



EXPEDITIONARY
LEARNING

Grade 5: Module 2B: Unit 1: Lesson 1

Building Background Knowledge: *Investigating the Scientific Method with Max Axiom Super Scientist*



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Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)

I can engage effectively in a range of collaborative discussions with diverse partners about fifth-grade topics and texts. (SL.5.1)

I can analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text. (RL.5.7)

I can recognize, interpret, and make connections in narratives, poetry, and drama to other texts, ideas, cultural perspectives, eras, personal events, and situations. (RL.5.11)

- a. I can self-select texts to develop personal preferences regarding favorite authors.
- b. I can use established criteria to categorize, select texts, and assess to make informed judgments about the quality of the pieces.

Supporting Learning Targets

- I can use group norms to locate and discuss the visual elements in the graphic novel *Max Axiom*.
- I can analyze the visual elements and splash page in *Max Axiom* to make predictions about the story.
- I can use established criteria to select a text for independent reading.

Ongoing Assessment

- Written prediction (in journal)
- Independent text selection
- Independent Reading Choice Board response



Agenda	Teaching Notes
<ol style="list-style-type: none"> 1. Opening <ol style="list-style-type: none"> A. Engaging the Reader: Infer the Topic Protocol (10 minutes) 2. Work Time <ol style="list-style-type: none"> A. Establishing Groups and Discussing Visual Elements of a Graphic Novel (25 minutes) B. Analyzing Visual Elements in <i>Max Axiom</i>: Making Predictions Based on the Splash Page (13 minutes) C. Introducing Text Selection Criteria and Independent Reading Options (7 minutes) 3. Closing and Assessment <ol style="list-style-type: none"> A. Debrief and Reviewing Learning Targets (5 minutes) 4. Homework <ol style="list-style-type: none"> A. Read your independent reading book for at least 30 minutes. Respond to one question on the Independent Reading Choice Board. Your response will be your entry task for Lesson 2. 	<ul style="list-style-type: none"> • The purpose of this first lesson is to build student engagement with the module topic: inventions that meet societal demands. The lesson also introduces students to specific visual elements found in the graphic novel <i>Investigating the Scientific Method with Max Axiom Super Scientist</i>, which students will read during the first half of this unit. • During the Opening, students are introduced to Infer the Topic protocol. The purpose of this activity is to allow them to collaborate with a variety of peers to make inferences and uncover meaning in one of the big ideas of this module, “New or improved technologies are developed to meet societal demands.” Help build excitement during this activity. • In advance: <ul style="list-style-type: none"> – Review Triad Talk norms (from Module 1, Unit 2, Lesson 2), which students do in groups of four in Work Time A. – Review and familiarize yourself with student directions for Infer the Topic protocol (different from the teacher directions) located in Appendix (see supporting materials). – Prepare artifacts for Infer the Topic protocol (see list of artifacts in supporting materials). – Please bear in mind that Youtube, social media video sites, and other website links may incorporate inappropriate content via comment banks and ads. While some lessons include these links as the most efficient means to view content in preparation for the lesson, be sure to preview links, and/or use a filter service, such as www.safeshare.tv, for actually viewing these links in the classroom. – Predetermine groups of four. Ideally, these are heterogeneous groups, where students work with different classmates than in Module 1. Post groups on chart paper to save time during the lesson. – Display the Triad Talk Norms anchor chart (from Module 1, Unit 2, Lesson 2), or create a new chart. – Familiarize yourself with <i>Investigating the Scientific Method with Max Axiom Super Scientist</i> and the visual elements that are found in a graphic novel (see Visual Elements of a Graphic Novel reference page in supporting materials). – Prepare a selection of independent reading book choices (see Recommended Texts list for this module). – Create Criteria for Selecting Texts anchor chart.



