Philo Farnsworth's Invention of Television

By: S. Dalrymple
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Section 1: Why TV Was Invented

I wish we had something more fun to do than work and sit around picking dead grass out of the lawn. I want to see something more interesting.

People wanted an invention like the television for entertainment and communication. People who lived on farms before the television was invented did not have very many things to do for fun. It was also hard for them to learn about things happening far away because travel and mail were very slow.
I'm Philo Farnsworth. I invented television because I thought it would be a fun way to bring people together. Let me take you back in time to tell you about how I became motivated to invent TV.
Section 2: Philo's Early Years

Philo Farnsworth grew up on a farm in Utah that did not have electricity. Even when he was very young, Philo was curious and was always asking questions. When he moved to a house in Idaho with electricity, he started to learn more about the science of electricity. Philo wanted to be an inventor, and he believed that he could use electricity to develop a television that would bring people together.
After learning about electricity, Philo developed an idea for an image dissector camera. It could make a television work by transmitting parallel lines of light as electrons and then reassembling them on a television screen. He found some investors and spent a lot of time trying to make his invention work. Finally he succeeded and invented the television!
**Electron:** a very small particle of matter that has a negative charge of electricity and that travels around the nucleus of an atom.
Section 4: How TV Changed People's Lives

Let's see what's on TV!
Philo Farnsworth’s television made it possible for people to learn about things that were happening all over the world because it allowed people to see them on a television screen. News and information spread very quickly. People all over the world could now watch events at the same time. The television changed the way people communicate.
Glossary

Television: (n.) an electronic device that receives and reproduces images and sounds.

Electricity: (n.) energy created by the movement of particles such as electrons, positrons and ions.

Electron: (n.) a very small particle of matter that has a negative charge of electricity and that travels around the nucleus of an atom.

Invented: (v.) created something new.

Communicate: (v.) share information; convey ideas.
Citations


Hudson, Robert. “How Television Changed the World.”
This is the story of how, as a young boy, Philo Farnsworth became fascinated with electricity and using it to develop what he called and “image dissector,” but what we call “television.” Philo eventually invented television, in the late 1920’s, because he wanted people to be able to “share the same stories” and he believed TV could lead to world peace. Philo’s invention drastically changed people’s lives.
Tea Party Cards:
Garrett Morgan Traffic Signal Patent #1

Garrett Morgan Traffic Signal Patent #1

Inventor
Garrett G. Morgan,
By R. S. MacElree,
Attorneys.

Nov. 20, 1923.

G. A. MORGAN
TRAFFIC SIGNAL,
Filed Feb. 27, 1922

1,475,024

2 Sheets—Sheet 1

Fig. 1

Fig. 2

Fig. 3

Fig. 4

Public Domain.
Garrett A. Morgan was an inventor and businessman—a man whose lifetime achievement is a model of dedication to public service, safety, and technological innovation.
HONORING AFRICAN AMERICAN INVENTORS—(House of Representatives—February 13, 2008)

[Page: H893]  GPO's PDF

Whereas Garrett Augustus Morgan made outstanding contributions to public safety;

Whereas firefighters in the early 1900s wore the safety helmets and gas masks that he invented, and for which he was awarded a gold medal at the Second International Exposition of Safety and Sanitation in New York in 1914;

Whereas 2 years later, he himself used the mask to rescue men trapped by a gas explosion in a tunnel being constructed under Lake Erie;

Whereas following the disaster which took 21 lives, the City of Cleveland honored him with a gold medal for his heroic efforts;

Whereas in 1923, he received a patent for a traffic signal to regulate vehicle movement in city areas, and this device was a direct precursor to the modern traffic light in use today;
Garrett Morgan, an African American inventor, demonstrated this manually operated, illuminated traffic signal in Cleveland, Ohio. In addition to “Stop” and “Go,” it had a signal that stopped traffic in all directions, providing a safe crossing for pedestrians.
Garrett Morgan

After witnessing a crash between an automobile and a buggy, Cleveland entrepreneur Morgan was inspired to develop a traffic signal. The 1923 patent Morgan received for his traffic light was not his first. Earlier, during World War I, Morgan received a patent for his version of a gas mask.
Tea Party Cards:
Link to Historical Photos of Wright Brothers’ Flight at Kitty Hawk

Photos of flight at Kitty Hawk, N.C. (32 images total; in advance, choose two to three for the Tea Party protocol)

http://www.loc.gov/resource/mwright.04003#seq-3
Tea Party Cards:
Telegram about First Flight at Kitty Hawk

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23,000 OFFICES IN AMERICA

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176 C KA 03 37 Paid. Via Norfolk Va.

Kitty Hawk N C Dec 17

Bishop M Wright

7 Hawthorne St

Success four flights thursday morning all against twenty one mile wind started from level with engine power alone average speed through air thirty one miles longest 67 seconds inform Press home Merry Christmas. 

Grevelle Wright 523P

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Chanute, Octave--Photographs, Kitty Hawk, North Carolina, Wilbur and Orville Wright Papers, Manuscript Division, Library of Congress, Washington, D.C.
Tea Party Cards:
Postcard from Wilbur to Orville Wright

Il'll tie a string to you next time to keep you from going too high or too far. It's too much trouble to make your records well.
Quote from Leonardo da Vinci:
from http://www.goodreads.com/quotes/tag/flying

“Once you have tasted flight, you will forever walk the earth with your eyes turned skyward, for there you have been, and there you will always long to return.”

Quotes from Orville Wright:
from http://wrightbrothers.info/quotes.php

“If birds can glide for long periods of time, then ... why can’t I?”

“The desire to fly is an idea handed down to us by our ancestors, who, in their grueling travels across trackless lands in prehistoric times, looked enviously on the birds soaring freely through space, at full speed, above all obstacles, on the infinite highway of the air.”
Performance Task Invitation

You have been researching one of two different inventions that changed people’s lives. You also have learned about the style and structure of a graphic novel, and how graphic novelists use visual elements to help readers understand important ideas in their stories. Now you will have a chance to share what you have learned by writing a graphic novelette about either Garrett Morgan’s invention of the traffic light, or the Wright Brother’s invention of the airplane. Your novelette will tell the story of what needs or wants inspired the development of the invention; discuss the inventor(s) background; the inventor(s) process for developing a solution that would meet people’s needs; and how the invention changed people’s lives. Make sure your novelette incorporates factual information from your research, key terms as well as visual and narrative elements found in graphic novels, in order to convey ideas clearly to your audience.
<table>
<thead>
<tr>
<th>Frames/ Panels</th>
<th>Diagrams/ Information Boxes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thought Bubbles/Speech Bubbles</td>
<td>Images/ Photos</td>
</tr>
<tr>
<td>Font Size, Color, Style</td>
<td>Colors</td>
</tr>
</tbody>
</table>
Visual Element Note-catcher

Name: 
Date: 

Name of visual element: 

Example 1  
Page number:  
How does this example support your understanding of the text? 

Example 2  
Page number:  
How does this example support your understanding of the text? 

Example 3  
Page number:  
How does this example support your understanding of the text? 

Reflection question: How does this visual element add to your understanding of the process Max uses to solve the problem?
Visual Elements task card

- Locate two or three examples of your group’s visual element in *Max Axiom*.
- Discuss how each example adds to your understanding of the ideas in that section of text.
- Record your thinking on the Visual Element note-catcher.
- Think about and then discuss the reflection question on your note-catcher with your group members.
- Record your response to the reflection question on your note-catcher.
- Be prepared to share your thinking with the class.
Independent Reading Criteria Self-Assessment

**Learning target:** I can use established criteria to select an appropriate text for independent reading.

### Criteria

<table>
<thead>
<tr>
<th>Interest</th>
<th>Some ways to tell if you’re interested in a book:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• You talk about your book without being asked.</td>
</tr>
<tr>
<td></td>
<td>• You become really animated when you answer questions about your book.</td>
</tr>
<tr>
<td></td>
<td>• You’re fascinated by the topic and/or characters.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Understanding</th>
<th>Some ways to tell if you understand what you’re reading:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• You can accurately summarize what you have read.</td>
</tr>
<tr>
<td></td>
<td>• You can make connections between the text and other books you have read or experiences you have had.</td>
</tr>
<tr>
<td></td>
<td>• You remember new ideas from your book without a lot of effort.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Readability</th>
<th>Some ways to determine if you can successfully read a book:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• You know most but not all of the words.</td>
</tr>
<tr>
<td></td>
<td>• You find yourself using words from your book when you speak or write.</td>
</tr>
<tr>
<td></td>
<td>• You make some mistakes, but you can usually identify and correct them without help.</td>
</tr>
<tr>
<td></td>
<td>• You are challenged, but you still understand what the text is mostly about.</td>
</tr>
</tbody>
</table>
Independent Reading Criteria Self-Assessment

**Self-Assessment**

Directions: Use the criteria above to help you respond to these questions and prompts. For *yes* or *no* questions, circle one response.

<table>
<thead>
<tr>
<th>My Last Independent Reading Text</th>
<th>New Independent Reading Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did my last independent reading text interest me?</td>
<td>Do I think my new independent reading text will interest me?</td>
</tr>
<tr>
<td>Was I able to understand all, or most, of the ideas in my last independent reading text?</td>
<td>Do I think I will be able to understand all, or most, of the ideas in my new independent reading text?</td>
</tr>
<tr>
<td>Was my last independent reading text readable for me?</td>
<td>Do I think I will be able to read my new independent reading text?</td>
</tr>
<tr>
<td>Was my last independent reading choice an appropriate choice for me? Why or why not?</td>
<td>Do I think my new independent reading text will be an appropriate choice for me? Why or why not?</td>
</tr>
</tbody>
</table>
# 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.

<table>
<thead>
<tr>
<th>VISUAL ELEMENTS</th>
<th>CONNECTIONS</th>
<th>STRUCTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>What visual elements (pictures, text) do you notice in this book?</td>
<td>What connections were you able to make between your independent reading book and other texts, topics explored, or experiences you have had?</td>
<td>How is this book structured?</td>
</tr>
<tr>
<td>How do the visual elements support your understanding of the text?</td>
<td></td>
<td>How does the structure support your understanding of the text?</td>
</tr>
<tr>
<td>BOOK SELECTION</td>
<td><em>Complete this square last</em></td>
<td>RECOMMENDATION</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Why did you choose this independent reading text?</td>
<td><strong>What qualities will you look for in the next book you read?</strong> (e.g., same author, similar visual features, more/less challenging, etc.)</td>
<td>Would you recommend this book and/or this author to someone else? Explain. Use specific examples from the text to support your reasoning.</td>
</tr>
<tr>
<td>Do you think you made a good choice? Explain. Use specific examples from the text to support your reasoning.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VOCABULARY</th>
<th>READABILITY</th>
<th>INTEREST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which three words from this text do you find most descriptive? Explain. Please copy the sentence in which the word was found and record a page number for each term.</td>
<td>Is your independent reading book too hard, just right, or too easy? Explain. Use specific details from the text in your explanation.</td>
<td>Do you find this book interesting? Explain. Give reasons and use specific examples from the text to support your opinion.</td>
</tr>
</tbody>
</table>
## Visual Elements of a Graphic Novel Reference Page

<table>
<thead>
<tr>
<th>Visual Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Splash Page</td>
<td><em>First two pages; gets the reader's attention; uses large and close-up images</em></td>
</tr>
<tr>
<td>Frames/Panel</td>
<td><em>The boxes that contain scenes and/or information; some are larger than others; can be arranged sequentially or in a more random order</em></td>
</tr>
<tr>
<td>Gutters</td>
<td><em>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</em></td>
</tr>
<tr>
<td>Ambient Sounds</td>
<td><em>Words that show sounds</em></td>
</tr>
<tr>
<td>Thought Bubbles/Speech Bubbles</td>
<td><em>What the characters think/what the characters say</em></td>
</tr>
<tr>
<td>Font Size, Color, Style</td>
<td><em>Text, captions, information, or dialogue in the story that uses different styles of type and/or different colors</em></td>
</tr>
<tr>
<td>Images/Photos</td>
<td><em>Drawings/pictures of characters, settings, actions, important details, and information</em></td>
</tr>
<tr>
<td>Colors</td>
<td><em>Blue, green, red, black, white, brown, etc.; bright, dull, dark, light</em></td>
</tr>
<tr>
<td>Diagrams/Information Boxes</td>
<td><em>Drawings of technical equipment, displays, documents, graphs, definitions, and other ideas or objects</em></td>
</tr>
</tbody>
</table>
“Transportation, From the Soapbox Derby to the Jeep: First Automatic Traffic Signal”

Heartland Science
Ohio’s Legacy of Discovery & Innovation

Transportation
From the Soapbox Derby to the Jeep

First Automatic Traffic Signal

Garrett A. Morgan, an African-American businessman and inventor, invented the first automatic traffic signal in 1923. It brought order and greater safety to city streets congested with the increasingly popular horseless carriages. The first traffic signal was installed in Cleveland at the corner of Euclid Avenue & East 105th Street. Inspiration for the invention came to Morgan as he watched traffic flow on the busy streets of Cleveland. Morgan sold the invention to the General Electric Co for $40,000, and GE began manufacturing the signals.

