Unit 5-Data and Society

Content Area: **Technology**
Course(s): **Computer Science Discoveries**
Time Period:
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Title Section

Department of Curriculum and Instruction

Belleville Public Schools

Curriculum Guide

Computer Science Discoveries, Grade 8

Data and Society

Belleville Board of Education

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Unit Overview

The Data and Society unit is about the importance of data in solving problems and highlights how computers can help in this process. The first chapter explores different systems used to represent information in a computer and the challenges and tradeoffs posed by using them. In the second chapter students learn how collections of data are used to solve problems, and how computers help to automate the steps of this process. In the final project, students gather their own data and use it to develop an automated solution to a problem.

Enduring Understanding

This unit focuses on data representation and its role in solving information problems. Students learn what a representation system needs to be useful, and how computers are able to represent different types of information using binary systems. For the unit project, students represent their perfect day in a binary punch card and trade with classmates to decipher.

Students explore how data can be used to answer interesting questions and solve problems. Using a modified version of the general Problem Solving Process, students look at how computers and humans use data differently and the pros and cons of automating problem solving. After learning ways that computers use data in the real world, students choose their own problem and use data to address it.

Essential Questions

- Why is representation important in problem solving?
- What features does a representation system need to be useful?
- What is necessary to create usable binary representation systems?
- How can we combine systems together to get more complex information?
- How does data help us to solve problems?
- How do computers and humans use data differently?
- What parts of the data problem solving process can be automated?
- What kinds of problems do computers use data to solve in the real world?

Exit Skills

What are the **Exit Skills** that the students should have acquired by the end of this Unit?

By the end of Grade 8, Computer Science Discoveries Unit 5, the student should be able to:

- Understand and use Binary Representation
- Data helps to solve problems.
- Computers and humans use data differently.
- The parts of data problem solving process that can be automated.
- The types of problems computers can use data to solve in te real world.

New Jersey Student Learning Standards (NJSLS-S)

TECH.8.1.8	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.8.1.8.A	Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.
TECH.8.1.8.C	Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
TECH.8.1.8.D	Digital Citizenship: Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.
TECH.8.1.8.E	Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
TECH.8.2.8.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.8.2.8.D	Abilities for a Technological World: The designed world is the product of a design process that provides the means to convert resources into products and systems.

Interdisciplinary Connections

LA.RI.8	Reading Informational Text
	Key Ideas and Details
LA.RI.8.1	Cite the textual evidence and make relevant connections that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
LA.RI.8.2	Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text.
LA.RI.8.3	Analyze how a text makes connections among and distinctions between individuals, ideas, or events (e.g., through comparisons, analogies, or categories).

