Session 4 – Facilitator's Guide

Analyzing Classroom Assessments

Presenter: Marianne Perie, Measurement in Practice, LLC
Length of video with no breaks: 18 minutes

Goal

This video describes the process of developing answer keys and rubrics and using them to analyze the results of a classroom assessment, matching the analysis to the design. It is intended to be used with Session 3 on Designing Classroom Assessments.

Process

This video provides a listen and discuss approach to the topic of designing a classroom assessment. The first few slides provide an introduction to the purpose of classroom assessment then the presentation moves to specific information about selecting texts and developing test items. It concludes with an exercise to practice writing items to a specific text and provides time for a discussion of item development.

Exercise

Slide 15 introduces the exercise. A packet of three exercises, divided into three parts each and appended to this guide, provides attendees a chance to practice evaluating rubrics. The attendees should be divided into teams, as appropriate as one exercise targets elementary school, one middle school, and one high school. They will need access to content standards and performance level descriptions for grades 5, 8, and 10 in ELA; online access will suffice. Begin by giving them only the passages for their grade and instruct them to determine what dimensions of a rubric they would need to fully evaluate a student's response. Next, distribute the two sample rubrics, and have them evaluate those. Finally, distribute the sample student response and ask them how that changes their opinions of the rubrics. Full guiding questions are listed prior to the exercises as well as on the slides. Each part of the exercise should take 15 – 20 minutes, for a total of 45 – 60 minutes.

Definitions

analytic scoring: A method of scoring constructed responses (such as essays) in which each critical dimension of a particular performance is judged and scored separately, and the resultant values are combined for an overall score. In some instances, scores on the separate dimensions may also be used in interpreting performance.

Answer key: Answer keys provide the correct answer(s) to a multiple-choice or multi-select assessment item. They can also include an exemplar response to short-answer items.

Assessment: The process of observing learning; describing, collecting, recording, scoring, and interpreting information about courses/programs/services undertaken for the purpose of improving the institution, services, programs, and student learning and development.

Grading: The act of classifying something on a scale by quality, rank, size, or progression

Holistic scoring: A method of obtaining a score on a test, or a test item, based on a judgment of overall performance using specified criteria. Contrast with analytic scoring.

item: A statement, question, exercise, or task on a test for which the test taker is to select or construct a response or perform a task.

Percent correct: The total number of questions a student answered correctly divided by the number of questions on the test, converted from a fraction to a percentage. If there are short-answer items that are worth more than one point, then the fraction becomes the total number of points received over the total number of possible points.

Performance task: An activity that asks the test taker to actually demonstrate or apply the skills or understanding that the task is trying to measure.

Prompt/writing prompt: The question, stimulus, or instructions that elicit a test taker's response.

Short-answer item: An open-ended test question that requires a student to generate (not select) a response.

Rubric: A scoring guide used to evaluate the quality of students' constructed responses. A rubric contains a set of guidelines used to grade a response consistently across students and to communicate expectations.

Resources:

Hess, Karin. (2014). Formative and performance assessment focus area: building Your local assessment system. Retrieved from https://www.karin-hess.com/formative-and-performance-assessments.

McTighe, J. & Ferrara, S. (1998). Assessing learning in the classroom: *Student Assessment Series*. Washington, DC: National Education Association. Retrieved from https://files.eric.ed.gov/fulltext/ED429989.pdf.

Moskal, Barbara M. (2002). Recommendations for developing classroom performance assessments and scoring rubrics. *Practical Assessment, Research, and Evaluation, 8*(14) Retrieved from https://scholarworks.umass.edu/pare/vol8/iss1/14

Stiggins, R. & Chappuis, J. (2005). Using student-involved classroom assessment to close achievement gaps. *Theory Into Practice, 44*(1). pp. 11-18. Retrieved from http://downloads.pearsonassessments.com/ati/downloads/tip-pub.pdf.

Exercises

Exercise #1
Read the following passages and writing prompts:

Grade 5: Three passages on hibernation

Grade 8: Three passages on memory

Grade 10: Four passages on sunflowers and biofuel

Discuss in your group:

1. Given the KS ELA standards for your grade level, what are the key standards that are being assessed by the writing prompt?
2. What are the key features that you believe the students should be graded on? What categories would you include in your rubric?

Exercise #2

Review the two rubrics for your grade level and this type of writing prompt.

Discuss in your group

1. What are the similarities and differences between the two rubrics?
2. What are the strengths and weaknesses of each rubric?
3. Would you adopt one for this assignment? Which one? Would you edit it first? Why?

Exercise #3

Review this sample of student work

Discuss in your group

1. What score would the student receive under each rubric?
2. Which rubric do you think best reflected the student's understanding of the relevant standards?
3. Did your preferred rubric change after applying it to student work?

Writing Prompts

To be handed out at the start of the exercise

KANSAS STATE DEPARTMENT OF EDUCATION

LINK Literacy Network of Kansas

Source #1
This article from Cricket magazine explains how animal hibernation works.

Do Not Disturb: The Mysteries of Animal Hibernation
by Margery Facklam

A 300-pound grizzly bear shuffled through a dry autumn meadow in Yellowstone National Park. She stopped to catch a mouse with one swat of her huge paw and then ambled on toward a clear stream. At the water's edge, she stood on her hind legs to sniff the air before she plunged into the cold water. In a moment she caught a salmon with a swoop of her paw and gulped it down. She devoured two more fish before she waded out and shook the water from her thick, graytipped, "grizzled" fur.

Day after day the grizzly loped through the meadows in search of insects, berries, and small rodents. . . . Food seemed to be the only thing on her mind.

But as she grew fatter and the air grew colder, she began to search for something else—her winter den. When she found a place that suited her, on a steep north-facing slope at the base of a large fir tree, she started to dig. It was a tight fit as she tunneled under the tree roots that would make a strong roof for her den, but she needed room enough only to squeeze through to her bedroom. In the spring, after four or five months of a deep sleep called hibernation, she would be much thinner.

Late in November, when the temperature had dropped below freezing, the big grizzly no longer raced across the open meadow. Day after day she acted as though she were walking in her sleep. Then one day, when the wind whipped the snow in swirls around her, the bear crawled into her den.

All night it snowed, covering the opening to her tunnel. No one would be able to find it. The grizzly was safe for the winter, cozy and warm beneath the blanket of snow. She would not eat [or] drink water, . . . until spring. Her heart rate would slow down from its usual 40 or

beats a minute to 10 or 12. Her temperature would drop a few degrees, and she would breathe slowly, just as a person in a deep sleep would do.

How does hibernation work? How can animals go without food and water for many months without starving to death? What tells them it's time to enter the den? And then how do they know it's time to wake up? . . .

Hibernation is a way for animals to save energy and survive through the winter when food is hard to find. (Hiberna is a Latin word that means winter.) It is controlled by a part of the brain called the hypothalamus (hi-po-thal-a-mus), which also regulates hunger, thirst, and blood pressure.

In one experiment to find out how hibernation works, a biologist [scientist] took a small amount of blood from hibernating ground squirrels. He froze the blood. In spring, he defrosted it and injected it into a different group of ground squirrels who had been running around. Not long after, the energetic ground squirrels curled up and began to hibernate.

Scientists have found in the blood of hibernating animals a substance they call HIT, which stands for hibernation inducement trigger. Although they do not know exactly what this . . . is, they have learned that this trigger goes into action when one of three things happens: when the days become shorter and there is less light, when there are big changes in temperature (either extreme cold or heat), or when food is scarce.

There are different levels of hibernation. The animals known as the "real" hibernators, such as woodchucks and ground squirrels, sleep so deeply that they are almost impossible to wake up. . . . During hibernation, the woodchuck's heart slows from beating 80 times a minute to only 4 or 5. Its normal body temperature of 100 degrees Fahrenheit drops to 45 or 50 degrees. But even so, every few weeks the woodchuck gets up to nibble on food and use the small toilet room in its underground burrow. . . .

