

California Science Test: Introduction to the Range Achievement Level Descriptors

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About the California Science Test: Range Achievement Level Descriptors

This introduction to the range achievement level descriptors (ALDs) of the California Science Test (CAST) includes a discussion of the other CAST ALDs in order to provide an overview of their roles and purposes.

ALDs are created during separate development phases of a new assessment. These descriptors can vary in terms of how general or specific they are, depending on their particular purpose. Typically, four types of ALDs are created for an assessment, each type serving a different purpose:

- **General** ALDs are broad descriptors of student performance level expectations. They provide the range of measurement for an assessment and characterize results about the defined standards. General ALDs apply across grade levels and are the starting point for the development of the range ALDs.
- **Range** ALDs are detailed descriptions of observable evidence of student performance by grade level and content. Range ALDs are developed to provide evidence of how a student's knowledge, skills, and abilities change and become more advanced across the achievement levels.
- **Threshold** ALDs are a subset of the range ALDs and are defined and used by educators during the standard setting process. These threshold ALDs are used to focus the educators on a student's knowledge, skills, and abilities at the borderline between achievement levels throughout the standard setting process.
- **Reporting** ALDs are the final ALDs, which are developed after the standard setting process is complete. These ALDs provide a description of a student's performance based upon performance on the assessment for public reporting purposes.

ALDs are not intended to provide guidance to classroom teachers for curriculum or individual student decisions. Such guidance is provided through multiple measures.

Development of the CAST ALDs

The development of the CAST ALDs followed the typical course of four types of ALDs being created for the assessment—general, range, threshold, and reporting.

General ALDs

The CAST general ALDs describe a student’s performance in terms of four achievement levels in the four CAST achievement levels (i.e., standard exceeded, standard met, standard nearly met, and standard not met). These general ALDs were created by science assessment experts, and then were reviewed by California science educators. The California Department of Education (CDE) collected educators’ feedback and recommendations and applied those suggestions to the general ALDs. In November 2017, the California State Board of Education (SBE) approved the CAST general ALDs, which are presented in table 1, below.

Table 1. SBE-Approved General ALDs

Level	Achievement Level Description
4	The student has exceeded the performance expectations of the California Next Generation Science Standards (CA NGSS) by demonstrating a thorough understanding of the CA NGSS and a thorough ability to apply his or her knowledge and skills through the CA NGSS Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts.
3	The student has met the performance expectations of the CA NGSS by demonstrating an adequate understanding of the CA NGSS and an adequate ability to apply his or her knowledge and skills through the CA NGSS Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts.
2	The student has nearly met the performance expectations of the CA NGSS by demonstrating a partial understanding of the CA NGSS and a partial ability to apply his or her knowledge and skills through the CA NGSS Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts.
1	The student has not met the performance expectations of the CA NGSS by demonstrating a minimal understanding of the CA NGSS and a minimal ability to apply his or her knowledge and skills through the CA NGSS Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts.

Range ALDs

The purpose of the range ALDs is to help illustrate what a student’s performance might look like at each of the achievement levels. Science assessment experts from ETS collaborated with staff from the CDE to complete a set of draft CAST range ALDs. In March 2018, ETS convened with California science educators from across the state to review and provide feedback on these CAST range ALDs. Similar to the process followed for the general ALDs, the CDE collected educator feedback and recommendations and applied those suggestions to the range ALDs. The CAST range ALDs developed are grade- and content-specific descriptors and they incorporate the three dimensions (i.e., Disciplinary Core Ideas [DCIs], Science and Engineering Practices [SEPs], and Crosscutting Concepts [CCCs]) for the performance expectations of the California Next Generation Science Standards. The CAST range ALDs are organized by DCI strands and include the relevant SEPs and CCCs in their descriptions. In addition, these descriptions include the cognitive and content rigor that are representative of typical student performance at each achievement level.

- Grade Five Range ALDs PDF:
<https://www.cde.ca.gov/ta/tg/ca/documents/castalds5.pdf>
- Grade Eight Range ALDs PDF:
<https://www.cde.ca.gov/ta/tg/ca/documents/castalds8.pdf>
- High School Range ALDs PDF:
<https://www.cde.ca.gov/ta/tg/ca/documents/castaldshs.pdf>

Threshold ALDs

For the threshold ALDs, it is important to understand that they reflect the cumulative skills of the range ALDs, not just the threshold ALDs. A student who has achieved threshold Level 3 is assumed to have the knowledge, skills, and processes of the range Levels 1 and 2 ALDs. The CAST threshold ALDs can be found in the CAST Standard Setting Technical Report in Appendix 1, Attachment B at <https://www.cde.ca.gov/ta/tg/ca/documents/cast2019stdsettingrpt.pdf>.

Reporting ALDs

The CAST Reporting Achievement Level Descriptors document, found online at <https://www.cde.ca.gov/ta/tg/ca/> provides descriptions of the four levels possible for a student's overall performance on the CAST for public reporting purposes on the Test Results for California's Assessments website at <https://caaspp-elpac.cde.ca.gov/caaspp/Default>. Students are provided with an overall score and an achievement level (i.e., Level 4—Standard Exceeded, Level 3—Standard Met, Level 2—Standard Nearly Met, or Level 1—Standard Not Met). In addition, the students receive information on how they performed in each science domain (i.e., Earth and Space Sciences, Life Science, and Physical Sciences). These science domain results describe a student's performance in relationship to meeting the standard (i.e., Standard Met); therefore, one of three levels (i.e., above standard the standard, at or near standard, or below standard) are possible for a student's performance by science domain.