Morgan was the son of former slaves, and grew up on a farm in Kentucky. As a teen, he moved to Cincinnati, Ohio. While he never went past elementary school in formal training, he did work with a tutor in Cincinnati. Morgan moved to Cleveland in 1895 and went to work as a sewing machine repairman. His understanding of mechanics helped him both in this trade and also in his memorable inventions. In 1907, he launched his own business that repaired sewing machines and also trained others to do the same. Not a man to focus just on one thing, Morgan started a newspaper in 1920 called the “Cleveland Call.” It was during this period that Morgan came up with the idea of the traffic signal.

While colored lights were incorporated later, Morgan’s idea was a machine that displayed three versions of signs: "stop" -- "go" -- and an "all-directional stop." The all directional stop was design to allow people to cross the busy streets. While other may have been working on similar ideas at the time, Morgan was the first to acquire a U.S. patent for his work, which was granted on November 20, 1923.

Morgan also contributed to public safety with other inventions. He invented helmets and gas masks used by firefighters in the early 1900’s. He also invented a gas mask that was used extensively in 1914 during World War I to protect service people from the effects of chlorine gas fumes.

HEARTLAND SCIENCE – (www.heartlandscience.org)
“Transportation, From the Soapbox Derby to the Jeep: First Automatic Traffic Signal”

Did You Know?

- Morgan invented the first hair straightener which he sold as "Morgan Hair Refining Cream."
- He also designed a "de-curling" comb.
- Morgan invented "zig-zag" sewing machine stitching.

Find out more...

- Garrett Morgan: Father of the Stoplight
  (www.nhtsa.dot.gov/kids/safeschool/morgan2.html)
- Morgan’s Patents and Illustrations
  (www.princeton.edu/~mcbrown/display/morgan_patents.html)
“Inventing the Plane”

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Source (for teacher reference only): http://teacher.scholastic.com/activities/flight/wright/invent.htm
What need or want inspired the development of this invention?

How were people’s needs met, and by whom?

Background information about the INVENTOR(S)
Explain the inventor(s) history, motivation to solve the problem, special skills, and/or preparation.

Information about developing a SOLUTION
Explain how the inventor(s) solved the problem.

Information about the IMPACT
Explain how this invention changed people’s lives.

Background information about the INVENTION
Explain why people needed or wanted this invention.
Philo T. Farnsworth, who came from a little community outside of Beaver, Utah, built on the work of others. But he was the one who made the image dissector camera tube that put the first images on a television screen.

His invention opened up entirely new avenues for entertainment, information, and exploration—and landed him on a postage stamp in 1983!

Philo T. Farnsworth changed the way people all over the world talk to each other, learn about things, and entertain themselves. His invention made *Sesame Street*, news programs, sitcoms, dramas, and all the other television programs possible.

Philo Farnsworth came into a world just beginning to be electrified in 1906.

His family’s first house, near Beaver, Utah, had no electricity. So when the family moved to a new house in Idaho, young Philo was fascinated! Lights that came on when you flipped a switch and electric tools for the farm intrigued him.

In 1922, he drew a design for his high school chemistry teacher, Justin Tolman. The drawing had nothing to do with the class assignment, but Tolman kept it. Farnsworth believed that he could transform electricity into pictures by controlling the speed and direction of fast-flying electrons.

By the age of 13, he had won his first national contest, sponsored by *Science and Invention* magazine, for a thief-proof lock.

Philo was still thinking about how to send images through the air. But he had no money to work on his idea. Eventually, he met a pair of Californians who invested money in his idea. They gave him enough money that he could experiment with the device he had worked on in high school.

He successfully transferred his first image in 1927—at age 21. So what was the first real television image? Just a simple line!

Expert Text Anchor Chart

What need or want inspired the development of this invention?

How were people's needs met, and by whom?

Background information about the INVENTOR(S)
Explain the inventor(s) history, motivation to solve the problem, special skills, and/or preparation.

Information about developing a SOLUTION
Explain how the inventor(s) solved the problem.

Information about the IMPACT
Explain how this invention changed people's lives.

Background information about the INVENTION
Explain why people needed or wanted this invention.
1. Write each of your vocabulary terms on one side of your index cards.

   - **The airplane expert group:**
     airplane, craft, engine, previously, glider, propellers, pioneers, aerodynamics
   
   - **The traffic signal expert group:**
     automatic, traffic, signal, congested, manufacturing, mechanics, acquire, extensively

2. Determine the meaning of each of your vocabulary terms, using context clues or other strategies you learned during previous lessons.

3. Write a synonym or definition and draw a picture of the meaning of each term on the back of your index cards.

4. Do your best to arrange your vocabulary cards in alphabetical order, then add them to the metal ring provided.
On July 24, 1916, a natural gas explosion trapped 32 men working in a tunnel 250 feet below Lake Erie. The first would-be rescuers who dashed into the tunnel were overcome by gas, and for hours no one else dared to enter the suffocating, poisonous deathtrap. Then, late that night, someone had an idea: Send for Garrett Morgan and his new invention.

Garrett Morgan was a successful factory owner in Cleveland. The son of freed slaves and the seventh of 11 children, he had grown up on a farm in Kentucky but left home at 14. By age 30 the mechanically minded Morgan had opened his own sewing machine shop, which he soon expanded to a tailoring factory with 32 employees.

In the early 1900s, factory buildings were crowded and cluttered. They were often made of wood, with no fire escapes. Fires were devastating.
Garrett Morgan: Inventor Hero

Concerned about his employees, Morgan experimented with a "safety hood" that would allow the wearer to breathe despite a fire's toxic smoke. Morgan knew smoke rises during a fire, so he created a heat-resistant hood with a long tube reaching to the floor. Wearing Morgan's hood, a firefighter could breathe the cleaner air near the ground. Morgan lined the breathing tube with a sponge-like material that was moistened before use to cool and filter the air. A second tube released exhaled air.

Roused from home on the night of the tunnel explosion, Garrett rushed to the disaster site with samples of his safety hood. Still in their pajamas, he and his brother Frank put on hoods and bravely entered the tunnel. It was a dangerous test of the invention, but they saved two lives and recovered four bodies before officials closed the site. Morgan knew that more lives might have been saved if he had been called sooner.

The daring rescue made Morgan famous and brought requests for safety hoods from fire departments around the country. But his greatest reward was knowing that his invention would now save more people.

Over the years, Morgan patented many ideas that saved lives or made life easier. In those days, city streets were crowded with horses, carriages, bicycles, and pedestrians. One day, Morgan—the first African American in Cleveland to
buy an automobile—was driving his new
car when he witnessed a terrible collision
between another car and a horse-drawn
carriage. Morgan decided that traffic-con-
trol signals could prevent such tragedies.

Other inventors had experimented
with this idea, but their mechanical
signals had to be operated by hand
and were not visible at night. In addi-
tion, existing signals had no caution
sign between stop and go, so a driver
going one direction might start across
an intersection before an oncoming
driver had time to stop. To solve these
problems, Morgan invented an elec-
tric traffic signal with three positions:
stop, go, and an all-directional stop for
vehicles to let pedestrians cross in safety.
His signals could operate 24 hours a
day, with a spotlight
for nighttime use.

After patenting his
design, Morgan sold
the rights to General
Electric Corporation
for $40,000. His signals
were used across the country and
set the standard for the red-yellow-
green traffic lights we use today.

Once in a while, someone
comes along who actively looks
for ways to keep others safe.
Such a person was Garrett Morgan
who, in addition to his inventive
genius, was blessed with genu-
ine concern for the well-being of
other people.

A good old-fashioned traffic jam—before Garrett Morgan’s invention.
The invention of the airplane changed the way we travel and also made traveling very comfortable. Airplanes gave us the opportunity to explore different parts of the world. Tackling emergency situations like floods became easier. Airplanes are also an important part of the defense services.

Who Invented the Airplane?
The Wright brothers from the USA invented the first airplane. They used to study the experiments and research taking place in the field of airplane development. Their interest and passion for airplanes led to the development of the first heavier-than-air plane.

First Airplane to Fly
The Wright brothers, Wilbur and Orville, began working on the idea of building airplanes in 1899. They finally succeeded in flying the first airplane on 17th December, 1903. It was a historic day, since many attempts to manufacture an airplane had earlier met with failure.

Airplane History
Substantial work in the field of airplane development took place in the 19th century. However, there was a lot of interest among people regarding airplanes from the times of Leonardo da Vinci. Though the airplane was invented in 1903, it became popular only after the government of America used it for the Air-Mail service. Thereafter, airplanes gained popularity and were used for many different purposes.

Today's airplanes have become technologically advanced and possess a sophisticated design. The recently launched Airbus 380 is the biggest passenger airplane. It has a capacity to carry 853 passengers and travel at a speed of 900 km/hr. The Antonov An-225 Mriya is the heaviest aircraft in the world.
Invention of the Traffic Signal note-catcher

Refer to the article “Garrett Morgan: Inventor Hero” to help you respond to these questions.

<table>
<thead>
<tr>
<th>Reread Paragraph 2 silently; then use details from the text to answer the questions on the right.</th>
<th>Locate and circle the phrase “mechanically minded.” What do you think “mechanically minded” means? What words from the text make you think so? Underline the parts of this paragraph that explain how Garrett Morgan demonstrated he was “mechanically minded.”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whisper read Paragraph 6, then use details from the text to answer the questions on the right.</td>
<td>Why did Garrett Morgan think people needed a traffic-control signal?</td>
</tr>
</tbody>
</table>
Refer to the article “Garrett Morgan: Inventor Hero” to help you respond to these questions.

| Reread Paragraph 7 silently; then use details from the text to answer the questions on the right. | What were some of the problems with other inventors’ ideas for a traffic signal? |
| | How was Garrett Morgan’s traffic-control signal different from previous signals? |
| | Reread to underline words and phrases from this paragraph that helps you understand how Garrett Morgan’s traffic-control signal made intersections safer for people. |
| | The article states, “His signals were used across the country and set the standard for the red-yellow-green traffic lights we use today.” Locate and circle the phrase “set the standard.” Underline words from the text that help you determine the meaning of this phrase. What does “set the standard” mean? |
Invention of the Traffic Signal note-catcher

Refer to the article “Garrett Morgan: Inventor Hero” to help you respond to these questions.

<table>
<thead>
<tr>
<th>Reread Paragraph 8 aloud together with your group members, then use details from the text to answer the questions on the right.</th>
<th>Reread to locate and underline words and phrases that describe what type of person Garrett Morgan was. Then paraphrase the text you underlined to describe Garrett Morgan.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How did these qualities lead Garrett Morgan to the development of his traffic-control signal?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Refer to the visual elements at the end of the article.</th>
<th>What types of visual elements are used to help the reader understand what people’s problem was? Explain.</th>
</tr>
</thead>
<tbody>
<tr>
<td>What types of visual elements are used to help the reader understand the solution to people’s problem? Explain.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Review your answers to the above questions and the article to help you respond to the prompt on the right.</th>
<th>In your own words, explain what people needed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>How did Garrett Morgan’s invention of the traffic-control signal meet people’s needs?</td>
<td></td>
</tr>
</tbody>
</table>
Expert Text Note-catcher: The Airplane

What need or want inspired the development of this invention?

How were people’s needs met, and by whom?

Background information about the INVENTOR(S)
Explain the inventor(s) history, motivation to solve the problem, special skills, and/or preparation.

Information about developing a SOLUTION
Explain how the inventor(s) solved the problem.

Information about the IMPACT
Explain how this invention changed people’s lives.
Airplane Task Card

1. Independently, reread the article “The Invention of the Airplane.”

2. As you read, look for and underline details that respond to the prompt in each gray box of your note-catcher: background about the INVENTION; background about the INVENTOR(S); information about developing a SOLUTION; and information about the IMPACT.

3. With your triad, share the details you underlined and discuss:
   * “Is this information relevant?”
   * “Where should I record this information on my note-catcher (which gray box)?”
   * “Should I quote this information or paraphrase it on my note-catcher? Why?”

4. Record at least one or two relevant details in each box (make sure to record quotes and paraphrased information on your note-catcher).

5. Refer to your notes (quotes and paraphrased details) to help you respond to the thought and speech bubble questions. Remember to use key terms from the questions in your responses.

6. Once you have completed your note-catcher, work with group members to determine the meaning of key terms on your vocabulary cards, using context clues and other strategies. On the back of your index cards, write a synonym or definition and draw a picture to show the meaning of each word.
<table>
<thead>
<tr>
<th></th>
<th>Hot Seat Tickets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>How did the invention you are studying change people’s lives?</td>
</tr>
<tr>
<td>2</td>
<td>What special skills helped the inventor(s) you are learning about succeed where others did not?</td>
</tr>
<tr>
<td>3</td>
<td>Which three vocabulary terms do you think are most important to the gist of the article you read? Explain your thinking.</td>
</tr>
<tr>
<td>4</td>
<td>Which quote from the text best helps you explain how people’s needs were met by this invention?</td>
</tr>
<tr>
<td>5</td>
<td>What similarities do you notice between the inventor you are studying and Philo Farnsworth?</td>
</tr>
</tbody>
</table>
The Splash Page of a graphic novel introduces the situation, characters, and setting through the use of detailed images. It is a visual way for the author to communicate important information to the reader. This sketch is an opportunity to share information about the topic you are researching in a visual way to help you prepare to create your own graphic novelette.