The in-between hibernators really take only long winter naps. Skunks, raccoons, and a few others lower their body temperature a couple of

degrees and breathe more slowly, but they wake up to forage [search] for food between winter storms.

In order to survive weeks or months without food, most hibernating animals go on an eating binge in late summer and early fall. The fat they build up supplies energy and keeps them warm while they sleep. But along with this regular white fat, hibernating mammals have patches of special brown fat across their shoulders and back. The brown fat works like a fast food restaurant; it delivers quick energy whenever it is needed.

A hibernating animal must warm up before it can wake up, and its brain has to warm up first in order to send messages to the rest of the body to get moving. In its handy location across the shoulders and back, the brown fat is close to the hibernating mammal's brain, heart, and lungs, which must get the first spurt of energy as hibernation comes to an end.

Whether a groundhog sound asleep in its burrow or a grizzly wintering in a cozy den—each hibernating animal follows the built-in pattern of its species to survive the cycle of the seasons. Hibernation is an amazing way for some animals to protect themselves until food and warmth reappear in spring.

Source #2

This article from Time for Kids magazine provides information about a study that answers the question: Do bears hibernate?

Do Bears Hibernate?

We think that bears hibernate. They disappear into dens for months at a time and come out in the spring looking skinny. But hibernation is difficult to study, because bears that live in zoos do not follow their natural sleeping and eating cycles.

Now, a report in the journal Science suggests that bears do truly hibernate. Scientists from the University of Alaska at Fairbanks worked with five American black bears. Sensors were put inside the bears.

The animals were then sent to live in fake dens. . . . In November, the bears settled in for a long sleep. Scientists watched them on video cameras and monitored their vital signs. The bears almost always slept in a curled position. They moved around once or twice a day. Their body temperature dropped, as did the rate at which their bodies burned calories.

The findings could help scientists learn how to create healthy hibernation in humans. This could someday be used for long-distance space travel, when a long-lasting, deep sleep would help during the journey.

Source #3
This article from Highlights for Children magazine talks about a scientist that studies hibernating bears.

A Barn for Bears
by Andy Boyles

Dr. Michael Vaughan has a barn for bears. On a wooded mountain near Blacksburg, Virginia, the low barn sits under the trees.

In November the air inside is cold, which is just right for bears. . . . They are preparing to enter the remarkable sleeplike state called hibernation.

Dr. Vaughan and his students study the bears before, during, and after hibernation. In the spring, they release the bears.

This research has been going on for more than ten years, ever since Dr. Vaughan began working at Virginia Tech University. "The chance to work with these big animals was just too good to pass up," he says.

Winter "Sleep"

. . . In the fall, a bear fattens up on acorns and other high-fat foods. As winter sets in, the bear usually chooses a snug den, such as a dry space under a big rock.

The bear curls up on a bed it has made of leaves and brush. Its heart slows down, and its body temperature drops. The bear does not really sleep all winter. But as long as the bear is not disturbed, it does not leave its den for the next three to five months—not to eat, not even to eliminate wastes from its body.

Female bears always have their cubs, usually two or three of them, in the middle of winter. The mother curls around her sightless, helpless young to keep them warm and to nurse them. (When the cubs are born, they weigh about half a pound. By spring, they are big enough to leave the den with their mother.)

Because hibernation keeps each bear in one place, winter is a good time for scientists to find and study bears. But if researchers disturb a hibernating bear too often, it may leave and spend valuable energy searching for another den.

That's one reason Dr. Vaughan keeps bears in a barn. Researchers can study each of them once every ten days. . . .

Writing Prompt:
Your class has been learning about unusual animal behaviors in preparation for your school's Earth Day assembly. As part of your class's exhibit, you will write an informational article about hibernation. Your article will be read by other students, teachers, and parents who attend the Earth Day assembly.

Using more than one source, develop a main idea about hibernation. Choose the most important information from more than one source to support your main idea. Then, write an informational article that is several paragraphs long. Clearly organize your article and support your main idea with details from the sources. Use your own words except when quoting directly from the sources. Be sure to give the source title or number when using details from the sources.

Grade 8

Source #1
Read the article about memory from a popular science website for kids.
How Do We Remember?

You need to go to the store and pick up milk, eggs, butter, and bread. You repeat the list of foods over and over on the way to the store. When you arrive at the store, you collect the milk, eggs, bread, and . . .
What was the other thing? How did you already forget the other item that was on your mental list? How does your memory work, and why does it let you down sometimes?

When most people refer to memory, they think of it as one part of the brain. The truth is your memory isn't one particular part of your brain. Memory involves several parts of your brain working together. It is a concept. It is the idea of remembering.

Formerly, scientists used to describe memory as a miniature filing cabinet full of many files that contained memories. Others described memory as a tiny supercomputer located in the brain. Today, scientists believe that memory is much more complicated than that.

How Memory Works
Memories begin as a result of the senses. The memory is then encoded, or stored, in your brain with electrical impulses and chemicals. Your brain is full of nerve cells. There are electrical pulses carrying messages from one cell to another. The electrical pulses trigger chemical messengers to be released. The chemical messengers are called neurotransmitters. The connection that is made between the cells isn't necessarily permanent. It is changing all of the time. Brain cells work together as a team, organizing themselves into groups. The groups specialize in different kinds of information processing. Each time one cell sends a message to another, the connection between those two cells gets stronger. With each new experience your brain changes a little. If you keep using your brain the same way over and over again, it shapes how your brain will be organized.

Types of Memory
There are three types of memory: sensory memory, short-term memory, and long-term memory.

Sensory memory hangs on to information for a very short period of time, only a second or two. When you look at a picture of a beautiful landscape, an almost exact image of that landscape is stored momentarily in your visual sensory memory. Your visual sensory memory requires your eyes and parts of your brain to work together. Unless you make an active effort to think about the landscape the image will quickly fade.
Short-term memory stores what you are actively thinking about at any given moment. Your short-term memory is able to hold on to information for as long as you are thinking about it. You use your short-term memory to remember the list of things your mom wants you to pick up at the store. If you continually repeat this information to yourself, you can remember it, but the moment you start thinking about something else, like where in the store the milk is located, the list of groceries will only stick around for about 20 or 30 seconds.

Long-term memory stores information, experiences, and ideas long after you stop thinking about them. When you consciously process information, short-term and long-term memory work together. For example, when you think or solve problems, the short-term and long-term memory systems are working together. Long-term memory includes an enormous amount of information. Some of this information is there for a lifetime. Scientists believe that over the course of a lifetime, the long-term memory has stored vast amounts of information. Much more than an encyclopedia!

Forgetting
As time passes, memory fades or we forget all of the specific details. An hour after you read a book, you can remember most of what it was about. Two days later, you might recall only a bit of the information that was in the book. After a month has passed, you probably remember even less.

There are several explanations as to why we may forget things. Maybe the information was not encoded in our memory properly. For instance, while reading over your notes for the test you were trying to watch your favorite show on television. This type of distraction can really interfere in encoding memories and the information is not successfully saved in your memory.

Alternatively, another reason that you may not be able to remember something is not because you actually have forgotten the information. The problem could be that you are having trouble retrieving it from your memory. You can't remember the answer to write it down on the test. It is right there, you know the answer, but it just won't come to you. As

soon as the test is over and you walk out of the classroom, there it is—that answer you were trying so hard to come up with. This is a problem with retrieval. Your brain is having trouble locating that information again. It is similar to looking for a small object inside a room that is full of stuff. It can be very frustrating!

Source #2
Read the article about people who participate in memory championships from a 2012 issue of *Appleseeds* magazine.

Memory Masters
by Alice Andre-Clark

Nelson Dellis can look at a deck of cards for 5 minutes and then tell you the order of every single card in 63 seconds.

If you give teenager Sophia Hu a list of random words and let her study it for just 15 minutes, she might remember as many as 120 words.

