Grade/Unit #	5
Lesson #	5.3.2
Objectives:	❖ Students will be able to compare two real-life situations using text evidence. ❖ Students will be able to write clear topic sentences that address a multi-part prompt in one or two sentences.
Target Task:	**How were Squyers' mission proposals different from previous missions to Mars? What problem was he trying to solve with his proposals?**
Standards:	❖ **RI.5.2** – Determine one or more main ideas of a text paragraph in a text, or section of a text, and explain how they are supported by key details; summarize a text. ❖ **RI.5.3** — 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. ❖ **RI.5.8** — Authors use a variety of reasons and evidence to support their points. The type of evidence an author uses depends on the author's purpose.
Materials:	❖ **Book:** *The Mighty Mars Rovers: The Incredible Adventures of Spirit and Opportunity* by Elizabeth Rusch (HMH Books for Young Readers; Reprint edition, 2017) — 950L - PDF **(Pages 8-13)** ❖ **Optional Video:** Viking: Mars Trailblazer Landing ❖ **5th ELA - Unit 3 - Knowledge Tracker** ❖ ELA 5.3.2 - 5.3.6 - Fluency Passage: Exploring Mars - 133 WPM Goal ❖ ELA 5.3.2 - Lesson Slides ❖ ELA 5.3.2 - Student Packet ❖ ELA 5.3.2 - Target Task *OPTIONAL to extend into full SPPO and response* ❖ ELA 5.3.2 - Lifework
Vocabulary:	**Text-Based:** devoted, geologist, longed, proposal **Literary:** topic sentence, coordinating conjunction, compound sentence (review)
Lesson Summary:	In this lesson, the class opens with a brief review of the mission's principal goal: to find signs of water that could have supported microscopic life. The teacher then sets a purpose for reading by explaining the author's unique narrative perspective and introducing the Comparison Matrix students will use to track how Squyres' proposals differ from earlier efforts. Students listen to a teacher read-aloud of pages 8–12, discuss key comprehension questions, examine the author's craft features, and model notes in the matrix. They then read pages 12–13 independently, adding evidence about Squyres' mission before participating in a guided discussion comparing tools, goals, and the problems Squyres aimed to solve. The lesson concludes with a mini-lesson on writing topic sentences for multi-part prompts, where students practice generating both two-sentence and compound-sentence options.
Lifework:	Students will read a selection from "Space Exploration" from Reading A-Z about orbiters, landers, and rovers, and explain which Steve Squyers wanted to use in his proposal and how they know.

Lesson Flow	Teacher Action/ Dialogue	Student Action/ Ideal Response
Fluency (7 min)	• **SAY:** Before we jump into our lesson for today, we will get a fluency passage called **Exploring Mars** to help us practice our reading fluency. We will keep this in the front pocket of our binder (or at the front of it) so we can find it quickly each day. (Slide 3) • **SAY:** As this is our first day reading this passage, I will model reading the entire text to show what fluent reading sounds like. Listen and follow along with your finger while I read.	