**Directions:**

1. Read and consider the thought bubble on your Expert Text note-catcher to identify details that help explain the **need** or **want** that inspired the development of the invention you are researching.

2. Use the panel provided to sketch one image for a Splash Page that introduces the need or want that inspired the development of the invention. Your sketch should include visual representations of the details you identified in Step 1.

3. Include a speech or thought bubble with text that explains/states the need or want that inspired the development of the invention you are studying.

4. Finish the sketch by using one color to draw attention to the most important details.
The airplane has had a greater impact on our lives than any other modern invention. The ability to fly has dramatically increased the speed at which we can travel and decreased the time it takes to receive mail, food, and other goods from far-off places. It has brought us into closer contact with people in other parts of the world, and it has drastically changed the way we wage war.

Yet, until the beginning of the 20th century, the idea of a practical flying machine was only a dream. Balloons and gliders had been flown before 1900, but they were unreliable and could not carry a person over a long distance and land at a chosen destination. It was not until Orville and Wilbur Wright invented and successfully flew the first powered, controllable aircraft that the dream of flight became a reality. On December 17, 1903, the Wrights’ plane, the *Flyer*, took off at Kitty Hawk, North Carolina, and flew 120 feet (37 meters).

**Airplane Design**

An airplane can fly at fast or slow speeds over long or short distances. It can carry hundreds of vacationers around the world or a single person from one side of a major city to the other. The designer of an airplane must keep in mind the task the airplane is to accomplish. Will the airplane fly great distances? If so, the designer will have to provide either very efficient power or the capacity to store a great amount of fuel. Should the airplane's structure be relatively light or heavy? That depends on the cargo it will carry. This might be two persons or a whole company of soldiers and equipment. A large airplane will mean more weight and more drag. As a result, larger engines and wings will be necessary to get it airborne. Crop dusters, aerobatic biplanes, personal transportation aircraft, and airliners all have different design requirements. The airplane designer has many choices to make, and modern technology can help with these decisions.
Garrett Morgan was an African-American inventor who invented two very different and important things: the gas mask and the traffic signal. During his long life, he also became one of the most recognized and respected African-Americans in the country.

Morgan was born on March 4, 1877, in Paris, Kentucky. His parents were former slaves. As a child, he attended school and also worked on the family farm. When he was an older teen, he moved to Cincinnati to find work. He found it as an apprentice to a handyman, who paid young Garrett enough to hire a tutor and continue his studies.

Morgan made enough money to open his own sewing machine repair shop, which he did in 1907. He was so successful that he expanded his business two years later to include making clothes, using equipment that he had built himself.

The same skills that made Morgan a successful inventor and businessman also fired his curiosity and drove his inventions. He would see a need for something and then go about trying to find something that filled that need; if that something didn't exist, then he would make it himself. He had done this with his sewing equipment business, to great success. (He had 32 employees working for him.)

Morgan branched out again in 1920, starting a newspaper, the Cleveland Call. He made good money from running this newspaper, and he soon bought a home and a car. (Some historians say that he was the first African-American to own a car.)

The automobile was a relatively recent invention, and it was by no means the only method of transportation used by Americans. Many people still rode in horse-drawn carriages or rode bicycles or walked in the streets. People driving cars went much faster, of course, and accidents were commonplace.

Seeing this, Morgan decided to do something about it. He invented what would become the traffic light. Several people had invented different kinds of traffic signals by this time, but they weren't good enough for Morgan, who designed one that had some familiar features: a T-shaped pole that had a signal on the top, with three positions. These three positions were Go, Stop, and All-Stop. This last position applied to people coming from every direction, and was used to make sure that pedestrians could cross the street safely. Morgan received a patent for his device in 1923 and eventually sold it to General Electric. It was used throughout America until it was replaced by the traffic lights that are still used today.

He died in 1963 after a long and successful life. His two outstanding inventions live on.
Invention of the Airplane Note-catcher

Directions: Refer to the article “Airplane” to help you respond to these questions.

<table>
<thead>
<tr>
<th>Whisper read Paragraph 1, then use details from the text to answer the questions on the right.</th>
<th>Locate and circle the word <em>increase</em> in this paragraph. Underline the words from the text that help you determine the meaning of <em>increase</em>. What does it mean?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reread Paragraph 2 aloud with group members; then use details from the text to answer the questions on the right.</td>
<td>Locate and circle the word <em>decrease</em> in this paragraph. Underline parts of the word and/or words from the text that help you determine the meaning of <em>decrease</em>. What does it mean?</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Underline details that help you understand what some of the problems were with “flying machines” built before the 1900s. Paraphrase the details you underlined to explain the problems with these “flying machines.”</td>
</tr>
<tr>
<td></td>
<td>How was the Wright brothers’ <em>Flyer</em> different from previous “flying machines”?</td>
</tr>
<tr>
<td></td>
<td>Why do you think “powered, controllable aircraft” were able to do what earlier flying machines could not?</td>
</tr>
</tbody>
</table>
Invention of the Airplane Note-catcher

Directions: Refer to the article “Airplane” to help you respond to these questions.

| Reread Paragraph 3 silently; then use details from the text to answer the questions on the right. | Underline details in the paragraph that help you understand what an airplane designer will have to do if the airplane will fly long distances. Paraphrase the details you underlined to explain what the designer must do. |
| Sketch a picture to show what larger airplanes need to become airborne. |
| Explain what airplanes do for people. |

| Review your answers to the above questions and the article to help you respond to the prompt on the right. | In your own words, explain how the Wright brothers’ invention of the airplane changed people’s lives. |
What need or want inspired the development of this invention?

How were people’s needs met, and by whom?

Background information about the INVENTOR(S)
Explain the inventor(s) history, motivation to solve the problem, special skills, and/or preparation.

Information about developing a SOLUTION
Explain how the inventor(s) solved the problem.

Information about the IMPACT
Explain how this invention changed people’s lives.

Background information about the INVENTION
Explain why people needed or wanted this invention.
1. Independently, reread the article “The Twofold Genius of Garrett Morgan.”

2. As you read, look for and underline details that respond to the prompt in each gray box of your note-catcher: background about the INVENTION; background about the INVENTOR(S); information about developing a SOLUTION; and information about the IMPACT.

3. With your triad, share the details you underlined and discuss:
   * “Is this information relevant?”
   * “Where should I record this information on my note-catcher (which gray box)?”
   * “Should I quote this information or paraphrase it on my note-catcher? Why?”

4. Record at least one or two relevant details in each box (make sure to record quotes and paraphrased information on your note-catcher).

5. Refer to your notes (quotes and paraphrased details) to help you respond to the thought and speech bubble questions. Remember to use key terms from the questions in your responses.

6. Once you have completed your note-catcher, work with group members to determine the meaning of key terms on your vocabulary cards, using context clues and other strategies. On the back on your index cards, write a synonym or definition and draw a picture to show the meaning of each word.
## Locating Answers Quickly anchor chart

<table>
<thead>
<tr>
<th>Traffic Signal Research Group</th>
<th>Airplane Research Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>How was Garrett Morgan’s traffic signal different from other signals that had been developed?</td>
<td>Which of the Wright brothers flew the first flight?</td>
</tr>
<tr>
<td>Which article would be best to help you describe the physical structure of Garrett Morgan’s traffic signal?</td>
<td>How do the features of a plane change based on its function?</td>
</tr>
<tr>
<td>How did Garrett Morgan earn money to pay for his education?</td>
<td>What experiences inspired the Wright brothers to build airplanes?</td>
</tr>
</tbody>
</table>
Directions:

• Read and consider the information about the developing a SOLUTION to identify several details that explain how your inventor developed the invention.

• Use the panel provided to sketch an image that shows your inventor’s process for developing the invention. Your sketch should include the relevant details you identified in Step 1.

• Include an information box that helps explain one of the steps the inventor took to develop the invention.

• Finish the sketch by adding different font sizes, styles, or colors to draw attention to the details or words that best help you explain how the invention was developed.
Mid-Unit 3 Assessment A: Note-taking and Text-dependent Questions:
Garrett Augustus Morgan

Directions:

1. Independently, read through the article “Garrett Augustus Morgan” to determine the gist.

2. Reread the article to locate and record information that explains: the INVENTION, the INVENTOR(S), the SOLUTION, and the IMPACT of the invention. Be sure to include quotations and paraphrased information in your notes.

3. Refer to the information you recorded to explain in your own words:
   – “What need or want inspired the development of this invention?” in the thought bubble at the top left of your note-catcher. Remember to use key words from the question and article in your response.
   – “How were people’s needs met, and by whom?” in the speech bubble (below the thought bubble) at the top left of your note-catcher. Remember to use key words from the question and article in your response.

4. Refer to “Garrett Augustus Morgan,” your notes, and other informational texts you read during the first part of this unit to help you answer the multiple-choice and short-response questions below the note-catcher.

Criteria for Success:

• There are at least two pieces of relevant information from the article in each gray box on your note-catcher.

• There is a combination of both quotes and paraphrased information from the article on your note-catcher.
Garrett Augustus Morgan was born March 4, 1877 in Paris, Kentucky. He was an African American inventor and community leader. He invented many things including a traffic signal and a gas mask. He also helped to found the Cleveland Call newspaper in Cleveland, Ohio.

Garrett Morgan was very successful. Because of his success, he was one of very few people able to afford a car. One day, while driving in Cleveland, he saw a terrible accident at an intersection. Seeing this accident made him determined to find a way to make intersections safer for both pedestrians and drivers. Other inventors had tried to develop a traffic signal, but it was Garrett Morgan who was the first to patent his traffic signal on November 20, 1923.

Morgan’s traffic signal was a T-shape pole with three arms that would pop out one of three signs. An electric mechanism inside the signal made the signs change. The signal would display either “Stop,” “Go,” or “Stop in all directions.” The “Stop in all directions” sign prompted all vehicles to stop so pedestrians could cross an intersection safely. As a result of its popularity, Garrett Morgan was able to sell his traffic signal to the General Electric Corp for $40,000, a very large sum of money at that time. His invention was used across the US until the three-light traffic light was developed.

Works Cited:
Mid-Unit 3 Assessment A: Note-taking and Text-dependent Questions: A:
Garrett Augustus Morgan

Expert Text Note-catcher

Background information about the INVENTION
Explain why people needed or wanted this invention.

Background information about the INVENTOR(S)
Explain the inventor(s) history, motivation to solve the problem, special skills, and/or preparation.

Information about developing a SOLUTION
Explain how the inventor(s) solved the problem.

Information about the IMPACT
Explain how this invention changed people’s lives.

What need or want inspired the development of this invention?

How were people’s needs met, and by whom?
Mid-Unit 3 Assessment A: Note-taking and Text-dependent Questions: A: Garrett Augustus Morgan

1. In the sentence “His traffic signal was a T-shaped pole with arms (but with no lights) that has three signs ...,” what does the word arms mean? Choose one.
   - parts of the human body
   - part of a shirt, dress, or other garment
   - a part that sticks out
   - to support

   How did you determine the meaning of the word arms in this sentence based on context clues? Explain.

2. In the sentence “It was controlled by an electric mechanism,” what does the word mechanism mean? Choose one.
   - a way of doing something
   - a machine, or part of a machine
   - the way something works
   - a dial

   How were you able to determine the meaning of the word mechanism using context clues? Explain.
3. Refer to each of the articles you have read about Garrett Morgan’s invention of the traffic signal— “First Automatic Traffic Signal,” “Garrett Morgan: Inventor Hero,” “The Twofold Genius of Garrett Morgan,” and “Garrett Augustus Morgan”—to help you respond to the question below.

If you wanted to know what intersections were like before Garrett Morgan’s invention of the traffic light, which ONE of the four articles listed above would be best? Explain how you made your decision (refer to visual elements and text from the article).
Mid-Unit 3 Assessment B: Note-taking and Text-dependent Questions:
How Did We Learn to Fly?

Directions:

1. Independently, read through the article “How Did We Learn to Fly?” to determine the gist.

2. Reread the article to locate and record information that explains: the INVENTION, the INVENTOR(S), the SOLUTION, and the IMPACT of the invention. Be sure to include quotations and paraphrased information in your notes.

3. Refer to the information you recorded to explain in your own words:
   a. “What need or want inspired the development of this invention?” in the thought bubble at the top left of your note-catcher. Remember to use key words from the question and article in your response.
   b. “How were people’s needs met, and by whom?” in the speech bubble (below the thought bubble) at the top left of your note-catcher. Remember to use key words from the question and article in your response.

4. Refer to “How Did We Learn to Fly,” your notes, and other informational texts you read during the first part of this unit to help you answer the multiple-choice and short-response questions below the note-catcher.
### How Did We Learn to Fly?

