

Molloy College
Division of Education
Lesson Plan Template

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Grade 4 Topic: Industrial Revolution Inventors

Content Area: Social Studies

INSTRUCTIONAL OBJECTIVES (s) (*Lesson Objective(s))**

After the teacher presents students with images of a light bulb, Model T and the Tesla coil and listening to short biographies about Ford, Tesla and Edison, students will *paraphrase portions of a text read aloud or information presented in diverse media and formats* by completing a listen and retell on the inventors and identifying the obstacles faced by the inventors. Students will be able to identify three accurate obstacles that the inventors faced.

NYS STANDARDS AND INDICATORS

New York State Social Studies Standards

Key Idea: 4.6 WESTWARD MOVEMENT AND INDUSTRIALIZATION: New York State played an important role in the growth of the United States. During the 1800s, people traveled west looking for opportunities. Economic activities in New York State are varied and have

changed over time, with improvements in transportation and technology. (Standards: 1, 3, 4; Themes: MOV, TCC, GEO, ECO, TECH)

Key Concept: 4.6e Entrepreneurs and inventors associated with New York State have made important contributions to business and technology.

Indicator: This will be evident when students complete a listen and retell about inventors that have made important contributions to business and technology.

National Social Studies Standards and Themes:

VIII. Science, Technology, & Society

Social studies programs should include experiences that provide for the study of relationships among science, technology, and society so that the learner can:

a. identify and describe examples in which science and technology have changed the lives of people,

Indicator: This will be evident when students learn about how science and technology changed the lives of the inventors and are able to complete the *Great Inventors Worksheet (F)*.

Individual Development & Identity: Social studies programs should include experiences that provide for the study of individual development and identity so that the learner can:

- f. explore factors that contribute to one's personal identity such as interests, capabilities, and perceptions;
- g. analyze a particular event to identify reasons individuals might respond to it in different ways;

Indicator: This will be evident when students are able to complete the *Great Inventors Worksheet (F)* about factors that contributed to the inventor's personal identity.

NCSS C3 Inquiry Arc

Dimension 3: Students will work toward conclusions about societal issues, trends, and events by collecting evidence and evaluating its usefulness in developing causal **explanations**.

Indicator: This will be evident when students paraphrase portions of a text read aloud or information presented in diverse media and formats by completing a listen and retell on the inventors.

Dimension 4: Students will draw on knowledge and skills to work individually and collaboratively to conclude their investigations into societal issues, trends, and events and will present their information, portions, and findings.

Indicator: This will be evident when students are able to complete the listen and retell assignment.

ELA Standard: New York State Next Generation English Language Arts Learning

Standard

Speaking and Listening Standards:

Comprehension and Collaboration

2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

Presentation of Knowledge and Ideas

4. Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace

Indicator: This will be evident when students are able to tell a story in an organized manner, using appropriate facts and details during the listen and retell assignment about the different inventors.

Social Studies Practices: Habits of Mind

Gathering, Interpreting and Using Evidence

2. Recognize, use, and analyze different forms of evidence used to make meaning in social studies (including sources such as art and photographs, artifacts, oral histories, maps, and graphs).

6. Create an understanding of the past by using primary and secondary sources

Indicator: This will be evident when students listen to short biographies about each inventor.

INSTRUCTIONAL RESOURCES

- SmartBoard
- *KWL Chart (A)*
- *Henry Ford Biography (B)*
- *Thomas Edison Biography (C)*
- *Nikola Tesla Biography (D)*
- *Interesting Facts Worksheet (E)*
- *The Great Inventors (F)*
- FlipGrid
- Index Cards

- Motivation Powerpoint Slide
- <https://www.youtube.com/watch?v=J9OgpHGxDbY>
- <https://www.brainpop.com/science/energy/thomasedison/>
- <https://www.brainpop.com/science/energy/nikolatesla/>

MOTIVATION (*Engaging the learner(s))**

Teacher will show students a picture of a light bulb, Model T and the Tesla coil. Teacher will ask students to explain what all these items have in common. (*What do these three pictures have in common?*)

