MeTEOR Performance Task
Fi h Grade

English Language Arts
Storm Chasers

Performance Task Item: Storm Chasers

Grade Level: 5th Grade

Focus Areas: Informational Text; Primary and Secondary Sources; Research
Essential Question: Why does society need risk takers for scientific discovery?
Learning Targets:

- Students will cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
- Students will offer and support opinions and negotiate with others in communicative exchanges.
- Students will determine author's purpose of multiple texts.
- Students will read closely informational texts and viewing multimedia to determine how meaning is conveyed explicitly and implicitly through language.
- Students will use domain-specific vocabulary to explain concepts.
- Students will organize and present their ideas and information according to the purpose of the research and their audience.
- Students will cite textual evidence to support analysis of both primary and secondary sources as well as determine central ideas and information of said sources.

STANDARDS

Content Standards:

- Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
- Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
- Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area*.
- Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
- Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

- Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
- Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.
- By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

Supporting Standards:

- Identify the accomplishments of notable individuals in the fields of science and technology, including Benjamin Franklin.

Materials/Resources:

- "Primary Sources: Benjamin Franklin Flies a Kite and Catches Lightning" www.newsela.com Lexile 710
- Excerpt of letter "From Benjamin Franklin to Peter Collinson, 25 August 1755" (Primary Source) https://founders.archives.gov/documents/Franklin/01-06-02-0072
- "The Storm Chasers" www.achieve3000.com Lexile 880
- http://www.discovery.com/tv-shows/storm-chasers/videos/why-chase-storms/
- "Text Conversation" Form
- T-chart for Words "Then and Now"
- "All About Ben"
- Analyzing Primary Sources Organizer
- Claim, Evidence, Reasoning Chart
- Franklin & Son Timeline Rubric

Part A:

Read "Primary Sources: Benjamin Franklin Flies a Kite and Catches Lightning" and answer questions 1 - 5.

1. List and draw out the specific steps of the kite experiment that Ben Franklin wrote to Peter Collinson. Be specific and add pertinent information from the article. (DOK 1)

2. Why did Franklin choose the material he did for the kite? What was it and why was it chosen? (DOK 1)

3. According to the article, why did Benjamin Franklin only take his son for the kite experiment? Do you think that was a good idea? Why or why not? (DOK 2)

4. Looking at the other source in the article (Joseph Priestly), he discusses more of Franklin's feelings about the event than Franklin did. What is the author's purpose of Franklin's letter? What is the author's purpose of Priestly's work? (DOK 2)

5. According to the article, electricity had already been discovered in France before Ben Franklin. What are some of the reasons that Ben Franklin might not have known about the experiment in France? Would that be the case today? Pretend you are Ben Franklin and have a conversations via "text" to your colleagues in France about the discovery using today's language. You may even use emojis but you must explain their use. There must be a least 10 comments on each side of the conversation or 20 in total. A graphic organizer has been provided for you. (DOK 3)

Read "From Benjamin Franklin to Peter Collinson, 25 August 1755" and answer questions 6 – 9.

6. Make a list of all of the words in this letter that you are unsure of and then find a word used today for the same term? A graphic organizer has been provided for you to complete this task. (DOK 2) For example:

   Amiable (word used in letter) and **Friendly** (word used now)

7. According to the article, what is one of the reasons that Franklin chased the whirlwind? Taking into account what you know from prior knowledge about Ben Franklin as well as the two pieces written by him, list adjectives to describe him and explain why you chose that adjective. Be sure to provide the evidence either from the text or prior knowledge. Use the graphic organizer provided to list your ideas. (DOK 2/3)

8. Fill out the attached graphic organizer "Analyzing Primary Sources" using this article. Think about the way the primary source has been written as opposed to a secondary source. Research who Peter Collinson is and what would be the reasons Franklin would be sharing information with him. How does this background knowledge affect perception of what is written? (DOK 2/3)

9. Both articles discuss Franklin's son being with him during this time. What could you infer about their relationship according to the information you read in the articles? Research their relationship throughout Ben Franklin's life. Did their relationship change? With your group, create a timeline that details their relationship and what defining events might have happened. Choose a way as a group to share this information. Some ideas are a power point, a play, a poster, round table discussion, living museum, etc. A rubric has been provided to guide you. (DOK 2/3)

Part B:

Read "Storm Chasers" and answer questions 10 – 13.