Dellis and Hu were contestants in the USA Memory Championship, which has been crowning our top "mental athletes" since 1997. At the Memory Championship you start by studying the pictures of 117 strangers for 15 minutes, then try to remember all their names. In 2010, Hannan Khan listed 159 first and last names. Later, try meeting five guests at a pretend tea party and see if you can later recall their names, addresses, pets' names, hobbies, favorite foods, and more.

Think you have a knack for numbers? Try memorizing a sheet of 500 digits. It'll be tough to beat Dellis, who once remembered 248 numbers after only 5 minutes of studying.

Most of our top mental athletes say they weren't born with amazing memories. Brain scientists agree that there's probably nothing physically unusual about the brains of memory champions. They just happen to know a few tricks for keeping a lot of facts in their minds at once. . . .

Building a Memory Palace
Memories get stronger if you associate them with a place. To remember your shopping list, build it a "memory palace." Picture a building you know well, perhaps your own house. Now imagine each item in a different part of the house. Marshmallows strung like pearls, dangling from your

mom's jewelry drawer. A graham-cracker fan on the coffee table. Chocolate bars popping out of the toaster.

Person + Action + Object = ?
Need to memorize a long string of numbers? Start by thinking of a person, an action, and an object for each number from 00 to 99. . . .

Now you're ready to learn a bigger number. For 872,936, combine the person from 87 with the action from 29 and the object from 36. . . .

What's in a Name? A Picture
Names can be hard to recall. Words like "mirror" and "table" may bring up lots of memories, but the first time you meet a Peyton or a Mrs. Cohen, you might not associate those words with anything. Change names just a little, and Cohen becomes "cold hen," an unhappy chicken sitting on a nest filled with ice cubes.

Use pictures to match faces with names too. If Mrs. Cohen has curly red hair, give the hen some fluffy red feathers. Long-necked Peyton ("pay ten") could become a stretched-out ten-dollar bill. Soon you'll rarely forget a name.

Source #3
Read the article about interpreters and memory from a 2008 issue of Odyssey magazine.

Interpreters: Silver-Tongued Masters of Memory
by Charles Capaldi

Today, Murielle Pérégovoy sits in a glass-enclosed booth. An ultra-light headset rests on her ears. A microphone hovers in mid-air, inches from her mouth. Pérégovoy doesn't see any of it. Her attention is riveted on the space between her ears, which is currently filled with short bursts of angry Russian from a participant who has the floor on the other side of the conference room. Her voice rises and falls to match that of the speaker, filling the booth and the headsets of everyone tuned to the French channel. The participant finishes speaking and sits down. Murielle finishes one sentence behind him and reaches out to turn off her microphone. On any given day, she could be the voice of an ambassador, a distraught mother in war-torn Iraq, or an orthopedic surgeon. Pérégovoy is a simultaneous interpreter, and her workday has just ended.

In addition to knowing their native languages, professional interpreters are expected to understand two or more languages as well as any educated native speaker. More than 50 percent of the world's population is bilingual (speaks a second language from early infancy), and many bilingual people are drawn to the field.

By the age of two, most children have a vocabulary of about 2,000 words. The average American high school graduate has a vocabulary of about 50,000 words. A bilingual high school graduate can possess a vocabulary twice that size, split across two languages. Imagine the vast vocabulary stored in the long-term memory of an interpreter. Interpreters, then, seem to have amazing memories. But do they really? Questions like this one keep neuroscientists up late at night.

One of these neuroscientists is Dr. Michel Paradis, who teaches at McGill University in Montreal, Canada, and researches aphasia in bilingual people. Aphasia (the inability to understand or use language) usually results from a traumatic brain injury such as a stroke or accident. In the course of his research, Paradis has learned a lot about memory and language in people who are not aphasic. So, when asked whether interpreters have better memories than average, he says, "In the same way that the term intelligence covers many different types of capabilities, memory is an umbrella term that refers to many different kinds of capacity."

"Much of an interpreter's brain power is devoted to keeping information in short-term memory," says Paradis. "Simultaneously listening in one language and speaking in another makes the task much more challenging." How then does Murielle's brain undertake this seemingly impossible task? As the message flows through her headphones, Pérégovoy must decode it. Decoding does not mean knowing what each word means. Interpretation focuses on the message being conveyed, rather than the words used to convey it. Understanding the speech flowing through her headset requires the use of procedural (a type of non-declarative) memory—the kind of memory we use for automated tasks, skills, and habits. The interpreter knows the language of the speaker well enough to understand it effortlessly. Similarly, when you hear an utterance in English you probably aren't even aware of trying to understand it. The fact that you comprehend it subconsciously is the hallmark of procedural memory.

Once Pérégovoy's brain has decoded the message, it identifies blocks of information that should be stored for later use. This identification process is a conscious activity. Murielle's memory clings to facts, events, people, and objects, relying on what neuroscientists call declarative memory. Where procedural memory is subconscious, declarative memory requires effort and focused attention.

Murielle stores the decoded message in her short-term memory and holds it there until it has been correctly translated. She must retrieve the information and compare it to her translation before uttering a single word into the microphone. This step involves working memory. Think of working memory as a tub being filled with water and drained simultaneously. Water cannot flow into the tub at a faster rate than water drains from the tub or else the tub will overflow.

While all this is happening in Pérégovoy's brain, the speaker continues talking. The average person speaks at 120 words per minute, with bursts that reach 180 words per minute. Neuroscientists have identified that working memory has about 10 seconds (or 20 words) of storage capacity. As new information is continually added to the tub, previously stored information is constantly being compared to the memory store, putting an extra burden on working memory.

For instance, Dr. Franco Fabbro at the University of Udine in Italy found that advanced interpreting students remembered fewer details of a story when they were asked to interpret it than when they just listened to it. Other studies show that sign language interpreters have better recall than interpreters of spoken languages. Sign language interpreters undertake the same process of decoding and encoding the message in another language, but sign language does not require them to speak their translation. Instead, they deliver the message through their hands and upper bodies. Dr. Fabbro and his colleagues reasoned that the demand on interpreters to speak and listen simultaneously might be at the root of the memory interference. To test this hypothesis, he asked the students to listen to another set of stories and told them not to interpret, but to keep repeating "the . . . the . . . the. . ." while they listened. He found that these students remembered fewer details than when just listening to the stories. Working memory is taxed by the need to listen and speak at the same time, and when working memory is burdened, memorizing information becomes more difficult.

Interpreters may start out with the same three pounds of gray matter that everyone else has, but they have trained their short-term memory to help perform a particular task. Not everyone with a three-pound brain will have what it takes to become an interpreter, in much the same way that not everyone with a good pair of lungs and a love of music will grow up to become an opera singer. A lot depends on how you train, how committed you are, and your natural inclinations. "You can be good at one type of memory and poor at another," Paradis explains. "But you can improve each type of memory with practice. If you want to increase your memory, EXERCISE IT!" Do interpreters have better memories than the average person? Probably not better—just more buff.

Sweating to the Oldies? A Short-Term Memory Workout
Student interpreters often begin their studies with short-term memory workouts, called "lag exercises," which also teach them to listen and speak at the same time.

Record the following list of words into a tape recorder, or have a friend read them to you at a slow, steady pace. Leave a gap between one word and the next by reading one word every two seconds (approximately 30 words per minute).

Play the tape, or have your friend start reading. Listen to the first word. When you hear the second word, cover it up by saying the first word. You'll be saying "tree" as you hear the word "car." Be careful not to speak in the gap between words—it's important to be speaking and listening at the same time. Student interpreters often practice this exercise in the same language until they can maintain a seven-word lag.

tree	memory
car	tin
baby	ocean
tool	house
burp	computer
box	scratch
smooth	look
letter	lunch
pretty	pet
write	type
hello	table
lady	game
groove	bowl
tongue	dream
talk	breakfast

<u>Writing Prompt</u>
In your school, the Science Club is encouraging students to provide articles for its new website. For your contribution to the website, you will write an explanatory article about improving memory.

