 Understanding the Evidence Statement Analysis

The Evidence Statement Analysis Report is a two-page report that analyzes the performance of the Science evidence statements represented by items on the Science (MISA) assessment. Page 1 of the Evidence Statement Analysis shows the performance by evidence statement in graph form. Page 2 of the Evidence Statement Analysis links the MCAP Science evidence statements to the Next Generation Science Standards upon which they are based.

3.2.5 Sample of the Evidence Statement Analysis



School Evidence Statement Analysis

CONFIDENTIAL - DO NOT DISTRIBUTE

MCAP
Maryland Comprehensive Assessment Program

SAMPLE SCHOOL NAME
SAMPLE LSS NAME
MARYLAND
SPRING 2025

This report shows the operational Evidence Statements for the given grade and subject sorted by difficulty.

SCIENCE

Grade 5 MISA, 2024–2025

Difficulty Order Most to Least	NGSS Performance Expectation (G)	Evidence Statement (H)	Dimensions (I)		School Student Count (J)
			Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	
1	3-PS2, 3-PS2-2	3-PS2-2.1.b	Sensemaking Practices	Physical Science	81
2	3-PS2, 3-PS2-1	3-PS2-1.1.b	Sensemaking Practices	Physical Science	81
3	Multiple	5-ESS1-1.4.a.vii	Investigating Practices	Earth and Space Science	44
4	5-ESS1, 5-ESS1-1	5-ESS1-1.4.a.i	Investigating Practices	Earth and Space Science	88
5	3-PS2, 3-PS2-1	3-PS2-1.2.a.ii	Sensemaking Practices	Physical Science	81
6	3-PS2, 3-PS2-2	3-PS2-2.3.a.iii	Sensemaking Practices	Physical Science	81
7	5-ESS1, 5-ESS1-2	5-ESS1-2.2.a.iii	Investigating Practices	Earth and Space Science	44
8	3-LS3, 3-LS3-2	3-LS3-2.3.a	Critiquing Practices	Life Science	88
9	3-PS2, 3-PS2-1	3-PS2-1.3.a.iv	Sensemaking Practices	Physical Science	81
10	5-ESS1, 5-ESS1-2	5-ESS1-2.1.a.ii	Investigating Practices	Earth and Space Science	44
11	5-PS1, 5-PS1-1	5-PS1-1.3.a	Sensemaking Practices	Physical Science	49
12	5-ESS2, 5-ESS2-1	5-ESS2-1.3.a.i	Investigating Practices	Earth and Space Science	137
13	5-ESS1, 5-ESS1-1	5-ESS1-1.4.a.vi	Investigating Practices	Earth and Space Science	88
14	4-ESS2, 4-ESS2-1	4-ESS2-1.2.b.iii.1	Investigating Practices	Earth and Space Science	49
15	3-LS4, 3-LS4-4	3-LS4-4.2.a.iii	Critiquing Practices	Life Science	49
16	3-LS1, 3-LS1-1	3-LS1-1.2.a.iii	Critiquing Practices	Life Science	137
17	4-PS4, 4-PS4-1	4-PS4-1.2.a.iii	Sensemaking Practices	Physical Science	137
18	5-PS1, 5-PS1-2	5-PS1-2.2.c	Sensemaking Practices	Physical Science	49
19	3-LS1, 3-LS1-1	3-LS1-1.3.b	Critiquing Practices	Life Science	137
20	4-ESS2, 4-ESS2-1	4-ESS2-1.3.a.iii	Investigating Practices	Earth and Space Science	49
21	3-PS2, 3-PS2-1	3-PS2-1.4.a.ii	Sensemaking Practices	Physical Science	81
22	3-PS2, 3-PS2-3	3-PS2-3.1.a.ii	Sensemaking Practices	Physical Science	88
23	3-LS1, 3-LS1-1	3-LS1-1.2.a.i	Critiquing Practices	Life Science	137
24	3-PS2, 3-PS2-3	3-PS2-3.2.a	Sensemaking Practices	Physical Science	88
25	4-PS4, 4-PS4-1	4-PS4-1.1.a.iii	Sensemaking Practices	Physical Science	137
26	5-PS1, 5-PS1-1	5-PS1-1.1.a.i	Sensemaking Practices	Physical Science	49
27	4-ESS3, 4-ESS3-2	4-ESS3-2.3.b	Investigating Practices	Earth and Space Science	49
28	3-LS4, 3-LS4-2	3-LS4-2.1.a	Critiquing Practices	Life Science	88
29	5-PS2, 5-PS2-1	5-PS2-1.2.a.ii	Sensemaking Practices	Physical Science	88
30	3-LS4, 3-LS4-2	3-LS4-2.3.a.i	Critiquing Practices	Life Science	88
31	3-LS4, 3-LS4-3	3-LS4-3.3.a.iii	Critiquing Practices	Life Science	49
32	5-ESS2, 5-ESS2-2	5-ESS2-2.2.a.i	Investigating Practices	Earth and Space Science	137
33	3-LS4, 3-LS4-2	3-LS4-2.3.a.ii	Critiquing Practices	Life Science	88
34	3-LS3, 3-LS3-2	3-LS3-2.2.a.i	Critiquing Practices	Life Science	88
35	4-ESS2, 4-ESS2-1	4-ESS2-1.1.a	Investigating Practices	Earth and Space Science	49
36	5-ESS1, 5-ESS1-1	5-ESS1-1.4.a.iv	Investigating Practices	Earth and Space Science	44
37	4-PS4, 4-PS4-1	4-PS4-1.2.a.i	Sensemaking Practices	Physical Science	137
38	5-ESS2, 5-ESS2-1	5-ESS2-1.2.a	Investigating Practices	Earth and Space Science	137
39	5-ESS1, 5-ESS1-2	5-ESS1-2.2.a.ii	Investigating Practices	Earth and Space Science	44
40	4-LS1, 4-LS1-1	4-LS1-1.4.a.iii	Critiquing Practices	Life Science	137