10. According to the article, what is the Enhanced Fujita Scale and for what is it used? (DOK 1)

11. Where is "Tornado Alley"? What states compose this area and how did it get its name? Some research may be needed. (DOK 2)

12. Using the information from the article, write a diary entry for a day that you might experience as a storm chaser. Be sure it is details the events and your reactions/feelings of the event. (DOK 2/3)

13. The term “paparazzi” is used to describe storm chasers. Define the term paparazzi and describe how it used. Write a couple of sentences telling if this word has a positive or negative meaning and why. (DOK 2)

Watch the video clip from http://www.discovery.com/tv-shows/storm-chasers/videos/why-chase-storms/ and answer questions 14 – 15.

14. Would you consider the video a primary source? Why or why not? Give your reasons. Use the Claim Reason Evidence chart to list your reasons. (DOK 2)

15. According to the video and the articles you've read, fill out the mind map on the reasons that people are storm chasers. (DOK 2)

16. Many people describe Ben Franklin as the first storm chaser. Pretend you have a time machine and you bring him to the present day. Write a narrative about the adventures you might have and his reaction to modern storm chasing. You may need to do some additional research about modern day storm chasers to ensure accuracy in your narrative even though it is fictional. A rubric has been provided to guide you. (DOK 3/4)

17. Using all of the sources plus your background knowledge, you are going to create and design a "Storm Chasing" program or website. You will also create an infomercial about your new creation. It should be around 2 to 3 minutes of airtime. A rubric has been provided to guide you. (DOK 4) You will need to be sure you answer the following:
    a. Why Storm Chase?
    b. Why is it important?
    c. What skills does a storm chaser need?
    d. Who would be the "audience" for your program or website?
    e. What information will your program or website contain?

Primary Sources: Benjamin Franklin Flies a Kite and Catches Lightning!

Editor's Note: Benjamin Franklin was an important American leader. He was also a scientist interested in electricity. His most famous experiment took place on June 10, 1752. Franklin flew a kite in a thunderstorm and caught electricity with it. He collected the electricity inside a special glass jar. Below are two descriptions of the experiment. The first is a letter by Franklin to a scientist named Peter Collinson. The second is a description of the kite experiment by a different scientist named Joseph Priestley.

On October 19, 1752, Franklin wrote to Peter Collinson. Franklin explained his kite experiment to him.

"Add a Tail and Silk String"

"Make a small cross with two thin strips of hard wood. Tie the corners of a silk cloth to the ends of the cross to make the body of a kite. Add a tail and silk string. It will rise in the air like kites made of paper. But since it is made of silk, the kite will not be torn by the rain and wind. To the top point of the kite tie a very sharp wire. Tie a key to the end of the string. Fly the kite as a thunderstorm is arriving."

"Electricity and Lightning Are the Same"

"The person who holds the string must stand in a doorway. This will help keep the silk string dry. The string should not touch the wood of the doorway. The pointed wire will draw the electric fire from the storm. This will make the loose threads of the string stand out in every direction. The electricity will move down toward your fingers and electric fire will be caught

inside the jar. It will allow you to do more experiments with electricity, like those done by rubbing a piece of glass. It will also show you that electricity and lightning are the same."

Editor's Note: Priestley was a famous scientist who also did experiments with electricity. He also discovered oxygen. He and Franklin wrote to each other often. Priestley wrote about Franklin's kite experiment.

"The Idea of A Kite"

"Benjamin Franklin has made a great discovery. It may be the greatest discovery in the last 100 years."