Using more than one source, develop a thesis/controlling idea to explain how to improve memory. Once you have a thesis/controlling idea, select the most relevant information to support your thesis/controlling idea. Then, write a multi-paragraph explanatory article explaining your

thesis/controlling idea. Clearly organize your article and elaborate on your own ideas. Develop your ideas clearly and use your own words, except when quoting directly from the sources. Be sure to reference the source title or number when quoting or paraphrasing details or facts from the sources.

Source #1
This article is from the U.S. Department of Agriculture's quarterly publication BAR Digest and is about studies being conducted on the use of sunflowers for biofuels.

Biofuel from Sunflower: A Bright Opportunity for the Sun-loving Bloom
by Rita T. dela Cruz

In a bid to decrease the country's overdependence on fuel, various research institutions started to focus their leads in studying and identifying some of the most cost-effective and environment-friendly energy sources to produce biofuels. Biofuels, such as bioethanol, biodiesel and biogas, are renewable fuels that are generally produced from agricultural crops or organic matter.

This effort to find an alternative bio-source is also in accordance with the recent passing into law of the Biofuel Acts or SB 2226 and the Department of Agriculture (DA)'s drive towards energy independence. The law requires that "a minimum of 1% biodiesel by volume shall be blended into all diesel engine fuels sold in the country subject to domestic supply and availability of locally sourced biodiesel component." Violators are penalized with one to five years' imprisonment and a fine.

Among the crops identified as potential sources of bioethanol are: sugarcane, sweet sorghum, coconut, corn, cassava, and jathropa. And now, sunflower is also coming into the picture as another potential bio-source for ethanol.

The potential of sunflower (along with grapeseed) is also being studied in Taipei in their effort to look for more domestic feedstocks coupled with best available and affordable technology.

Even the Brazilian agricultural experts are now optimizing the potential of sunflower by learning how to transform sunflowers into biofuel in the most cost-effective means. Other renewable energy sources that they are looking into are soybean and oilseed rape.

Meanwhile, an Italian farming association is working on biofuels

produced from sunflowers and sugar beets. Its sunflower oil-powered boat premiered at the recent Kyoto Protocol conference in Montreal. It sounded a bit off-beat, but the boat ran fine.

According to experts, if this project pushes through in the market, this biofuel is going to be relatively inexpensive. It was also reported that everything smelled faintly like French fries after the demonstration.

Sunflowers in the Philippines
Sunflower (Helianthus annuus) is an annual plant that belongs to the family of Asteraceae and is native in North and South America. Although it is not commonly grown in the Philippines, it can thrive in its soil. The giant sunflowers (grows up to 12 feet with head up to 3 inches wide) are native in the eastern United States. The common and recommended variety of sunflower in the Philippines is the hybrid type, which grows up to 105 days after planting.

Sunflowers in the Philippines are grown for ornamental purposes and for [their] edible oil. Specifically, at Central Luzon State University (CLSU), they have been growing sunflower since the early 70s, mainly for its edible oil. Sunflower oil, extracted from the seeds, is used for cooking. Its oil is less expensive (and healthier) than olive oil. Its fatty acid content is composed of high oleic type that contains higher level of healthy monosaturated fats.

At the moment, CLSU is reviving its sunflower production not for the edible oil but for biofuel. The sunflower seeds contain 36-42% oil and 38% protein meal.

Source #2
This article from BioFuelsChat is about a sunflower project being carried out in a partnership between high school students and a corporation.

Sea of Sunflowers Becomes Biodiesel

Thousands of sunflowers, rows and rows, dot the landscape near the heart of downtown Phoenix.

The land this garden is on, between 5th and 6th Street and Garfield and McKinley, used to be just a vacant lot. However a local community group saw it instead as an opportunity.

Years ago you'd drive through here and you'd never imagine you'd see a field of gold. The oasis is in a rather unlikely spot. The 2-acre garden is practically large enough for 5-year-old Renee Houser to get lost in.

"Oh my gosh, there's thousands of flowers out here in the middle of nowhere!" exclaims mom Nicole Houser.

It's called the Valley of the Sunflowers Project, a partnership between the Roosevelt Row Community Development Corporation and the nearby Phoenix Union Bioscience High School.

"This project is really about inspiring people, and sunflowers make people smile," says Braden Kay, Sunflowers Project Manager.
The seeds were planted back in September, and every Saturday since then volunteers have been out here tending to them, nurturing them so they can be harvested.

"What we'll do is take these seeds, press these seeds for oil, and then the bioscience class will make these seeds into biodiesel," says Kay.
They'll then use the biodiesel to power a solar powered hybrid car they're creating in class—a teaching tool for students and little Renee.

"Not only do they provide food for herself and the birds but eventually they'll provide biodiesel fuel for cars," says Houser.

She hopes this idea of transforming vacant lots into something beautiful catches on—and it sounds like it already has.

We ran into another group out there partnering with the county. They plan to build a garden on a 4-acre lot near 8th Street and Jefferson.
Meanwhile that sunflower garden will be replanted in February.

Source #3
This article from NPR is about farmers planting sunflowers in the hopes of earning a higher income and contributing to renewable

energy sources.

Sunflower Power? An Entrepreneur's First Steps
by Adam Burke

When farmers in the town of Dove Creek, Colo., started planting sunflowers a few years ago, many of them were motivated by the promise of a decent income—not energy independence. But an activist-turned-entrepreneur named Jeff Berman had floated a proposal with a green hook: He told farmers if they grew sunflowers, he'd give them a renewable fuel source.

"Well, when we first came in we were going to produce biodiesel, from local, sustainably grown oil seeds, and allow the farmers to use that fuel to grow the wheat and the beans that they also grow here," says Berman, chief executive officer of San Juan Bioenergy.

His part of the bargain was to build a facility in Dove Creek that could turn sunflower seeds into biodiesel. To do that, farmers would have to start producing sunflowers. Lots of them.

"It was very attractive to think that we could raise our tractor fuel, sure," says Dan Warren, a third-generation farmer in Dove Creek, who remembers those early meetings with Jeff Berman. "With pencil and paper you could see that there was more money involved, per acre, in the sunflowers than there was in the beans and the wheat on a normal year."

But farmers are a conservative lot. Richard Knuckles says he was skeptical.

"The way they painted the picture everything was just going to go smooth as molasses," he says. "Everybody was going to raise sunflowers and get rich."

A Relief from Unemployment
It's likely that any number of development projects—green or not—would have received enthusiasm in Dove Creek. Unemployment in the surrounding county leads the state of Colorado at around 14 percent. Grant Allen, 22, grew up here farming pinto beans and wheat with his father. Five years ago, he raised one of the first small sunflower pilot

plots in the area. Now he's scaled it up.

Pointing to one of his 300-acre fields where the red earth is as fine and dry as talcum powder, he says he planted more than 2.5 million seeds there.

Still, as much he loves sunflowers, Allen says it was the processing facility that had made them a viable crop.

"We farmed sunflowers on the pure hope that they were going to get their doors open, and [the processing facility was] going to start producing," he says. "That's what kept us going, you know?"

Shifting from Biodiesel to Sunflower Oil
By 2008, thousands of acres around Dove Creek were filled with sunflowers. Local grain silos filled up with the sunflower seeds that San Juan Bioenergy had purchased from farmers. Berman says he had raised $5 million through investments and loans. And a plant was under construction that would extract oil and convert it to biodiesel. But the biodiesel market was beginning to crash. And by the end of the year, federal subsidies for biofuels dried up.

"To survive, we had to make some changes," Berman says. "If we had insisted on building our biodiesel plant, then we would not be here."

Berman's key to survival was to focus on the part of the operation that was still viable: producing food-grade sunflower oil.
This shift in gears may not have been an easy transition for Berman, who was looking to start a green revolution with his business. But the company has managed to stay alive and hang on to its renewable vision.

Green Innovations
products—in this case sunflower hulls and pieces of plant material—are transformed into fuel. Machines grind up this biomass and press it into little fuel pellets, which look like rabbit food. The pellets are then fed into a special gasifier chamber.

