Unit #8: Data

Content Area: **Template**
Course(s):
Time Period:
Length:
Status: **Published**

State Mandated Topics Addressed in this Unit

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N/A	N/A

Unit #8: Data

Learning Objectives

- "Students will learn about the early days of videogames by analyzing the movie 'Tetris,' supplemented with historical context.
- Artist will learn why and how to clean data.
- Artists are introduced to machine learning, a type of artificial intelligence.
- Artists will explore how training data is used to enable a machine learning model to classify new data
- Artists will explore the concept of metadata.
- Artists will explore, analyze and make bar charts and histograms.
- Artists will learn how big data, open data, and crowdsourcing apply the process of data analysis in interesting ways that cleverly modify this process.
- Artists will learn how to read and make crosstab and scatter charts.
- Students will learn about the early personal computing revolution and the development of Apple and Microsoft by analyzing 'Pirates of Silicon Valley,' supplemented with historical context.

Essential Skills

- Ability to analyze algorithms used in video games
- Create a bar chart and a histogram in App Lab's data visualizer
- Create a crosstab and scatter charts in App Lab's data visualizer
- Create an effective visualization
- Create filtered charts that answer specific questions
- Critical thinking in evaluating the impact of technology on culture
- Define and explain the impacts of crowdsourcing, crowdfunding, and citizen science

- Describes new insights or decisions that can be made based on a visualization
- Differentiate between what data shows and why that might be the case
- Digital Literacy: Evaluating the impact of software and hardware developments on user experience and technology adoption.
- Draw conclusions by reading bar charts and histograms
- Draw conclusions by reading crosstab and scatter charts
- Explain information in a visualization
- Explain the impact of open data on scientific research and discovery
- Explain the reasons that someone would create either a bar chart or a histogram in order to explore a single column of data
- Explain the reasons that someone would create either a crosstab and scatter chart in order to explore two columns of data
- Explain the usefulness of metadata
- Explain why data needs to be cleaned
- Explain why in some contexts large amounts of data need to be analyzed in parallel and scalable systems
- Follow the Data Analysis Process to tell a data story
- Follow the Data Analysis Process to tell a data story
- Knowledge of software development lifecycle in game creation
- Problem-Solving: Analyzing how Apple and Microsoft addressed technological challenges through innovation.
- Programming Concepts: Understanding basic programming principles that emerged during the early computing era.
- Reason about how human bias plays a role in machine learning.
- Recognize and explain potential bias in a dataset or interpretation
- Train and test a machine learning model.
- Understanding of programming concepts and game design principles
- Use Google Trends to tell a data story
- Use the Data Visualizer to filter data
- Write a short explanation of a data set referencing the metadata

Standards

CS.9-12.8.1.12.DA.1	Create interactive data visualizations using software tools to help others better understand real world phenomena, including climate change.
CS.9-12.8.1.12.DA.5	Create data visualizations from large data sets to summarize, communicate, and support different interpretations of real-world phenomena.
CS.9-12.8.1.12.DA.6	Create and refine computational models to better represent the relationships among different elements of data collected from a phenomenon or process.

Instructional Tasks/Activities

- Classroom Discussions
- Debugging
- Exploration/Investigation/App Lab - Design Mode Activities
- Formative Assessments
- Journaling
- Pair Programming
- Peer Feedback
- Project Tell a Data Story
- Worksheets

Assessment Procedure

- Classroom Total Participation Technique
- Classwork
- DBQ
- electronic active responders
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- identify the error problems
- Journal / Student Reflection
- Kahoot
- Other named in lesson
- Peer Review
- Performance
- Problem Correction
- Project
- Quiz
- response and analysis questions
- Rubric
- Teacher Collected Data
- Test
- Worksheet

Recommended Technology Activities

- AI for Oceans Widget
- App Lab
- Appropriate Content Specific Online Resource
- Gimkit

- GoGuardian
- Google Classroom
- Google Docs
- Google Slides
- Google Slides
- Google Trend
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Quiziz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- extended time
- large print
- modified quiz

- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- code.org
- Internet Simulator