**Humans try to fly like birds**
For many centuries, humans have tried to fly just like the birds. Wings made of feathers, or lightweight wood, have been attached to arms to test their ability to fly. The results were often disastrous, as the muscles of the human arms are not like a bird’s and cannot move with the strength of a bird.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1485</td>
<td>Leonardo da Vinci - The Ornithopter</td>
</tr>
<tr>
<td>1783</td>
<td>Joseph and Jacques Montgolfier, the first hot air balloon</td>
</tr>
<tr>
<td>1799–1850s</td>
<td>George Cayley</td>
</tr>
<tr>
<td>1891</td>
<td>Lilienthal's Glider in Flight</td>
</tr>
<tr>
<td></td>
<td>A Drawing of a Wright Brothers Glider (1900)</td>
</tr>
</tbody>
</table>
Mid-Unit 3 Assessment B: Note-taking and Text-dependent Questions: How Did We Learn to Fly?

**Orville and Wilbur Wright and the First Airplane**

Orville and Wilbur Wright were very deliberate in their quest for flight. First, they read about all the early developments of flight. They decided to make "a small contribution" to the study of flight control by twisting their wings in flight. Then they began to test their ideas with a kite. They learned about how the wind would help with the flight and how it could affect the surfaces once up in the air.

The next step was to test the shapes of gliders, much like George Cayley did when he was testing the many different shapes that would fly. They spent three years testing and learning about how gliders could be controlled at Kitty Hawk, North Carolina.

The first heavier-than-air flight traveled one hundred twenty feet in twelve seconds. The two brothers took turns flying that day, with the fourth and last flight covering 850 feet in 59 seconds.

**The Wright Brothers’ Flyer**

Humankind was now able to fly! During the next century, many new airplanes and engines were developed to help transport people, luggage, cargo, military personnel, and weapons. The 20th century's advances were all based on this first flight by the American brothers from Ohio.

**Actual Flight of the Flyer at Kitty Hawk**

What need or want inspired the development of this invention?

How were people’s needs met, and by whom?

Background information about the INVENTOR(S)
- Explain the inventor(s) history, motivation to solve the problem, special skills, and/or preparation.

Information about developing a SOLUTION
- Explain how the inventor(s) solved the problem.

Information about the IMPACT
- Explain how this invention changed people’s lives.

Background information about the INVENTION
- Explain why people needed or wanted this invention.

Mid-Unit 3 Assessment B: Note-taking and Text-dependent Questions:
How Did We Learn to Fly?

Expert Text Note-catcher
Mid-Unit 3 Assessment B: Note-taking and Text-dependent Questions:
How Did We Learn to Fly?

1. In the sentence “During the next century, many new airplanes and engines were developed to help transport people, luggage, cargo, military personnel, and weapons,” what does the word transport mean? Choose one.
   - a vehicle that carries people and goods
   - to carry somebody or something
   - makes someone imagine they are somewhere else
   - to make someone feel happy, overjoyed

   How did you determine the meaning of the word transport based on context clues? Explain.

2. In the sentence “The 20th century’s advances were all based on this first flight by the American brothers from Ohio,” what does the word based mean? Choose one.
   - a place where something is located
   - the lowest part of something
   - measured
   - used as a starting place for further development; a basis

   How were you able to determine the meaning of the word based using context clues? Explain.
3. Refer to each of the articles you have read about the Wright brothers’ invention of the airplane—“Wright Brothers: Inventors of the Airplane,” “Invention of the Airplane,” “Airplane,” and “How Did We Learn to Fly”—to help you respond to question below.

If you wanted to know how flight was developed over time, which ONE of the four articles listed above would be best? Explain how you made your decision (refer to visual elements and text from the article).
Learning target: I can take notes about how an invention was developed to meet society's needs.

1. The target in my own words is:

   ________________________________
   ________________________________
   ________________________________

2. How am I doing? Circle one.

   I need more help to learn this

   I understand some of this

   I am on my way!

3. The evidence to support my self-assessment is:

   ________________________________
   ________________________________
   ________________________________
   ________________________________
   ________________________________
Learning target: I can explain what people needed and how their needs were met, using quotes from the text.

1. The target in my own words is:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. How am I doing? Circle one.

   I need more help to learn this

   I understand some of this

   I am on my way!

3. The evidence to support my self-assessment is:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Tracking My Progress, Mid-Unit 3

Learning target: I can answer a question quickly, drawing on information from multiple sources.

1. The target in my own words is:

2. How am I doing? Circle one.

   - I need more help to learn this
   - I understand some of this
   - I am on my way!

3. The evidence to support my self-assessment is:

   -
   -
   -
Learning target: I can determine the meaning of unfamiliar words and phrases from context.

1. The target in my own words is:


2. How am I doing? Circle one.

   I need more help to learn this

   I understand some of this

   I am on my way!

3. The evidence to support my self-assessment is:


### Independent Reading Criteria Anchor Chart

<table>
<thead>
<tr>
<th>Interest</th>
<th>Some ways interest can be detected:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• You talk about your book without being asked.</td>
</tr>
<tr>
<td></td>
<td>• You become really animated when you answer questions about your book.</td>
</tr>
<tr>
<td></td>
<td>• You’re fascinated by the topic.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Understanding</th>
<th>Some ways understanding can be gauged:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• You could summarize the book for a friend or family member.</td>
</tr>
<tr>
<td></td>
<td>• You can make connections between the text and other books you have read or experiences you have had.</td>
</tr>
<tr>
<td></td>
<td>• You remember new facts about what you’re reading without a lot of effort.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Readability</th>
<th>Some ways to know if a book has high readability for you:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• You know most but not all of the words.</td>
</tr>
<tr>
<td></td>
<td>• You find yourself using words from your book when you talk or write.</td>
</tr>
<tr>
<td></td>
<td>• You make some mistakes, but you can usually catch them without help and self-correct.</td>
</tr>
<tr>
<td></td>
<td>• You are challenged, but you still understand.</td>
</tr>
</tbody>
</table>
Why Invent Television?
People wanted an invention like the television for entertainment and communication. People who lived on farms before the television was invented did not have very many things to do for fun. It was also hard for them to communicate with many other people or learn about things happening far away because travel and mail were very slow.
What need or want inspired the development of this invention?

People wanted new ways to entertain themselves and share information.

How were people’s needs met, and by whom?

Philo Farnsworth’s television allowed people to send images across long distances. It provided people with new forms of entertainment, and it allowed them to learn about and explore things that were far away.

Background information about the INVENTOR(S)

Explain the inventor(s) history, motivation to solve problem, special skills and/or preparation.

• Philo Farnsworth was a farm boy from Utah.
• His first house had no electricity.
• When he moved to a house in Idaho with electricity, Philo was fascinated by all of the electrical devices.
• “Farnsworth believed that he could transform electricity into pictures by controlling the speed and direction of fast-flying electrons.”
• Farnsworth drew a design to show his high school science teacher his idea.

Information about developing a SOLUTION

Explain how the inventor(s) solved the problem.

• He found investors who gave him money to experiment with his device.
• After a lot of working, he was able to transfer his first image in 1921.
• The first image on the television was a line.
• He made the television work by inventing an image dissector camera tube.

Information about the IMPACT

Explain how this invention changed people’s lives.

• The TV was a new form of entertainment.
• “Philo T. Farnsworth changed the way people all over the world talk to each other, learn about things, and entertain themselves.”
• His invention made it possible for people to learn about and explore things that were very far away by seeing them on a television screen.

Background information about the INVENTION

Explain why people needed or wanted this invention.

• People wanted new ways to entertain themselves.
• People were interested in exploring new things.
• Philo wanted a way to send images through the air.
Model Expert Text Note-catcher 2:
The Boy Who Invented TV

What need or want inspired the development of this invention?
People wanted new forms of entertainment and better ways to communicate over long distances.

Background information about the INVENTION
Explain why people needed or wanted this invention.
• People on farms didn’t have lots of things to do for fun.
• It was hard for people to communicate over long distances because traveling was slow and expensive.
• It took a long time to get news because the mail was slow.

Information about developing a SOLUTION
Explain how the inventor(s) solved the problem.
• When he was plowing a field he realized he could create a television by: “breaking down images into parallel lines of light, capturing them and transmitting them as electrons, and then reassembling them for a viewer.”
• He drew a picture of his idea and showed it to his science teacher.
• He called his machine an image dissector.
• It took a long time, but he finally made it work.

Background information about the INVENTOR(S)
Explain the inventor(s) history, motivation to solve problem, special skills and/or preparation.
• Philo Farnsworth lived on a farm in Utah that didn’t have electricity.
• He was very curious and was always asking questions.
• He was inspired by inventors, such as Alexander Graham Bell and Thomas Edison.
• When he moved to a new house in Idaho, he learned about electricity and read lots of magazines about science.
• He became the family’s electrical engineer.

How were people’s needs met, and by whom?
Philo Farnsworth invented the television, which allows people to send images across long distances. People like to watch television for entertainment. In a way, people are more connected because they can learn about things happening far away and watch important events at the same time they are happening.

Information about the IMPACT
Explain how this invention changed people’s lives.
• People can watch shows for fun.
• People all over the world can watch an event, like a man walking on the moon or a president giving a speech, at the same time.
• About half the population of the United States watched the opening of Disneyland on TV in 1955.
1. Locate the “Background Information about the INVENTION” box on each of your note-catchers.

2. With your group members, identify and highlight in yellow three or four important details from the “Background Information about the INVENTION” boxes that relate to what life was like before the invention of the television or what people’s problem was. Remember that important details:
   - Relate to the title you highlighted
   - Might be repeated on more than one note-catcher

3. Choose one member of your group to be the recorder.

4. Work together to synthesize the key details you highlighted by discussing then writing a three- to five-sentence summary paragraph that explains what life was like before television. Use your loose-leaf paper. Summary paragraphs should:
   - Orient the reader to the situation and problem
   - Include relevant details from the note-catchers
   - Use precise vocabulary
Storyboard Image:
1920s Midwest Family
Expeditionary Learning is seeking permission to reproduce this material. When permission is granted, an updated version of this lesson will be posted at www.engageny.org and commoncoresuccess.elschools.org.
1. How could visual elements be added to the storyboard you created in class today to support readers’ comprehension of key information?

2. What type of information could be included on a storyboard to help you organize your ideas before writing a graphic novelette?
Who Was Philo Farnsworth?
1. Locate the “Background Information about the INVENTOR” box on each of your note-catchers.

2. With your group members, identify and highlight in pink three or four important details from the “Background Information about the INVENTOR” boxes that relate to Philo Farnsworth’s background. Remember that important details:
   - Relate to the title you highlighted
   - Might be repeated on more than one note-catcher

3. Choose one member of the group to be the recorder.

4. Work together to synthesize the key details you highlighted by discussing and then writing two three- to five-sentence summary paragraphs that explain two aspects of Philo Farnsworth’s background. Use your loose-leaf paper. Summary paragraphs should:
   - Clearly explain two distinct aspects of Philo Farnsworth’s background
   - Include relevant details from the note-catchers
   - Use precise vocabulary
Philo Farnsworth Invents the Television
1. Locate the “Information about developing a SOLUTION” box on each of your note-catchers.

2. With your group members, identify and highlight in blue three or four important details from the “Information about developing a SOLUTION” boxes that relate to how Philo Farnsworth invented television. Remember that important details:
   - Relate to the title you highlighted
   - Might be repeated on more than one note-catcher

3. Choose one member of the group to be the recorder.

4. Work together to synthesize the key details you highlighted by discussing and then writing two distinct three- to five-sentence summary paragraphs that explain Philo Farnsworth’s process and solution. Use your loose-leaf paper. Summary paragraphs should:
   - Clearly explain how Philo Farnsworth developed a solution
   - Include relevant details from the note-catchers
   - Use precise vocabulary
Directions:
- Consider how you could use visual elements to support readers’ comprehension of the main ideas from Section 2 of your storyboard, “Who was Philo Farnsworth?”
- **Select two visual elements** from the chart below.
- For each visual element you select, **write a description or draw a sketch** of an idea your triad could use to support readers’ comprehension of the information on your storyboard.

<table>
<thead>
<tr>
<th>Image</th>
<th>Close-up Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech Bubble</td>
<td>Thought Bubble</td>
</tr>
<tr>
<td>Diagram</td>
<td>Ambient Noise</td>
</tr>
</tbody>
</table>
Directions:
- Consider how you could use visual elements to support readers’ comprehension of the main ideas in Section 3 of your storyboard, “Philo Farnsworth Invents the Television.”
- **Select two visual elements** from the chart below.
- For each visual element you select, **write a description or draw a sketch** of an idea your triad could use **to support readers’ comprehension** of the information on your storyboard.

<table>
<thead>
<tr>
<th>Image</th>
<th>Close-up Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speech Bubble</td>
<td>Thought Bubble</td>
</tr>
<tr>
<td>Diagram</td>
<td>Ambient Noise</td>
</tr>
</tbody>
</table>
Storyboard, Section 4 Chart:
The Television

How the Television Changed People's Lives
1. Locate the “Information about the IMPACT” box on each of your note-catchers.