Berman says 95 percent of the biomass turns into a gas, which is then routed to the company's generator. "And so you can burn natural gas,

or synthetic gas in our case, in a generator to produce your own power," he says.

Berman estimates the system will eventually produce a third of the electricity and all of the heat needed to run the plant. But the workers are still fine-tuning the process. Meanwhile, Berman is continuing to dream.

"We plan, in our next phase of development, to build wind and solar," he says. That would create what might be the first "always on, hybrid renewable" plant anywhere in the United States—and perhaps the world.

But that next phase is no sure thing at this point. To complete the processing plant and finish paying farmers for last year's crop, Berman has been shipping sunflower seeds to the Midwest at a loss. San Juan Bioenergy has produced just 15 tankers of oil since January. Farmers, like Allen, have begun to worry.

"Sunflowers could bring us farmers down, just as much as it could bring us up right now," Allen says.

Berman's vision has motivated a small community to step out into uncertain territory. It's a risky place to be. But in many ways, Dove Creek is no worse off than it was five years ago when Berman first came to town. And if it turns out that San Juan Bioenergy does crack the code on sunflower power, it'll be Dove Creek waiting for the world to catch up.

Source #4
This article from the New York Times is about community gardening with sunflowers.

Shrinking Violets They Aren't
by Michael Tortorella

The difference between a vacant lot and a community garden comes down to a single thing: a sunflower.

Helianthus annuus is not just a plant but a kind of logo, said Deborah Greig, 30, an urban agriculture coordinator at East New York Farms in Brooklyn. She seems to have a knack for brand management.

"They're a really iconic way to make people notice that you're trying to make a change in the community," Ms. Greig said. "There's not a lot of green space in East New York."

The half-acre plot she helps manage, the United Community Centers Youth Farm, lies almost in the shadow of the second-to-last-stop on the No. 3 train. The main mission here is to help the neighborhood grow its own nourishing food. But a perimeter of brilliant sunflowers, towering over the cyclone fence, seems to function like commercial signage, she said.

The sturdy sunflower does not shrink from a little "hard labor, too," Ms. Greig added. "I think they do some catching of the trash that blows in."

At the South Bronx community garden La Finca del Sur, she said, growers are experimenting with sunflowers in a soil-treatment practice called phytoremediation. In field tests last summer, the plant's deep taproots seemed to pull heavy metal contaminants like mercury and lead from the garden's polluted soil.

When the sunflower isn't doing dirty work, it dresses up nicely. This year, Ms. Greig and her friend Molly Culver, 31, will include sunflowers in designs for a half-dozen weddings as part of a side business called Molly Oliver Flowers. Many of these blooms will come from the Youth Farm at the High School for Public Service in Crown Heights, Brooklyn, where Ms. Culver is a manager.

"We're planting around 150, or more, every other week through the end of June," Ms. Culver said. (The farm supplies an on-site market and a cut-flower Community Supported Agriculture operation.) All told, Ms. Culver will be raising more than 1,000 sunflowers in the concrete heart of Brooklyn.

As it turns out, this is a perfectly natural place for a sunflower to be. When Ms. Greig and Ms. Culver—and I—stocked up on sunflower seeds this winter, we were joining a gardening tradition that goes

back some 5,000 years. Helianthus annuus is the quintessential American flower. And its path to the garden each year is a kind of tall, shaggy tale, rather like the sunflower stalk itself.

Sunflowers are likely the second-oldest domesticated seed crop in eastern North America. (Squash came first.) Archaeological digs in the river valleys of Appalachia (sites with names like Cloudsplitter and Napoleon Hollow) have identified the burned hulls of cultivated sunflower seeds from 4860 B.P. (or before present). Other sites in Mexico may be older still.

New York's pre-colonial dwellers, the Lenape, likely planted sunflowers at the edges of the maize fields alongside their camps. In Brooklyn, the Lenape might have sowed sunflowers near Gravesend and the Gowanus Creek. Other fields lay in Harlem, north of a settlement called Konaande Kongh. In the Bronx, the Lenape planted near Hunts Point and Clason Point.

From the accounts and detailed drawings of European explorers along the Eastern Seaboard, these sunflowers were of the common cultivated variety, macrocarpus. The plants reached seven or eight feet tall and formed a single large head. (Wild sunflowers grow with a branched habit and form numerous smaller heads.)

Writing in 1951, the eminent American sunflower taxonomist Charles B. Heiser Jr. concluded that oil from the crushed seeds "was used chiefly to anoint the hair." This practice could still be observed in the Iroquoian tribes of Ontario in the 1940s.

On other occasions, the seeds "were roasted over a fire, then pounded and cooked with roasted white corn, sweetened with maple sugar and used in somewhat the same way we use lard."

The sunflower packets in the seed rack at the hardware store did not come directly from America's pre-colonial stock. In the 16th century, the plant began a grand tour of Europe: the Flemish botanist Rembert Dodoens recorded an accurate drawing as early as 1568. In the centuries of European breeding that followed, the sunflower probably learned how to curtsy before royalty and wear a powdered wig and dance a gavotte.

It is mostly the repatriated sunflower that we grow today. (Dr. Heiser reports that the plant made its homecoming debut in C. W. Dorr's seed catalog in 1880.) The search for the modern sunflower might lead you to Tom Heaton's breeding nursery in Woodland, Calif., on the outskirts of Sacramento. Some of the most popular ornamental cultivars came into existence here, and in 100 acres of seedproduction fields spread across the valley.

The sunflowers go by names like the Joker (which has a motley ruffle like a fool's collar), Moulin Rouge (burgundy), Moonshadow (pale) and Kong (which Dr. Heaton has grown to 19 feet). And there's the ProCut line, which might be the hardest working sunflower in the floral trade.

Writing Prompt:
Your Environmental Science class is preparing contributions for the school's Go Green Initiative. Your contribution will be an explanatory essay on sunflowers. The audience for your essay will be other students, teachers, and parents.

Using more than one source, craft a thesis to explain the ways in which sunflower seeds can be used to create biofuel and the economic implications of this process. Once you have a thesis, select the most relevant information to support your thesis. Then, write a multi-paragraph explanatory essay explaining your thesis. Clearly organize your essay and elaborate on your ideas. Develop your ideas clearly and use your own words, except when quoting directly from the sources. Be sure to reference the source title or number when quoting or paraphrasing details or facts from the sources.

Writing Rubrics

To be handed out after participants have drafted their own rubric

KANSAS STATE DEPARTMENT OF EDUCATION

LINK Literacy Network of Kansas

State of Kansas Multidisciplinary Performance Task - Grades 3-5 Informative/Explanatory

3-5 Inf./Expl.	Student's Response…			
	4	3	2	1
Focus	☐ Clearly states and maintains a controlling idea that directly addresses the resources and prompt	☐ Adequately states and maintains a controlling idea that mostly addresses the resources and prompt	☐ States a controlling idea somewhat related to the resources and prompt	☐ Does not state a controlling idearelated to the resources and prompt
Support	☐ Effectively uses relevant and accurate facts, definitions, and details throughout the work	☐ Adequately uses relevant and accurate facts, definitions, and details in the work	☐ Uses some relevant and accurate facts, definitions and details in the work	☐ Does not use relevant and accurate facts, definitions, or details in the work
Connections	☐ Consistently uses grade-appropriate strategies to clarify relationships between and among ideas	☐ Adequately uses grade-appropriate strategies to clarify relationships between and among ideas	☐ Inconsistently uses grade-appropriate strategies to clarify relationships between and among ideas	☐ Shows little or no attempt to clarify relationships between and among ideas
Conventions	☐ Is readable with most grade-level conventions used correctly and may use them creatively to enhance the message; minor mistakes do not impede the reader's ability to understand the writer's meaning	☐ Is readable with most grade-level conventions used correctly; mistakes do not affect the reader's ability to understand thewriter's meaning	☐ Is readable but some errors in grade-level conventions negatively impact the reader's ability to understand the writer's meaning	☐ Is nearly unreadable due to pervasive errors in grade-level conventions