Learning Objectives

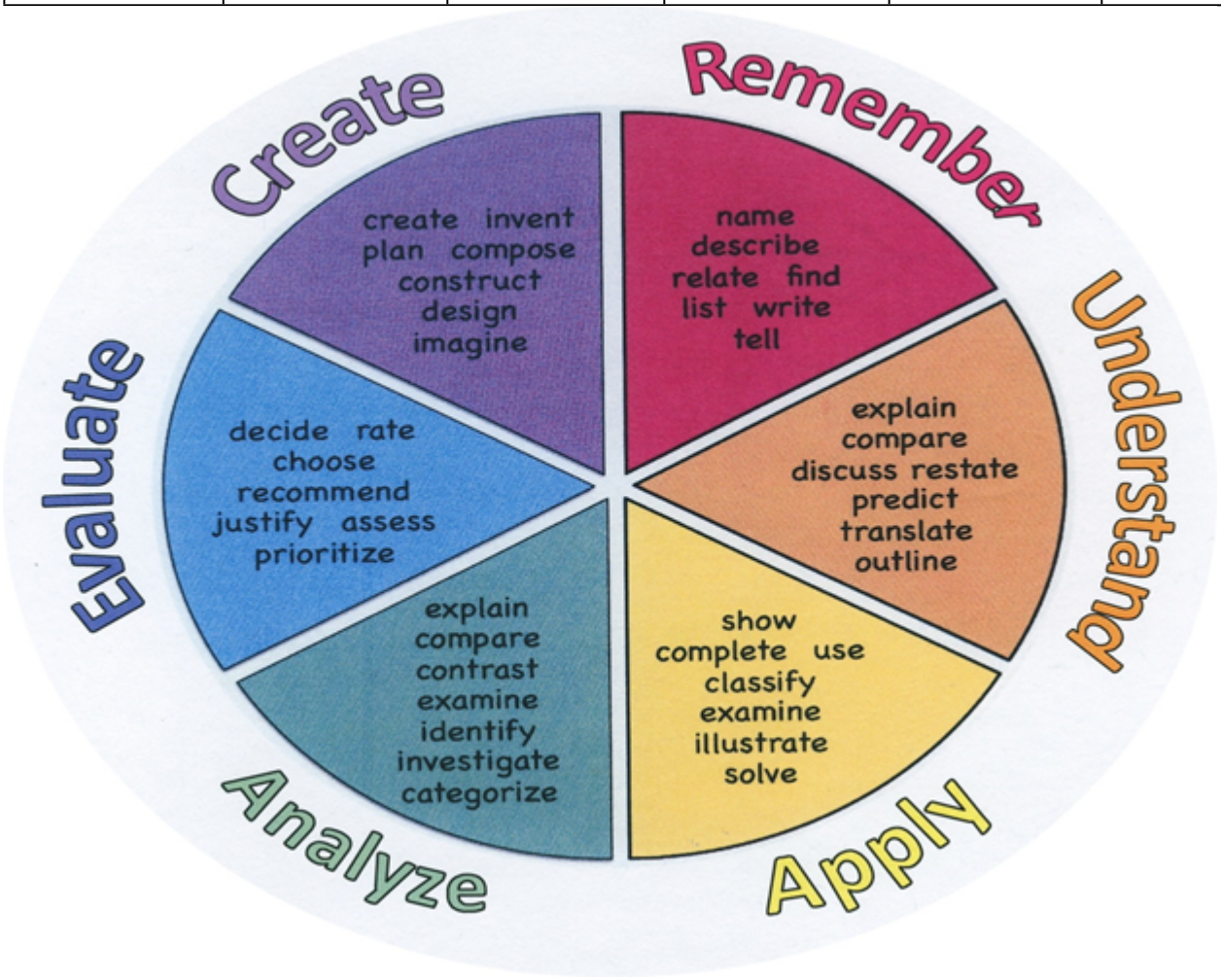
- Provide examples of how representing data in different ways can affect its ability to solve different problems.
- Choose the best way to represent some information based on how it will be used.
- Describe the necessary features of a system for representing information
- Create and use a system for representing information
- Define a binary system as one that uses just two possible states to represent information
- Use the ASCII system to encode and decode text information in binary
- Create and manipulate binary patterns to represent black and white images
- Describe common features of systems used to represent information in binary
- Use a binary system to represent numbers.
- Extend a representation system based on patterns.
- Apply a method of encryption to ensure the secure transmission of data.
- Use both physical and digital security measures to secure data.

- Use multiple binary systems to decode information.
- Determine the most appropriate encoding system for a given piece of information.
- Choose and justify the use of different binary representation systems depending on the information being represented
- Encode and decode information represented in binary numbers and ASCII text
- Create a generalized representation system for many instances of a complex type of information
- Use the problem solving process to answer a question using data.
- Identify and collect relevant data to help solve a problem.
- Use data to draw conclusions.
- Give examples of how data is collected from sensors and tracking user behavior.
- Determine data that would be helpful in solving a problem, and how that data could be collected.
- Distinguish between data that users intentionally and unintentionally produce.
- Identify and remove irrelevant data from a data set.
- Create a bar chart based on a set of data.
- Explain why a set of data must be cleaned before a computer can use it.
- Use tables and visualizations summarizing data to support a decision
- Identify additional data that could be collected to improve a decision
- Visually organize data to highlight relationships and support a claim.
- Use cross tabulation to find patterns and relationships in data
- Design and implement an algorithm for making decisions using data as inputs
- Explain the benefits and drawbacks of using computers for automated decision making
- Interpret collected data to identify patterns
- Apply the data problem solving process to a personally relevant topic
- Determine appropriate sources of data needed to solve a problem

Action Verbs: Below are examples of action verbs associated with each level of the Revised Bloom's Taxonomy.

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

	Discuss Estimate Extrapolate Generalize Predict	Modify Operate Subtract			



Suggested Activities & Best Practices

Representation Matters

1. Provide examples of how representing data in different ways can affect its ability to solve different problems.

   In the discussion at the end of the activity, students should identify how the nature of each problem lent itself to a particular representation.

2. Choose the best way to represent some information based on how it will be used.

   In the discussion at the end of the activity, students should justify the "better" and "worse" representations within

the context of the various problems they were asked to solve.