Lesson Vocabulary	Materials
technologies, societal needs, structure, visual elements, engage, support, complex, norms, locate, discuss, genre, graphic novel, analyze, splash page, predictions, established criteria, select, close-up image, scenes, sequentially, random, passage (of time), locations	<ul style="list-style-type: none">• Infer the Topic Protocol student directions (one to display)• Document camera• Infer the Topic note-catcher (one per student)• Artifacts (one per pair of students)• List of artifacts (for teacher reference)• Triad Talk Norms anchor chart (from Module 1, Unit 2, Lesson 2)• Journals (one per student)• <i>Investigating the Scientific Method with Max Axiom Super Scientist</i> (book; one per student)• Visual Elements of a Graphic Novel reference page (one per student)• Tape, glue, or staples (one per student)• Criteria for Selecting Texts anchor chart (new; teacher-created)• Independent Reading Choice Board (one per student)



Opening	Meeting Students' Needs
<p>A. Engaging the Reader: Infer the Topic Protocol (10 minutes)</p> <ul style="list-style-type: none"> • Gather students whole group. Say something like: “Today we are beginning a new module, and your job is to do some investigating so you can make an inference about what we will be studying. You are going to look at a variety of artifacts including pictures, headlines, quotes, and articles as you participate in Infer the Topic protocol with your peers.” • Display Infer the Topic Protocol student directions using the document camera. Read directions aloud and clarify as needed. • Distribute Infer the Topic note-catchers to each student. Have students pair up and distribute one of the artifacts that you previously prepared using the list of artifacts (for teacher reference) to each pair, then ask them to begin. Circulate to support. • After several minutes, pause and focus whole group on step 5 of the protocol. Cold call individuals to share out their inferences about the topic of the unit. Encourage students to explain specifically how evidence from their artifacts supports their inferences. Listen for ideas such as: <ul style="list-style-type: none"> – “I think we will be learning about inventors or inventions because some of our artifacts showed pictures of inventions.” – “I think we are learning about why inventions are important for the world because my artifact showed pictures of important inventions and my partner’s artifact says ‘Inventions that changed the world.’” – “I think the topic of this module is how inventions make life better because my artifact shows inventions that make it easier to cook and clean,” or similar suggestions. • After a handful of students share, say something like: “You identified a lot of important clues in those artifacts. Your investigatory skills have helped you infer that in this module we are studying inventions that have been developed to meet people’s needs. Let’s discuss the guiding questions that will help us focus as we learn more about this topic.” <ul style="list-style-type: none"> * “How do new or improved technologies meet societal needs?” * “How do authors structure text and use visual elements to engage and support readers’ understanding of complex ideas?” • Focus students on the first guiding question. Circle the terms technologies and societal needs. Ask students to think and then turn and talk about the meaning of these terms. • After 1 minute, invite a few students to share their ideas. Listen for: <ul style="list-style-type: none"> – “Technologies are new tools or inventions.” – “Societal needs are things that people or communities need,” or similar suggestions. 	<ul style="list-style-type: none"> • Display guiding questions to support all students, but especially visual learners. • Model the process of viewing an image and thinking of a hint. • Model the process of viewing an image and thinking of a story. • To support ELL students, consider modifying the prompt so students can give a clue by showing an action.



Opening (continued)	Meeting Students' Needs
<ul style="list-style-type: none">• Say something like: “We will continue to come back to the first guiding question throughout this module, but today we are going to focus primarily on the second question. Let’s take a closer look at that one now.” Ask for a volunteer to read the second guiding question aloud.• Circle the terms <i>structure</i>, <i>visual elements</i>, <i>engage</i>, <i>support</i>, and <i>complex</i>. Ask students to take a minute to consider these terms. Then, direct them to turn and talk about the meaning of each term.• After 1 or 2 minutes, invite several students to share their definitions with the class. Listen for:<ul style="list-style-type: none">– “Structure is the way something is built or put together in text.”– “Chapters, paragraphs, tables of contents, and indexes are part of the structure of a story.”– “Visual elements are what I can see in the book, such as pictures, colors, and text.”– “Engage means to get someone involved in or interested in.”– “Support means to help.”– “Complex means complicated or challenging; having many parts,” or similar suggestions. If students are unable to define key terms from the second guiding question, define for them.• After reviewing key vocabulary, ask students to consider how they could restate the second guiding question in their own words. Invite a few students to share their thinking whole group.• Remind students to keep this guiding question in mind as they begin exploring their new text, a graphic novel called <i>Investigating the Scientific Method with Max Axiom Super Scientist</i> by Donald B. Lemke. Explain that their analysis of this text will support their understanding of how structure and visual elements in a graphic novel help readers build knowledge and understanding about more complex ideas.	