2. With your group members, identify and highlight in green three or four important details from the “Information about the IMPACT” boxes that relate to how the television changed people’s lives. Remember that important details:
   - Relate to the title you highlighted
   - Might be repeated on more than one note-catcher

3. Choose one member of the group to be the recorder.

4. Work together to synthesize the key details you highlighted by discussing and then writing two three- to five-sentence summary paragraphs that explain two distinct ways the television changed people’s lives. Summary paragraphs should:
   - Clearly explain two distinct ways the television changed people’s lives
   - Include relevant details from the note-catchers
   - Use precise vocabulary
Peer Critique Task Card

1. One triad presents their storyboards by taking turns reading summary paragraphs aloud.

2. Each member of the presenting triad then shares an idea from their homework task card for a visual element that would improve the readers’ comprehension of their storyboards.

3. Each member of the listening triad shares at least one piece of praise for the storyboards or suggested visual elements.

4. Members of the listening triad provide feedback on ideas for visual elements that might add to the readers’ comprehension by building on the ideas presented, asking clarifying questions, or sharing additional suggestions.

5. Think about how images, diagrams, speech bubbles, thought bubbles, and ambient noises might help readers understand the main points in the text.

6. Each member of the listening triad should contribute at least one piece of feedback.

7. When the timer sounds, triads switch roles.
Vocabulary Definition Strips

Make enough copies of the vocabulary strips so after they are cut apart each student will have one strip (some students may have the same strip.)

<table>
<thead>
<tr>
<th>Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>television</td>
<td>a system for sending visual images and sound from one place to another</td>
</tr>
<tr>
<td>image dissector</td>
<td>a camera tube that creates an electron image</td>
</tr>
<tr>
<td>electricity</td>
<td>a form of energy created by charged particles, like electrons or protons</td>
</tr>
<tr>
<td>communication</td>
<td>sharing information or news</td>
</tr>
<tr>
<td>transmitting</td>
<td>sending from one part or place to another</td>
</tr>
<tr>
<td>reassembling</td>
<td>assembling again; putting together again</td>
</tr>
<tr>
<td>captivated</td>
<td>interested; fascinated</td>
</tr>
<tr>
<td>parallel (lines)</td>
<td>straight coplanar lines that never intersect</td>
</tr>
<tr>
<td>device</td>
<td>a piece of equipment designed to serve a specific purpose</td>
</tr>
<tr>
<td>electron</td>
<td>a subatomic particle</td>
</tr>
</tbody>
</table>
Part I, A Directions

Independently read the “You Can Do a Graphic Novel” excerpt to determine the gist.
Read through each of the text-dependent questions.
Reread the “You Can Do a Graphic Novel” excerpt to help you determine an answer to each of the questions.

**What is a graphic novel?**
A graphic novel is a comic book, only longer. The big difference is that when you write a comic book, it is usually put out in monthly installments. In graphic novel form, the book is complete. Whatever you call it, it’s simply storytelling with the art *advancing* the story, rather than illustrating the text, as in the classic storybook.

**Do you have to know how to draw to do a graphic novel?**
You do not have to know how to draw, but you do need to find your unique style. The art in *Diary of a Wimpy Kid*, one of the most popular graphic novels out today, is all stick figures. It’s the *combination* of art style and writing that is unique to graphic novels.

**What is more important, art or story?**
Of course you need a good story because nobody likes a boring one, and you need interesting art to keep the reader intrigued.

**How do you know what to write about?**
Write what you *know* about.
End of Unit Assessment, Part I, A: Text-Dependent Questions:
“You Can Do a Graphic Novel” Excerpt

1. What is the main difference between a graphic novel and a classic storybook? Use quotes from the text to support your answer.

2. Is it important to know how to draw well to create a graphic novel? Support your answer with evidence from the text.

3. In the sentence “It’s the combination of art style and writing that is unique to graphic novels,” what does the word combination mean? Explain how you used context clues and/or other strategies to determine the meaning of this word.
4. Why are *both* the story and the art in a graphic novel important? Use evidence from the text to support your answer.
Why did people need or want this invention?
**Part I, B Directions**

You will need: a Storyboard graphic organizer, your expert texts, and your Expert Text note-catchers for this activity. Please be sure you have the necessary materials listed below.

**Traffic signal expert groups will need:**
- Storyboard, Section 1: The Traffic Signal
- “Transportation, from the Soapbox Derby to the Jeep: First Automatic Traffic Signal” (from Lesson 2)
- “Garrett Morgan: Inventor Hero” (from Lesson 3)
- “The Twofold Genius of Garrett Morgan” (from Lesson 4)
- “Garrett Augustus Morgan” (from Lesson 5)
- Expert Text Note-catchers: The Traffic Signal (from Lessons 2, 4, 5)
- Vocabulary cards (from Lessons 2–4)

**Airplane expert groups will need:**
- Storyboard, Section 1: The Airplane
- “Wright Brothers: Inventors of the Airplane” (from Lesson 2)
- “The Invention of the Airplane” (from Lesson 3)
- “Airplane” (from Lesson 4)
- “How Did We Learn to Fly?” (from Lesson 5)
- Expert Text Note-catchers: The Airplane (from Lessons 2, 3, 5)
- Vocabulary cards (from Lessons 2–4)
Independently complete the following:

SECTION 1:

**Page 1**

1. Read and highlight the title on page 1 of your Storyboard, Section 1 in yellow. Silently restate the title in your own words. Think about:
   - “What type of information from my notes should I use for the caption on page 1 of my storyboard?”

2. Review the articles you have read and the “Background about the INVENTION” boxes on your Expert Text note-catchers from Lessons 2–5, then highlight three or four key details that are related to the title for Section 1 of your storyboard in yellow.

3. Use the notes you highlighted in yellow to write a three- to five-sentence summary paragraph in the caption box at the bottom of page 1 of your storyboard.

4. Be sure to use linking words and key terms from your vocabulary cards in your summary paragraph.

**Pages 1–2**

1. Read the sentence starter in the thought bubble on page 1 of your storyboard.

2. Use your notes to write a sentence in the thought bubble to explain how people’s needs or wants inspired the development of the invention.

4. Read the sentence starter in the speech bubble on page 2 of your storyboard.

5. Use your notes to complete the sentence in the speech bubble to explain how people’s needs were met, and by whom.
**VISUAL ELEMENTS**: Choose at least one of the following to add to your Storyboard, Section 1 to support readers’ understanding of key ideas.

- Sketch of a **close-up image**
- A scientific key word from one of your summaries defined in a **definition box** (refer to your vocabulary cards from Lessons 2–4 for help)
- An academic key word from one of your summaries defined in a **definition box** (refer to your vocabulary cards from Lessons 2–4 for help)
- Sketch of an important person, place, thing, or idea inside a **frame/panel**
- A **diagram**
- An appropriate **ambient noise**

**Criteria for Success:**

**SECTION 1:**

- A three- to five-sentence paragraph in the page 1 caption box that clearly summarizes key details from the “Background information about the INVENTION” boxes on note-catchers from Lessons 2–5 (RI.5.9, W.5.2a, W.5.8)
- Thought bubble includes a complete sentence that helps the reader understand why people wanted or needed the invention (W.5.3a, b)
- Speech bubble includes a complete sentence that helps the reader understand how the invention met people’s needs (W.5.3a, b)
- Summary includes linking words that clearly connect ideas (W.5.2c)
- Summary, thought bubble, and speech bubble include key terms from vocabulary cards created during Lessons 2–4 (W.5.2d)
VISUAL ELEMENTS: (W.5.2a)

- *At least one* of these visual elements is added to Storyboard, Section 1:
  - close-up image (W.5.2a)
  - definition box (academic and/or scientific) (W.5.2a, d)
  - frame/panel (with image of important person/people, thing, and/or idea) (W.5.2a)
  - diagram (W.5.2a)
  - ambient noise (W.5.2a)
Why Do We Need a Traffic Signal?

I’m Garrett Morgan. I invented the traffic signal because...
Why fly?

We’re the Wright brothers. We invented the airplane, which made it possible for people to...
Reflect on the Storyboard, Section 1 you completed for Part I of the end of unit assessment to help you respond to these questions:

1. What part of your Storyboard, Section 1 do you feel would most help readers understand why people needed or wanted the invention? Explain.

2. What would you add to or change about Section 1 of your storyboard so readers would better understand why people needed or wanted the invention? Explain.
Part II, A Directions

You will need: a Storyboard graphic organizer, your expert texts, and your Expert Text note-catchers for this activity. Please be sure you have the necessary materials listed below.

Traffic signal expert groups will need:
- Storyboard, Section 2: The Traffic Signal
- “Transportation, from the Soapbox Derby to the Jeep: First Automatic Traffic Signal” (from Lesson 2)
- “Garrett Morgan: Inventor Hero” (from Lesson 3)
- “The Twofold Genius of Garrett Morgan” (from Lesson 4)
- “Garrett Augustus Morgan” (from Lesson 5)
- Expert Text Note-catchers: The Traffic Signal (from Lessons 2, 4, 5)
- Vocabulary cards (from Lessons 2–4)

Airplane expert groups will need:
- Storyboard, Section 2: The Airplane
- “Wright Brothers: Inventors of the Airplane” (from Lesson 2)
- “The Invention of the Airplane” (from Lesson 3)
- “Airplane” (from Lesson 4)
- “How Did We Learn to Fly?” (from Lesson 5)
- Expert Text Note-catchers: The Airplane (from Lessons 2, 3, 5)
- Vocabulary cards (from Lessons 2–4)
End of Unit Assessment, Part II, A: Storyboard, Section 2: Directions and Criteria for Success

Independently complete the following:

SECTION 2:

1. Read and highlight the title for pages 3 and 4 of your Storyboard, Section 2, in pink. Silently restate the title in your own words. Think about:
   • “What type of information from my notes should I use for the caption on page 4 of my storyboard?”

2. Review the articles you have read and the “Background information about the INVENTOR(S)” boxes on your Expert Text note-catchers from Lessons 2–5, and then highlight three or four key details that are related to the title for Section 2 of your storyboard in pink.

3. Use the notes you highlighted in pink to write a three- to five-sentence summary paragraph in the caption box at the bottom of page 4 of your storyboard.

4. Be sure to use linking words and key terms from your vocabulary cards (from Lessons 2–4) in your summary paragraph.

VISUAL ELEMENTS: Choose at least one of the following to add to your Storyboard, Section 2 to support readers’ understanding of key ideas.

- Sketch of a close-up image
- A scientific key word from one of your summaries defined in a definition box (refer to your vocabulary cards from Lessons 2–4 for help)
- An academic key word from one of your summaries defined in a definition box (refer to your vocabulary cards from Lessons 2–4 for help)
- Sketch of an important person, place, thing, or idea inside a frame/panel
- A diagram
- An appropriate ambient noise
**Criteria for Success:**

SECTION 2:

- A three- to five-sentence paragraph in the page 4 caption box that clearly summarizes key details from the “Background information about the INVENTOR(S)” boxes on note-catchers from Lessons 2–5 (RI.5.9, W.5.8, W.5.2b)
- Summary includes linking words that clearly connect ideas (W.5.2c)
- Summary includes key terms from vocabulary cards created during Lessons 2–4 (W.5.2d)

**VISUAL ELEMENTS: (W.5.2a)**

- At least one of these visual elements is added to Storyboard, Section 2:
  - close-up image (W.5.2a)
  - definition box (academic and/or scientific) (W.5.2a, d)
  - frame/panel (with image of important person/people, thing, and/or idea) (W.5.2a)
  - diagram (W.5.2a)
  - ambient noise (W.5.2a)
What Was Garrett Morgan's Background?
What Was the Wright Brothers'
Part II, B Directions
You will need: a Storyboard graphic organizer, your expert texts, and Expert Text note-catchers for this activity. Please be sure you have the necessary materials listed below.

Traffic signal expert groups will need:
- Storyboard, Section 3: The Traffic Signal
- “Transportation, from the Soapbox Derby to the Jeep: First Automatic Traffic Signal” (from Lesson 2)
- “Garrett Morgan: Inventor Hero” (from Lesson 3)
- “The Twofold Genius of Garrett Morgan” (from Lesson 4)
- “Garrett Augustus Morgan” (from Lesson 5)
- Expert Text Note-catchers: The Traffic Signal (from Lessons 2, 4, 5)
- Vocabulary cards (from Lessons 2–4)

Airplane expert groups will need:
- Storyboard, Section 3: The Airplane
- “Wright Brothers: Inventors of the Airplane” (from Lesson 2)
- “The Invention of the Airplane” (from Lesson 3)
- “Airplane” (from Lesson 4)
- “How Did We Learn to Fly?” (from Lesson 5)
- Expert Text Note-catchers: The Airplane (from Lessons 2, 3, 5)
- Vocabulary cards (from Lessons 2–4)
Independently complete the following:

SECTION 3:

1. Read and highlight the title for pages 5 and 6 of your Storyboard, Section 3, in **blue**. Silently restate the title in your own words. Think about:
   - “What type of information from my notes should I use for the caption on page 5 of my storyboard?”

2. Review the articles you have read and the “Information about developing a SOLUTION” boxes on your Expert Text note-catchers from Lessons 2–5, and then highlight three or four key details that are related to the title for Section 3 of your storyboard in **blue**.

