UNBRIDLED LEARNING
THE VISION FOR KENTUCKY'S FUTURE

GRADE

5

KENTUCKY

K-PREP

Kentucky Performance Rating For Educational Progress

READING SAMPLE ITEMS

Spring 2012

EVERY CHILD
PROFICIENT & PREPARED FOR SUCCESS
KENTUCKY DEPARTMENT OF EDUCATION

The following are the general guides that will be used to evaluate your responses to short-answer and extended-response questions in this test.

Kentucky Short-Answer Questions General Scoring Guide

Score Point 2	• You complete all components of the question and communicate ideas clearly. • You demonstrate an understanding of the concepts and/or processes. • You provide a correct answer using an accurate explanation as support.
Score Point 1	• You provide a partially correct answer to the question and/or address only a portion of the question. • You demonstrate a partial understanding of the concepts and/or processes.
Score Point 0	• Your answer is totally incorrect or irrelevant.
Blank	• You did not give any answer at all.

Kentucky Extended-Response Questions
General Scoring Guide

Score Point 4	• You complete all important components of the question and communicate ideas clearly. • You demonstrate in-depth understanding of the relevant concepts and/or processes. • Where appropriate, you choose more efficient and/or sophisticated processes. • Where appropriate, you offer insightful interpretations or extensions (generalizations, applications, analogies).
Score Point 3	• You complete most important components of the question and communicate clearly. • You demonstrate an understanding of major concepts even though you overlook or misunderstand some less-important ideas or details.
Score Point 2	• You complete some important components of the question and communicate those components clearly. • You demonstrate that there are gaps in your conceptual understanding.
Score Point 1	• You show minimal understanding of the question. • You address only a small portion of the question.
Score Point 0	• Your answer is totally incorrect or irrelevant.
Blank	• You did not give any answer at all.

Drilling for oil can have impacts on the environment. Read the passage about one such situation with a large ecological impact. Then answer the questions that follow.

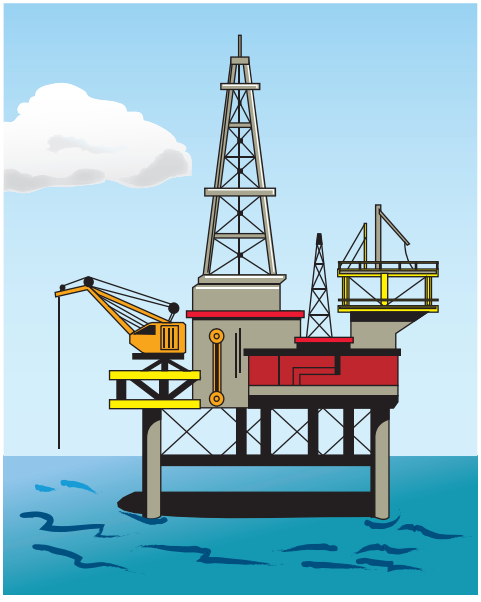
Disaster at the Deepwater Horizon

1 Petroleum and natural gas power much of modern civilization. Burning petroleum in cars allows them to move; burning natural gas in power plants allows them to produce the electricity you access through a wall outlet. Petroleum and natural gas are classified as fossil fuels. Found in underground deposits, fossil fuels have formed through physical and chemical changes to plant and animal remains over millions of years.

2 Humans obtain petroleum and natural gas by drilling into deposits and extracting them through wells. Most wells are on land, but the deposits easiest to extract have already been consumed. Drilling must now go deeper to less easily reached resources. The drilling involves greater cost than it once did.

3 Enormous fossil fuel deposits lay underneath the ocean floor as well as on land. In the past, no technology existed for obtaining fossil fuels from beneath the ocean floor. As technology has improved and extraction costs on land have risen, it has begun to make practical and economic sense to drill for the fossil fuel resources at sea. This has given rise to the deepwater drilling rig.

4 Deepwater drilling rigs are among the largest movable structures built by humans; some of them are like small floating villages. They have drills that reach to the ocean floor. The drills cut through rock to fossil fuel deposits. The deposits are brought to the surface through long pipes. Onboard the rigs, raw fossil fuels can be processed to separate them into petroleum, natural gas, and other products, which can be stored until transport ships dock at the rig. Apart from the drilling and processing equipment, the rigs often house crews numbering up to hundreds of people.