"Franklin wanted to prove that electricity and lightning are the same. At first he was going to try to catch lightning with a tall metal pole. He was going to put the pole on the pointed roof of a church. Suddenly, the idea of a kite came to him. A kite would be able to get even closer to a storm. Franklin used a large silk cloth and two cross-sticks to make a kite. As a thunderstorm came near he walked out to a field. He stood in a nearby shed. Franklin was afraid people might laugh at him, so he only took his son with him to help with the experiment."

"He raised the kite into the sky. A long period of time passed. Nothing happened. Just as he was beginning to lose hope, Franklin saw some loose threads of the string stand out. He quickly touched the key with his finger and felt an electric spark. Once the rain had wet the string, Franklin collected the electric fire in the jar. Imagine how wonderful he must have felt."

"This happened in June 1752, a month after scientists in France had caught electricity from lightning. However, it was before Franklin had heard of anything they had done."

From Benjamin Franklin to Peter Collinson, 25 August 1755

To Peter Collinson

Philadelphia, Aug. 25, 1755.

Dear Sir,

As you have my former papers on Whirlwinds, & [1]I now send you an account of one which I had lately an opportunity of seeing and examining myself.

Being in Maryland, riding with Col. Tasker, and some other gentlemen to his country-seat, where I and my son were entertained by that amiable and worthy man, with great hospitality and kindness, we saw in the vale below us, a small whirlwind beginning in the road, and shewing itself by the dust it raised and contained. It appeared in the form of a sugar-loaf, spinning on its point, moving up the hill towards us, and enlarging as it came forward. When it passed by us, its smaller part near the ground, appeared not bigger than a common barrel, but widening upwards, it seemed, at 40 or 50 feet high, to be 20 or 30 feet in diameter. The rest of the company stood looking after it, but my curiosity being stronger, I followed it, riding close by its side, and observed its licking up, in its progress, all the dust that was under its smaller part. As it is a common opinion that a shot, fired through a waterspout, will break it, I tried to break this little whirlwind, by striking my whip frequently through it, but without any effect. Soon after, it quitted the road and took into the woods, growing every moment larger and stronger, raising, instead of dust, the old dry leaves with which the ground was thick covered, and making a great noise with them and the branches of the trees, bending some tall trees round in a circle swiftly and very surprizingly, though the progressive motion of the whirl was not so swift but that a man on foot might have kept pace with it, but the circular motion was amazingly rapid. By the leaves it was now filled with, I could plainly perceive that the current of air they were driven by, moved upwards in a spiral line; and when I saw the trunks and bodies of large trees invelop'd in the passing whirl, which continued intire after it had left them,[3] I no longer wondered that my whip had no effect on it in its smaller state. I accompanied it about three quarters of a mile, till some limbs of dead trees, broken off by the whirl, flying about, and falling near me, made me more apprehensive of danger; and then I stopped, looking at the top of it as it went on, which was visible, by means of the leaves contained in it, for a very great height above the trees. Many of the leaves, as they got loose from the upper and widest part, were scattered in the wind; but so great was their height in the air, that they appeared no bigger than flies. My son, who was, by this time, come up with me, followed the whirlwind till it left the woods, and crossed an old tobacco-field, where, finding neither dust nor leaves to take up, it gradually became invisible below as it went away over that field. The course of the general wind then blowing was along with us as we travelled, and the progressive motion of the whirlwind was in a direction nearly opposite, though it did not keep a strait line, nor was its

progressive motion uniform, it making little sallies on either hand as it went, proceeding sometimes faster, and sometimes slower, and seeming sometimes for a few seconds almost stationary, then starting forwards pretty fast again. When we rejoined the company, they were admiring the vast height of the leaves, now brought by the common wind, over our heads.

THE STORM CHASERS

NORMAN, Oklahoma (Achieve3000, July 30, 2010). The vans are a jet-flash of white paint as they streak down the highway. They're not ambulances. They're not police. But they *are* reacting to the worst that nature can dish out. They're "storm chasers," part of a rising number of tornado paparazzi. Some fear these storm chasers are putting themselves and others in harm's way in their attempt to intercept twisters.