Work Time	Meeting Students' Needs
<p>A. Establishing Groups and Discussing Visual Elements of a Graphic Novel (25 minutes)</p> <ul style="list-style-type: none"> • Say something like: “Throughout this unit, you will have an opportunity to collaborate with members of a small group as you read and analyze the text <i>Investigating the Scientific Method with Max Axiom Super Scientist</i>. Before we get started, let’s review the norms you used in Module 1 as you worked in triads.” Introduce the learning target: <ul style="list-style-type: none"> * “I can use group norms to locate and discuss the visual elements in the graphic novel <i>Max Axiom</i>.” • Circle the term <i>norms</i> and ask students to consider the meaning of this word. Invite students to share their definition with the class. Listen for: “Norms are expectations we have of everyone,” “ways we expect everyone to act,” or similar suggestions. • Display the Triad Talk Norms anchor chart (from Module 1). Ask students to Think-Pair-Share the norms that were most helpful for them as they worked in teams of three. • After 1–2 minutes, cold call several students to share out their thinking. Listen for ideas such as: <ul style="list-style-type: none"> – “I think the norm, ‘each person must contribute to the discussion, but take turns talking’ helped my group because we all got to share and listen to others’ ideas.” – “Asking questions like, ‘Would you like to add to my idea?’ or ‘Can you tell us what you’re thinking?’ helped my group because we were able to better understand our group members’ ideas.” – “For my group the norm, ‘each person should show the others specific details from the text, pointing to specific page numbers, paragraphs, and lines’ was helpful because we could see where our group members’ thinking came from,” or similar suggestions. • Tell students that the norms for a group of four are no different and they will continue to follow these norms as they work with their new group members. Draw a line through the words “Triad Talk” and above them write the word “Group” so the chart is now labeled “Group Norms.” Leave displayed for student reference throughout this module. • Place students in their predetermined groups of four and tell them they will remain in these groups throughout the unit. • Then, distribute one journal and the book <i>Investigating the Scientific Method with Max Axiom Super Scientist</i> to each student. Give students a moment to examine the text, then ask: <ul style="list-style-type: none"> * “What do you notice about this new text?” 	<ul style="list-style-type: none"> • Display the learning target for student reference. • Consider creating an anchor chart that includes a pictorial example of each visual element. • Many of the descriptions of visual elements contain high leverage vocabulary terms. Consider discussing and defining additional vocabulary or keeping a word wall associated with this module. Some terms that may be valuable to discuss further include: dialogue, type, equipment, displays, and documents.