3. Use the notes you highlighted in **blue** to write a three- to five-sentence summary paragraph in the caption box at the bottom of page 5 of your storyboard.

4. Be sure to use linking words and key terms from your vocabulary cards (from Lessons 2–4) in your summary paragraph.

**VISUAL ELEMENTS**: Choose at least one of the following to add to your Storyboard, Section 3 to support readers’ understanding of key ideas.

- Sketch of a **close-up image**
- A scientific key word from one of your summaries defined in a **definition box** (refer to your vocabulary cards from Lessons 2–4 for help)
- An academic key word from one of your summaries defined in a **definition box** (refer to your vocabulary cards from Lessons 2–4 for help)
- Sketch of an important person, place, thing, or idea inside a **frame/panel**
- A **diagram**
- An appropriate **ambient noise**
End of Unit Assessment, Part II, B: Storyboard, Section 3: Directions and Criteria for Success

Criteria for Success:

SECTION 3:

• A three- to five-sentence paragraph in the page 5 caption box that clearly summarizes key details from the “Information about developing a SOLUTION” boxes on note-catchers from Lessons 2–5 (RI.5.9, W.5.8, W.5.2b)

• Summary includes linking words that clearly connect ideas (W.5.2c)

• Summary includes key terms from vocabulary cards created during Lessons 2–4 (W.5.2d)

VISUAL ELEMENTS: (W.5.2a)

• At least one of these visual elements is added to Storyboard, Section 2:
  - close-up image (W.5.2a)
  - definition box (academic and/or scientific) (W.5.2a, d)
  - frame/panel (with image of important person/people, thing, and/or idea) (W.5.2a)
  - diagram (W.5.2a)
  - ambient noise (W.5.2a)
Storyboard, Section 3: The Traffic Signal

How Did Garrett Morgan Invent the Traffic Signal?
How Did the Wright Brothers Invent the Airplane?
Reflect on the Storyboard, Sections 2 and 3 you completed for Part II of the end of unit assessment to help you respond to these questions:

1. What visual elements did you choose to add to your storyboards? Name them.

2. Why did you choose to add those particular visual elements? Explain.

3. In what ways do the visual elements you added to your storyboards support readers’ understanding of the ideas you are trying to convey? Explain.
Editing Sentence Length, Examples

Example 1:

“Ask a question.”

Example 2:

“Aquarius allows scientists to stay underwater for an extended period of time. The extra time allows longer research, including coral reef monitoring and NASA equipment testing.”

Example 3:

“With more than 100 million websites, the Internet is an information gold mine.”
Part III Directions
You will need: a Storyboard graphic organizer, your expert texts, and your Expert Text note-catchers for this activity. Please be sure you have the necessary materials listed below.

Traffic signal expert groups will need:
- Storyboard, Section 4: The Traffic Signal
- “Transportation, from the Soapbox Derby to the Jeep: First Automatic Traffic Signal” (from Lesson 2)
- “Garrett Morgan: Inventor Hero” (from Lesson 3)
- “The Twofold Genius of Garrett Morgan” (from Lesson 4)
- “Garrett Augustus Morgan” (from Lesson 5)
- Expert Text Note-catchers: The Traffic Signal (from Lessons 2, 4, 5)
- Vocabulary cards (from Lessons 2–4)

Airplane expert groups will need:
- Storyboard, Section 4: The Airplane
- “Wright Brothers: Inventors of the Airplane” (from Lesson 2)
- “The Invention of the Airplane” (from Lesson 3)
- “Airplane” (from Lesson 4)
- “How Did We Learn to Fly?” (from Lesson 5)
- Expert Text Note-catchers: The Airplane (from Lessons 2, 3, 5)
- Vocabulary cards (from Lessons 2–4)
Independently complete the following:

SECTION 4:
1. Read and highlight the title for pages 7 and 8 of your Storyboard, Section 4, in green. Silently restate the title in your own words. Think about:
   • “What type of information from my notes should I use for the caption on page 8 of my storyboard?”
2. Review the articles you have read and the “Information about the IMPACT” boxes on your Expert Text note-catchers from Lessons 2–5, then highlight three or four key details in your notes that are related to the title for pages 7 and 8 of your storyboard in green.
3. Use the notes you highlighted in green to write a three- to five-sentence summary paragraph in the caption box at the bottom of page 8 of your storyboard.
4. Be sure to use linking words and key terms from your vocabulary cards (from Lessons 2–4) in your summary paragraph.

VISUAL ELEMENTS: Choose at least one of the following to add to your Storyboard, Section 4 to support readers’ understanding of key ideas.

• Sketch of a close-up image
• A scientific key word from one of your summaries defined in a definition box (refer to your vocabulary cards from Lessons 2–4 for help)
• An academic key word from one of your summaries defined in a definition box (refer to your vocabulary cards from Lessons 2–4 for help)
• Sketch of an important person, place, thing, or idea inside a frame/panel
• A diagram
• An appropriate ambient noise
Criteria for Success:

SECTION 4:

• A three- to five-sentence paragraph in the page 8 caption box that clearly summarizes key details from the “Information about the IMPACT” boxes on note-catchers from Lessons 2–5 (RI.5.9, W.5.8, W.5.2e)

• Summary includes linking words that clearly connect ideas (W.5.2c)

• Summary includes key terms from vocabulary cards created during Lessons 2–4 (W.5.2d)

VISUAL ELEMENTS: (W.5.2a)

• At least one of the following visual elements is added to Storyboard, Section 4:
  
  close-up image (W.5.2a)  
  definition box (academic and/or scientific) (W.5.2a, d)  
  frame/panel (with image of important person/people, thing, and/or idea) (W.5.2a)  
  diagram (W.5.2a)  
  ambient noise (W.5.2a)
Storyboard, Section 4: The Traffic Signal

How Did the Invention of the Traffic Signal Meet People's Needs?
How Did the Invention of the Airplane Meet People’s Needs?

caption box
Learning target: I can explain how to create a graphic novel using evidence from the text.

1. The target in my own words is:

2. How am I doing? Circle one.

   I need more help to learn this

   I understand some of this

   I am on my way!

3. The evidence to support my self-assessment is:

   ________________________________

   ________________________________

   ________________________________
Learning target: I can describe what people needed or wanted and how their needs were met, by using dialogue in my storyboard Splash Page.

1. The target in my own words is:

2. How am I doing? Circle one.

   I need more help to learn this

   I understand some of this

   I am on my way!

3. The evidence to support my self-assessment is:
Learning target: I can support readers’ understanding of the key ideas on my storyboards by adding visual elements that emphasize important details.

1. The target in my own words is:

2. How am I doing? Circle one.

   I need more help to learn this

   I understand some of this

   I am on my way!

3. The evidence to support my self-assessment is:

   ____________________________

   ____________________________

   ____________________________
My independent reading text has a clear organizational structure.
My independent reading text includes visual elements.
My independent reading text provides information.
My independent reading text contains dialogue.
### Storyboard Criteria for Success Form

Name of Author: ____________________________  Date: ____________________________

Name of Peer Reviewer: ______________________

**Directions:** Place a check mark (√) next to criteria that are met. Place a minus sign (-) next to criteria that are not met.

Write specific and helpful feedback in the Reviewer Comments column so your partner knows what elements of her/his storyboard are strong and which areas may need to be revised to meet the criteria.

<table>
<thead>
<tr>
<th>Section</th>
<th>Informational Caption</th>
<th>Narrative Dialogue</th>
<th>Visual Elements</th>
<th>Reviewer Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Splash Page Background: Invention</td>
<td>_ Three- to five-sentence summary that explains what people needed or wanted _ Summary includes linking words _ Summary includes key terms</td>
<td>_ Thought bubble is a complete sentence that helps the reader understand what people wanted or needed _ Speech bubble is a complete sentence that helps the reader understand how people’s needs were met and by whom.</td>
<td>Includes at least one of the following visual elements <em>in addition to the thought and speech bubble:</em> _ Close-up image _ Definition box (scientific) _ Definition box (academic) _ Frame/panel with image _ Diagram _ Ambient noise</td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Informational Caption</td>
<td>Narrative Dialogue</td>
<td>Visual Elements</td>
<td>Reviewer Comments</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------</td>
<td>--------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>2 – Background: Inventor(s)</td>
<td>_ Three- to five-</td>
<td></td>
<td>Includes at least one of the following visual elements:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sentence summary that</td>
<td></td>
<td>_ Close-up image</td>
<td></td>
</tr>
<tr>
<td></td>
<td>provides information</td>
<td></td>
<td>_ Definition box (scientific)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>about the inventor(s)</td>
<td></td>
<td>_ Definition box (academic)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Summary includes</td>
<td></td>
<td>_ Frame/panel with image</td>
<td></td>
</tr>
<tr>
<td></td>
<td>linking words</td>
<td></td>
<td>_ Diagram</td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Summary includes key</td>
<td></td>
<td>_ Ambient noise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>terms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 – Developing a Solution</td>
<td>_ Three- to five-</td>
<td></td>
<td>Includes at least one of the following visual elements:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sentence summary that</td>
<td></td>
<td>_ Close-up image</td>
<td></td>
</tr>
<tr>
<td></td>
<td>provides information</td>
<td></td>
<td>_ Definition box (scientific)</td>
<td></td>
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<tr>
<td></td>
<td>about the inventor(s)</td>
<td></td>
<td>_ Definition box (academic)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Summary includes</td>
<td></td>
<td>_ Frame/panel with image</td>
<td></td>
</tr>
<tr>
<td></td>
<td>linking words</td>
<td></td>
<td>_ Diagram</td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Summary includes key</td>
<td></td>
<td>_ Ambient noise</td>
<td></td>
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<tr>
<td></td>
<td>terms</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Storyboard Criteria for Success Form

<table>
<thead>
<tr>
<th>Section</th>
<th>Informational Caption</th>
<th>Narrative Dialogue</th>
<th>Visual Elements</th>
<th>Reviewer Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 - Impact</td>
<td>_ Three- to five-sentence summary that provides information about the impact of the invention: how it met society’s needs/changed people’s lives_</td>
<td></td>
<td>Includes at least one of the following visual elements:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Summary includes linking words_</td>
<td></td>
<td>_ Close-up image_</td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Summary includes key terms_</td>
<td></td>
<td>_ Definition box (scientific)_</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_ Definition box (academic)_</td>
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<td>_ Frame/panel with image_</td>
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<td></td>
<td>_ Diagram_</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>_ Ambient noise_</td>
<td></td>
</tr>
</tbody>
</table>
Storyboard Revision Task Card

Complete the following:

1. Review the comments each of your reviewers made.

2. Ask your reviewers any clarifying questions about the comments.

3. Revise each section of your storyboard based on the feedback from your reviewers.

4. Share your revisions with the reviewers to see whether you addressed their feedback.
Which Transition Works?

Example 1: Transitioning from Section 1 to Section 2

I’m Philo Farnsworth. I invented television because I thought it would be a fun way to bring people together. **Now I’m going to tell you about my childhood.**

I’m Philo Farnsworth. I invented television because I thought it would be a fun way to bring people together. **Now let me tell you about my past.**

I’m Philo Farnsworth. I invented television because I thought it would be a fun way to bring people together. **Let me take you back in time to tell you about how I became motivated to invent TV.**

Example 2: Transitioning from Section 2 to Section 3

Philo Farnsworth wanted to be an inventor, and he believed that he could use electricity to develop an idea that would bring people together. **As soon as he was old enough and could find the right investors, Philo began working on a way to make television a reality.**

Philo Farnsworth wanted to be an inventor, and he believed that he could use electricity to develop an idea that would bring people together. **Many years later he invented TV.**

Philo Farnsworth wanted to be an inventor, and he believed that he could use electricity to develop an idea that would bring people together. **Right after he left home, he invented TV.**

Example 3: Transitioning from Section 3 to Section 4

Philo found some investors and spent a lot of time trying to make his invention work. Finally he succeeded and invented the television! **Things were different now.**

He found some investors and spent a lot of time trying to make his invention work. Finally he succeeded and invented the television! **It was great.**

Philo found some investors and spent a lot of time trying to make his invention work. Finally he succeeded and invented the television! **After that, people’s lives changed a great deal.**
Sentence 1: Philo tried to make himself look older.

Sentence 2: The crowd was very loud.

Sentence 3: The people were silent.
Storyboard Revision Task Card: Transitions

1. Review the speech bubble and captions between Sections 1 and 2, 2 and 3, and 3 and 4.

2. Think about: How could I add effective transitions to help the reader better understand the sequence of events?

3. Review the Narrative Transitions anchor chart for ideas that help you add transitions to manage the sequence of events between the sections of your storyboard.

4. Ask a peer from your triad to review your revisions and provide feedback. Revise further, as needed.
Storyboard Revision Task Card: Sensory Details

1. Review thought and speech bubbles, as well as captions, in each section of your storyboard.

2. Identify one simple sentence in each section that could be enhanced by the use of sensory details to help the reader see or hear the experiences described.