KANSAS STATE DEPARTMENT OF EDUCATION

Smarter Balanced
Assessment Consortium

4-Point Informational Performance Task Writing Rubric (Grades 3-5)					
Score	**4**	**3**	**2**	**1**	**NS**
Organization/Purpose	**The response has a clear and effective organizational structure, creating a sense of unity and completeness. The organization is sustained between and within paragraphs. The response is consistently and purposefully focused:** • controlling/main idea of a topic is clearly communicated, and the focus is strongly maintained for the purpose and audience • consistent use of a variety of transitional strategies to clarify the relationships between and among ideas • effective introduction and conclusion • logical progression of ideas from beginning to end; strong connections between and among ideas with some syntactic variety	**The response has an evident organizational structure and a sense of completeness. Though there may be minor flaws, they do not interfere with the overall coherence. The organization is adequately sustained between and within paragraphs. The response is generally focused:** • controlling/main idea of a topic is clear, and the focus is mostly maintained for the purpose and audience • adequate use of transitional strategies with some variety to clarify the relationships between and among ideas • adequate introduction and conclusion • adequate progression of ideas from beginning to end; adequate connections between and among ideas	**The response has an inconsistent organizational structure. Some flaws are evident, and some ideas may be loosely connected. The organization is somewhat sustained between and within paragraphs. The response may have a minor drift in focus:** • controlling/main idea of a topic may be somewhat unclear, or the focus may be insufficiently sustained for the purpose and/or audience • inconsistent use of transitional strategies and/or little variety • introduction or conclusion, if present, may be weak • uneven progression of ideas from beginning to end; and/or formulaic; inconsistent or unclear connections between and among ideas	**The response has little or no discernible organizational structure. The response may be related to the topic but may provide little or no focus:** • controlling/main idea may be confusing or ambiguous; response may be too brief or the focus may drift from the purpose and/or audience • few or no transitional strategies are evident • introduction and/or conclusion may be missing • frequent extraneous ideas may be evident; ideas may be randomly ordered or have an unclear progression	• Insufficient (includes copied text) • In a language other than English • Off-topic • Off-purpose

05/08/2014

STATE DEPARTMENT OF
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Smarter Balanced Assessment Consortium

4-Point Informational Performance Task Writing Rubric (Grades 3-5)					
Score	**4**	**3**	**2**	**1**	**NS**
Evidence/Elaboration	**The response provides thorough elaboration of the support/evidence for the controlling/main idea that includes the effective use of source material. The response clearly and effectively develops ideas, using precise language:** • comprehensive evidence (facts and details) from the source material is integrated, relevant, and specific • clear citations or attribution to source material • effective use of a variety of elaborative techniques* • vocabulary is clearly appropriate for the audience and purpose • effective, appropriate style enhances content	**The response provides adequate elaboration of the support/evidence for the controlling/main idea that includes the use of source material. The response adequately develops ideas, employing a mix of precise and more general language:** • adequate evidence (facts and details) from the source material is integrated and relevant, yet may be general • adequate use of citations or attribution to source material • adequate use of some elaborative techniques* • vocabulary is generally appropriate for the audience and purpose • generally appropriate style is evident	**The response provides uneven, cursory elaboration of the support/evidence for the controlling/main idea that includes uneven or limited use of source material. The response develops ideas unevenly, using simplistic language:** • some evidence (facts and details) from the source material may be weakly integrated, imprecise, repetitive, vague, and/or copied • weak use of citations or attribution to source material • weak or uneven use of elaborative techniques*; development may consist primarily of source summary • vocabulary use is uneven or somewhat ineffective for the audience and purpose • inconsistent or weak attempt to create appropriate style	**The response provides minimal elaboration of the support/evidence for the controlling/main idea that includes little or no use of source material. The response is vague, lacks clarity, or is confusing:** • evidence (facts and details) from the source material is minimal, irrelevant, absent, incorrectly used, or predominantly copied • insufficient use of citations or attribution to source material • minimal, if any, use of elaborative techniques* • vocabulary is limited or ineffective for the audience and purpose • little or no evidence of appropriate style	• Insufficient (includes copied text) • In a language other than English • Off-topic • Off-purpose

*Elaborative techniques may include the use of personal experiences that support the controlling/main idea

KANSAS STATE DEPARTMENT OF EDUCATION

State of Kansas Multidisciplinary Performance Task - Grades 6-8 Informative/Explanatory

6-8 Inf./Expl.	Student's Response…			
PL:	**4**	**3**	**2**	**1**
Focus	☐ States and maintains a clear controlling idea that directly addresses the resources and prompt	☐ States and maintains a clear controlling idea that mostly addresses the resources and prompt	☐ States a controlling idea somewhat related to the resources and prompt	☐ Does not state a clear controlling idea, or stated controlling idea is largely unrelated to resources or prompt
Support	☐ Uses relevant and accurate facts, definitions, and details from two or more resources to help explain the controlling idea	☐ Uses mostly relevant and accurate facts, definitions, and details from two or more resources to help explain the controlling idea	☐ Uses some relevant and accurate facts, definitions, and details from one or more resources to help explain the controlling idea	☐ Does not use relevant or accurate facts, definitions, or details from the resources to help explain the controlling idea
Connections and Audience	☐ Consistently uses grade-appropriate strategies to clarify relationships between and among ideas, and to help explain the controlling idea ☐ Consistently and accurately uses domain-specific words to develop and explain ideas	☐ Adequately uses grade-appropriate strategies to clarify relationships between and among ideas, and to help explain the controlling idea ☐ Adequately uses domain-specific words to develop and explain ideas	☐ Inconsistently uses grade-appropriate strategies to clarify relationships between and among ideas, and to help explain the controlling idea ☐ Inconsistently uses domain-specific words to develop and explain ideas	☐ Shows little or no attempt to clarify relationships between and among ideas, or to help explain the controlling idea ☐ Uses few or no domain-specific words to develop and explain ideas
Conventions	☐ Is readable with most grade-level conventions used correctly and may use them creatively to enhance the message; minor mistakes do not impede the reader's ability to understand the writer's meaning	☐ Is readable with most grade-level conventions used correctly; mistakes do not affect the reader's ability to understand the writer's meaning	☐ Is readable but some errors in grade-level conventions negatively impact the reader's ability to understand the writer's meaning	☐ Is nearly unreadable due to pervasive errors in grade-level conventions

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Smarter Balanced
Assessment Consortium

4-Point Explanatory Performance Task Writing Rubric (Grades 6–11)					
Score	**4**	**3**	**2**	**1**	**NS**
Organization/Purpose	**The response has a clear and effective organizational structure, creating a sense of unity and completeness. The organization is fully sustained between and within paragraphs. The response is consistently and purposefully focused:** • thesis/controlling idea of a topic is clearly communicated, and the focus is strongly maintained for the purpose and audience • consistent use of a variety of transitional strategies to clarify the relationships between and among ideas • effective introduction and conclusion • logical progression of ideas from beginning to end; strong connections between and among ideas with some syntactic variety	**The response has an evident organizational structure and a sense of completeness. Though there may be minor flaws, they do not interfere with the overall coherence. The organization is adequately sustained between and within paragraphs. The response is generally focused:** • thesis/controlling idea of a topic is clear, and the focus is mostly maintained for the purpose and audience • adequate use of transitional strategies with some variety to clarify the relationships between and among ideas • adequate introduction and conclusion • adequate progression of ideas from beginning to end; adequate connections between and among ideas	**The response has an inconsistent organizational structure. Some flaws are evident, and some ideas may be loosely connected. The organization is somewhat sustained between and within paragraphs. The response may have a minor drift in focus:** • thesis/controlling idea of a topic may be somewhat unclear, or the focus may be insufficiently sustained for the purpose and/or audience • inconsistent use of transitional strategies and/or little variety • introduction or conclusion, if present, may be weak • uneven progression of ideas from beginning to end; and/or formulaic; inconsistent or unclear connections between and among ideas	**The response has little or no discernible organizational structure. The response may be related to the topic but may provide little or no focus:** • thesis/controlling idea may be confusing or ambiguous; response may be too brief or the focus may drift from the purpose and/or audience • few or no transitional strategies are evident • introduction and/or conclusion may be missing • frequent extraneous ideas may be evident; ideas may be randomly ordered or have an unclear progression	• Insufficient (includes copied text) • In a language other than English • Off-topic • Off-purpose