Lesson Flow	Teacher Action/ Dialogue	Student Action/ Ideal Response
	● **SAY:** Before we start our new fluency passage, I would like you to set a goal for yourself and your fluent reading this week. You can write your goal out using one word at the bottom of your new fluency passage. (Slide 4) ○ **Speed -** A 5th grader in January should be reading around 133 wpm to read fluently - to reach this goal, you will need to hit the word "...volcano in **the**…" at the beginning of the 3rd paragraph. If you don't reach this point in the text today, your goal should be your reading speed. ○ **Phrasing** means you are grouping words meaningfully and reading them together quickly to make your reading flow smoothly (ex, In - a - hurry vs. In a hurry). However, this also means you are pausing appropriately at punctuation marks and conjunctions. ○ **Expression—**This refers to the tone and volume of your voice as you read. You should be able to match your expression and volume to the tone and mood of the passage you are reading, using different voices for characters (if applicable) and making the passage "come alive." ● **SAY:** Now it is your turn! As a reminder, one person will be partner A, and the other will be partner B. Partner A will read first for one minute and mark where they reach in the text. Next, Partner B will do the same, reading their text for one minute and marking their stopping point. Marking down where you stop reading will help you set goals for your fluent reading growth on other days. Partner A will start. (Slide 5) ● **DO:** Use the 1-minute slide or your classroom timer to allow partners A and B to read for one minute and mark where they ended. ● **SAY:** Great job! The more we do this routine every day, the more fluently we will read. You will see your growth and progress toward the goal you set for yourself this week.	
Building Background Knowledge/ Engagement (5 min)	**DO NOW (5 min):** ● **SAY:** Yesterday, we began reading our core text, *The Mighty Mars Rovers*, to learn more about this mission to Mars. After our discussion, we were able to solidify the first of two main goals for this mission. **TURN & TELL A PARTNER: What was the principal goal of the Mars Exploration Rover Mission?** **BONUS: Use amoebae and/ or microscopic in your answer!** (Slide 7) → **OPTIONAL KNOWLEDGE TRACKER SUPPORT:** This goal should have been clarified/ recorded on page 6 of the Knowledge Tracker yesterday. Offer this as a support to students if they need it, and take this opportunity to clarify any misconceptions about this first goal. ● **SAY:** Today, we will get the chance to read more of our core text to learn about the person who started this mission, and what inspired him to do so. By the end of the lesson, you will be able to answer the following question in writing: **How were Squyer's mission proposals different from previous missions to Mars? What problem was he trying to solve with his proposals?**	***Ideal Response:*** ● ***Principal** goal of the **rover** mission was to find signs/ evidence of water that could have supported **microscopic** life, like **amoebae**.*
Vocabulary (5 min)	● **SAY:** Today, we are going to add four new words to our Unit Vocabulary Glossary on page 10 of our Knowledge Tracker: devoted, geologist, longed, proposal **Routine (4 min):** ➢ **Word 1: devoted** *(de-vot-ed)* (Slide 9) ○ **Intro to the Word:** devoted (Teacher/ Student Call and Response 3x, Students can clap out syllables or put a hand under their chin to feel their jaw drop) ○ **Part of Speech:** adjective	

Lesson Flow	Teacher Action/ Dialogue	Student Action/ Ideal Response
	○ **Student Definition:** having strong loyalty, affection, or dedication to someone or something ○ **Everyday Use:** The boy was **devoted** to caring for his new puppy. ➢ **Word 2: geologist** *(ge-ol-o-gist)* (Slide 10) ○ **Intro to the Word:** geologist (Teacher/ Student Call and Response 3x, Students can clap out syllables or put a hand under their chin to feel their jaw drop) ○ **Part of Speech:** noun ○ **Student Definition:** a scientist who studies the surface of the Earth and what it is made of ○ **Everyday Use:** The **geologist** carefully examined the soil at the bottom of the canyon. **ASK:** In Word Study Cycle 5, we studied the meaning of the suffix -ology. **How does this connect with what a geologist does?** *(-logy means the study of, ologist is a person who studies something → like a geologist studies the surface of Earth/ what it is made up of)* **What do you think might be the name for the scientific field that studies the surface of the Earth and what it is made of? HINT: A zoologist studies zoology** *(A Geologist studies geology)* ➢ **Word 3: longed** (Slide 11) ○ **Intro to the Word:** longed (Teacher/ Student Call and Response 3x, Students can clap out syllables or put a hand under their chin to feel their jaw drop) ○ **Part of Speech:** verb ○ **Student Definition:** something greatly desired or wanted very much ○ **Everyday Use:** While away from home in the summer, Hector **longed** for his mother's cooking. ➢ **Word 4: proposal** *(pro-po-sal)* (Slide 12) ○ **Intro to the Word:** proposal (Teacher/ Student Call and Response 3x, Students can clap out syllables or put a hand under their chin to feel their jaw drop) ○ **Part of Speech:** noun ○ **Student Definition:** a suggestion, plan, or offer that is put forward for consideration ○ **Everyday Use:** The school put in a **proposal** with the city for a new playground space.	
Engaging with The Text (24 min)	**Set a Purpose (1 min):** ● **SAY:** Before reading the first chapter of our core text, *The Mighty Mars Rovers*, I want you to know that the author writes from a different perspective than other informational texts you have read this year (like *Kids of Kabul* or *I Am Malala*). To engage the reader, the author writes from the perspective of the program lead, Steve Squyres. The author includes Steve's feelings, thoughts, and conversations with others. This helps the reader feel directly connected to Steve and his mission. (Slide 14) ● **SAY:** We are going to have the opportunity today to learn more about past missions to Mars and how Squyres' mission was different. To help us organize our thoughts, we are going to use a Comparison Matrix to compare them. (Slide 15) **Teacher Read-Aloud (13 min):** ● **SAY:** We are going to start by reading the first part of this chapter together, from pages 8-12 (to break in the left column). Listen and follow along as I read. → **Ask as many or as few of the discussion questions below as**	