3. Revise at least one sentence in each section of your storyboard to include sensory details.

4. Once you have completed your revisions, share with a member of your triad for critique. Revise further, as needed.
Fold each page in half.
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th></th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>10</td>
<td>10</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>
Creating Pages:
Step 2

On one of your sticky notes, write “Table of Contents,” then put the note on the front of one of your folded pages.

Cut out numbers 1–10 from your numbers strip and set aside or throw away the unused numbers (make sure you have only one of each number, 1–10).
Open (unfold the page) and write “Section 1” on one of your sticky notes. Place the sticky note on the left side of the page. Then, glue the “1” in the lower left corner of the page, and glue “2” in the lower right corner of the page.
Mark the Binding

Use your ruler to measure half an inch from the right of your crease. Mark with a pencil. Repeat to make a mark half an inch from the left side of the crease as well.
Mark the Binding

Line your ruler up vertically, using the mark you made on each side of the crease. Use your pencil to lightly draw a line to the left, then the right of the crease.
Fold your “Section 1” paper to the left, so the blank side is showing. Set another one of your folded pieces of paper right next to it, so it looks like two pages with a crease in the center.

Write “Section 2” on another one of your sticky notes, then place on the left-side page. Glue a “3” onto the lower left page and a “4” on the lower right page. Then, use your ruler to make half-inch marks to either side of the crease (gap) and use your ruler and pencil to make lines that indicate space for the binding.
Fold the right page of “Section 2” to the left, so there are two blank pages with a crease in the center.

Write “Section 3” on another one of your sticky notes and place it on the left blank page. Glue a “5” onto the lower left and a “6” on the lower right. Then use your ruler to make half-inch marks to either side of the crease and use your ruler and pencil to make lines that indicate space for the binding.
Fold your “Section 3” paper to the left so the blank side is showing. Set your last folded piece of paper right next to it, so it looks like two pages with a crease in the center.

Write “Section 4” on another one of your sticky notes and place it on the left page. Glue a “7” on the lower left page and an “8” on the lower right page. Then, use your ruler to make half-inch marks to either side of the crease (gap) and use your ruler and pencil to make lines that indicate space for the binding.
Fold the right page of “Section 4” to the left so there are two blank pages with a crease in the center.

Write “Glossary” on another one of your sticky notes and place it on the left blank page. Write “Citations” on your last sticky note and place on the right blank page. Glue a “9” on the lower left and a “10” on the lower right. Then, use your ruler to make half-inch marks to either side of the crease and use your ruler and pencil to make lines that indicate space for the binding.
<table>
<thead>
<tr>
<th>Section 1, Splash Page</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>_ Includes a title related to the content of this section _ Includes a three- to five-sentence informational caption that explains what people needed or wanted _ Thought bubble is a complete sentence that helps the reader understand what people wanted or needed _ Speech bubble is a complete sentence that helps the reader understand how people’s needs were met, and by whom _ Includes at least two frames/panels with images of an important person, place, thing, or idea inside; frames/panels separated by gutters Includes at least one of these visual elements: _ Close-up image _ Definition box (scientific) _ Definition box (academic) _ Diagram _ Ambient noise</td>
<td>Missing one or two of the criteria listed for a score of 4</td>
<td>Missing three of the criteria listed for a score of 4</td>
<td>Missing four or more criteria listed for a score of 4</td>
<td></td>
</tr>
</tbody>
</table>

Score

Reviewer comments:
Section 1:
Text and Images (Option A)

1. Open a blank word document.

2. Use “autoshapes” to create a rectangular frame for your caption, then add a text box to the caption frame. In the text box, type the best version of your three- to five-sentence summary from your end of unit storyboard draft for Section 1.

3. Use “wordart” or font to create a title for Section 1. You may use the one provided on your end of unit Section 1 draft, or you may create a new title.

4. Create a thought bubble using “autoshapes,” then add a text box to the thought bubble. In the text box, type the best version of text from the thought bubble on your storyboard draft.

5. Create a speech bubble using “autoshapes,” then add a text box to the speech bubble. In the text box, type the best version of text from the speech bubble on your storyboard draft.

6. Create two frames. Add an image to each frame.

7. Add another visual element to Section 1 (see choices on rubric).

8. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.

9. Print the caption, title, speech and thought bubbles, frames with images, and additional visual element.
1. Gather two or three sheets of plain white paper.

2. Draw a rectangular frame for your caption. In the frame, write the best version of your three- to five-sentence summary from your end of unit storyboard draft for Section 1.

3. Neatly and in large print, write a title for Section 1. You may use the one provided on your end of unit Section 1 draft, or you may create a new title.

4. Draw a thought bubble. Inside, write the best version of text from the thought bubble on your end of unit storyboard draft.

5. Draw a speech bubble. Inside, write the best version of text from the speech bubble on your end of unit storyboard draft.

6. Draw two frames. Draw an image in each frame.

7. Create another visual element to add to Section 1 (see choices on rubric).

8. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.
Arranging Pieces and Peer Critique

1. Neatly cut out each piece for Section 1 of your novelette: caption, title, thought and speech bubbles, frames with images, additional visual element.

2. Arrange all the pieces onto pages 1 and 2 of your novelette. Do not glue them down yet!

3. Show your arrangement to a member of your triad and ask her or him to refer to the rubric criteria to provide feedback (score and comments.)

4. Rearrange, revise and/or create additional pieces as necessary, based on feedback.

5. Show the changes to your peer reviewer for feedback regarding whether you addressed the concerns.

6. As time allows, glue pieces onto pages 1 and 2 of your novelette. Make sure not to glue anything past the binding lines!
<table>
<thead>
<tr>
<th>Section 2</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
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<tr>
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<td>Missing one of the criteria listed for a score of 4</td>
<td>Missing two of the criteria listed for a score of 4</td>
<td>Missing three or more of the criteria listed for a score of 4</td>
<td></td>
</tr>
<tr>
<td>_ Includes a three- to five-sentence informational caption that provides information about the inventor(s) background, special skills, and/or motivation to develop the invention</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>_ Includes at least two frames/panels with images of an important person, place, thing, or idea inside; frames/panels separated by gutters</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Includes at least one of these visual elements:</td>
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<tr>
<td>_ Close-up image</td>
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<td></td>
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<tr>
<td>_ Definition box (scientific)</td>
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<td>_ Definition box (academic)</td>
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<td>_ Diagram</td>
<td></td>
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<tr>
<td>_ Ambient noise</td>
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<tr>
<td>_ Speech bubble with dialogue</td>
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</tr>
<tr>
<td>_ Thought bubble with dialogue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Score

Reviewer comments:
Part I:

1. Open a blank word document.
2. Use “autoshapes” to create a rectangular frame for your caption, then add a text box to the caption frame. In the text box, type the best version of your three to five-sentence summary from your end of unit storyboard draft for Section 2.
3. Use “wordart” or font to create a title for Section 2. You may use the one provided on your end of unit Section 2 draft, or you may create a new title.
4. Create two frames. Add an image to each frame.
5. Add another visual element to Section 2 (see choices on rubric).
6. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.
7. Print the caption, title, frames with images, and additional visual element.

Part II:

1. Neatly cut out each piece for Section 2 of your novelette: caption, title, frames with images, additional visual element.
2. Arrange all the pieces onto pages 3 and 4 of your novelette. Do not glue them down yet!
3. Show your arrangement to a member of your triad and ask her or him to refer to the rubric criteria to provide feedback (score and comments).
4. Rearrange, revise, and/or create additional pieces as necessary, based on feedback.
5. Show the changes to your peer reviewer for feedback regarding whether you addressed the concerns.
6. As time allows, glue pieces on pages 3 and 4 of your novelette. Make sure not to glue anything past the binding lines!
Part I:

1. Gather two or three sheets of plain white paper.

2. Draw a rectangular frame for your caption. Inside, write the best version of your three- to five-sentence summary from your end of unit assessment storyboard draft for Section 2.

3. Neatly and in large print, write a title for Section 2. You may use the one provided on your end of unit Section 2 draft, or you may create a new title.

4. Draw two frames. Draw an image in each frame.

5. Create another visual element to add to Section 2 (see choices on rubric).

6. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.

Part II:

1. Neatly cut out each piece for Section 2 of your novelette: caption, title, frames with images, additional visual element.

2. Arrange all the pieces on pages 3 and 4 of your novelette. Do not glue them down yet!

3. Show your arrangement to a member of your triad and ask her or him to refer to the rubric criteria to provide feedback (score and comments).

4. Rearrange, revise, and/or create additional pieces as necessary, based on feedback.

5. Show the changes to your peer reviewer for feedback regarding whether or not you addressed the concerns.

6. As time allows, glue pieces onto pages 3 and 4 of your novelette. Make sure not to glue anything past the binding lines!
<table>
<thead>
<tr>
<th>Section 3</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>_ Includes a title related to the content of this section</td>
<td></td>
<td>Missing one of the criteria listed for a score of 4</td>
<td>Missing two of the criteria listed for a score of 4</td>
<td>Missing three or more of the criteria listed for a score of 4</td>
</tr>
<tr>
<td>_ Includes a three- to five-sentence caption that provides information about the inventor(s) process and solution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Includes at least two frames/panels with images of an important person, place, thing, or idea inside; frames/panels separated by gutters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Includes at least one of these visual elements:</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>_ Close-up image</td>
<td></td>
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<tr>
<td>_ Definition box (scientific)</td>
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<td>_ Definition box (academic)</td>
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<td>_ Diagram</td>
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<tr>
<td>_ Ambient noise</td>
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<td>_ Speech bubble with dialogue</td>
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</tr>
<tr>
<td>_ Thought bubble with dialogue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Score

Reviewer comments:
Part I:

1. Open a blank word document.
2. Use “autoshapes” to create a rectangular frame for your caption, then add a text box to the caption frame. In the text box, type the best version of your three- to five-sentence summary from your end of unit storyboard draft for Section 3.
3. Use “wordart” or font to create a title for Section 3. You may use the one provided on your end of unit Section 3 draft, or you may create a new title.
4. Create two frames. Add an image to each frame.
5. Add another visual element to Section 3 (see choices on rubric).
6. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.
7. Print the caption, title, frames with images, and additional visual element.

Part II:

1. Neatly cut out each piece for Section 3 of your novelette: caption, title, frames with images, additional visual element.
2. Arrange all the pieces on pages 5 and 6 of your novelette. Do not glue them down yet!
3. Show your arrangement to a member of your triad and ask her or him to refer to the rubric criteria to provide feedback (score and comments).
4. Rearrange, revise, and/or create additional pieces as necessary, based on feedback.
5. Show the changes to your peer reviewer for feedback regarding whether or not you addressed the concerns.
6. As time allows, glue pieces onto pages 5 and 6 of your novelette. Make sure not to glue anything past the binding lines!
SECTION 3: Text and Images (Option B)

**Part I:**

1. Gather two or three sheets of plain white paper.
2. Draw a rectangular frame for your caption. Inside, write the best version of your three- to five-sentence summary from your end of unit assessment storyboard draft for Section 3.
3. Neatly and in large print, write a title for Section 3. You may use the one provided on your end of unit Section 3 draft, or you may create a new title.
4. Draw two frames. Draw an image in each frame.
5. Create another visual element to add to Section 3 (see choices on rubric).
6. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.

**Part II:**

1. Neatly cut out each piece for Section 3 of your novelette: caption, title, frames with images, additional visual element.
2. Arrange all the pieces on pages 5 and 6 of your novelette. Do not glue them down yet!
3. Show your arrangement to a member of your triad and ask her or him to refer to the rubric criteria to provide feedback (score and comments).
4. Rearrange, revise, and/or create additional pieces as necessary, based on feedback.
5. Show the changes to your peer reviewer for feedback regarding whether or not you addressed the concerns.
6. As time allows, glue pieces onto pages 5 and 6 of your novelette. Make sure not to glue anything past the binding lines!
<table>
<thead>
<tr>
<th>Section 4</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>_ Includes a title related to the content of this section</td>
<td>Missing one of the criteria listed for a score of 4</td>
<td>Missing two of the criteria listed for a score of 4</td>
<td>Missing three or more of the criteria listed for a score of 4</td>
<td></td>
</tr>
<tr>
<td>_ Includes a three- to five-sentence caption that provides information about the inventor(s) process and solution</td>
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</tr>
<tr>
<td>_ Includes at least two frames/panels with images of an important person, place, thing, or idea inside; frames/panels separated by gutters</td>
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<td></td>
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</tr>
<tr>
<td>Includes at least one of these visual elements:</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>_ Close-up image</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Definition box (scientific)</td>
<td></td>
<td></td>
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<td>_ Definition box (academic)</td>
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<tr>
<td>_ Diagram</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>_ Ambient noise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>_ Speech bubble with dialogue</td>
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<tr>
<td>_ Thought bubble with dialogue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Score

Reviewer comments: ____________________________

______________________________

______________________________

______________________________
Section 4:
Text and Images (Option A)

Part I:

1. Open a blank word document.

2. Use “autoshares” to create a rectangular frame for your caption, then add a text box to the caption frame. Inside the text box, type the best version of your three- to five-sentence summary from your end of unit storyboard draft for Section 4.