5 The Deepwater Horizon was a deepwater drilling rig that operated in the Gulf of Mexico, off the southeastern coast of the United States, in early 2010. The Gulf of Mexico is an area with a complex ecosystem, a community of organisms that live and function in the same environment. Ecosystems center around food webs, networks of predator-prey connections between organisms. Food webs allow

energy to flow from organism to organism. At the base of ocean food webs are plankton, tiny organisms that capture energy from sunlight and store it in chemicals. Larger organisms, like krill, shrimp, fish, and whales, consume plankton. In addition, fish prey on other fish. Where energy-bearing food is available, some organisms in an ecosystem will adapt to consume it so that the ecosystem can support as much life as possible.

6 In April 2010, an explosion damaged the Deepwater Horizon. The rig later sank to the ocean floor. This event left broken pipes spilling thousands of barrels of oil into the ocean each day. The flow of oil was not stopped until four months later.

7 The enormous oil spill had a long list of possible effects on the Gulf of Mexico ecosystem. First of all, the spill could damage the larger organisms like fish, turtles, and dolphins. Breathing or swallowing the oil allows the oil into their bodies, which can cause organ damage and endanger the lives of the animals. The oil in their environment can also disrupt the animals' feeding habits and reproduction patterns.

8 Possible damage was not limited to the larger organisms. Oil is poisonous, and it can eliminate large communities of plankton, cutting off the entry point of energy into the ocean ecosystem and starving the other organisms in the food web.

9 The explosion at the Deepwater Horizon could have destroyed the ecosystem in the Gulf of Mexico. Although the long-term effects of this disaster will not be understood for years, many efforts are underway to avoid the worst-case outcome.

10 Human efforts to clean up the spilled oil helped, but amazingly, microscopic organisms called bacteria were the most effective cleaners. Because oil has naturally leaked into the Gulf of Mexico for a long time, bacteria exist within the ecosystem. These bacteria are able to consume this oil as their source of energy.

11 Scientists discovered huge new populations of bacteria rapidly consuming spilled oil and methane (a gas mixed with the oil). Large bodies of oil would disappear within a few days. Large amounts of methane in Gulf water vanished. One of the most effective measures taken by humans to help clean up the oil turned out to be the spreading of dispersants, chemicals that break up large globs of spilled oil into smaller globs. Although it was not intentional, these dispersants helped to make the oil more accessible to oil-consuming bacteria, speeding their natural cleanup of the spill. Today, parts of the ocean ecosystem appear to be healthy, but the effects of this disaster on the Gulf of Mexico and future generations in this ecosystem will not be known for many years.

12 Many questions remain unanswered. How much of the spilled oil was cleaned by humans? How much was eaten by bacteria? How much is still in the ocean? How has this affected the Gulf ecosystem? What effects will this disaster have on future generations of organisms in the Gulf of Mexico? Scientists continue to research the effects of the Deepwater Horizon disaster to find the answers to these questions.

1

What does *extracting* mean as used in paragraph 2?

A Thrusting
B Inspecting
C Removing
D Discovering

2

The author compares deepwater drilling rigs to "small floating villages" because the rigs are

A similar to a town in building style
B built with simple tools like drills
C used to store all the equipment that may be needed
D used to house a community of hundreds of workers

3

Read the following list of actions performed by the crew aboard a deepwater drilling rig.

1. The crew stores the fossil fuels until transport ships collect it.
2. The crew uses drills to reach fossil fuel deposits.
3. The crew separates fossil fuels into petroleum, natural gas, and other products.
4. The crew brings fossil fuel deposits to the surface through long pipes.

What is the order in which these actions are performed?

A 2, 4, 3, 1
B 4, 2, 1, 3
C 1, 4, 3, 2
D 2, 3, 4, 1

4

What is the *most likely* reason that the author includes the information in paragraph 9?

A To end the discussion of deepwater drilling
B To express an opinion about the oil industry
C To make a statement in support of drilling
D To shift to the topic of cleaning up oil spills

5

With which of these statements would the author *most likely* agree?

A Drilling for fossil fuels on land is less dangerous than drilling at sea.
B The drilling industry should take extra care to prevent damage to the ocean.
C The ocean's ecosystem can cope with the effects of drilling accidents.
D Drilling at sea is worth the risks because of humans' dependence upon fossil fuels.

