

RUBRICS FOR CONSTRUCTED RESPONSE SCIENCE ITEMS BY SKILL

Rubrics for Skill 1 Extended Response Science Items

Skill 1: Use observation to pose questions that can be addressed through a scientific investigation.

Score	Definition
4	<ul style="list-style-type: none">• The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task.• Explanations and/or interpretations are clear, complete, and demonstrate a thorough understanding of the types of questions that can or cannot be answered by science.• The response may contain minor flaws that do not detract from the viability of the solution.
3	<ul style="list-style-type: none">• The response is mostly complete, accurate, and demonstrates an understanding of the relevant scientific context and processes embodied in the task.• Explanations and/or interpretations are incomplete, only partially support the solution, and/or do not clearly demonstrate a thorough understanding of the types of questions that can or cannot be answered by science. The response may contain minor flaws that indicate some misunderstanding of the relevant scientific context and/or processes.
2	<ul style="list-style-type: none">• The response is incomplete or partially accurate, but shows some understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations may provide an appropriate conclusion, but demonstrate a lack of understanding of the relevant scientific context and/or a lack of understanding of the types of questions that can or cannot be answered by science. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but demonstrates appropriate and scientifically sound concepts and/or processes.• The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
1	<ul style="list-style-type: none">• The response is incomplete, partially accurate, and based on a very limited understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations are inadequate, flawed, and/or demonstrate a lack of understanding of the types of questions that can or cannot be answered by science. Justification is faulty or incomplete or provides an inadequate conclusion.
0	<ul style="list-style-type: none">• The response is incomplete, inaccurate, and demonstrates very little or no understanding of the relevant scientific context and/or processes embodied in the task.• The response demonstrates a lack of understanding of the types of questions that can or cannot be answered by science.

Rubrics for Skill 1 Short Response Science Items

Skill 1: Use observation to pose questions that can be addressed through a scientific investigation.

Score	Definition
2	The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task. The response to the task is completed correctly, in a scientifically sound manner. Explanations and/or interpretations are clear, complete, and demonstrate a clear understanding of the types of questions that can or cannot be answered by science. The response may contain minor flaws that do not detract from the viability of the solution.
1	The response is inaccurate or incomplete, but shows some understanding of the relevant scientific context and/or processes embodied in the task. The response may include an appropriate conclusion or provide an adequate interpretation of the task, but may demonstrate an incorrect or incomplete understanding of the relevant scientific context and/or the types of questions that can or cannot be answered by science. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but may demonstrate appropriate and scientifically sound concepts and/or processes. The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
0	The response shows very little or no understanding of the relevant scientific context and/or processes embodied in the task and demonstrates a lack of understanding of the types of questions that can or cannot be answered by science.

Rubrics for Skill 2 Extended Response Science Items

Skill 2: Design and conduct a scientific investigation.

Score	Definition
4	<ul style="list-style-type: none">• The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task.• Explanations and/or interpretations are clear, complete, and demonstrate a thorough understanding of the characteristics of experimental design and procedures.• The response may contain minor flaws that do not detract from the viability of the solution.
3	<ul style="list-style-type: none">• The response is mostly complete, accurate, and demonstrates an understanding of the relevant scientific context and processes embodied in the task.• Explanations and/or interpretations are incomplete, only partially support the solution, and/or do not clearly demonstrate a thorough understanding of the characteristics of experimental design and procedures. The response may contain minor flaws that indicate some misunderstanding of the relevant scientific context and/or processes.
2	<ul style="list-style-type: none">• The response is incomplete or partially accurate, but shows some understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations may provide an appropriate conclusion, but demonstrate a lack of understanding of the relevant scientific context and/or a lack of understanding of the characteristics of experimental design and procedures. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but demonstrates appropriate and scientifically sound concepts and/or processes.• The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
1	<ul style="list-style-type: none">• The response is incomplete, partially accurate, and based on a very limited understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations are inadequate, flawed, and/or demonstrate a lack of understanding of the characteristics of experimental design and procedures. Justification is faulty or incomplete or provides an inadequate conclusion.
0	<ul style="list-style-type: none">• The response is incomplete, inaccurate, and demonstrates very little or no understanding of the relevant scientific context and/or processes embodied in the task.• The response demonstrates a lack of understanding of the characteristics of experimental design and procedures.

Rubrics for Skill 2 Short Response Science Items

Skill 2: Design and conduct a scientific investigation.

Score	Definition
2	<ul style="list-style-type: none">• The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task.• Explanations and/or interpretations are clear, complete, and demonstrate a thorough understanding of the characteristics of experimental design and procedures.• The response may contain minor flaws that do not detract from the viability of the solution.
1	<ul style="list-style-type: none">• The response is incomplete or partially accurate, but shows some understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations may provide an appropriate conclusion, but demonstrate a lack of understanding of the relevant scientific context and/or a lack of understanding of the characteristics of experimental design and procedures. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but demonstrates appropriate and scientifically sound concepts and/or processes.• The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
0	<ul style="list-style-type: none">• The response is incomplete, inaccurate, and demonstrates very little or no understanding of the relevant scientific context and/or processes embodied in the task.• The response demonstrates a lack of understanding of the characteristics of experimental design and procedures.

Rubrics for Skill 4 Extended Response Science Items

Skill 4: Organize and Represent Data.