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none"> • Listen for students to make comments about the structure, images, and graphics found in the text such as: <ul style="list-style-type: none"> – “It looks like a comic book because it has boxes with characters and action.” – “I notice there is a table of contents.” – “There are four sections, each with a different title.” – “There is a glossary in the back.” – “I notice there are speech bubbles.” • Say something like: “This is an exciting new <i>genre</i> called a <i>graphic novel</i>. Graphic novels are stories presented in a style that is similar to a comic book. While graphic novels are considered literature, this particular graphic novel contains real information that is meant to help us understand the scientific method.” • Ask students to discuss similarities and differences between how <i>Max Axiom</i> and <i>Esperanza Rising</i> are structured. • After 2–3 minutes, cold call students from each group to share out a similarity or difference they noticed. Listen for: <ul style="list-style-type: none"> – “<i>Esperanza Rising</i> has chapters, and <i>Max Axiom</i> is similar because it has sections.” – “<i>Max Axiom</i> has a table of contents.” – “<i>Esperanza Rising</i> is mostly text, no pictures, whereas <i>Max Axiom</i> has a lot of images.” • Tell students that while graphic novels are similar to other novels in many ways, one distinct difference is how they use visual elements to communicate a significant part of the story. Throughout the first part of this unit, they are learning about how visual elements support their understanding of the information presented in the text. Refer back to the learning target, <ul style="list-style-type: none"> * “I can use group norms to locate and discuss the visual elements in the graphic novel <i>Max Axiom</i>.” • Underline the terms <i>locate and discuss</i>. Invite a few students to restate the target in their own words. • Distribute the Visual Elements of a Graphic Novel reference page and ask students to tape, glue, or staple it onto the first blank page in their journals. Tell students the reference page can help them understand the specific types of visual elements found in a graphic novel because it names and defines each one. Explain that many terms may be new to them, and their definitions may also contain new vocabulary. Reassure students that they will get to continue building their understanding about each element as they analyze <i>Max Axiom</i> more closely in future lessons. 	



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none">• Ask students to follow along silently as you read the description for the first visual element, the <i>splash page</i>, aloud.• Then, draw students' attention to the phrase <i>close-up image</i>. Ask them to quickly think about and discuss what they believe a close-up image is. Invite a few students to share out their definitions whole group. Listen for:<ul style="list-style-type: none">– “A picture that zooms in on one part of an object or person to make it look really big,” or similar ideas.• Direct students to work with their group members to find the splash page. Remind them that they can use their reference sheets for support.• Give students 1 minute to discuss. Then, ask them to hold up and point to the splash page.• Call on a few students to explain how they identified the splash page. Listen for:<ul style="list-style-type: none">– “Pages 4 and 5 are the first two pages and they grab your attention.”– “I noticed the eye on page 4 is a close-up image,” and similar ideas.• Focus students' attention on the definition of frames/panels. Ask students to follow along silently as you read the definition aloud.• Have students locate and circle the terms <i>scenes</i>, <i>sequentially</i>, and <i>random</i> in the definition.• Direct students to think about then discuss in groups the meaning of each term they circled.• Invite several students to share out their thinking whole group. Listen for:<ul style="list-style-type: none">– “Scenes are where the action takes place.”– “Sequentially means in time order, like first, next, and last.”– “Random means they jump around instead of being in sequential order,” or similar suggestions.• Say something like: “Let’s take a moment to consider the frames or panels on the splash page. The format of a graphic novel is different from the format of other types of novels. As we just read, the frames or panels in a graphic novel contain each of the scenes. Notice that some frames are larger than others, and that the panels on page 4 are organized differently than those on page 5. The author of a graphic novel often uses frame size and location to draw your attention to important ideas. As I read aloud, pay attention to the order the author intends for this book to be read. This will help you read the rest of this graphic novel independently, as well as other graphic novels you choose to read in the future.”	