6

Which statement *best* describes the structure of the passage?

A The passage begins with the step-by-step process of drilling and ends by detailing the effects of an oil spill caused by the explosion of a deepwater drilling rig.
B The passage begins by describing drilling and deepwater drilling rigs and ends by focusing on solutions for the problems caused by an oil spill beneath a rig.
C The passage begins by showing the advantages and disadvantages of drilling at sea and ends by showing the problems related to cleaning up an oil spill.
D The passage begins by comparing drilling on land and at sea and ends by describing the step-by-step process of cleaning up an oil spill.

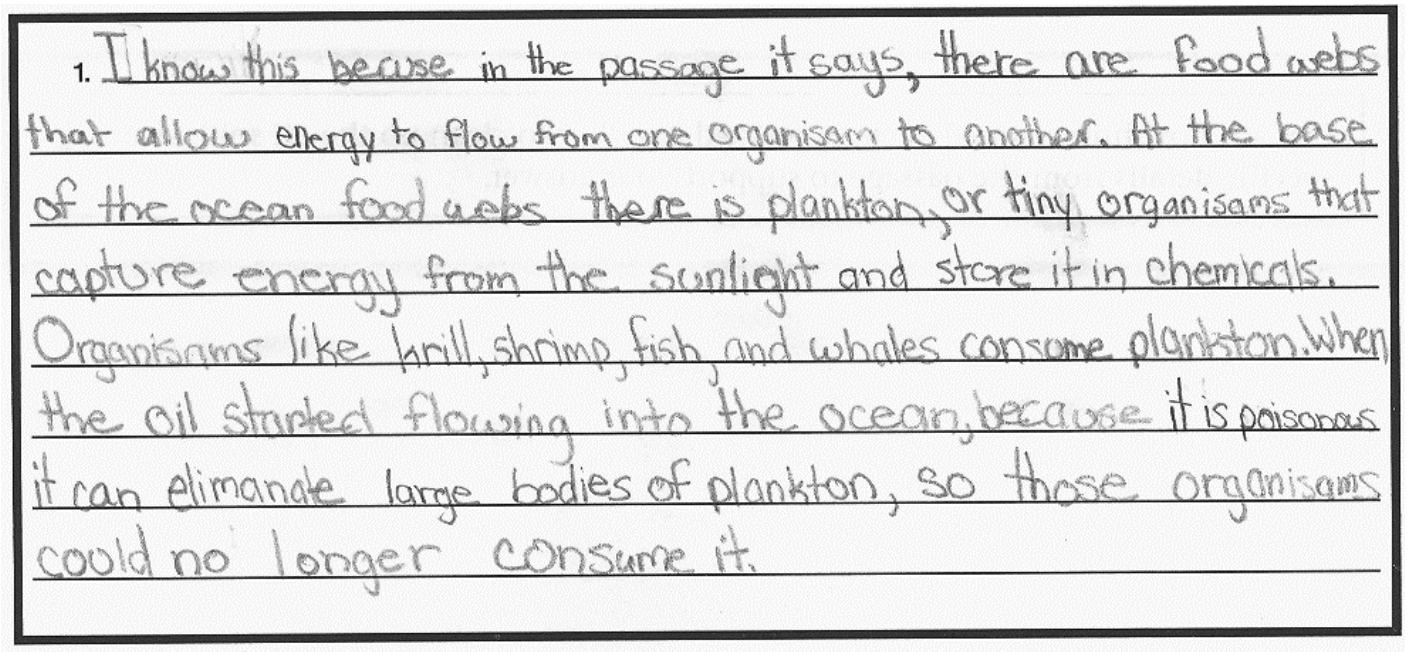
7

Using specific details from the passage, explain how an oil spill can affect the food chain in the ocean.