Objectives

Students will be able to:

- Provide examples of how representing data in different ways can affect its ability to solve different problems.
- Choose the best way to represent some information based on how it will be used.

Preparation

- Print copies of the Meals Data resource so that each group can get one of the four pages
- Print one copy of the activity guide for each group

Prompt: Today we're going to start talking about data and how it's used in computer science. Before we start, we're take a few minutes to think about what data is.

Teaching Tip

Offer Encouragement: If students have a hard time getting started, remind them that this is really just a brainstorm, and they will be working on answering these questions for the entire unit. Data may have different definitions depending on context (mobile phone plan, math class, etc.). Encourage the students to think of different situations in which they have used data, and remind them that there is no one "right" answer.

Display: Show the following questions and prompt students to jot down their answers silently.

- What is data?
- How do you use data in your life?
- How can data help you solve problems?

Discussion Goal

Goal: Students should understand that data is information that has been collected about the world. They should see that data could be any type of information, not just numbers.

Give students a few minutes to think on their own about what data is, and then allow them to share quietly with a partner. After all students have had a chance to speak to each other, share as a whole class, writing the ideas onto the board.

Remarks

These are all great ideas. We're going to spend the rest of the unit looking more closely at what data is, where it comes from, and how it can help us in computer science. For now, we're going to define data as "Information that’s been collected to help us to answer a question or solve a problem."

Activity (40 mins)

Group: Put students into groups of 3-5.

Distribute: Give each group a copy of the activity guide and one of the four versions of the the Meals Data resource. Make sure at least one group has a picture resource, one the menu resource, one group the nutrition resource, and one group the recipe resource.

Using Data

Teaching Tip

Dealing with Frustration: Because each group will only have adequate information for one of the four recommendations, students may become frustrated that they cannot find the "right" answer. Reassure them that there's not always a "right" recommendation, and that the most important part of the exercise is for them to explain why they made their choice.

Each group of students will make a meal recommendation to four different people, and they must justify their recommendation with their data. Because different groups have different data sets, the difficulty of the recommendations will vary from group to group.

After making the recommendations, groups should choose the recommendation that they thought was the easiest to make, and explain their reasoning.

When all groups have completed the worksheet, come back together as a class and share the answers and reasoning for each recommendation. As the groups share answers and reasoning, allow them to see each other's data sets.

Person 1

“I am allergic to eggs.”

Teaching Tip

Questions and Assumptions about the Given Data: During the discussion, some students may note that chilaquiles often have eggs. This is a good chance to point out that if the data about the meal was collected in a way that didn't include information about the ingredients, then they didn't have enough information and made the best decision based on the data that they had. Remind students that although it's reasonable to make certain assumptions, that only with the relevant data can they be confident in their decisions.

Although the menu and pictures may help somewhat, the recipe data set is the only one that tells the students the ingredients in each meal.

Person 2

“My doctor said to eat less sodium.”

Those with the nutrition data should see which meal has the lowest sodium content.

Teaching Tip

Using the Data You Have: For any of these questions, students may have reasons to choose a different answer, or complain that it's not fair that they did not have all the information that they needed. Remind them that the activity is about using the data they have in a reasonable way, not necessarily getting a particular answer.

Person 3

“I’m trying to save money.”

Those with the menu data set should see prices for each meal.

Person 4

“I want to post a nice picture of it online.”

While the recommendation for this one is more subjective, the group with the picture data set is in the best position to make an informed recommendation.

Assessment Opportunity

Goal: Students should understand that different representations are good for solving different problems. As they explain which representations are better or worse, make sure that they are justifying their choices within the context of particular

problems they were asked to solve in the activity. They should recognize that each representation had advantages and disadvantages for different problems, and identify how the nature of each problem lent itself to a particular representation.

Prompt: Now that you've seen all of the different ways we represented the four meals, think about what makes a way of representing something good or bad. Do you think any of the representations were better or worse than others? What made them better or worse?

Remarks

When we collect information about the world, we have to make choices about what is important for us to include in our representations. The choices that we make affect what kinds of problems we can solve with our data. In the next few lessons, we'll talk about how computers represent data and how we use that data to solve problems.

Wrap Up (5 mins)

Prompt Ask students to reflect on the following questions in their journals.

Today, you saw four different ways of representing a meal, and how those different representations were useful for solving different problems.

- Why were some representations more useful than others?
- If you were to create a way of representing a meal, what would be the most important things for you to think about?