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none">• Read pages 4 and 5 of <i>Max Axiom</i> aloud as students read along silently, starting with the Section 1 heading “A World of Questions.” Read top to bottom and left to right. Then come back to the “Definition of ‘Levee’” and “Steps of the Scientific Method” insets last. Make sure to point out to students the order in which you read each frame.• Give students a minute to think about then discuss in groups:<ul style="list-style-type: none">– “What did you notice about the order in which the frames were read?”• Cold call a few students to share what they discussed. If students do not name the sequencing strategies you highlighted while reading aloud, bring them to their attention. Note the first frame on page 5, which takes up the first vertical half of the page. Say something like: “Authors intend for us to read larger frames from top to bottom before moving right.”• Refocus students’ attention on their reference sheets. Ask them to read aloud with you the definition of “gutters.” Ask students to consider the meaning of the terms <i>passage</i> and <i>location</i> in this description.• Invite a few students to share possible definitions for the word passage as it is used here. Listen for:<ul style="list-style-type: none">– “Passage means something that moves past, or when time goes by.”– “Location is a place,” or similar suggestions.• Have students locate and discuss the gutters on the splash page. Remind them to consult their reference sheets.• After 1 minute, ask students to hold up and point to the gutters they found. Invite a few students to explain how they identified the gutters. Listen for:<ul style="list-style-type: none">– “This part is the white space between the frames.”– “This gutter moves the action from the laboratory to the motorcycle,” or similar examples.• Refocus students’ attention on their reference sheets and ask them to read aloud with you the definition of “ambient sounds.”• Give students a moment to point to an example of an ambient sound on the splash page (“BEEP!” on page 4).• Ask students to read the definition for “thought bubbles/speech bubbles” aloud with you. Clarify as needed.• Direct students to locate and discuss examples of thought bubbles and speech bubbles from the splash page.• After 1 minute, call on a few students to explain how their group identified the difference between thought bubbles and speech bubbles. Listen for: “We saw that when the mayor was talking, there was a text bubble coming from her mouth”; “We noticed on page 5 that when Max is thinking, the bubbles aren’t connected to his mouth,” or similar suggestions.	



Work Time (continued)	Meeting Students' Needs
<ul style="list-style-type: none"> • Have students read the description for “font size, color, style” aloud with you. Define terms from the description as needed. Ask students to discuss with group members what they notice about the font size, color, and style of words on the splash page. • After 1 minute, call on a few students to share what their groups noticed about the font. Listen for: <ul style="list-style-type: none"> – “We noticed that the font looks more like handwriting than the font in most novels.” – “We noticed that text in the speech bubbles is black, but in the information boxes it’s white and yellow,” and similar ideas. • Ask students to read aloud with you the description of “images/photos.” Provide clarification as needed. • Have students locate and discuss one image from the splash page they feel relays important details about the story. Remind students to focus only on the details they can learn from the images, not the text. • After 1 minute, invite a few students to share which image they chose and why. Listen for students to highlight details from the images, such as the worried reflection of the mayor’s face in Max’s sunglasses, the sense of action in the last frame, the zoomed-in tablet showing steps of the scientific method, or the concerned look in the close-up image of the mayor’s eye. • Ask students to read the description of “colors” aloud with you. Clarify as needed. Direct students to make observations about and discuss the colors used in <i>Max Axiom</i>. • After 1 minute, cold call a few students to share their observations. Listen for: <ul style="list-style-type: none"> – “We noticed that the colors are very bold.” – “We noticed that the primary colors red, yellow, and blue are used a lot,” or other ideas. • Direct students to read the description of “diagrams/information boxes” with you, then locate and discuss a diagram or information box from the splash page with group members. • After 1 minute, call on a few students to explain how they located the diagram or information box. Listen for students to identify the changes in color and frame around the information box that provides a definition for “levee.” • Then say something like: “As we read this graphic novel more closely, consider how visual elements contribute to the meaning of the text both individually and together. During the next part of Work Time, your group will have the opportunity to analyze visual elements and closely read the splash page in order to make predictions about the story <i>Investigating the Scientific Method with Max Axiom Super Scientist</i>.” 	