STATE DEPARTMENT OF
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Smarter Balanced Assessment Consortium

4-Point Explanatory Performance Task Writing Rubric (Grades 6–11)					
Score	**4**	**3**	**2**	**1**	**NS**
Evidence/Elaboration	**The response provides thorough elaboration of the support/evidence for the thesis/controlling idea that includes the effective use of source material. The response clearly and effectively develops ideas, using precise language:** • comprehensive evidence (facts and details) from the source material is integrated, relevant, and specific • clear citations or attribution to source material • effective use of a variety of elaborative techniques* • vocabulary is clearly appropriate for the audience and purpose • effective, appropriate style enhances content	**The response provides adequate elaboration of the support/evidence for the thesis/controlling idea that includes the use of source material. The response adequately develops ideas, employing a mix of precise and more general language:** • adequate evidence (facts and details) from the source material is integrated and relevant, yet may be general • adequate use of citations or attribution to source material • adequate use of some elaborative techniques* • vocabulary is generally appropriate for the audience and purpose • generally appropriate style is evident	**The response provides uneven, cursory elaboration of the support/evidence for the thesis/controlling idea that includes uneven or limited use of source material. The response develops ideas unevenly, using simplistic language:** • some evidence (facts and details) from the source material may be weakly integrated, imprecise, repetitive, vague, and/or copied • weak use of citations or attribution to source material • weak or uneven use of elaborative techniques*; development may consist primarily of source summary • vocabulary use is uneven or somewhat ineffective for the audience and purpose • inconsistent or weak attempt to create appropriate style	**The response provides minimal elaboration of the support/evidence for the thesis/controlling idea that includes little or no use of source material. The response is vague, lacks clarity, or is confusing:** • evidence (facts and details) from the source material is minimal, irrelevant, absent, incorrectly used, or predominantly copied • insufficient use of citations or attribution to source material • minimal, if any, use of elaborative techniques* • vocabulary is limited or ineffective for the audience and purpose • little or no evidence of appropriate style	• Insufficient (includes copied text) • In a language other than English • Off-topic • Off-purpose

*Elaborative techniques may include the use of personal experiences that support the controlling idea.

KANSAS STATE DEPARTMENT OF EDUCATION

State of Kansas Multidisciplinary Performance Task - High School Informative/Explanatory

High School Inf./Expl.	Student's Response…			
PL:	**4**	**3**	**2**	**1**
Focus	☐ States a clear controlling idea related to the resources and prompt, and maintains it throughout the work ☐ Effectively organizes complex ideas, concepts, and information to increase understanding of controlling idea	☐ States a clear controlling idea related to resources and prompt and mostly maintains it throughout the work ☐ Attempts to organize complex ideas, concepts, and information to increase understanding of controlling idea	☐ States a somewhat clear controlling idea, which may lose focus sporadically throughout the work ☐ Inconsistently organizes complex ideas, concepts, and information	☐ Does not state a clear controlling idea, or stated argument is unrelated to resources or prompt ☐ Shows little or no attempt to organize complex ideas, concepts, and information
Support	☐ Uses relevant and accurate details/evidence from two or more resources to support argument	☐ Uses mostly relevant details/ evidence from two or more resources to support argument	☐ Uses some details/evidence from one or more resources to support argument	☐ Does not use details or evidence from resources to support argument
Connections and Audience	☐ Consistently uses grade-appropriate strategies to clarify relationships between and among ideas ☐ Consistently and accurately uses domain-specific words to develop and explain ideas	☐ Adequately uses grade-appropriate strategies to clarify relationships between and among ideas ☐ Adequately uses domain-specific words to develop and explain ideas	☐ Inconsistently uses grade-appropriate strategies to clarify relationships between and among ideas ☐ Inconsistently uses domain-specific words to develop and explain ideas	☐ Shows little or no attempt to clarify relationships between and among ideas ☐ Uses few or no domain-specific words to develop and explain ideas
Introduction and Conclusion	☐ Includes an effective and grade-appropriate introduction and conclusion	☐ Includes an adequate and grade-appropriate introduction and conclusion	☐ Might include a grade-appropriate introduction or conclusion, but one or both are weak.	☐ Does not include an introduction or a conclusion.
Conventions	☐ Is readable and uses almost all grade-level conventions correctly and may use them creatively to enhance the message; minor mistakes do not impede the reader's ability to understand the writer's meaning	☐ Is readable with most grade-level conventions used correctly; mistakes do not affect the reader's ability to understand the writer's meaning	☐ Is readable but some errors negatively impact the reader's ability to understand the writer's meaning	☐ Is nearly unreadable due to pervasive errors in standard conventions

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4-Point Explanatory Performance Task Writing Rubric (Grades 6–11)					
Score	**4**	**3**	**2**	**1**	**NS**
Organization/Purpose	**The response has a clear and effective organizational structure, creating a sense of unity and completeness. The organization is fully sustained between and within paragraphs. The response is consistently and purposefully focused:** • thesis/controlling idea of a topic is clearly communicated, and the focus is strongly maintained for the purpose and audience • consistent use of a variety of transitional strategies to clarify the relationships between and among ideas • effective introduction and conclusion • logical progression of ideas from beginning to end; strong connections between and among ideas with some syntactic variety	**The response has an evident organizational structure and a sense of completeness. Though there may be minor flaws, they do not interfere with the overall coherence. The organization is adequately sustained between and within paragraphs. The response is generally focused:** • thesis/controlling idea of a topic is clear, and the focus is mostly maintained for the purpose and audience • adequate use of transitional strategies with some variety to clarify the relationships between and among ideas • adequate introduction and conclusion • adequate progression of ideas from beginning to end; adequate connections between and among ideas	**The response has an inconsistent organizational structure. Some flaws are evident, and some ideas may be loosely connected. The organization is somewhat sustained between and within paragraphs. The response may have a minor drift in focus:** • thesis/controlling idea of a topic may be somewhat unclear, or the focus may be insufficiently sustained for the purpose and/or audience • inconsistent use of transitional strategies and/or little variety • introduction or conclusion, if present, may be weak • uneven progression of ideas from beginning to end; and/or formulaic; inconsistent or unclear connections between and among ideas	**The response has little or no discernible organizational structure. The response may be related to the topic but may provide little or no focus:** • thesis/controlling idea may be confusing or ambiguous; response may be too brief or the focus may drift from the purpose and/or audience • few or no transitional strategies are evident • introduction and/or conclusion may be missing • frequent extraneous ideas may be evident; ideas may be randomly ordered or have an unclear progression	• Insufficient (includes copied text) • In a language other than English • Off-topic • Off-purpose