Lesson Flow	Teacher Action/ Dialogue	Student Action/ Ideal Response
	needed to ensure comprehension of important ideas from the text: ○ **Pg. 10-12 - Describe scientists' initial efforts to explore Mars. Were the missions successful? Why or why not?** ■ *"At the time of the first moonwalk.." (Pg. 10)* ■ *"While Steve was finishing up high school…" (pg. 10)* ■ *"Then in 1976, the United States successfully landed…" (pg. 10)* ■ *"The Viking Landers couldn't…" (pg. 12)* → **OPTIONAL VIDEO: (3 min)** Show the video Viking: Mars Trailblazer from NASA that shows the Viking landing on Mars. (Slide 16)	***Ideal Response:*** ● *The Mariner 9 circled Mars and took pictures of Mars' "huge canyons and empty channels." (10)* ● *The failed attempts from Russia and other countries to send a lander (10)* ● *The United States' successful attempt to land the Viking 1 and Viking 2 on Mars in 1976. But they couldn't move around. (12)*
	○ **Pg. 10 - 12: In this section, how did Elizabeth Rusch (the author) help the reader understand previous missions to Mars and Sqyures' perspective of these missions?** (Slide 17) → **AUTHOR'S CRAFT HIGHLIGHTS:** ■ **Photographs and captions** → visualize and understand what other missions accomplished**.** (pg. 10, top left) ■ **Personal anecdotes/ photos from Sqyures** → his childhood watching the missions/ interest in space (8), interest in being a geologist/ space explorer (10) ■ **Direct quotations from Squyres** → show exactly what he was thinking and feeling. ■ **Words in italics** → add extra emphasis to key ideas. (10, 12)	● ***Answers will vary****: MANY photographs of Mars gathered by other Mars missions and captions explaining what they showed, told stories about Sqyures' childhood (and how he watched these missions unfold), and his passion to be a geologist/ space explorer, direct quotations from Sqyure about the other missions and how they inspired him/ he wanted to improve them.*
	● **ASK:** Now that we have read a little more about the previous missions that served as Squyres' inspiration, let's STOP & JOT in our Comparison Matrix**. What tools did previous missions to Mars use?** → **INCIDENTAL VOCABULARY - LANDER:** Highlight the in-text definition of a lander (rocketed machines) on page 10 and click to reveal the image of a Viking Lander on (Animated Slide 17). → **TEACHER MODELS NOTES:** Fill out the top left box of the Comparison Matrix with brief, paraphrased notes about the missions and their tools as students suggest them.	● *Mariner 9: spacecraft, cameras (10)* ● *Russia/ Other Countries: landers (rocketed machines) (10)* ● *Viking 1 & 2: cameras (11), landers (11 caption, 12)* → ***STUDENT NOTES***
	● **ASK: What can we infer were the overall goals of these previous Mars missions?** → **TEACHER MODELS NOTES:** Fill out the bottom left box of the Comparison Matrix with brief, paraphrased notes about the missions and their goals as students suggest them.	● *Mariner 9 - make it to/ orbit Mars, take pictures (10)* ● *Russia/ Other Countries - put a lander on Mars (10)* ● *Viking 1 & 2 - landers on Mars to take photos (11-12)* → ***STUDENT NOTES***
	Plan for Reading (10 min): ● Students will read pages 12 - 13 independently, taking notes about Sqyure's Mission in the Comparison Matrix after reading (Slide 18) ● The teacher will circulate to support striving readers and find students who STOP & JOT information to respond to this question.	