Rubric	
Score	**Description**
2	The student's response utilizes specific details about oil spills and clearly explains how the food chain is affected.
1	The student's response uses details from the passage, but does not do a complete and/or accurate job of linking those facts to possible effects on the food chain. Answer may be vague.
0	The student's response is totally incorrect or irrelevant.
Scoring Notes	

Annotated Student Response

SAMPLE 2-POINT RESPONSE



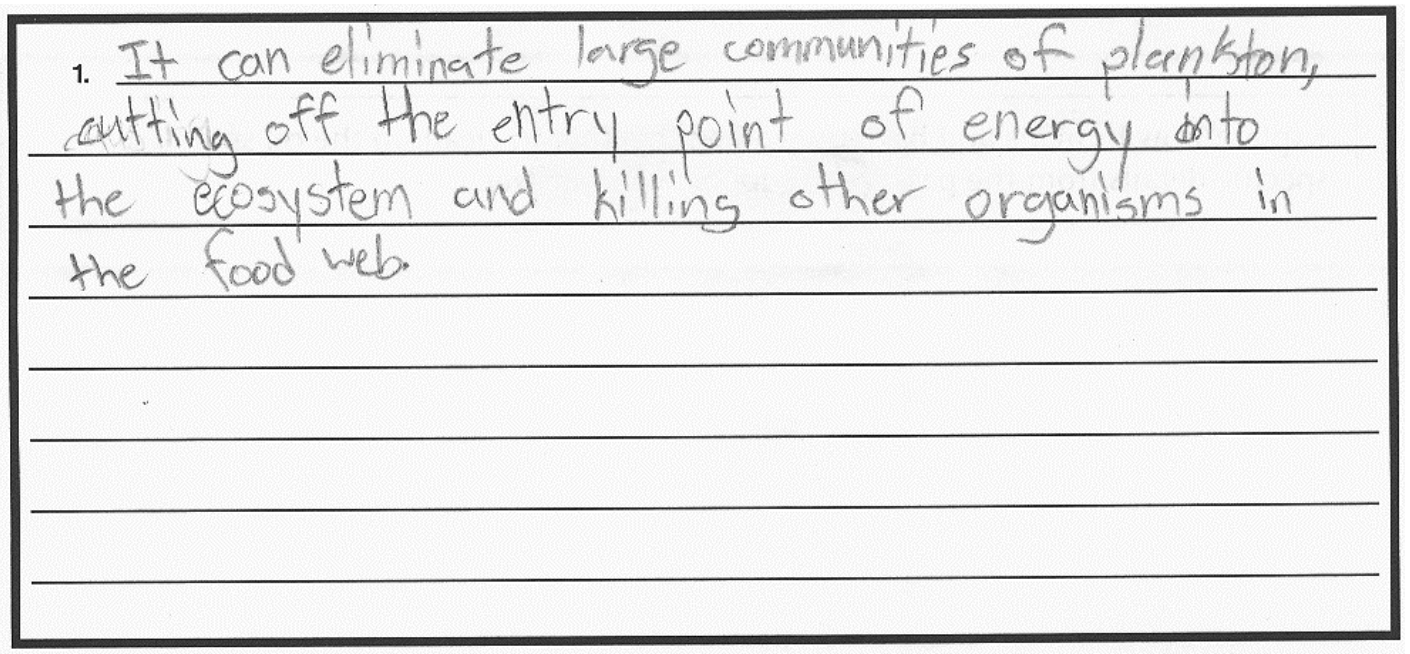
1. I know this because in the passage it says, there are food webs that allow energy to flow from one organisam to another. At the base of the ocean food webs there is plankton, or tiny organisams that capture energy from the sunlight and store it in chemicals. Organisams like krill, shrimp, fish, and whales consome plankston. When the oil started flowing into the ocean, because it is poisonous it can elimanate large bodies of plankton, so those organisams could no longer consume it.

ANNOTATION — 2-POINT RESPONSE

The student uses specific cause-effect details to explain how an oil spill can affect the food chain in the ocean (*there are food webs that allow energy to flow from one organism to another…. there is plankton, or tiny organisms that capture energy from sunlight…. Organisms like krill, shrimp, fish, and whales consume plankton. When the oil started flowing into the ocean, because it is poisonous it can eliminate large bodies of plankton, so those organisms could no longer consume it*)**.**

