Maryland
STATE DEPARTMENT OF EDUCATION

MCAP Mathematics Modeling Holistic Rubrics

This holistic rubric guides the evaluation of a student response by providing descriptions of sample characteristics for each score point. A score is based on an overall analysis of what is included in a student's response rather than what is missing. It is not necessary for a response to include all of the sample characteristics.

3 POINT MODELING CONSTRUCTED RESPONSE ITEMS

Points	Sample Characteristics
3 Points	A three-point response provides full and complete evidence of the modeling process used to solve a real-world problem. The response may: • identify the problem that needs to be solved. • determine information that is needed to solve the problem. • communicate an accurate, organized solution path that is aligned to the problem using appropriate, effective, and precise representations. • contain minor flaws that do not detract from correct modeling or demonstration of a thorough understanding. • evaluate or validate a partial or complete solution and show how to improve or refine the solution.
2 Points	A two-point response provides partial evidence of the modeling process used to solve a real- world problem. The response may: • partially identify the problem that needs to be solved. • determine some of the information that is needed to solve the problem. • include a partial solution path that may be incomplete. • contain some errors in identifying the mathematics that is needed to solve the problem. • evaluate or validate a partial or complete solution and attempt to improve or refine the solution.

Points	Sample Characteristics
1 Point	A one-point response provides limited evidence of the modeling process used to solve a real- world problem. The response may: • partially or incorrectly identify the problem that needs to be solved. • determine a minimal amount of the information that is needed to solve the problem. • include an incomplete or unorganized solution path. • contain errors in identifying the mathematics that is needed to solve the problem. • contain the correct solution, but work is limited or missing. • evaluate or validate a partial or complete solution but does not show how to improve or refine the solution.
0 Point	A zero-point response is completely incorrect, incoherent or irrelevant.

This holistic rubric guides the evaluation of a student response by providing descriptions of sample characteristics for each score point. A score is based on an overall analysis of what is included in a student's response rather than what is missing. It is not necessary for a response to include all of the sample characteristics.

4 POINT MODELING CONSTRUCTED RESPONSE ITEMS

Points	Sample Characteristics
4 Points	A four-point response provides full and complete evidence of the modeling process used to solve a real-world problem. The response may: • identify the problem that needs to be solved. • determine information that is needed to solve the problem. • communicate an accurate, organized solution path that is aligned to the problem using appropriate, effective, and essentially precise representations. • contain minor flaws that do not detract from correct modeling or demonstration of a thorough understanding. • evaluate or validate a partial or complete solution and show how to improve or refine the solution.
3 Points	A three-point response provides evidence of the modeling process used to solve a real-world problem. The response may: • identify most of the problem that needs to be solved. • determine most of the information that is needed to solve the problem. • communicate an accurate, organized solution path that is aligned to the problem using appropriate, effective, and precise representations with minor flaws. • evaluate or validate a partial or complete solution and show how to improve or refine the solution, but the improvement or refinement may include minor flaws.

Points	Sample Characteristics
2 Points	A two-point response provides partial evidence of the modeling process used to solve a real- world problem. The response may: • partially identify the problem that needs to be solved. • determine some of the information that is needed to solve the problem. • include a partial solution path that may be incomplete. • contain some errors in identifying the mathematics that is needed to solve the problem. • evaluate or validate a partial or complete solution and attempt to improve or refine the solution.
1 Point	A one-point response provides limited evidence of the modeling process used to solve a real- world problem. The response may: • partially or incorrectly identify the problem that needs to be solved. • determine a minimal amount of the information that is needed to solve the problem. • include an incomplete or unorganized solution path. • contain errors in identifying the mathematics that is needed to solve the problem. • contain the correct solution, but work is limited or missing. • evaluate or validate a partial or complete solution but does not show how to improve or refine the solution.
0 Point	A zero-point response is completely incorrect, incoherent or irrelevant.