<table>
<tr><th>Lesson Flow</th><th>Teacher Action/ Dialogue</th><th>Student Action/ Ideal Response</th></tr>
<tr><td></td><td>

NOTE: Students DO NOT need all of this evidence, but it is a great conversation starter for the discussion; note a few different students to share.

<u>Check for Understanding:</u>
<table>
<tr><th>Paraphrased Evidence</th><th>Warm Call</th></tr>
<tr><td>Tools:
panoramic camera (12)
1998 - panoramic camera, camera to look down on landing, spectrometer (tool to see what is in soil), close-up camera, weather measuring tool (12)
Rover w/ instruments ("rolling geologist"w/ hammer, drills, tools), rocket, spacecraft (12)
Goals:
New, different pictures of Mars (panoramic, point down when landing) (12)
Study the surface of Mars like a geologist would (12, 13)</td><td></td></tr>
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<tr><td>Building Deeper Meaning (35 min)</td><td>
<u>Discussion (15 min):</u>

DO: Lead students in a discussion to compare Squyres' mission proposals to other missions to Mars and the problems he was trying to solve. Use the formative notes from Engaging with the Text as a resource to help drive the discussion. Work with students to arrive at the fact that Sqyures was inspired to learn more about the surface of Mars after seeing previous mission photographs, but to do this, he needed to use a new tool - a rover - to help move around Mars and use instruments to study the rocks and soil the way a geologist would study Mars' surface. The teacher can record information on the right-hand side of the Comparison Matrix, and students can refine/ revise their STOP & JOTS as we discuss. <u>(Slide 20)</u>

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ASK: How were Squyres' mission proposals different from previous missions to Mars? What problem was he trying to solve with his proposals?
<u>→ KEY POINTS to Discuss/ Note:</u>

Other missions circled Mars from above, like Mariner 9, to take pictures (pg. 10) → Steve wanted to get right on Mars and take pictures from there as they were landing and up close (pg. 12)
Other missions tried to get landers on Mars to explore the different features of the planet, but most did not land successfully (pg. 10) and when they did w/ Viking 1 and 2, they couldn't move around - just photos (pg. 12) → Steve wants to explore the geology of Mars (pg. 11) but he couldn't send a human (pg. 13), so he sent a robot rover that would be like a "rolling geologist" (pg. 13) - See text feature on page 13 also.
Other missions seemed to only want to take photos of Mars → Steve also wanted to send different tools on the landers to find out new information (like a spectrometer to figure out what is in the soil, and a tool for measuring weather) (pg.11)