Annotated Student Response

SAMPLE 1-POINT RESPONSE

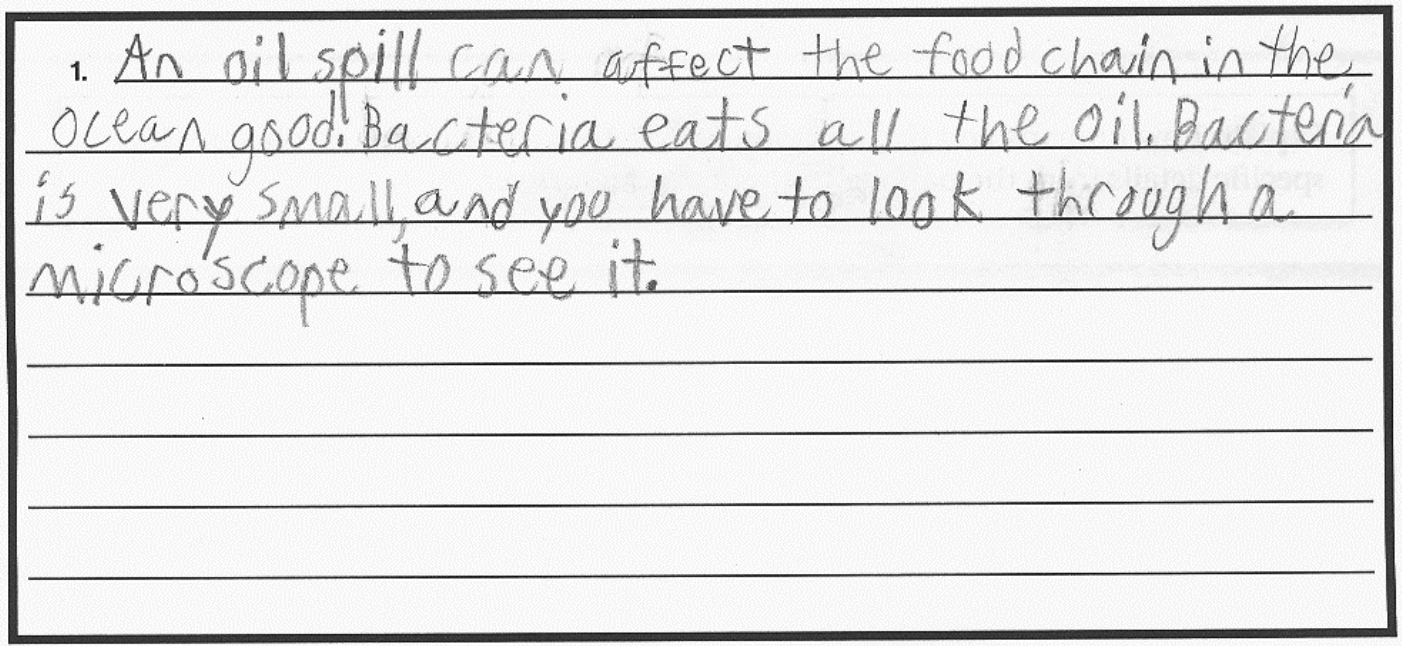


ANNOTATION — 1-POINT RESPONSE

The student uses details from the passage but only vaguely explains how an oil spill can affect the food chain in the ocean (*It can eliminate large communities of plankton, cutting off the entry point of energy into the ecosystem and killing other organisms in the food web*)**. The student does not provide a causal connection between the information and the effect on the larger marine food chain.**

Annotated Student Response

SAMPLE 0-POINT RESPONSE


1. An oil spill can ~~affect~~ the food chain in the ocean good! Bacteria eats all the oil. Bacteria is very small, and you have to look through a microscope to see it.

ANNOTATION — 0-POINT RESPONSE

The student's response is irrelevant (*Bacteria eats all the oil. Bacteria is very small and you have to look through a microscope to see it*)**.**

8

Explain how humans and bacteria worked together to clean up the oil spill. Use specific details from the passage to support your answer.

Rubric	
Score	**Description**
4	The student's response presents both roles clearly and provides specific details as evidence for their selection. Humans added dispersant, which broke huge bodies of oil into smaller globules, which in turn gave lots of bacteria an endless food supply. Oil was broken up by humans but eaten by bacteria.
3	The student's response presents both roles clearly but fails to provide significant details to support their answer.
2	The student's response describes both roles only vaguely and/or without details.
1	The student's response presents only one role, or does not describe the roles at all.
0	The student's response is totally incorrect or irrelevant.
Scoring Notes	

Annotated Student Response

SAMPLE 4-POINT RESPONSE

2. Humans and bacteria worked together to clean up the oil spill.
First of all bacteria naturally eats oil that comes in through the ocean. So it was eating oil and without knowing it humans helped it by putting chemicals in the water to help break down the oil which made it easier for the bacteria to eat the oil.
I know this because according to the passage it said "Human efforts to clean up the spill helped, but amazingly, microscopic organisems called bacteria were the most effective cleaners." "Because oil has naturally leaked into the Gulf of Mexico for a long time, bacteria exists within the ecosystem." "These bacteria are able to consume the oil as their source of energy."

