Unit 1: Famous Scientists Copied from: Famous People, Copied on: 02/21/22

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Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Famous People: Grades 11 & 12

Unit 1: Famous Scientists

Belleville Board of Education

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Unit Overview

Unit One will examine how participation in society can contribute to the attainment of individual and public good; what the contributions of the Scientific Revolution were to society, including important discoveries in mathematics, physics, biology, and chemistry, and the significance of the scientific method; the paradoxes and promises of the 21st century, including technological growth, communications, and warfare; and leaders in the world.

NJSLS

LA.RL.11-12.1	Cite strong and thorough textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
LA.RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).

LA.RI.11-12.7	Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem.
LA.W.11-12.1	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
	Research to Build and Present Knowledge
LA.W.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
SOC.6.1.12.A.16.b	Analyze government efforts to address intellectual property rights, personal privacy, and other ethical issues in science, medicine, and business that arise from the global use of new technologies.
SOC.6.1.12.C.14.d	Relate the changing manufacturing, service, science, and technology industries and educational opportunities to the economy and social dynamics in New Jersey.
SOC.6.2.12.2	Renaissance, Reformation, Scientific Revolution, and Enlightenment (1350-1700)
SOC.6.2.12.A.5	Civics, Government, and Human Rights
SOC.6.3.12.D	History, Culture, and Perspectives

Exit Skills

By the end of Unit 1,

1. Students should be able to apply domain-specific vocabulary in their verbal and written responses, essays and papers.

2. Students should be able to choose a side to a query and provide logical argument for their choice.

3. Students should be able to deductively use new information and logically apply this evidence to a related problem.

4. Students should be able to inductively gather information and deduce a theory based on their findings.

5. Students should be able to gather information in meaningful clusters and apply their findings to specific problems.

Enduring Understanding

Participation in society can contribute to the attainment of individual and public good
The Scientific Revolution made many contributions to society, including important discoveries in mathematics, physics, biology, and chemistry, and the significance of the scientific method
There were paradoxes and promises of the 21st century, including technological growth, communications, and warfare
Leaders in the world employed technological invention for warfare.

Essential Questions

What did the scientists contribute to society?

How did these inventions and/or discoveries alter society?

What obstacles did the scientists overcome in their work?

What were the circumstances that led to the scientific discoveries and/or inventions?

Learning Objectives

Students will be able to:

1.Recognize traits of good citizens.

2.Comprehend scientists' contributions towards society.

3.Evaluate paradoxes of scientific inventions.

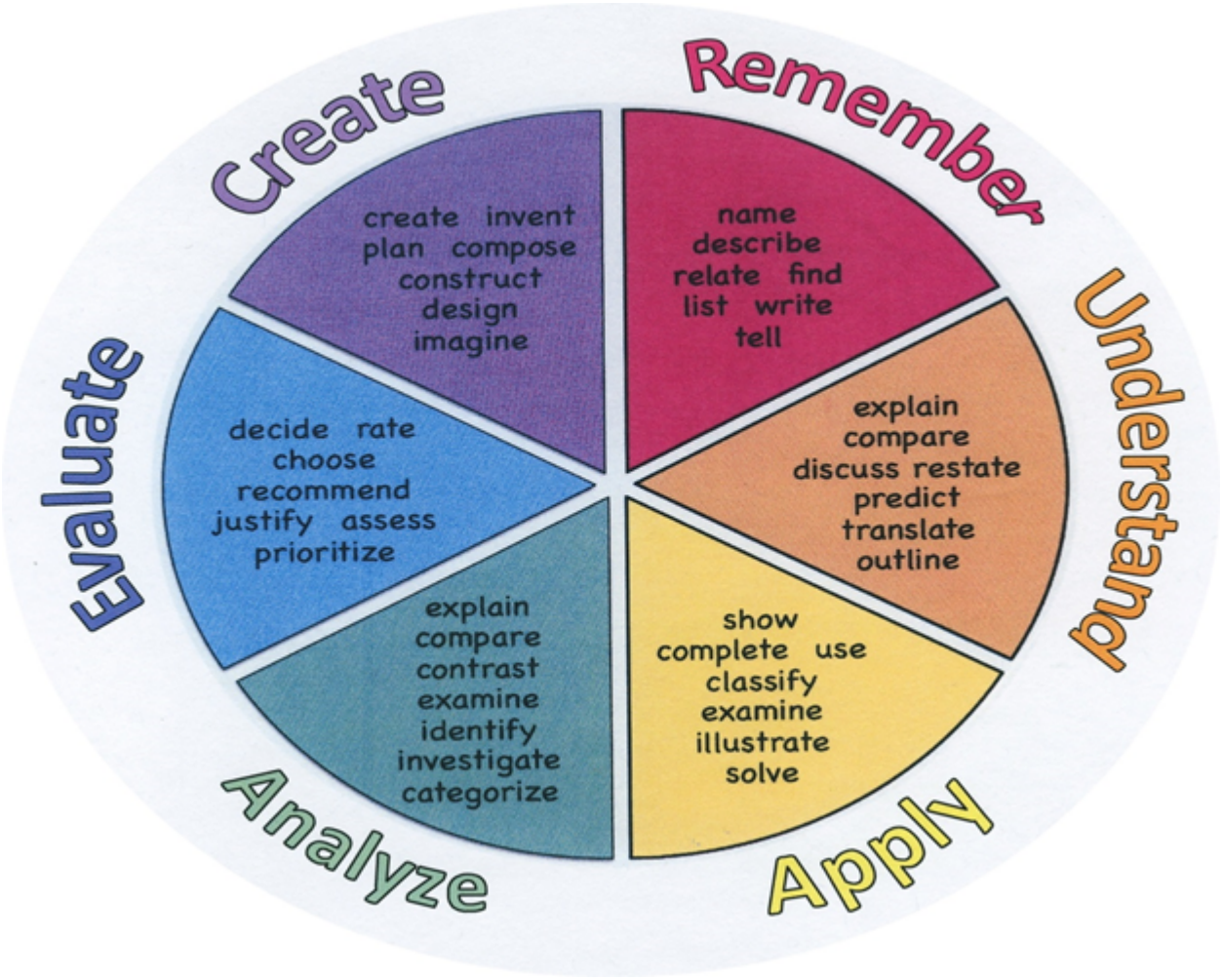
4.Identify the risks scientists took to create their inventions.