DEVELOPMENTAL PROCEDURES

1. Teacher will show students a picture of light bulb, Model T and the Tesla coil invention and ask them to explain what all three have in common. (*What do these three pictures have in common?*)
2. Teacher will then continue this conversation to see what students know about the inventors that created these inventions. Teacher will distribute a *KWL Chart (A)* for students to complete the K portion. Teacher will have students turn and talk to their partner to go over some facts they know about Ford, Edison and Tesla. Teacher will then instruct students to complete the W portion of the worksheet. (*What do you know about these inventors? What would you want to know about these inventors?*)
3. After a few minutes of students discussing and completing the first two columns of the *KWL Chart (A)*, teacher will request for a few groups to explain what they spoke about. (*What do you already know about Edison, Ford and Tesla? Did you and your partner know the same things or different about the inventors?*)

4. Teacher will instruct students that the class is going to participate in a listen and retell activity where the teacher will read to the students biographies on Edison, Ford and Tesla. Teacher will instruct students to listen the first time the passage is read. The second time they are to write down 5 key words, on the distributed index cards, to help them remember when it comes time to retell. *(What should you be writing on the index card? Does anyone have any questions before we begin?)*
5. Teacher will read the teacher summarized biography for Henry Ford once while students are only listening. Teacher will read again, this time instructing students to write down 5 key words to help them remember when it comes time to retell. Teacher will have students to a turn and talk with their assigned buddy to retell the story. *(It's the second time I'm reading it now, what should we be doing? Who was able to guess all of their partner's words? Did you and your partner have the same words?)*
6. Teacher will read the teacher summarized biography for Thomas Edison once while students are only listening. Teacher will read again, this time instructing students to write down 5 key words to help them remember when it comes time to retell. Teacher will have students to a turn and talk with their assigned buddy to retell the story. *(Did you find this biography easier or harder to retell? Why do you think so? Was it easier to guess your partner's words this time?)*
7. Teacher will read the teacher summarized biography for Nikola Tesla once while students are only listening. Teacher will read again, this time instructing students to write down 5 key words to help them remember when it comes time to retell. Teacher will have students to a turn and talk with their assigned buddy to retell the story. *(Did you find one*

inventors easier to retell than the others? Why do you think this is? Whose story did you find most interesting?)

8. Teacher will bring students attention to the front of the room. Teacher will ask students to complete the last column of their *KWL Chart (A)* to include what they learned about each of the inventors that they did not know before. *(What are some things that you learned about these inventors? Why do you think we are learning about these specific inventors?)*
9. Students will complete the *Great Inventors Worksheet (F)*, writing three (3) obstacles that the inventors faced and how each inventor showed they possessed grit. *(How did these inventors show grit? What were some of the obstacles that they had to overcome? Why do you think they were able to overcome these obstacles?)*
10. To close the lesson, teacher will ask some students to volunteer what they listed on their *KWL Chart (A)* and *Great Inventors Worksheet (F)*. *(Who would like to share something they learned today about these inventors?)*

INSTRUCTIONAL STRATEGIES (Learning Strategies*)

Strategy: Direct Instruction

Indicator: Teacher will read to students the short biographies about inventors.

Strategy: Group Discussion

Indicator: Teacher will have students participate in a group discussion when they speak about what they already know about Edison, Ford and Tesla.

Strategy: Cooperative Learning

Indicator: Teacher will have students work in pairs when they complete a turn-and-talk.

Strategy: Scaffolding

Indicator: Teacher will allow students to work independently, but provide support when necessary.

ADAPTATIONS (*Exceptionality**)

- Students with fine motor impairments will be paired with a student in order to complete the *Interesting Facts Worksheet (E)*.
- Students who require a flexible seating arrangement will be allowed to listen to the story sitting on the carpet and be allowed to retell the story sitting in a bean bag chair in the hallway.

DIFFERENTIATION OF INSTRUCTION

Struggling Students: Teacher will instruct students to write 10 facts on their index card in order to retell the story most accurately.

Average Students: Teacher will instruct students to write 5 facts on their index card in order to retell the story most accurately.

Advanced Students: Teacher will instruct students to write 3 facts on their index card in order to retell the story most accurately.

ASSESSMENT (*artifacts* and assessment [formal & informal]**)

Informal: Teacher will listen to students while working on the retell portion of the “Listen and Retell” as well as when they are working independently on the “Great Inventors” worksheet.

Formal: Students will show their knowledge by completing a listen and retell on the inventors and identifying the obstacles faced by the inventors. Students will be able to identify three accurate obstacles that the inventors faced on the *Great Inventors Worksheet (F)*.