Assessment Evidence - Checking for Understanding (CFU)

By identifying the **Evidence of Student Learning with Checking for Understanding (CFU)** techniques used during the lesson and/or for Closure (Madeline Hunter), please list the variety of means used to access students' learning (e.g. quizzes, tests, academic prompts, observations, homework, journals).

At the end of each lesson, there is a hands on quiz each student will complete before moving on to the next lesson. - Formative

After the completion of each unit there is a test on the unit. The test consists of completing each of the activities taught throughout the unit to work towards building their website or game. - Summative

Students may also have the opportunity of completing tasks one by one instead of building the website or game. This will be graded through completion of the task or observation of their work. - Alternative

- Admit Tickets
- Anticipation Guide
- Common Benchmarks
- Compare & Contrast
- Create a Multimedia Poster

- DBQ's
- Define
- Describe
- Evaluate
- Evaluation rubrics
- Exit Tickets
- Explaining
- Fist- to-Five or Thumb-Ometer
- Illustration
- Journals
- KWL Chart
- Learning Center Activities
- Multimedia Reports
- Newspaper Headline
- Outline
- Question Stems
- Quickwrite
- Quizzes
- Red Light, Green Light
- Self- assessments
- Socratic Seminar
- Study Guide
- Surveys
- Teacher Observation Checklist
- Think, Pair, Share
- Think, Write, Pair, Share
- Top 10 List
- Unit review/Test prep
- Unit tests
- Web-Based Assessments
- Written Reports

Primary Resources & Materials

Please list all district-provided Primary Resources & Materials and/or those outside that are accessed with district resources.

Code.org

Google Suite

Ancillary Resources

Please list all additional resources that will be used to strengthen this unit's lessons.

Everfi

Typing.com

Technology Infusion

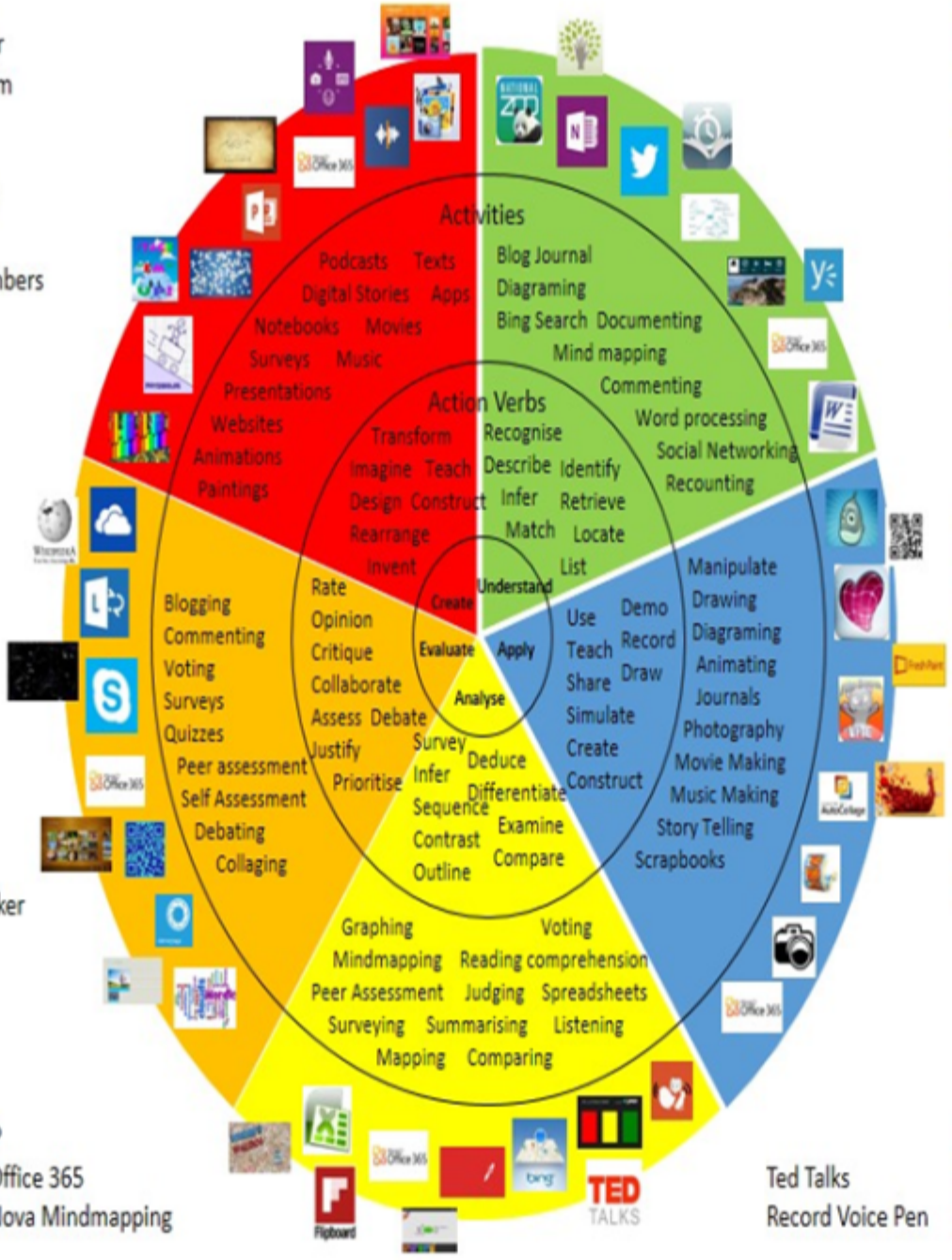
Students will be using Chromebooks everyday to access lessons.