Action Verbs

Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy. These are useful in writing learning objectives, assignment objectives and exam questions.

Remember	Understand	Apply	Analyze	Evaluate	Create
Choose	Classify	Choose	Categorize	Appraise	Combine
Describe	Defend	Dramatize	Classify	Judge	Compose
Define	Demonstrate	Explain	Compare	Criticize	Construct
Label	Distinguish	Generalize	Differentiate	Defend	Design
List	Explain	Judge	Distinguish	Compare	Develop
Locate	Express	Organize	Identify	Assess	Formulate
Match	Extend	Paint	Infer	Conclude	Hypothesize
Memorize	Give Examples	Prepare	Point out	Contrast	Invent
Name	Illustrate	Produce	Select	Critique	Make
Omit	Indicate	Select	Subdivide	Determine	Originate
Recite	Interrelate	Show	Survey	Grade	Organize
Select	Interpret	Sketch	Arrange	Justify	Plan

State Count Draw Outline Point Quote Recall Recognize Repeat Reproduce	Infer Match Paraphrase Represent Restate Rewrite Select Show Summarize Tell Translate Associate Compute Convert Discuss Estimate Extrapolate Generalize Predict	Solve Use Add Calculate Change Classify Complete Compute Discover Divide Examine Graph Interpolate Manipulate Modify Operate Subtract	Breakdown Combine Detect Diagram Discriminate Illustrate Outline Point out Separate	Measure Rank Rate Support Test	Produce Role Play Drive Devise Generate Integrate Prescribe Propose Reconstruct Revise Rewrite Transform



Interdisciplinary Connections

LA.RL.11-12.1	Cite strong and thorough textual evidence and make relevant connections to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.
LA.RI.11-12.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze how an author uses and refines the meaning of a key term or terms over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
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	Research to Build and Present Knowledge
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TECH.8.1.12	Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
TECH.8.1.12.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.1.12.E.CS4	Process data and report results.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.2.12.B	Technology and Society: Knowledge and understanding of human, cultural and society values are fundamental when designing technology systems and products in the global society.
TECH.8.2.12.B.CS2	The effects of technology on the environment.
TECH.8.2.12.B.CS3	The role of society in the development and use of technology.
TECH.8.2.12.B.CS4	The influence of technology on history.
TECH.8.2.12.C	Design: The design process is a systematic approach to solving problems.

Alignment to 21st Century Skills & Technology

Key SUBJECTS AND 21st CENTURY THEMES

Mastery of key subjects and 21st century themes is essential for all students in the 21stcentury.