INDEPENDENT PRACTICE

Students will be divided into three different groups, each group will be assigned a different inventor. Students will research their specific inventor and complete a Flipgrid assignment. Student will answer questions about their inventor like “What was his greatest invention? What was his greatest challenge? How did he overcome these challenges?” and share it with the class! Students will respond to one peer in a different group.

FOLLOW-UP ACTIVITIES:

DIRECT TEACHER INTERVENTION AND ACADEMIC ENRICHMENT

Direct Teacher Intervention: The teacher and student will, together, watch three videos on each of the inventors. After the videos, the teacher and student will complete a triple venn diagram, comparing and contrasting the inventors.

Academic Enrichment: Students will be assigned one of the three inventors that they learned about in class, Ford, Edison or Tesla and research them further. Students will have to write down 5 interesting facts on the *Interesting Facts Worksheet (E)* that they learned about their assigned person and then tie it back to show how this makes them have grit.

REFERENCES

25 Nikola Tesla quotes to become the inventor of your dreams. (2017, December 20).

Retrieved from <https://www.goalcast.com/2017/12/20/25-nikola-tesla-quotes/>

Biography Henry Ford. (n.d.). Retrieved from

https://www.ducksters.com/biography/henry_ford.php

Biography Thomas Edison. (n.d.). Retrieved from

https://www.ducksters.com/biography/thomas_edison.php

C3 Framework for Social Studies Standards. (n.d.). Retrieved from

<https://www.socialstudies.org/sites/default/files/c3/C3-Framework-for-Social-Studies.pdf>

Daum, K. (2016, February 11). 37 Quotes From Thomas Edison That Will Inspire Success.

Retrieved from

<https://www.inc.com/kevin-daum/37-quotes-from-thomas-edison-that-will-bring-out-your-best.html>

Edison's Failed Inventions. (n.d.). Retrieved from

http://www.americaslibrary.gov/aa/edison/aa_edison_fail_3.html

History.com Editors (Ed.). (2009, November 09). Nikola Tesla. Retrieved from

<https://www.history.com/topics/inventions/nikola-tesla>

Hunt, I. W. (2019, February 26). Nikola Tesla. Retrieved from

<https://www.britannica.com/biography/Nikola-Tesla>

Innovative History. (2016, June 19). Henry Ford | 3 Minute Innovative History. Retrieved

from <https://www.youtube.com/watch?v=J9OgpHGxDbY>

National Curriculum Standards for Social Studies: Chapter 2-The Themes of Social Studies.

(2013, August 01). Retrieved from <https://www.socialstudies.org/standards/strands>

New York State K-8 Social Studies Framework. (n.d.). Retrieved from

<http://www.nysed.gov/common/nysed/files/programs/curriculum-instruction/ss-framework-k-8a2.pdf>

Nikola Tesla. (n.d.). Retrieved from <https://www.brainpop.com/science/energy/nikolatesla/>

Overcoming Failure: The Perseverance of Henry Ford. (2014, December 6). Retrieved from

<https://www.yearon.com/blog/successes-of-henry-ford>

Thomas Edison. (n.d.). Retrieved from

<https://www.brainpop.com/science/energy/thomasedison/>

Henry Ford Biography

Henry Ford was born on July 30, 1863 in Greenfield Township, Michigan. Ford grew up on a farm with his family and his father was a farmer. His father wanted him to take over the family farm, but that was not Ford's dream.

Ford, at age 16, left the farm and went to Detroit, Michigan where he became an apprentice mechanist. When he moved here, he began working for Thomas Edison at his energy company. He then created the "Quadricycle" which was, in the end, a failure because it was not able to be mass produced. Even though this was a failure, it got his name out there and got the attention of William H. Murphy and then The Detroit Automotive Company was born. Ford was unable to fine tune his invention and this company was also short-lived.

After some time, Ford contacted Murphy again offering new ideas and solutions to the problems. Even though this was very rare in the automotive industry, Murphy gave Ford a second chance for success; however, there was a condition. The condition was that Ford must work with a supervisor. Ford did not like this idea so he decided to not work with Murphy.

He then eventually found the perfect fit, Alexander Malcomson. With Malcomson's backing, Ford was able to create the Model A. This automobile had its fair share of issues, mechanics even had to be called to every corner in order to fix the broken down automobiles!

It took five more years until the Model T was born. This was, at the time, the world's best automobile. In 1918 over 50% of the cars on the road were Model T's. They were so successful because they could be created on the assembly line and were relatively cheap to manufacture.