Work Time (continued)	Meeting Students' Needs
<p>B. Analyzing Visual Elements in Max Axiom: Making Predictions Based on the Splash Page (13 minutes)</p> <ul style="list-style-type: none"> • Introduce the learning target: <ul style="list-style-type: none"> * “I can analyze the visual elements and splash page in <i>Max Axiom</i> to make predictions about the story.” • Ask students: <ul style="list-style-type: none"> * “What words in this learning target stand out to you as being powerful?” • Listen for students to name the terms <i>analyze</i> and <i>predictions</i>, as well as “visual elements” and “splash page,” which were previously discussed. If students don’t name these terms, bring them to their attention. Underline all four terms. • Ask students to discuss their thoughts about the meaning of the terms “analyze” and “predictions” with group members. • After 1 minute, invite several students to share their thinking aloud. Listen for: <ul style="list-style-type: none"> – “Analyze means to examine closely, study deeply, evaluate, consider, explore.” – “Predictions are guesses, or what you think will happen based on evidence,” or similar suggestions. • Invite a few students to restate the learning target in their own words. • Then, refocus students’ attention on pages 4 and 5 of <i>Max Axiom</i>, the splash page. Have students reread these pages in groups, either aloud together or by alternating frames. • Allow students 5 or 6 minutes to reread and discuss in groups: <ul style="list-style-type: none"> * “Based on the splash page, what do you predict this story will be about?” * “How do visual elements found on the splash page support your prediction?” • After students complete their analysis and discussion, invite members from each group to share out their predictions. Ask students to explain how the text and visual elements found on the splash page supports their prediction. Listen for: <ul style="list-style-type: none"> – “I think the story will be about Max Axiom solving a problem because the panels on the splash page show a woman who is calling Max Axiom for help.” – “I think the story will be about Max Axiom using the scientific method to solve a problem about a levee because in the biggest frame there is an information box about the term levee and Max is saying that scientists use the scientific method to solve problems,” or similar suggestions. • Ask students to turn to a new page in their journals to record a prediction about the story. 	<ul style="list-style-type: none"> • Display the learning target for student reference. • As students begin using visual elements on the splash page to make predictions, consider giving them 1 minute to silently review the questions and analyze the pages followed by 3 to 4 minutes of group discussion. • To support learners, display all discussion questions for student reference.



Work Time (continued)	Meeting Students' Needs
<p>C. Introducing Text Selection Criteria and Independent Reading Options (7 minutes)</p> <ul style="list-style-type: none"> • Tell students that today they will be choosing an independent reading book for homework throughout this unit. • Read the final learning target aloud: <ul style="list-style-type: none"> * “I can use established criteria to select a text for independent reading.” • Remind students that to become better readers and writers, it is important to read a variety of books with just the right level of challenge. Explain that the more students read, the more they will be able to learn about the fascinating world they live in. • Display the Criteria for Selecting Texts anchor chart. Read each of the criteria aloud and provide clarification as needed. Then, ask students to consider the criteria as they choose a book to read independently. • Give students 5 minutes to choose a book. If any students are unable to choose a book in the time allotted, find other times during the day for them to review the Independent Reading Choice Board and select a text. 	<ul style="list-style-type: none"> • Consider modeling how to use each of the criteria to select an independent reading book.
Closing and Assessment	Meeting Students' Needs
<p>A. Debrief and Reviewing Learning Targets (5 minutes)</p> <ul style="list-style-type: none"> • Have students read the learning targets aloud. Ask students to turn and talk: <ul style="list-style-type: none"> – “Share your prediction about Max Axiom and explain which visual elements helped you make your prediction.” – “Explain which group norms helped you in your work today.” • After 2 minutes, refocus whole class. Cold call a few students to share which visual elements helped them make a prediction or which norms helped them in their work today. • Ask students to use the Fist to Five protocol to demonstrate their mastery of each of the learning targets. Note students who show a three, two, one, or fist, as they may need more support analyzing visual elements or making a text selection independently based on criteria. 	<ul style="list-style-type: none"> • Consider posting the discussion prompts for student reference.
Homework	Meeting Students' Needs
<ul style="list-style-type: none"> • Read your independent reading book for at least 30 minutes. Respond to one question on the Independent Reading Choice Board. Your response will be used in your entry task for Lesson 2. 	<ul style="list-style-type: none"> • Allow struggling writers to dictate their responses to someone at home.



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Supporting Materials



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Infer the Topic Protocol Student Directions

Purpose: This protocol helps build anticipation and pique your curiosity about the topic we are about to begin studying in-depth.