On this day, a caravan of storm chasers is following a supercell in far western Oklahoma. The supercell reportedly has the potential to spit out an "EF2." This is a strong tornado on the Enhanced Fujita scale. The scale rates the strength of storms on a scale of 0 to 5, based on wind damage. At noon, the anticipation among the trackers is palpable. Yesterday, the skies produced more than two dozen twisters. The group chatters excitedly about the likelihood of a repeat performance.

"Tornado Alley" is a region of the central U.S. that experiences a high number of twisters. Highways in this area are increasingly choked with storm chasers. They try to beat one another in a risky race to capture the fast-whirling winds on tape. Fifteen years ago, the estimated number of storm chasers totaled just a few hundred. But that number has grown. Today, any one storm could have as many as 15 to 30 cars following it. Longtime twister fans estimate the total number of storm chasers in the thousands, if not tens of thousands.

"It's become a much bigger thing," said Harold Brooks. Brooks is a meteorologist at the Severe Storms Laboratory in Norman, Oklahoma.

The storm chasers' motivations differ. Some are scientists hoping to better understand tornadoes. Others are tour guides. They are paid thousands of dollars to help adventure lovers witness a display of nature's fury firsthand. Most chasers, however, are thrill-seekers armed with little more than a cell phone or camera. The lucky ones might succeed in capturing a photograph or video. They may be able to sell these to a TV station or magazine for $50 to $100. But for many, storm chasing is mostly about the ride.

Every tornado season since 1997, Florida citizen Chris Kridler has grabbed her video camera and hit the road for Tornado Alley. She's noticed the increase in the number of storm chasers. It worries her. In Kridler's eyes, the pastime has become dangerous. It is attracting inexperienced trackers who are poorly equipped to handle powerful weather. They tend to take risks that experienced trackers wouldn't dare.

"[They think], 'I've got to drive into the tornado,'" Kridler said. "Someone's going to get killed."

Other observers worry that the caravans might interfere with emergency workers who are attempting to respond to a disaster. They also fear that storm chasers will get in the way of scientists who are trying to track a storm.

"There's so many chasers, it's difficult to get where you need to go, and that can be a problem," said Greg Forbes. Forbes is a severe weather expert at The Weather Channel. He's spoken to many scientists who have run into a mob of chasers that have gotten in the way, ruining a chance to track a storm. "What if a tornado hits something, and there are so many cars around? It makes it difficult for emergency managers to do their jobs."

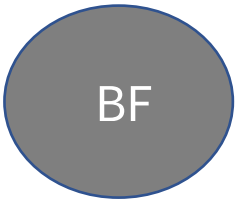
But on this day, the only concern among the chasers is whether the EF2 will show or not.

It's now a little before 4 p.m. The tornado paparazzi are regrouping in a town along the interstate. They're hopeful that the EF2 will soon take shape. Among them is Daniel Shaw. He travels from Australia to the U.S. to chase storms.

"There's something about America and its storm systems that just produce these monsters," Shaw said. "What you have here is truly [amazing]."

At 5:18 p.m., the storm chasers race toward the darkest part of the sky. But within minutes it's apparent that the hoped-for EF2 isn't going to appear. The once-menacing clouds quickly fade. No tornado today.

It's likely, though, that the next time the weather even hints at a tornado, the storm chasers will return to the chase.



Ben Franklin

VOCABULARY

THEN	NOW

ALL ABOUT BEN

Adjective	Explanation	Evidence
fearful	**He was worried about what people thought.**	"He stood in a nearby shed. Franklin was afraid people might laugh at him, so he only took his son with him to help with the experiment."

ANALYZING PRIMARY SOURCES

"Primary Sources: **From Benjamin Franklin to Peter Collinson, 25 August 1755"**

Examine: What do you see?
What details do you notice in this source? What is interesting?
Is there something you don't understand?

Question: What other information do you need to understand this source? What questions do you have for further research?

Think: What can you infer from this document? Who made it and when? Is it neutral and biased?

Draw Conclusions: Based on your background knowledge and the details in this document, what conclusions can you draw about its historical period and scientific investigation?