Ford had many setbacks in his career, but he seemed to always overcome them. He may have had a hard start, but in the end he had a very successful company. Ford once stated:

"Failure is simply the opportunity to begin again, this time more intelligently."

Thomas Edison Biography

Thomas Edison was born on February 11, 1847 in Milan, Ohio. Edison's family soon moved to Port Huron which is where he spent most of his childhood. Edison did really poorly in school and in the end was homeschooled by his mother. Edison was interested in trains, where he sold vegetables, candy. He even saved a child from a runaway train. The child's father repaid Edison by training him how to be a telegraph operator. He then became interested in communications.

Edison had 1,093 patents for inventions, including the light bulb. But before the light bulb, which provided Edison with major success, there were many inventions that were less than successful. In 1895, Edison invented the Kinetophone, which was a peep-hole motion picture viewer with sound. This never took off and in 1915 Edison abandoned sound motion pictures. In 1898, Edison created the Edison Portland Cement Co. This company created items made out of cement. This company failed due to the fact that at the time cement was very expensive. Even though it was a failure, there was a slight success. Edison built Yankee Stadium in the Bronx! One of Edison's most major failures was his inability to figure out a practical way to mine iron ore. This was an epic failure because he invested all his General Electric Stock into this and it never took off.

After all of these failures, Edison was able to create a successful invention, the light bulb, which he is most known for. He did not, however, create the first electric light, but his was the first practical one. Along with the bulb itself, Edison also created other items that were needed make the light bulb practical for use in homes including safety fuses and on/off switches for light sockets. The light bulb he created was patented on January 27, 1880.

Edison had many setbacks throughout his career as an inventor. He had many failures, but it did not stop him. Edison even once said: *"I have not failed. I've just found 10,000 ways that won't work."*

Nikola Tesla Biography

Nikola Tesla was born in 1856 in Croatia, then part of the Austro-Hungarian Empire, to a priest father and mother who took care of the family farm. When Tesla was just 7 years old, his brother was killed in a riding accident, which led to the first signs of Tesla's lifelong mental illness, when he began seeing visions after the shock of the accident.

Tesla attended engineering school in Prague but later withdrew when he thought of his first invention while on a walk. He worked at the Continental Edison Company in Paris focusing on electrical lighting and motors but after two years decided to immigrate to the United States to meet Edison himself. Edison was impressed by Tesla and at one point offered him \$50,000 for an improved version of the DC dynamos. After much experimentation, Tesla brought Edison an improved version and asked for his money. Edison responded, "Tesla, you don't understand our American humor." After that, Tesla quit soon after.

Tesla tried and failed to start his own electric company multiple times, which led him to be very poor for most of his life. He finally found someone that would invest in his research of alternating current, created more than 30 patents for his inventions and caught the attention of inventor, George Westinghouse. Westinghouse hired Tesla and gave him his own lab. After many setbacks from competitors like Edison, Tesla returned to Westinghouse and invented the Tesla coil and began experimenting with X-rays. Westinghouse and Tesla lit the 1891 World's Columbian Exposition in Chicago and helped to build the first large-scale AC power plant in the world to generate electric power at Niagara Falls.

Finally being recognized for genius inventor that he was, Tesla was hit with multiple hurdles. Tesla's New York lab burned down, destroying years of work that Tesla completed and J.P. Morgan withdrew funding of Tesla's dream project of building a tower to electrify the world.

Tesla lived his last decades in a New York hotel, no money to his name, continuing to work on new inventions. Many inventions we still know today, like the radio, were Tesla's ideas but because he failed to patent them, other people claimed them as their own. Today, the name Tesla is praised for the outstanding work done to innovate and improve electric in the world. Tesla had many hurdles over his life but it never stopped his from experimenting and inventing.

Tesla once said, “*Our virtues and our failings are inseparable, like force and matter. When they separate, man is no more.*”

Name: _____ Date: _____

Interesting Facts

Directions: Write five new interesting facts that you have learned about your assigned inventor.

ASSIGNED INVENTOR: _____

Fact 1:

Fact 2:

Fact 3:

Fact 4:

Fact 5:

Name: _____ Date: _____

KWL Chart

Directions: Complete the following chart:

| What I KNOW | What I WANT TO KNOW | What I LEARNED |
|--------------------|----------------------------|-----------------------|
| Ford: | Ford: | Ford: |
| Edison: | Edison: | Edison: |
| Tesla: | Tesla: | Tesla: |

| | | |
|--|--|--|
| | | |
|--|--|--|

Name _____

Date _____

Great Inventors!

