Unit 1: Exploring Data

Content Area: **Mathematics**
Course(s): **Advanced Placement Statistics**
Time Period: **September**
Length: **33**
Status: **Published**

Career Readiness, Life Literacies & Key Skills

WRK.K-12.P.5	Utilize critical thinking to make sense of problems and persevere in solving them.
WRK.K-12.P.6	Model integrity, ethical leadership and effective management.
WRK.K-12.P.8	Use technology to enhance productivity increase collaboration and communicate effectively.
WRK.K-12.P.9	Work productively in teams while using cultural/global competence.

Equity Considerations

LGBTQ and Disabilities Mandate

Topic (Person and Contribution Addresses):

We will be discussing the life and work of Florence Nightingale and/or Sara Josephine Baker (aka Doctor Jo). Both women are responsible for stopping the spread of deadly diseases.

Materials Used:

- Note packet
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LGBTQ:

[Sir Francis Bacon (1561–1626)](#)

[Florence NightingaleFrancis Bacon | Philosophy, Scientific Method, & Facts | Britannica(1820-1910)](#)

STEM [George Washington Carver (1861-1943)](#)

[Sara Josephine Baker (1873-1945)](#)

[Alan Turing (1912-1954)](#)

[Allan Cox (1926-1987)](#)

[Sally Ride (1951-2012)](#)

[Ben Barres (1954-2017)](#)

[Ruth Gates (1962-2018)](#)

[Tim Cook (1960)](#)

Disabilities:

[Leonardo da Vinci (1452-1519)](#)- Dyslexia

[Isaac Newton (1664-1727)](#)- Epilepsy

[Thomas Edison (1847-1931)](#)- Hearing

[Charles Darwin (1809-1882)](#)- Stutter, Dyslexia

[Alexander Graham Bell (1847-1922)](#)- Deaf

[Albert Einstein (1879-1955)](#)- Aspergers

[Florence B. Seibert (1897-1991)](#)- Mobility

[Stephen Hawking (1942-2019)](#)- ALS

[John Forbes Nash (1928-2015)](#)- Schizophrenia

[Temple Grandin (1947)](#)- Autism

Asian American and Pacific Islander Mandate

Topic (Person and Contribution Addresses):

We will be analyzing the population difference in Vietnam in 2010 as well as the projected population of China in 2050. This is textbook problem on page 48 #64 and 66. It is about using the graphs and our knowledge about describing graphs to see what is happening to their populations and what predictions can we make.

I will also introduce the students to Kalpana Chawla. Chawla is an Indian-born American astronaut and mechanical engineer. She first flew on the space shuttle Columbia in 1997 as a mission specialist and primary robotic arm operator. Sadly she lost her life during her second mission.

Materials Used:

- Note packet (problems will be transferred there)

Climate Change

Students will examine ways trig is embedded in climate change through the following activity. This lesson plan will enable students to apply simple trigonometric functions to understand the phenomenon of climate change

https://tropicsu.org/lesson-plan-trigonometry-and-sea-level-rise/

SCI.HS-ESS2-1	Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.

Modifications:

ELL Modifications

- Focus on domain specific vocabulary and keywords
- Offer resources for specific topics in primary language (Youtube web resources)
- Provide formal and informal verbal interaction to provide practice, increase motivation, and self-monitoring
- Tutoring During Delsea One
- Use real objects when possible

IEP & 504 Modifications

- Allow student to take notes in class for reinforcement but also provide a copy of completed/correct notes to study from
- One to one tutoring
- provide a word bank
- Provide students with content vocabulary prior to teaching a lesson that contains that vocabulary (pre-teaching)
- Tutoring During Delsea One

G&T Modifications

- Ask students' higher level questions that require students to look into causes, experiences, and facts to draw a conclusion or make connections to other areas of learning
- Encourage peer leadership or mentoring
- Provide additional rigorous challenge problems for advanced students
- Provide rationale for thinking

At Risk Modifications

- additional help during tutoring/Delsea One/Academic Enrichment
- outlines & graphic organizers
- speaking to students privately when redirecting behaviors
- study guides
- visuals

Alternate Assessment

Performance tasks

Project-based assignments

Problem-based assignments

Presentations

Benchmark Assessment

Skills-based assessment- math practice

Technology

- Collegeboard.com: online class
- Excel Data: cum. freq graph
- Excel Data: dot plots
- Graphing Calc act: Graphing data
- Graphing Calc Act: Normal Curve
- Graphing Calcualtor Act: manipulating data
- https://www.khanacademy.org/math/ap-statistics/ap-statistics-practice/ap-stats-analyzing-categorical-data/e/analyzing-categorical-data
- https://www.khanacademy.org/math/ap-statistics/ap-statistics-practice/ap-stats-exploring-bivariate-numerical-data/e/skill-check--scatterplots--correlation--least-squares-regression-line-and-residual-plots
- https://www.khanacademy.org/math/probability/data-distributions-a1/summarizing-center-distributions/v/statistics-intro-mean-median-and-mode

- https://www.youtube.com/watch?v=WSHYxqtC4GU
- https://www.youtube.com/watch?v=YT37niJWe4I
- https://www.youtube.com/watch?v=z6dtF1eJ3m4

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.A.4	Construct a spreadsheet workbook with multiple worksheets, rename tabs to reflect the data on the worksheet, and use mathematical or logical functions, charts and data from all worksheets to convey the results.
TECH.8.1.12.A.5	Create a report from a relational database consisting of at least two tables and describe the process, and explain the report results.
TECH.8.1.12.A.CS1	Understand and use technology systems.
TECH.8.1.12.A.CS2	Select and use applications effectively and productively.