Score	Definition
4	<ul style="list-style-type: none">• The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task.• Explanations and/or interpretations are clear, complete, and demonstrate proficiency in organizing, representing, and analyzing data.• The response may contain minor flaws that do not detract from the viability of the solution.
3	<ul style="list-style-type: none">• The response is mostly complete, accurate, and demonstrates an understanding of the relevant scientific context and processes embodied in the task.• Explanations and/or interpretations are incomplete, only partially support the solution, and/or do not clearly demonstrate proficiency in organizing, representing, and analyzing data. The response may contain minor flaws that indicate some misunderstanding of the relevant scientific context and/or processes.
2	<ul style="list-style-type: none">• The response is incomplete or partially accurate, but shows some understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations may provide an appropriate conclusion, but demonstrate a lack of understanding of the relevant scientific context and/or a lack of proficiency in organizing, representing, and analyzing data. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but demonstrates appropriate and scientifically sound concepts and/or processes.• The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
1	<ul style="list-style-type: none">• The response is incomplete, partially accurate, and based on a very limited understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations are inadequate, flawed, and/or demonstrate a lack of proficiency in organizing, representing, and analyzing data.• Justification is faulty or incomplete or provides an inadequate conclusion.
0	<ul style="list-style-type: none">• The response is incomplete, inaccurate, and demonstrates very little or no understanding of the relevant scientific context and/or processes embodied in the task.• The response demonstrates a lack of proficiency in organizing, representing, and analyzing data.

Rubrics for Skill 4 Short Response Science Items

Skill 4: Organize and Represent Data.

Score	Definition
2	<ul style="list-style-type: none">• The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task.• Explanations and/or interpretations are clear, complete, and demonstrate proficiency in organizing, representing, and analyzing data.• The response may contain minor flaws that do not detract from the viability of the solution.
1	<ul style="list-style-type: none">• The response is incomplete or partially accurate, but shows some understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations may provide an appropriate conclusion, but demonstrate a lack of understanding of the relevant scientific context and/or a lack of proficiency in organizing, representing, and analyzing data. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but demonstrates appropriate and scientifically sound concepts and/or processes.• The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
0	<ul style="list-style-type: none">• The response is incomplete, inaccurate, and demonstrates very little or no understanding of the relevant scientific context and/or processes embodied in the task.• The response demonstrates a lack of proficiency in organizing, representing, and analyzing data.

Rubrics for Skill 5 Extended Response Science Items

Skill 5: Draw conclusions and make connections with concepts and knowledge.

Score	Definition
4	<ul style="list-style-type: none"> • The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task. • Explanations and/or interpretations are clear, complete, and demonstrate proficiency in the application of sound scientific thinking to draw conclusions and make connections. • The response may contain minor flaws that do not detract from the viability of the solution.
3	<ul style="list-style-type: none"> • The response is mostly complete, accurate, and demonstrates an understanding of the relevant scientific context and processes embodied in the task. • Explanations and/or interpretations are incomplete, only partially support the solution, and/or do not clearly demonstrate proficiency in the application of sound scientific thinking to draw conclusions and make connections. • The response may contain minor flaws that indicate some misunderstanding of the relevant scientific context and/or processes.
2	<ul style="list-style-type: none"> • The response is incomplete or partially accurate, but shows some understanding of the relevant scientific context and/or processes embodied in the task. • Explanations and/or interpretations may provide an appropriate conclusion, but demonstrate a lack of understanding of the relevant scientific context and/or a lack of proficiency in the application of sound scientific thinking to draw conclusions and make connections. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but demonstrates appropriate and scientifically sound concepts and/or processes. • The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
1	<ul style="list-style-type: none"> • The response is incomplete, partially accurate, and based on a very limited understanding of the relevant scientific context and/or processes embodied in the task. • Explanations and/or interpretations are inadequate, flawed, and/or demonstrate a lack of proficiency in the application of sound scientific thinking to draw conclusions and make connections. • Justification is faulty or incomplete or provides an inadequate conclusion.
0	<ul style="list-style-type: none"> • The response is incomplete, inaccurate, and demonstrates very little or no understanding of the relevant scientific context and/or processes embodied in the task. • The response demonstrates a lack of proficiency in the application of sound scientific thinking to draw conclusions and make connections.

Rubrics for Skill 5 Short Response Science Items

Skill 5: Draw conclusions and make connections with concepts and knowledge.

Score	Definition
2	<ul style="list-style-type: none">• The response is complete, accurate, includes labeling if required, and demonstrates a thorough understanding of the scientific context and procedures embodied in the task.• Explanations and/or interpretations are clear, complete, and demonstrate proficiency in the application of sound scientific thinking to draw conclusions and make connections.• The response may contain minor flaws that do not detract from the viability of the solution.
1	<ul style="list-style-type: none">• The response is incomplete or partially accurate, but shows some understanding of the relevant scientific context and/or processes embodied in the task.• Explanations and/or interpretations may provide an appropriate conclusion, but demonstrate a lack of understanding of the relevant scientific context and/or a lack of proficiency in the application of sound scientific thinking to draw conclusions and make connections. Conversely, the response may include an inappropriate conclusion or faulty interpretation of the task, but demonstrates appropriate and scientifically sound concepts and/or processes.• The response may contain errors related to misunderstanding important aspects of the task, misuse of scientific procedures or processes, or faulty interpretations.
0	<ul style="list-style-type: none">• The response is incomplete, inaccurate, and demonstrates very little or no understanding of the relevant scientific context and/or processes embodied in the task.• The response demonstrates a lack of proficiency in the application of sound scientific thinking to draw conclusions and make connections.