Directions: Write a challenge each inventor faced. Write one way each inventor showed grit.

Henry Ford

Obstacle Faced:

Showed Grit:

Thomas Edison

Obstacle Faced:

Showed Grit:

Nikola Tesla

Obstacle Faced:

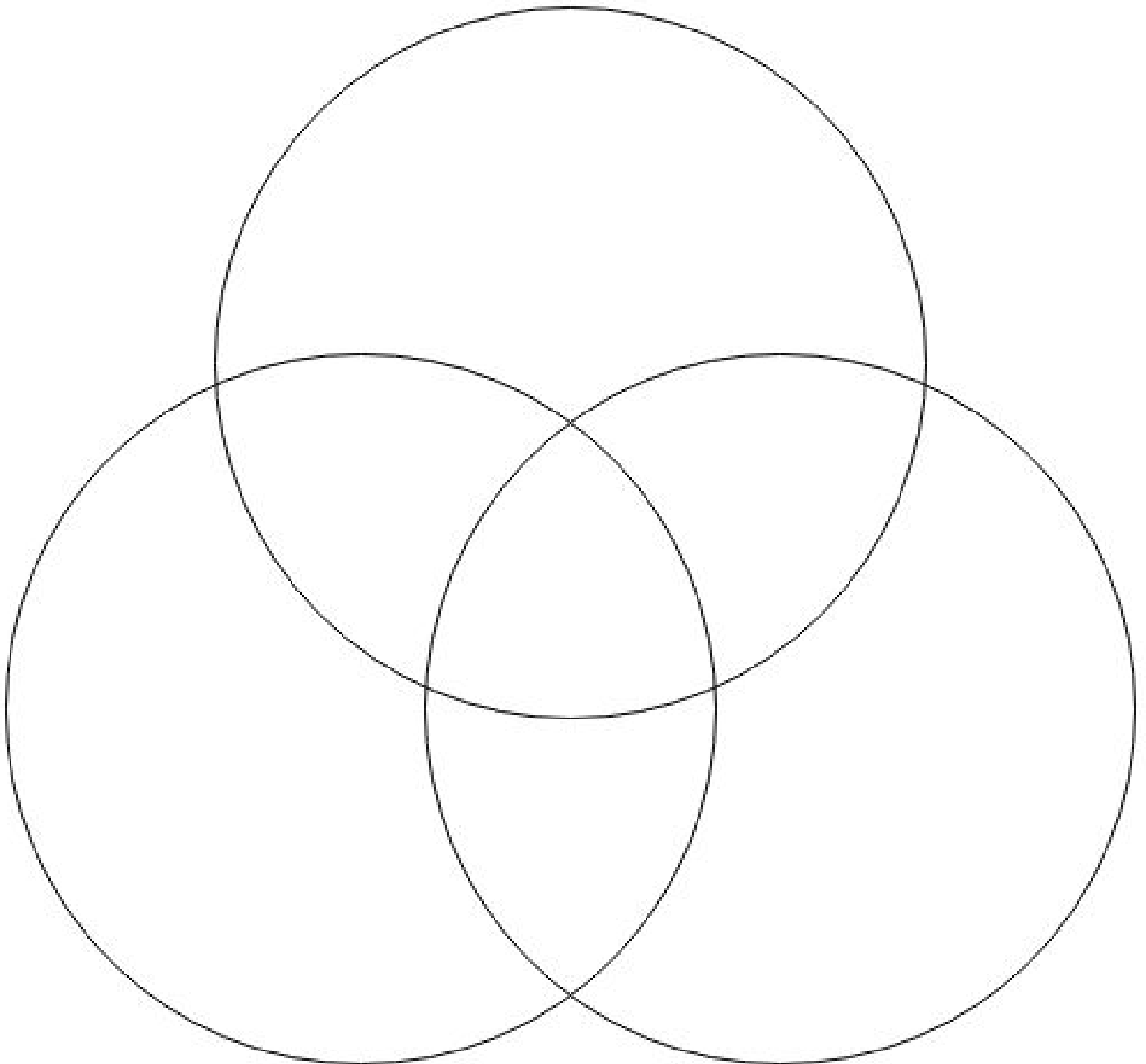
Showed Grit:

Name _____

Date _____

Comparing and Contrasting Inventors!

Henry Ford





What do these three things
have in common?



Industrial Revolution!