Franklin & Son Timeline Rubric

You will create a timeline based on the informational texts you have read as well as research about the relationship between Ben Franklin and his son. Please be sure that you have 9 events for full credit. Be as creative as you can and add pictures for at least 4 events.

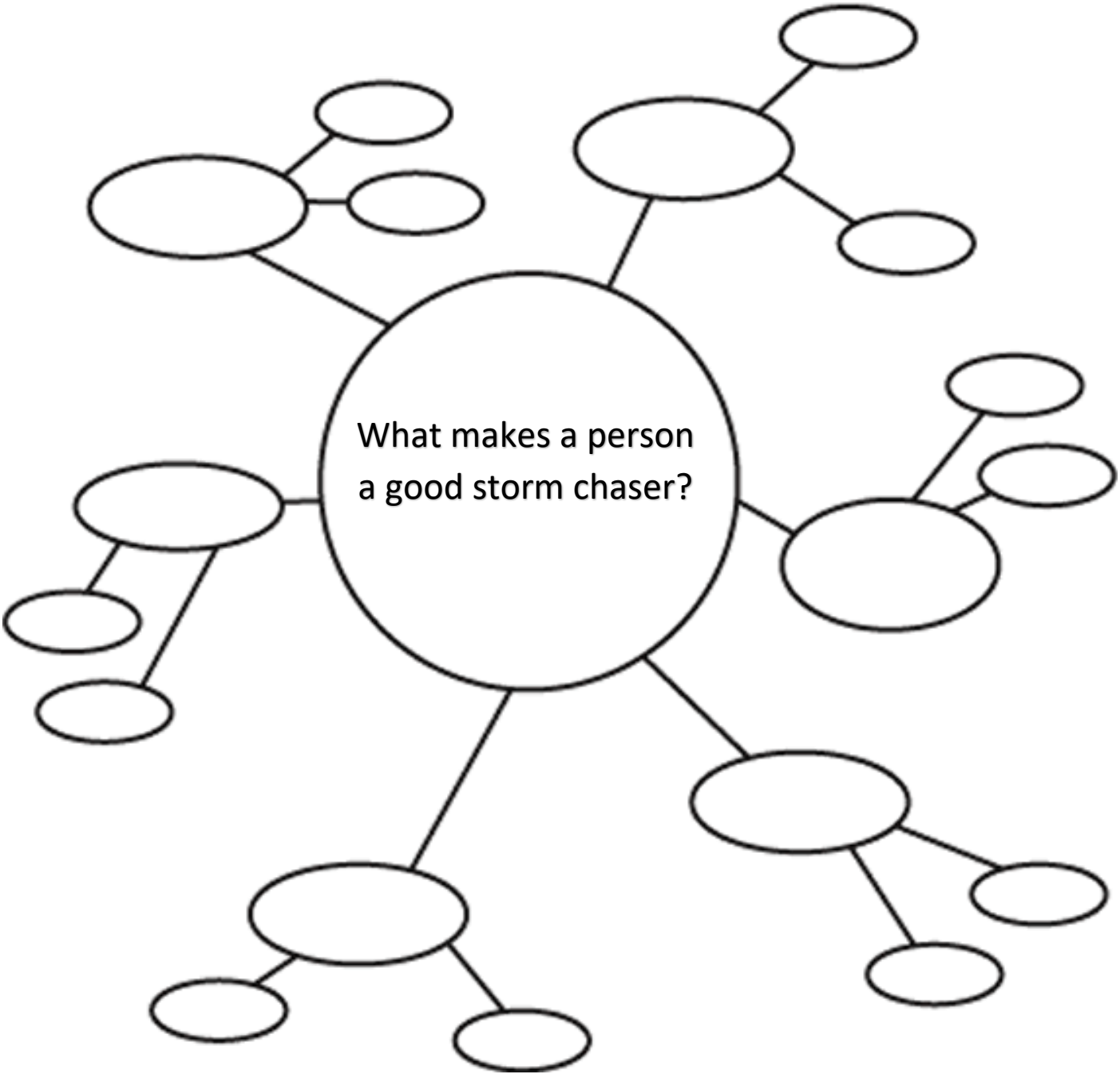
Item	Points	Complete	Notes
8 events (4 points each)	32		
1-2 sentences of valid research for each event (3 points each)	24		
Neatness	10		
At least 4 pictures (2 point each)	8		
Creativity	10		
PREPARATION AND PRESENTATION STYLE	16		