3. Use “wordart” or font to create a title for Section 4. You may use the one provided on your end of unit Section 4 draft, or you may create a new title.

4. Create two frames. Add an image to each frame.

5. Add another visual element to Section 4 (see choices on rubric).

6. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.

7. Print the caption, title, frames with images, and additional visual element.

Part II:

1. Neatly cut out each piece for Section 4 of your novelette: caption, title, frames with images, additional visual element.

2. Arrange all the pieces on pages 7 and 8 of your novelette. Do not glue them down yet!

3. Show your arrangement to a member of your triad and ask her or him to refer to the rubric criteria to provide feedback (score and comments).

4. Rearrange, revise, and/or create additional pieces as necessary, based on feedback.

5. Show the changes to your peer reviewer for feedback regarding whether you addressed the concerns.

6. As time allows, glue pieces onto pages 7 and 8 of your novelette. Make sure not to glue anything past the binding lines!
Section 4: Text and Images (Option B)

Part I:

1. Gather two or three sheets of plain white paper.
2. Draw a rectangular frame for your caption. Inside, write the best version of your three- to five-sentence summary from your end of unit storyboard draft for Section 4.
3. Neatly and in large print, write a title for Section 4. You may use the one provided on your end of unit Section 4 draft, or you may create a new title.
4. Draw two frames. Draw an image in each frame.
5. Create another visual element to add to Section 4 (see choices on rubric).
6. Refer back to the rubric to help you determine whether you have created each piece to meet the criteria. Revise and/or create additional pieces as necessary.

Part II:

1. Neatly cut out each piece for Section 4 of your novelette: caption, title, frames with images, additional visual element.
2. Arrange all the pieces on pages 7 and 8 of your novelette. Do not glue them down yet!
3. Show your arrangement to a member of your triad and ask her or him to refer to the rubric criteria to provide feedback (score and comments).
4. Rearrange, revise, and/or create additional pieces as necessary, based on feedback.
5. Show the changes to your peer reviewer for feedback regarding whether you addressed the concerns.
6. As time allows, glue pieces onto pages 7 and 8 of your novelette. Make sure not to glue anything past the binding lines!
<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover</td>
<td>_ Front cover includes a title that is related to overall content of the story</td>
<td>Missing one of the criteria listed for a score of 4</td>
<td>Missing two of the criteria listed for a score of 4</td>
<td>Missing three or more of the criteria listed for a score of 4</td>
</tr>
<tr>
<td></td>
<td>_ Front cover includes author’s name (and illustrator’s name, if images are drawn)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Front cover includes an image that is related to the invention and/or inventor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Back cover includes a two- or three-sentence summary of the story and an image related the invention and/or inventor</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Glossary Rubric

<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glossary</td>
<td>Lists and clearly defines at least five key terms from the story</td>
<td>Lists and defines four of the key terms from the story</td>
<td>Lists and defines three or four of the key terms from the story</td>
<td>Lists and defines two or fewer key terms; or terms listed and defined are not key to the story.</td>
</tr>
<tr>
<td></td>
<td>Key terms are in alphabetical order.</td>
<td>Key terms are in alphabetical order.</td>
<td>Key terms are not in alphabetical order.</td>
<td>Key terms are not in alphabetical order.</td>
</tr>
<tr>
<td></td>
<td>There is a combination of both academic and scientific terms.</td>
<td>There is a combination of both academic and scientific terms.</td>
<td>Includes ONLY scientific or academic terms</td>
<td>Includes ONLY scientific or academic terms (or no terms)</td>
</tr>
</tbody>
</table>
television: (n.) a device that receives television signals and reproduces them on a screen so that viewer sees images and hears sounds

electricity: (n.) a form of energy created by rubbing two unlike things (like glass and silk) together

electron: (n.) a small particle that has a negative charge and travels around the nucleus of an atom

invented: (v.) created something new

communicate: (v.) share or exchange information or ideas
Creating a Glossary Task Card
(Option A)

Part I:

1. Refer to your novelette pages to locate a mix of five key academic and scientific words found in your text (captions or speech and thought bubbles). Make sure you have a vocabulary card already created for word you chose. If you do not have a card for each word, try to locate other words from the text that you do have cards for.

2. Arrange your five vocabulary cards in alphabetical order. Ask a member of your triad to double-check whether you have included both scientific and academic words and that the order of your words is correct. Choose other words and/or rearrange if necessary.

3. Use “autoshapes” to create a frame for your glossary that takes up about two-thirds of the page. Then add a text box inside the glossary frame. Use “wordart” or font to type and add the title “Glossary” to the top of the text box.

4. Type each key word and definition, in alphabetical order, in the text box.

5. Refer back to the Glossary rubric to help you determine whether you have met the criteria described. Revise as necessary.

6. Print the glossary.

Part II:

7. Neatly cut out the glossary frame with key words defined.

8. As time allows, glue the glossary onto page 9 of your novelette. Make sure not to glue past the binding line!
Creating a Glossary Task Card
(Option B)

Part I:

1. Refer to your novelette pages to locate a mix of five key academic and scientific words found in your text (captions or speech and thought bubbles). Make sure you have a vocabulary card already created for each word you chose. If you do not have a card for each word, try to locate other words from the text that you do have cards for.

2. Arrange your five vocabulary cards in alphabetical order. Ask a member of your triad to double-check whether you have included both scientific and academic words and that the order of your words is correct. Choose other words and/or rearrange if necessary.

3. On a blank sheet of paper, draw a frame for your glossary that takes up about two-thirds of the page. In large, neat letters, write the title “Glossary” near the top of the frame.

4. Neatly write each key word and definition, in alphabetical order, in the frame.

5. Refer back to the Glossary rubric to help you determine whether you have met the criteria described. Revise as necessary.

Part II:

6. Neatly cut out the glossary frame with key words defined.

7. As time allows, glue the glossary onto page 9 of your novelette. Make sure not to glue past the binding line!
Citations Example

Citations


## Citations Rubric

<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Citations</strong></td>
<td><strong><em>Accurately cites all four expert texts from Lessons 2–5:</em></strong>&lt;br&gt; - Last name of author comes before first name and is separated by a comma&lt;br&gt; - Titles of books are italicized (or written in script/cursive)&lt;br&gt; - Titles of articles are in quotes, and NOT italicized or scripted/cursive&lt;br&gt; - If the text came from a website, the name of the website is listed after the name of the text.</td>
<td><strong><em>Accurately cites only three of the expert texts; or cites all four expert texts, but inaccurately:</em></strong></td>
<td><strong><em>Accurately cites only one or two of the expert texts; or cites two or three of the texts inaccurately:</em></strong></td>
<td><strong><em>Does not cite any expert texts accurately; or does not cite expert texts at all:</em></strong></td>
</tr>
</tbody>
</table>
Creating a Citations Page Task Card
(Option A)

Part I:

1. Refer to your expert texts from Lessons 2–5. Locate the title of the text as well as the author’s name and/or website the text came from.

2. Use “autoshapes” to create a frame for your citations that takes up about two-thirds of the page. Then add a text box inside the citations frame. Use “wordart” or font to type and add the title “Citations” to the top of the text box.

3. Type the name of each text, author, and/or website into the text box, using the format described in the Citations rubric.

4. Ask a member of your triad to review your citations and offer feedback based on the Citations rubric criteria to help you determine whether you have met the criteria described. Revise as necessary.

5. Print your citations.

Part II:

6. Neatly cut out the citations frame.

7. As time allows, glue the citations frame onto page 10 of your novelette. Make sure not to glue past the binding line!
Creating a Citations Page Task Card  
(Option B)

Part I:

1. Refer to your expert texts from Lessons 2–5. Locate the title of the text as well as the author’s name and/or website the text came from.

2. On a blank piece of paper, draw a frame for your citations that takes up about two-thirds of the page. In neat and large print, write the title “Citations” near the top of the frame.

3. Write the name of each text, author, and/or website in the frame, using the format described in the Citations rubric.

4. Ask a member of your triad to review your citations and offer feedback based on the Citations rubric criteria to help you determine whether you have met the criteria described. Revise as necessary.

Part II:

5. Neatly cut out the citations frame.

6. As time allows, glue the citations frame onto page 10 of your novelette. Make sure not to glue past the binding line!
Table of Contents Example

Table of Contents

Section 1: Why TV Was Invented ... p. 1

Section 2: Philo’s Early Years ... p. 3

Section 3: Philo’s Amazing Invention ... p. 5

Section 4: How TV Changed People’s Lives ... p. 7

Glossary ... p. 9

Citations ... p. 10
## Table of Contents Rubric

<table>
<thead>
<tr>
<th></th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table of Contents</strong></td>
<td>_ Includes title (Table of Contents)</td>
<td>Missing one of the criteria listed for a score of 4</td>
<td>Missing two of the criteria listed for a score of 4</td>
<td>Missing three or more of the criteria listed for a score of 4</td>
</tr>
<tr>
<td></td>
<td>_ Lists each section in order from 1–4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Includes the name/title of each section</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>_ Lists the page number where each section begins</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Creating the Table of Contents Task Card
(Option A)

Part I:

1. Refer to your novelette pages to locate the title of each section and resource page, as well as the page each starts on.
2. Use “autoshapes” to create a frame for your table of contents that takes up about two-thirds of the page. Then add a text box inside the table of contents frame. Use “wordart” or font to type and add the title “Table of Contents” to the top of the text box.
3. In the text box, type each section and resource title, as well as the page number where each starts.
4. Refer back to the Table of Contents rubric to help you determine whether you have met the criteria described. Revise as necessary.
5. Print the Table of Contents.

Part II:

1. Neatly cut out the table of contents frame.
2. If time allows, turn to the first blank (unnumbered) page of your novelette, the page that comes before Section 1, page 1. Glue the table of contents onto the blank front page of your novelette. Make sure not to glue past the binding line!
Creating the Table of Contents Task Card
(Option B)

Part I:

1. Refer to your novelette pages to locate the title of each section and resource page, as well as the page each starts on.
2. On a blank piece of paper, draw a frame for your table of contents that takes up about two-thirds of the page. In neat and large print, write the title “Table of Contents” near the top of the frame.
3. Neatly write each section and resource title, as well as the page number where each starts, in the frame.
4. Refer back to the Table of Contents rubric to help you determine whether you have met the criteria described. Revise as necessary.

Part II:

1. Neatly cut out the table of contents frame.
2. If time allows, turn to the first blank (unnumbered) page of your novelette, the page that comes before Section 1, page 1. Glue the table of contents onto the blank front page of your novelette. Make sure not to glue past the binding line!
Creating a Cover Task Card
(Option A)

Part I:

1. Refer to your cover sketch to help you create the cover for your graphic novelette.
2. Use “autoshapes” to create a rectangular frame for your two- or three-sentence book summary. Then add a text box inside the frame and type your summary into the box.
3. Use “wordart” or font to create a title for your cover.
4. Use “wordart” or font to type your first and last name.
5. Print two images of the invention and/or inventor your novelette describes, to paste onto the front and back cover.
6. Refer to the Novelette Cover rubric to help you determine whether you have met each of the criteria described. Revise as necessary.
7. Print the items you created for your cover: summary, title, author’s name, and both images.

Part II:

1. Neatly cut out each piece for your cover.
2. Glue the pieces onto the front and back of the cover of your novelette. Make sure not to glue past the binding lines!
Part I:

1. Refer to your cover sketch to help you create the cover for your graphic novelette.

2. On a blank piece of paper, draw a rectangular frame for your two- or three-sentence book summary. Then, neatly write your summary in the text box.

3. On a blank piece of paper, neatly and in large print, write a title for your cover.

4. On blank paper, neatly write your first and last name.

5. Draw images of the invention and/or inventor your novelette describes, to paste onto the front and back of your cover.

6. Refer to the Novelette Cover rubric to help you determine whether you have met each of the criteria described. Revise as necessary.

Part II:

1. Neatly cut out each piece for your cover.

2. Glue the pieces onto the front and back of the cover for your novelette. Make sure not to glue past the binding lines!
Binding Novelettes, Step 1

Line up your ruler with the crease of your table of contents page (with the beginning mark for 0-1 inches at the bottom of the page). Make light pencil marks on your table of contents page, away from the crease, at the 2-inch, 5½-inch, and 9-inch marks.

Then, use your hole punch to make holes over each of the three pencil marks.
Binding Novelettes, Step 2

Set the table of contents page over the top of your second set of folded pages (make sure to align creases and pages.) Use your pencil to make light marks near the crease to indicate where you will need to punch holes.

Punch holes in the next set of pages.

Repeat for the third set of folded pages.

Repeat to mark and make holes in the cover for your novelette.
Binding Novelettes, Step 3

Place the pages of your graphic novelette (in order from table of contents to page 10) inside your cover and line up the hole-punched as well as you can. Place a brass brad in the center hole and fasten by spreading the tabs vertically across the back of your cover. Do the same with the other two holes.

Now you should be able to easily turn the bound pages of your graphic novelette.
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Human Resources Director, Cattaraugus-Allegany BOCES, 1825 Windfall Road, Olean, NY 14760; 716-376-8237.