STATE DEPARTMENT OF
EDUCATION

Smarter Balanced Assessment Consortium

4-Point Explanatory Performance Task Writing Rubric (Grades 6–11)					
Score	**4**	**3**	**2**	**1**	**NS**
Evidence/Elaboration	**The response provides thorough elaboration of the support/evidence for the thesis/controlling idea that includes the effective use of source material. The response clearly and effectively develops ideas, using precise language:** • comprehensive evidence (facts and details) from the source material is integrated, relevant, and specific • clear citations or attribution to source material • effective use of a variety of elaborative techniques* • vocabulary is clearly appropriate for the audience and purpose • effective, appropriate style enhances content	**The response provides adequate elaboration of the support/evidence for the thesis/controlling idea that includes the use of source material. The response adequately develops ideas, employing a mix of precise and more general language:** • adequate evidence (facts and details) from the source material is integrated and relevant, yet may be general • adequate use of citations or attribution to source material • adequate use of some elaborative techniques* • vocabulary is generally appropriate for the audience and purpose • generally appropriate style is evident	**The response provides uneven, cursory elaboration of the support/evidence for the thesis/controlling idea that includes uneven or limited use of source material. The response develops ideas unevenly, using simplistic language:** • some evidence (facts and details) from the source material may be weakly integrated, imprecise, repetitive, vague, and/or copied • weak use of citations or attribution to source material • weak or uneven use of elaborative techniques*; development may consist primarily of source summary • vocabulary use is uneven or somewhat ineffective for the audience and purpose • inconsistent or weak attempt to create appropriate style	**The response provides minimal elaboration of the support/evidence for the thesis/controlling idea that includes little or no use of source material. The response is vague, lacks clarity, or is confusing:** • evidence (facts and details) from the source material is minimal, irrelevant, absent, incorrectly used, or predominantly copied • insufficient use of citations or attribution to source material • minimal, if any, use of elaborative techniques* • vocabulary is limited or ineffective for the audience and purpose • little or no evidence of appropriate style	• Insufficient (includes copied text) • In a language other than English • Off-topic • Off-purpose

*Elaborative techniques may include the use of personal experiences that support the controlling idea.

KANSAS STATE DEPARTMENT OF EDUCATION

Writing Samples

To be handed out after participants have reviewed the rubrics

KANSAS STATE DEPARTMENT OF EDUCATION

LINK Literacy Network of Kansas

Grade 5 Response

All About A Bears Hibernation

Did you ever wonder about how bears hibernate? Well I am here to teach you all I know about a bears hibernation. Bears hibernate to save energy, they store fat in there bodies, and do they sleep all winter? I will let you know all about these important topics, and more. I hope you enjoy and learn a lot from my paper.

The first statement about a bears hibernation is that a bear hibernates because it helps them save energy. Food is super hard to find for them in the winter, so this is a way to decrease all the hard work. It also helps them survive and not freeze because of the cold. Source #1: "Hibernation is controlled by the part of the brain called the hypothalamus". This part of the brain helps regulate hunger, thirst, and blood pressure.

The next statement about a bears hibernation is that when they hibernate bears have to store fat in there bodies. In order to survive weeks or months with no food, most hibernating animals (including bears) go on a eating binge, meaning a time or instance of carefree fun. This happens during the time of late summer and early fall. The fat they build up stores energy and keeps them cozy while the are in slumber. Along with regular white fat, hibernating mammals have patches of special brown fur along their shoulders and back. Source #1: The brown fat works like fast food restaurant; it delivers quick energy whenever it is needed.

The last but not least statement about a bears hibernation is a question actually. Do bears sleep all winter? The answer is no. Bears do not actually sleep all winter long. But as long as it remains undisturbed, the bear will not leave its warm den for the next three to five months. Source #3: Female bears always have their cubs, usually two or three of them, in the middle of the winter. This is also another sign of proof that bears don't sleep all winter long. It is proved that a bear is a in-between hibernator, it really only takes a long winter nap.

Now you know all about a bears hibernation. That bears hibernate to help save energy and survive, they store fat in there bodies to keep warm, and that bears do not sleep all winter long. I hope you really learned a ton about a bears hibernation. If you want to learn more about a bears hibernation you can check out websites, magazines, and books at your local library. Here is my last question, If you were a bear, what would your steps be to lead to a healthy and safe hibernation?

Grade 8 Response

Memory is a very complex thing to understand. This is because many memories gradually fade away in our memory. This is a hard thing to deal with, especially as a student. Tests, quizzes, all require us to remember a large amount of information. However, how do we do that? We always seem to forget important things for tests and totally blank, so how can we remember this information to help us during our school career and even after?

Distractions. I know I get distracted easily, especially when studying for a boring, drab test when I'd rather be watching TV. To comrpomise, I'll turn on the TV and then study as well, glancing up at the TV every few minutes. I claim I'm studying, but am I? Your brain would answer no. While watching TV and studying, your brain actually isn't processing information. It isn't properly coding into your mind so within a few minutes, a lot of information will not be available to you. So, if needed, go into a place without a TV. Shut your phone off and sit down and concentrate on studying, having someone else test you after. If needed, take 10 minute breaks every hour or half an hour and watch some TV to relax before studying again,

It has also been proven that you should associate memories with people, objects, and places. According to 'Memory Masters' by Alice Andre-Clark, "Memories get stronge rif you associate them wth a place... picture a building you know well, perhaps your own house. Now imagine each item in a different part of the house...". This would help you remember because you making a scene in your mind, adding details and adding complexity which makes it easier to retrieve when needed. So if you have to remember groceries, imagine each item sitting in different places in your home. I bet you that won't let you down.

This ties in with distractions but is also a good way to keep memories. It was proven by Dr. Franco Fabbro at the University of Udine that if you were listening to someone speak and were also speaking yourself, people couldn't remember the story the person was talking about. But if someone was listening to a story and didn't talk, they remembered it well. So if it helps, record yourself speaking about what you need to remember then shut your eyes, go in a quiet room, and play it over and over to memorize it.

We all know memory is important but it is easily forgotten. These ways can help you memorize everything efficiently and properly and may even help you with school.

High school response

Cultivating sunflower seeds has become a huge discussion around the world for many reasons. Sunflower seeds have proven to be useful in many different ways, all the way from cooking, to aesthetic reasons. Sunflower seeds can be used to create biofuel, but also may have economic implications that could be a benefit to our society. Through the past years, people have grown to see sunflowers as a plus to the community and have taken strides to grow and cultivate them for many different purposes.

Sunflower seeds can be cultivated for many reasons, one of them being biofuel. Because of the recent industrial revolution, fuel has become a necessity to society. Fuel is a high price to pay for many people who struggle day to day and also causes major pollution to the atmosphere. Many people have searched for cheaper, more efficient, and less economically damaging ways to run their cars and get to work. People have found ways in which sunflower seeds can be used to create biofuel. Planting sunflower seeds is a win-win situation because they are beautiful to look at, but also can be cultivated to create biofuel. One way that they can make biofuel is by planting the sunflower seeds, harvesting them, taking the seeds, pressing them for their oil to create biodiesel and biofuel that could help run hybrid cars, so that people wouldn't have to use as much fuel (Source #2). The oil from seeds are very useful because they can be used for cooking (which is cheaper and healthier than olive oil) and they can also be used to help run cars (which saves people money and is better environmentally) (Sourve #1). There are many ways sunflower seeds can be formed into biofuel, but there are also many economic implications of this process too.

Turning sunflower seeds into biofuel can be good or bad depending on the way you look at. It is good because it doesn't cause as much pollution to the atmosphere and is reusable, but could also have some economical problems. Although it will, in the end, be cheaper than fuel, the process for creating that much biofuel from the seeds would call for many workers and employees. More employees and workers means more money needed to pay for all that work and energy put in to not only growing and harvesting the sunflowers and their seeds, but also pressing them and extracting the oil from them (Source #2). Keeping the sunflowers well and growing is a tedious and arduous task and environmental factors could play a major part in how many sunflowers actually live to see harvest day. If for some reason there is a fire, it could burn away all the sunflowers, so that all the hard work being put into keeping them intact goes to waste, and ends up costing more than expected. Or if there

is too much rain, it could drown all the sunflowers and cause them die, also wasting money. The economic implications for using sunflower seeds for biofuel is a risk that must be taken if society is ready to give up their hunger for fuel, and move on to a more environmentally productive source. Biofuel could help by costing less because its reusable, which would save a community tons of money, which they could use on other projects; or it could run a society into debt if the environmental factors are not cooperating with the harvest.

Sunflower seeds could be made into biofuel, but only with much help from everyone, including the environment. Therefore, it could either be a benefit to the economy, or be a disaster, depending on how everything works out. Starting this project as another fuel source could be a major boom, or a major bust, but it is a risk that is needed to be taken if society is ready to take a step forward to creating a greener and more efficient earth.