



SCIENCE DISSECTED

Preparing Students for Constructed Response Questions on the 8th Grade Science CRT

Written expression is an important lifelong skill that students need to master in order to be successful in life. Most schools have adopted programs which support writing across the curriculum and encourage students to develop their writing skills. Science teachers should embrace writing across the curriculum strategies because their students' writing skills will be evaluated in the constructed response section of the 8th grade Science Criterion Reference Test (CRT). Teachers can prepare their students for the constructed response section of the CRT by having the students practice writing answers to essay questions that relate to science content. Teachers can also give their students additional guidance on how to approach a constructed response question.

The constructed response section of the Science CRT is designed to evaluate if a student demonstrates comprehension of a standard-based concept. The student's response is assessed with the use of a 4-point scale (0-3 points) rubric. The CRT test booklet provides a general rubric similar to the one shown below. The Nevada Department of Education does not release detailed rubrics because that would inform teachers of specific questions on the CRT. One way to prepare students for the CRT is to familiarize them with rubrics as an assessment tool. If possible, share the rubric with the students prior to having them write a response. Therefore, the students will know what information is necessary to receive full credit.

Science Constructed Response Rubric Guide	
Score	Expectation
3 Points	Response addresses all parts of the question clearly and correctly
2 Points	Response addresses all parts of the question
1 Point	Response does not address all parts of the question
No Credit	The response is totally incorrect <i>or</i> no response provided

In addition to being familiar with rubrics, the students must understand the question and develop a plan of how to answer the question. The following strategies will help students develop a constructed response answer.

- ◆ Read and re-read the question to determine what it is asking
- ◆ Underline key terms and phrases in the question
- ◆ Rephrase the question in your own words to ensure that you understand what the question is asking
- ◆ Organize details into a logical order (possibly with a graphic organizer)
- ◆ Write your response neatly
- ◆ Read your answer to ensure that you answered all parts of the question

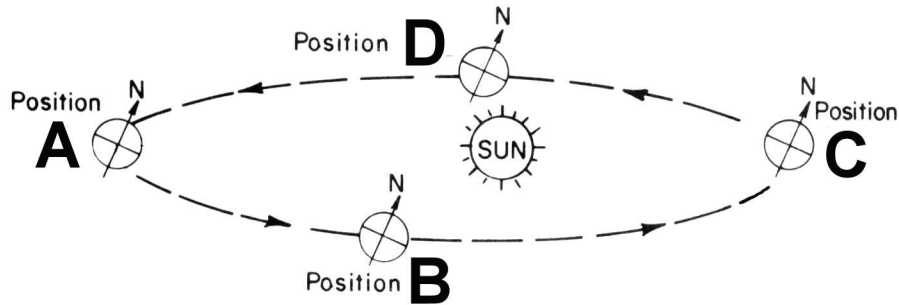
Did you know?

Although they are essential skills, the constructed response answers are not assessed on grammar or spelling. Students simply need to answer all parts of the question correctly to receive full credit.

Sample Constructed Response Question and Scoring Rubric

1. Use the following diagram and information to answer the question below.

As shown in the diagram, Earth's axis is tilted. The diagram also shows four positions of Earth in its path around the sun. Nevada experiences four seasons that occur while Earth orbits the sun.



Use the diagram to answer the following:

- Explain one reason why Nevada experiences a change in seasons.
- Identify the part of the Earth's orbit (labeled A, B, C or D) where Nevada experiences summer and winter.
- Explain how the position of Earth in its orbit is related to the timing of winter **or** summer.

Score	Sample Student Responses
3 Points	The angle at which the sun's rays strike Earth changes throughout the year. The angle of the sunlight is most direct in Nevada in the summer and least direct in the winter. It is winter in Nevada during position C and summer during A. The Northern hemisphere of the Earth is tilted toward the sun during summer and away from the sun in the winter. The direct sunlight and longer daylight hours in the Northern hemisphere cause it to warm up during the summer.
2 Points	Because of the tilt of the Earth, the sunlight is more direct in the summer and less direct in the winter. So, it would be summer in A and winter during C
1 Point	It's winter at C and summer at A.
No Credit	The Earth is closer to the sun during summer and farther away during winter.

Since the Nevada DOE has not released sample Science CRT items, the above sample question was modified from the Ohio Department of Education 8th Grade Practice Test Administration Booklet

The following link will take you to the Targeted Interventions for Proficiency in Science (TIPS) Website. Within the Middle School TIPS Website there is at least one constructed response sample question for each content benchmark. Check them out at, www.rpd.net/sciencetips_v3/