CLAIM REASON EVIDENCE CHART

What do you know?	*How do you know that?*	*Why do you know that?*
Claim	**Reason(s)**	**Evidence**

Characteristics (and examples of) Storm Chasers

Mind Map



Narrative Writing Rubric

Score	Organization	Elaboration of Evidence	Language and Vocabulary	Conventions
4 Proficient	☒ Organizes a clear sequence of events that unfolds naturally. ☒ Uses a variety of transition words and phrases to manage the sequence of events. ☒ Provides a conclusion that follows from the experiences or events.	☒ Uses descriptions of actions, thoughts, and feelings to develop experiences and events. ☒ Uses dialogue to develop character and plot.	☒ Uses correct and varied sentence structures. ☒ Uses strong, grade-level appropriate word choice.	☒ Demonstrates command of grade-level conventions; errors are minor and do not interfere with understanding of the text.
3 Approaching	☒ Attempts to organize a clear sequence of events that unfolds naturally. ☒ Attempts to use a variety of transition words and phrases to manage the sequence of events. ☒ Attempts to provide a conclusion that follows from the experiences or events.	☒Attempts to use descriptions of actions, thoughts, and feelings to develop experiences and events. ☒Attempts to use dialogue to develop character and plot.	☒Uses correct and varied sentence structures most of the time. ☒Uses strong, grade-level appropriate word choice most of the time.	☒ Uses grade-level appropriate conventions most of the time; errors do not interfere with understanding of the text
2 Below	☒Organizes a sequence of events that unfolds somewhat unnaturally. ☒ Uses some transition words and phrases to manage the sequence of events. ☒Provides a limited conclusion that follows from the experiences or events.	☒ Uses some descriptions of actions, thoughts, and feelings to develop experiences and events. ☒Uses some dialogue to develop character and plot.	☒Uses correct and varied sentence structures some of the time. ☒Uses strong, grade-level appropriate word choice some of the time.	☒ Uses grade-level appropriate conventions some of the time; some errors interfere with understanding of the text.

Rubric for Website/Program Infomercial

	4	3	2	1
Oral Presentation	Was able to clearly explain invention and how it works. Answered all of the following: •How individual came up with the idea. •How it would be made. •How the website/program is used and why it is useful.	Was mostly able to explain invention and how it works. Answered all of the following: •How individual came up with the idea. •How it would be made. •How the website/program is used and why it is useful.	Was partially able to explain invention and how it works. Answered 2 out of 3: •How individual came up with the idea. •How it would be made. •How the website/program is used and why it is useful.	Was not able to explain invention and how it works. Answered 1 or none: •How individual came up with the idea. •How it would be made. •How the website/program is used and why it is useful.
Commercial Appeal	•This is the equivalent of a TV commercial, informative and persuasive. •Themes are clearly used and demands consumer action.	•Skit is very persuasive. •Lacks a clear theme.	•Skit is well done but lacks persuasion of buying your invention.	•Skit is not persuasive at all. •No themes are taken advantage of.
Product Information	•Information about website/program is plentiful. •Information is useful and presented creatively. •Included logo and jingle.	•A lot of information is given about website/program. •Not creative enough. •Included logo and jingle.	•Some information about website/program is given. •Not very unique. •Included either the logo or jingle but not both.	•No real information about website/program is given. •Included neither the logo or the jingle.
Invention Model	•Shows great effort, thought and creativity.	•Shows much effort, thought and creativity.	•Shows some effort, thought and creativity.	•Shows little effort, thought and creativity.