

## Introduction to Multistage Testing (MST)

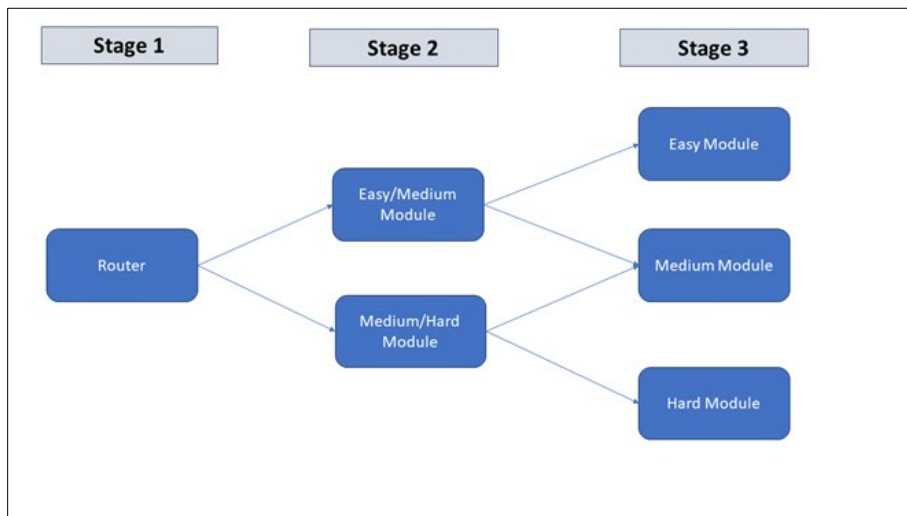
### OVERVIEW OF MST

A multistage test (MST) is a type of computerized adaptive test (CAT) that groups items into stages or modules. Like other CAT designs, MST provides a more efficient and accurate way to measure student ability by adjusting the difficulty of the assessment as the student moves through the test based on the student's performance.

At Stage 1 of an MST assessment, all students receive the same set of items or module. This first module is called a router, and it contains items of the same level of difficulty. Students complete the router module, and based on their performance, are then routed to the next stage to complete a module tailored to their ability level. A similar routing process occurs when students complete a new module.

For example, Figure 1 shows the typical 1-2-3 MST design. Stage 1 has one module, the router; Stage 2 has two modules, easy/medium and medium/hard; and Stage 3 has three modules, easy, medium, and hard. Once a student completes the router module in stage 1, they will then be routed to either the easy/medium or the medium/hard module in stage 2 based on their performance in Stage 1. After completing Stage 2, the student will be routed again to one of the three modules in Stage 3 (easy, medium, or hard) based on their responses in Stage 2.