1. Your team will receive one “artifact:” a photograph, a book cover, a sketch, a diagram, a quote, a newspaper headline, or an article.
2. With your partner, take a moment to study your artifact. If it’s an article, don’t read the whole thing. Look at the headline(s), headings, and/or captions.

(Note: It’s okay if you and your partner do not agree and have different ideas captured on your note-catchers.)

3. Use your Infer the Topic note-catcher to capture your thoughts (1–2 minutes).
 - What is this artifact?
 - What does it remind you of?
 - What questions do you have about it?
 - What can you infer the new topic of study will be?
4. When your teacher prompts you, quickly find another team. Take turns showing your artifacts and sharing what you recorded on your note-catchers. Discuss the questions below and capture your thoughts in the next section of your note-catcher (2–3 minutes).
 - What is the other team’s artifact?
 - What does it remind you of?
 - What questions do you have about it?
 - Now what do you infer the upcoming topic of study will be?
5. Join in the whole group discussion. Your teacher will ask for a few volunteers to share their artifacts and their prediction about the upcoming unit of study. Your teacher will reveal the topic by the end of this discussion (3 minutes).



Infer the Topic Note-catcher

Name:

Date:

Infer the Topic Note-catcher

I think my artifact is ...	My artifact reminds me of ...
Questions I have ...	I think we're going to be studying ...

I think the other team's artifact is ...	Their artifact reminds me of ...
Questions I have ...	I think we're going to be studying ...

After the class discussion, I know we will be studying ...



List of Artifacts (for Teacher Reference)

Historical *New York Times* Newspaper Article with Images: “Inventors, 1910”

<http://sundaymagazine.org/2010/12/inventors-who-take-no-profits-from-their-work/>

INVENTORS WHO TAKE NO PROFITS FROM THEIR WORK: Give the Results of their Skill and Study Without Charge for the Good of Mankind, Declining Royalties. The Sunday Magazine, December 4, 1910. Public Domain

Magazine Cover: *Science and Invention*

http://upload.wikimedia.org/wikipedia/commons/thumb/a/a0/Science_and_Invention_Nov_1928_Cover_2.jpg/220px-Science_and_Invention_Nov_1928_Cover_2.jpg

"Science & Invention", November 1928. Volume 16 Number 7.

Historical Photo: Inventor George Washington Carver

<http://www.loc.gov/pictures/item/2001703725/>

Johnston, Frances Benjamin. "Laboratory at Tuskegee Institute, Ala." 1902. Photograph. Library of Congress, [reproduction number, LC-USZ62-2248]

Book Cover: Inventor, Philo T. Farnsworth

<http://i43.tower.com/images/mm111395440/philo-t-farnsworth-visionary-inventor-television-timoshei-hardcover-cover-art.jpg>

Used with permission.

Image: “Inventor, Benjamin Franklin”

<https://www.patentplaques.com/blog/wp-content/uploads/2013/01/faranklin-inventions.png>

Benjamin Franklin

Historical Sketch: “Patent Diagram”

<http://www.msad40.org/~library-hazelton/images/greenwood.gif>

United States Patent Office. Public Domain

Rocket Scientist with Turbopumps

<http://commonhealth.wbur.org/files/2011/03/scientists-at-work-300x225.jpg>

National Aeronautics and Space Administration. Public Domain

Poster: “Jim al Khalili, quote”

<http://izquotes.com/quotes-pictures/quote-all-scientists-must-communicate-their-work-for-what-is-the-point-of-learning-new-things-about-how-jim-al-khalili-206173.jpg>

Jim Khalil

Historical Magazine Covers: *Science and Invention*

[http://dyn3.heritagestatic.com/lf?set=path\[6%2F9%2F4%2F3%2F6943591\]%2C sizedata\[450x2000\]&call=url\[file%3Aproduct.chain\]](http://dyn3.heritagestatic.com/lf?set=path[6%2F9%2F4%2F3%2F6943591]%2C sizedata[450x2000]&call=url[file%3Aproduct.chain])

Science and Invention Magazine. Public Domain



List of Artifacts (for Teacher Reference)

Quote: Thomas Edison (One)

“I never perfected an invention that I did not think about in terms of the service it might give others.”