"Scientists discovered huge new populations of bacteria consuming oil and methane (a gas mixed with the oil)." "Large amounts of oil would disapear within a few days." "Large amounts of meathane in the Gulf water water vanished." "One of the most effective measures taken by humans to help clean up the oil turned out to be the spreading of dispersants, these dispersants helped to make the oil more accesable to oil consuming bacteria, speeding their natural cleanup of the oil spill."

ANNOTATION — 4-POINT RESPONSE

The student clearly explains how humans and bacteria worked together to clean up the oil spill (*bacteria naturally eats oil…. humans helped it by putting chemicals in the water to break down the oil which made it easier for the bacteria to eat*), **and specific details are provided to support the role played by bacteria** (*'consume the oil as their source of energy…. consuming oil and methane…. Large amounts of methane…vanished'*) **and the role played by humans** (*'the spreading of dispersants…helped to make the oil more accesable to oil consuming bacteria, spreading their natural clean up of the oil spill'*)**.**

Annotated Student Response

SAMPLE 3-POINT RESPONSE

2. Human and bacteria work together by the humans using the bacteria to clean up some of the spilled oil in the Gulf of Mexico. The passage says "Microscopic organisms called bacteria, are the most effective cleaners. The bacteria are able to consume the oil as their source of energy." "Scientists discovered new populations of oil consuming bacteria." Humans and bacteria work together by cleaning the ocean so the animals don't have to be in all of that oil, that has endangered their lives." The chemicals that humans put into the water broke up large globs of spilled oil into smaller globs." The water isn't as good as new, but because of humans and bacteria working together, they atleast made a difference.

ANNOTATION — 3-POINT RESPONSE

The student clearly explains how humans and bacteria worked together to clean up the oil spill (*The bacteria are able to consume the oil as their source of energy. Scientists discovered new populations of oil consuming bacteria…. The chemicals that humans put into the water broke up large globs of spilled oil into smaller globs*) **but fails to provide significant details for support.**