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Lesson Flow	Teacher Action/ Dialogue	Student Action/ Ideal Response
	Target Task: Topic Sentence Mini Lesson (10 min): ● **SAY:** Our Target Task today is: **How were Squyres' mission proposals different from previous missions to Mars? What problem was he trying to solve with his proposals?** ● **SAY:** Today, you are going to be starting your SPPO off with a clear topic sentence that directly addresses BOTH parts of your prompt in the light green section. (Slide 21) To help us practice, we are going to look at a similar prompt that our reading answered today. ● **SAY:** Our reading answered another series of questions: Were there other missions to explore Mars? Were these missions successful? This prompt also has two parts (Animated Slide 22). We have some choices when responding to a prompt like this. We could have a two-sentence topic sentence, OR we can figure out how to answer the prompt with one compound sentence using what we have learned about coordinating conjunctions to address both points. ● **SAY:** If I wanted to respond with two separate, simple sentences, I could say: Many missions have tried to explore Mars. Some of the missions were successful and others were not (Animated Slide 22). However, if I wanted to respond to this prompt with a more sophisticated, compound sentence, I could say: There were several other missions to explore Mars, and some of these were successful (Animated Slide 22). Either of these ways fully addresses all parts of the prompt. ● **SAY:** Now, I want you to try our prompt today. See if you can write this topic sentence as two sentences that respond to both parts of the prompt. Then, see if you can write this topic sentence as one sentence, using a compound sentence with a coordinating conjunction. We will share afterwards. (Slide 23) → **RIGOR NOTE:** We anticipate that this may be challenging for students, and it is meant to prepare them for mastery with other multi-part prompts within the unit. ● **DO:** Allow students to discuss their topic sentences. For 5 – 7 minutes, lead students in a discussion of the topic sentences, showing strong 2 OR 1-sentence examples, arriving at the fact that all of the topic sentences are strong because they address the prompt clearly and completely. The point of today's lesson is to show that there can be multiple topic sentences for the same prompt as long as they fully address what is asked. → **OPTIONAL SCAFFOLD:** If students are having a challenging time generating two or one sentence options, you can show the sample sentences on (Slide 24) and discuss what makes them strong. You can color-code each part of the topic sentence with/ Expo markers to show the part of the prompt it corresponds to. ****OPTIONAL EXTENSION FOR EXTRA TIME**** ● **SAY:** Now that we have discussed how to write a topic sentence for our Target Task in several different ways, you can choose one and add it to	***Ideal Response*** ● *Student topic sentences will vary, but should address all parts of the prompt by briefly responding to each. For example:* ○ *The mission proposals Squyres wrote were very different from those of other Mars exploration missions. He wanted to solve a problem that they couldn't.* ○ *Squyres submitted multiple proposals to NASA to solve a problem that other Mars exploration missions couldn't.* ○ *Squyres' mission proposals differed from other Mars missions, and he solved the problem of testing Mars' geology.* ****OPTIONAL* Paragraph:*** *Squyres' mission proposals differed from other Mars missions, and he*

Lesson Flow	Teacher Action/ Dialogue	Student Action/ Ideal Response
	your SPPO. (Slide 25) ● **SAY:** During our discussion, we identified several strong pieces of evidence that showed how Squyres' mission proposals were different and what problems he tried to solve. I would like you to think about that evidence for the yellow section of your plan today. Remember, evidence should NOT be in complete sentences. Use the rest of the time we have to plan your SPPO, begin drafting your paragraph, and head into Google Classroom to find the assignment ELA 5.3.2 - Target Task. (Slide 26)	*solved the problem of testing Mars' geology. Though other Mars missions had taken pictures, Squyres wanted to bring different cameras to take photos as they landed and up close. Since people can't go to Mars, Squyres wanted to send a robot to study instead. He would use a rover that would be a rolling geologist that could study the surface of Mars. There were also different tools on the rover, like a spectrometer to identify what was in the soil and a weather-measuring tool. Steve Squyres submitted a proposal to NASA to study the surface of Mars with a rover.* → ***Color Coded Exemplar on (Slide 27)***
Closing (Optional)	**Share Out:** ● Students who have a clear topic sentence and articulate evidence discussed in class about Squyres' mission proposals and what problem he solved. **Conference:** ● Students who struggled to create a topic sentence (two or one sentences) to address a multi-part prompt. **Restate Purpose/ Objective:** ● Today, we continued our unit on *The Mighty Mars Rovers* by learning more about the project's leader, Steve Squyers, and how his mission proposals differed from previous missions to Mars because he wanted to use rovers to explore the planet's geology.	