<http://www.thomasedison.com/quotes.html>

Quote: Thomas Edison (Two)

“I find out what the world needs, then I proceed to invent.”

<http://www.thomasedison.com/quotes.html>

Quote: Thomas Jefferson

“Considering the exclusive right to invention as given not of natural right, but for the benefit of society.”

http://press-pubs.uchicago.edu/founders/documents/a1_8_8s12.html

Moon Box for Apollo

http://commons.wikimedia.org/wiki/File:Y12_moon_box_for_apollo_11.jpg

United States National Nuclear Safety Administration. Public Domain

Ida Bengston Scientist

http://commons.wikimedia.org/wiki/File:Ida_Bengston.jpg

National Institutes of Health. Public Domain

Ruth McGuire Scientist

[http://commons.wikimedia.org/wiki/File:Ruth_Colvin_Starrett_McGuire_\(1893-1950\)_-_Smithsonian_Institution_Archives.jpg](http://commons.wikimedia.org/wiki/File:Ruth_Colvin_Starrett_McGuire_(1893-1950)_-_Smithsonian_Institution_Archives.jpg)

Acc. 90-105 - Science Service, Records, 1920s-1970s, Smithsonian Institution Archives



Visual Elements of a Graphic Novel Reference Page

Visual Element	Description
Splash page	First two pages; gets the reader's attention; uses large and close-up images
Frames/panels	The boxes that contain scenes and/or information; some are larger than others; can be arranged sequentially or in a more random order
Gutters	The space between the frames/panels; moves from one scene to another to show changing actions, the passage of time, or to make changes in locations
Ambient sounds	Words that show sounds
Thought bubbles/speech bubbles	What the characters think/what the characters say
Font size, color, style	Text, captions, information, or dialogue in the story that uses different styles of type and/or different colors
Images/photos	Drawings/pictures of characters, settings, actions, important details and information
Colors	Blue, green, red, black, white, brown, etc.; bright, dull, dark, light
Diagrams/information boxes	Drawings of technical equipment, displays, documents, graphs, definitions, and other ideas or objects



Criteria for Selecting Texts Anchor Chart

- The book interests me.
- I can make connections between this book and other texts read, topics explored, or experiences I have had.
- I know many, but not all of the words in the book.
- The book contains some text or images I don't understand, but I am able to get a sense of what the book is mostly about.



Independent Reading Choice Board

Name:

Date:

Title of Independent Reading Book/Author's Name:

After reading independently (silently and/or aloud) for at least 30 minutes, write a response to any ONE question from the board *except* the center square. Complete the center square once you have answered each of the other eight questions.

<p>VISUAL ELEMENTS What visual elements (pictures, text) do you notice in this book?</p> <p>How do the visual elements support your understanding of the text?</p>	<p>CONNECTIONS What connections were you able to make between your independent reading book and other texts, topics explored, or experiences you have had?</p>	<p>STRUCTURE How is this book structured?</p> <p>How does the structure support your understanding of the text?</p>
<p>GENRE What genre is this book? Do you enjoy this genre? Explain.</p>	<p><i>*Complete this square last.</i> What qualities will you look for in the next book you read? (e.g., same author, similar visual features, same or different genre, etc.)</p>	<p>RECOMMENDATION Would you recommend this book and/or this author to someone else? Explain.</p>
<p>WORDS Which <i>words</i> repeat? List them.</p> <p>Why do you think the author chose to repeat these words; why are they important?</p>	<p>READABILITY Is your independent reading book too hard, just right, or too easy? Explain.</p>	<p>INTEREST Do you find this book interesting? Explain.</p>