Key subjects include:

- English, reading or language arts
- World languages
- Arts
- Mathematics
- Economics
- Science

- Geography
- History
- Government and Civics

21st Century/Interdisciplinary Themes

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy
- Global Awareness
- Health Literacy

21st Century Skills

- Communication and Collaboration
- Creativity and Innovation
- Critical thinking and Problem Solving
- ICT (Information, Communications and Technology) Literacy
- Information Literacy
- Life and Career Skills
- Media Literacy

Technology Infusion

What technology can be used in this unit to enhance learning?



Differentiation

As a Reminder:

The basis of good differentiation in a lesson lies in differentiating by content, process, and/or product.

Resources:

- NJDOE: Instructional Supports and Scaffolds for Success in Implementing the Common Core State Standards http://www.state.nj.us/education/modelcurriculum/success/math/k2/

Special Education

- printed copy of board work/notes provided
- additional time for skill mastery
- assistive technology
- behavior management plan
- Center-Based Instruction
- check work frequently for understanding
- computer or electronic device utilizes
- extended time on tests/ quizzes
- have student repeat directions to check for understanding
- highlighted text visual presentation
- modified assignment format
- modified test content
- modified test format
- modified test length
- multi-sensory presentation
- multiple test sessions
- preferential seating
- preview of content, concepts, and vocabulary
- reduced/shortened reading assignments
- Reduced/shortened written assignments
- secure attention before giving instruction/directions
- shortened assignments
- student working with an assigned partner
- teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes

ELL

- teaching key aspects of a topic. Eliminate nonessential information

- using videos, illustrations, pictures, and drawings to explain or clarif
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning;
- allowing students to correct errors (looking for understanding)
- allowing the use of note cards or open-book during testing
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using computer word processing spell check and grammar check features
- using true/false, matching, or fill in the blank tests in lieu of essay tests

Intervention Strategies

- allowing students to correct errors (looking for understanding)
- teaching key aspects of a topic. Eliminate nonessential information
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slide shows, videos, etc.) to demonstrate student's learning
- allowing students to select from given choices
- allowing the use of note cards or open-book during testing
- collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test.
- decreasing the amount of workpresented or required
- having peers take notes or providing a copy of the teacher's notes
- marking students' correct and acceptable work, not the mistakes
- modifying tests to reflect selected objectives
- providing study guides
- reducing or omitting lengthy outside reading assignments
- reducing the number of answer choices on a multiple choice test
- tutoring by peers
- using authentic assessments with real-life problem-solving
- using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify

Evidence of Student Learning-CFU's

Please list ways educators may effectively check for understanding in this secion.

- Admit Tickets
- Anticipation Guide
- Common benchmarks
- Compare & Contrast
- Create a Multimedia Poster
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit tests

Primary Resources

http://www.edutopia.org/blog/online-resources-primary-source-documents-monica-burns

http://www.eiu.edu/eiutps/CA_H13.php

Ancillary Resources

https://educators.brainpop.com/bp-unit/famous-scientists/

https://www.tes.com/teaching-resource/famous-scientists-6079862

Sample Lesson

Unit Name: Famous Scientists

NJSLS: SOC.6.2.12.C.3.d: Determine how, and the extent to which, scientific and technological changes and transportation changes. *SOC*.6.2.12.D.2.d: Analyze the impact of new intellectual, philosophical, and scientific ideas on how humans viewed themselves and how they viewed their physical and spiritual

Interdisciplinary Connection: English

Statement of Objective: Understand the importance of the Scientific Revolution and the contributions to society during that period

Anticipatory Set/Do Now: Who was the scientist that claimed the sun was the center of the universe, rather than the earth? What do you know about him? Discussion

Learning Activity: Student Centered Activity with QRD codes. Teacher will prepare six groups of students. At each station will be a paper with QRD code for students to scan the Youtube video on their phones detailing one of the great scientists of that time. Students without a phone will buddy up with one who does. Students will take notes from the video. After 5 minutes, time will be called and students will move to the next statio, etc. At the end of 30 minutes, students will have a complete set of notes, allowing for at least 15 minutes of discussion. Notes will be submitted for grades. During QRD activity, teacher will roam from group to group asking students questions about their video.

Student Assessment/CFU's: Student responses during video activity, discussion responses and quality of notes.

Materials: QRD codes will be taken from good Youtube videos by the teacher and copied onto paper.

Integration of Technology: Laptop for preparing QRD codes, and students scanning the codes via cell phones.