**Figure 1. General MST Design (1-2-3)**

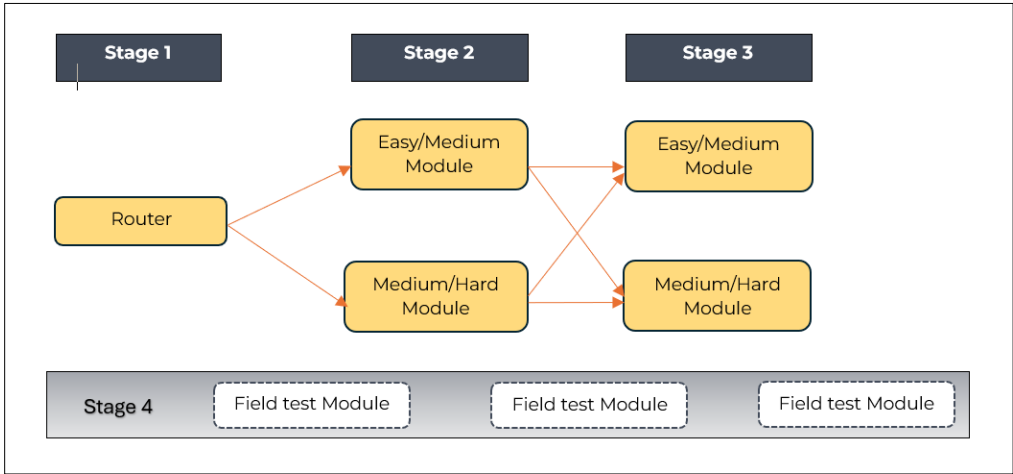


# Maryland MST Design

The Maryland State Department of Education started to implement MST design for English Language Arts/Literacy (ELA/L) MCAP in Spring 2024, beginning with grades 6-8 and 10 (see Figure 2). All ELA/L MCAP assessments are divided into four 70-minute stages (called sections during MCAP administration). In the case of MCAP MST design, the stages are as follows:

- Stage 1 is the routing stage, and it consists of a medium difficulty module. The module has two single passages: a literary single passage with associated items and an informational single passage with associated items. Students will be routed to an easy/medium or a medium/hard module in stage 2 depending on the score they achieved in stage 1.
- Stage 2 and Stage 3 have the same design, with an easy/medium and a medium/hard module. However, they vary in content, comprising either a literary performance task (a literary paired passage with associated items) or an informational performance task (an informational paired passage with associated items). The passage type (literary or informational) will be alternated between stages so that every student is presented with one literary performance task and one informational performance task. Students will be routed to an easy/medium or a medium/hard module in stage 3 depending on the score they achieved in stage 2.
- Besides stages 1, 2, and 3, there is an additional stage which contains a field test module. This module may be inserted between stages 1 and 2, between stages 2 and 3, or at the end of the test. Items in the field test module are used for developing future tests. Once these items are scored, MSDE staff utilize statistics to determine their validity and decide whether they should be revised, rejected, or included in the next operational test. All students must complete the field test items, but responses are not included in their final test scores.

**Figure 2. Overall MST Design for ELA**



## Frequently Asked Questions

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**The multistage test design allows for students in the same grade to encounter different modules and questions. If students are answering different questions, how can test results be aggregated and compared?**

Each MCAP assessment has a blueprint that describes the structure and content of the test, including the standards to be assessed and the number and types of questions used. This blueprint is used during test construction to ensure the comparability of results. Multistage test design provides a more efficient and accurate way to measure student ability by adjusting the difficulty of the assessment as the student moves through the test. In the first stage, students encounter a router module and, upon completion, are routed to the next module based on their performance. A student who answers more questions correctly in the router module will be routed to a “medium/hard” module during the next stage, and a student who answers fewer questions correctly will be routed to an “easy/medium” module. All modules, no matter their difficulty level, are grade-level appropriate and assess comprehension of grade-level standards.

**Will the traditional, linear test still be administered in English Language Arts/Literacy after the introduction of MST?**

Yes. MST design is currently being used in grades 6-8 and 10, but grades 3-5 are still utilizing a traditional, linear test with the goal of implementing MST design during the Spring 2026 administration. Additionally, the traditional, linear form of the test will be available for any student who requires specific accessibility features and/or requires this format based on approved accommodations.

**How long are multistage tests in English Language Arts/Literacy, and how much time do students have to answer all questions?**

The MCAP ELA/L assessments are organized into 4 stages (sections) and each stage has a varying number of questions depending on the task presented. Students must answer each question before moving to the next, and they have up to 70 minutes to work per stage.

**Will students be able to review their answers before submitting them?**

Yes. Within each stage, students can go back and review their answers before submitting the module for that stage. Once all the questions within a module are answered and submitted, the student will no longer be able to go back and review the questions in that module.

**How are unanswered questions handled on a multistage test?**

Students must answer each question before moving to the next. However, there may be cases where a student leaves a question unanswered. For example, a student may answer each question and move through the test but run out of time before getting to answer all questions. Unanswered questions will have an impact on the reported score, and the student's score will be adjusted down based on the number of unanswered questions.