continued

NGSS Evidence Statements: https://nextgenscience.org/evidence-statements

Maryland Science Program: https://marylandpublicschools.org/about/Pages/DCAA/Science/index.aspx (K)

3.2.6 Description of the Evidence Statement Analysis

A. Identification Information
The report identifies the LEA and School name.

B. Description of Report
The content area of the report, the grade of the assessment, and the administration year are identified.

C. Students with Valid Scores
The number of valid scores includes students with a valid score. Students with no score or who were deleted from ADAM are not included.

D. Graph
The average percent correct by each cluster of items, combined at an evidence statement level is represented on the chart at a state level, LEA level, and school level. A legend is provided to show which lines represent each level shown. State symbols are connected with a solid line. LEA and school symbols are not connected because depending on the form assignment selection taken at the school or LEA all evidence statements may not be represented. If an evidence statement is not represented at a school or LEA level, there will not be a symbol on the chart for that evidence statement listed. If a symbol is on the chart at zero percent this indicates the evidence statement group had 0% achieved out of the maximum points possible for that school or LEA.

E. Performance Level Results
The Science items are written to Science Evidence Statements, which are based on the Next Generation Science Standards (NGSS). Each operational item on the assessment is aligned with a single evidence statement. In some instances, a single evidence statement could be used for multiple items.

Evidence statements where the state average points achieved versus the maximum points possible were lower are considered more difficult. The evidence statements are placed in order on the graph from most to least difficult. This difficulty order is determined by analyzing the overall performance at the state level.

F. Legend
The legend for this graph provides a symbol for State, LEA, and School values.

G. Next Generation Science Standards (NGSS)
The Next Generation Science Standards linked to the MCAP Science Evidence Statement are listed in the second column.

H. Evidence Statement
The Evidence Statements are listed in the same order as on the bottom of page one, from most to least difficult.

I. Dimensions
The NGSS dimensions of science identify the science and engineering practice category and disciplinary core idea that the evidence statement is aligned to.

J. School Student Count
The student count represents the number of students whose form of the assessment contained an item or items written to the evidence statement listed in column B. The count may differ by row because there are different forms of the assessment and not all forms include all items or evidence statements.

K. Additional Information
The links to more detailed information on the MCAP Science Evidence Statements, the NGSS website, and the Maryland Science Standards are provided at the bottom of the report.

Appendix A
Scale Score Ranges

Grade 5 Science		
Performance Level 4	Distinguished Learner	772-850
Performance Level 3	Proficient Learner	750-771
Performance Level 2	Developing Learner	729-749
Performance Level 1	Beginning Learner	650-728

Grade 8 Science		
Performance Level 4	Distinguished Learner	773-850
Performance Level 3	Proficient Learner	750-772
Performance Level 2	Developing Learner	726-749
Performance Level 1	Beginning Learner	650-725