Annotated Student Response

SAMPLE 2-POINT RESPONSE

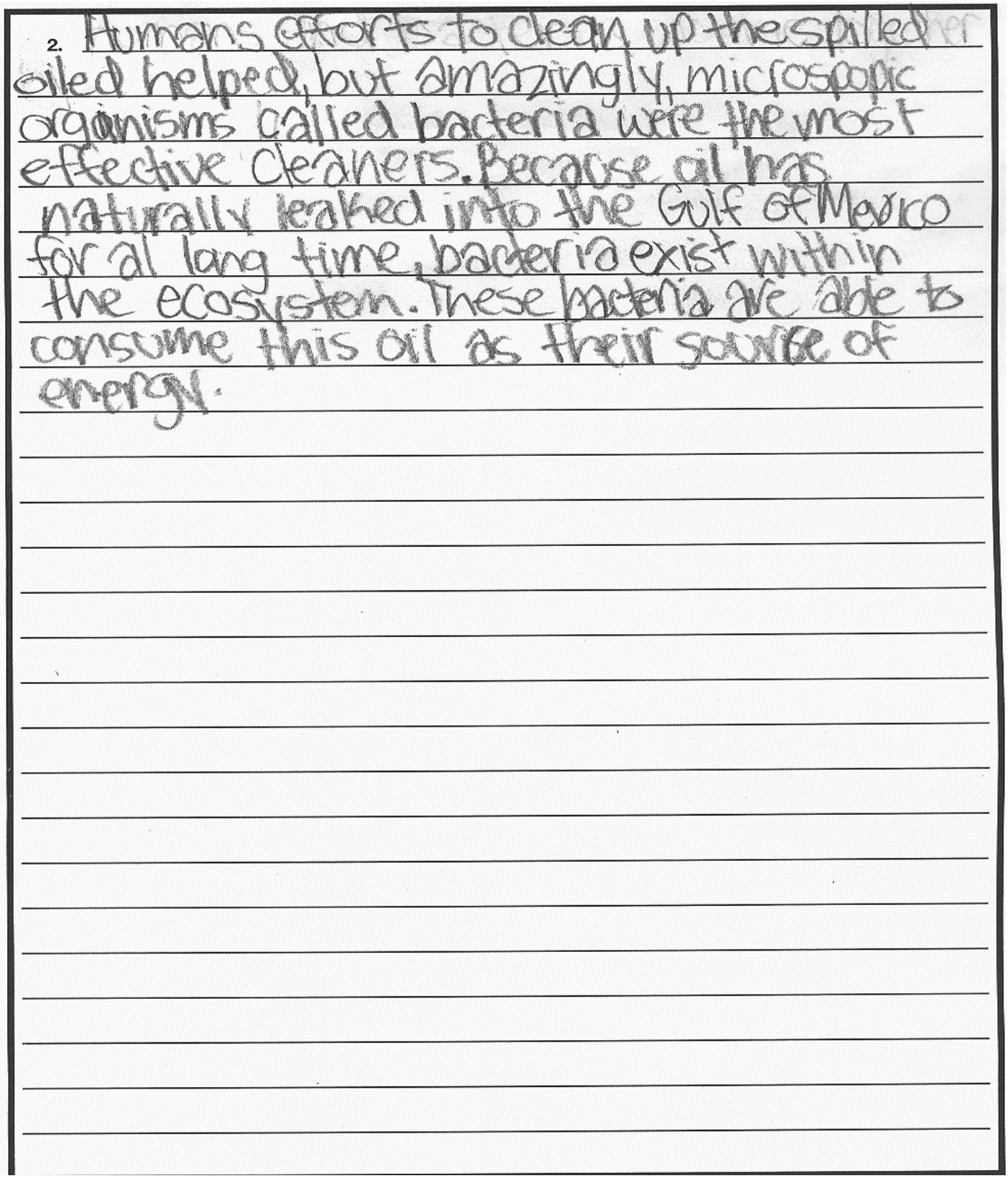
2. Humans and bacteria both worked together to clean the oil. The bacteria helped by consuming it as a source of energy. Humans helped by spreading dispersants which made it easier for the bacteria to consume. Together they got out as much oil as they could get out.

ANNOTATION — 2-POINT RESPONSE

The student vaguely explains how humans and bacteria worked together to clean up the oil spill (*The bacteria helped by consuming it as a source of energy. Humans helped by spreading dispersants which made it easier for the bacteria to consume*)**.**

Annotated Student Response

SAMPLE 1-POINT RESPONSE



2. Humans efforts to clean up the spilled oiled helped, but amazingly, microscopic organisms called bacteria were the most effective cleaners. Because oil has naturally leaked into the Gulf of Mexico for al long time, bacteria exist within the ecosystem. These bacteria are able to consume this oil as their source of energy.

ANNOTATION — 1-POINT RESPONSE

The student explains how bacteria helped clean up the oil spill (*bacteria were the most effective cleaners…. These bacteria are able to consume this oil as their source of energy*)**. The response does not include an explanation of how humans helped clean up the oil spill.**

Annotated Student Response

SAMPLE 0-POINT RESPONSE

2. the way humans and bacteria work together to clean the oil spill in the gulf of mexico is by the bactiria sticks to the oil and humans fish it out.

ANNOTATION — 0-POINT RESPONSE

The student's response is completely incorrect (*bactiria sticks to the oil and humans fish it out*).

Item Information

Question Number	Key	DOK*	KCAS Primary Standard**
1	C	2	L.5.4a
2	D	2	L.5.5a
3	A	2	RI.5.5
4	D	3	RI.5.8
5	B	2	RI.5.8
6	B	2	RI.5.5
7	NA	3	RI.5.3
8	NA	2	RI.5.3

*DOK is the abbreviation for Depth of Knowledge. Please note that DOK is associated to the complexity level of an assessment item and is not aligned to the standard. Further information regarding DOK can be accessed on the Kentucky Department of Education website: http://www.education.ky.gov/kde/instructional+resources/curriculum+documents+and+resources/core+content+for+assessment/core+content+for+assessment+4.1/content+specific+core+content+for+assessment+dok+support+materials.htm.

**Further information regarding Common Core Standards can be accessed on the Common Core website: http://www.corestandards.org.