What **Technology Infusion** and/or strategies are integrated into this unit to enhance learning? Please list all hardware, software and strategies. Please find a technology pedagogy wheel for assistance while completing this section.

Win 8.1 Apps/Tools Pedagogy Wheel

Podcasts
Photostory 3
Kid Story Builder
Music Maker Jam
Paint A Story
Office 365
MS PowerPoint
Stack 'Em Up
NqSquared Numbers
Physamajig
Xylophone 8

Wikipedia
Skydrive
Lync
SkyMap
Skype
Office 365
Puzzle Touch
Easy QR
Memorylage
Life Moments
Word Cloud Maker



Where's Waldo?
MS Excel Office 365
Flipboard Nova Mindmapping

Ted Talks
Record Voice Pen

Originally taken from http://www.coetail.com/vzimmer/files/2013/02/iPadagogy-Wheel.001.jpg
And adapted for Windows 8.1 devices by Charlotte Beckhurst @CharBeckhurst

Alignment to 21st Century Skills & Technology

Mastery and infusion of **21st Century Skills & Technology** and their Alignment to the core content areas is essential to student learning. The core content areas include:

- English Language Arts;
- Mathematics;
- Science and Scientific Inquiry (Next Generation);
- Social Studies, including American History, World History, Geography, Government and Civics, and Economics;
- World languages;
- Technology;
- Visual and Performing Arts.

CRP.K-12.CRP1	Act as a responsible and contributing citizen and employee.
CRP.K-12.CRP1.1	Career-ready individuals understand the obligations and responsibilities of being a member of a community, and they demonstrate this understanding every day through their interactions with others. They are conscientious of the impacts of their decisions on others and the environment around them. They think about the near-term and long-term consequences of their actions and seek to act in ways that contribute to the betterment of their teams, families, community and workplace. They are reliable and consistent in going beyond the minimum expectation and in participating in activities that serve the greater good.
CRP.K-12.CRP2	Apply appropriate academic and technical skills.
CRP.K-12.CRP2.1	Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
CRP.K-12.CRP3	Attend to personal health and financial well-being.
CRP.K-12.CRP3.1	Career-ready individuals understand the relationship between personal health, workplace performance and personal well-being; they act on that understanding to regularly practice healthy diet, exercise and mental health activities. Career-ready individuals also take regular action to contribute to their personal financial well-being, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.
CRP.K-12.CRP4	Communicate clearly and effectively and with reason.
CRP.K-12.CRP4.1	Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others' time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.

CRP.K-12.CRP5	Consider the environmental, social and economic impacts of decisions.
CRP.K-12.CRP5.1	Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.
CRP.K-12.CRP6	Demonstrate creativity and innovation.
CRP.K-12.CRP6.1	Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization. They can consider unconventional ideas and suggestions as solutions to issues, tasks or problems, and they discern which ideas and suggestions will add greatest value. They seek new methods, practices, and ideas from a variety of sources and seek to apply those ideas to their own workplace. They take action on their ideas and understand how to bring innovation to an organization.
CRP.K-12.CRP7	Employ valid and reliable research strategies.
CRP.K-12.CRP7.1	Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies. They use reliable research process to search for new information. They evaluate the validity of sources when considering the use and adoption of external information or practices in their workplace situation.
CRP.K-12.CRP8	Utilize critical thinking to make sense of problems and persevere in solving them.
CRP.K-12.CRP8.1	Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.
CRP.K-12.CRP9	Model integrity, ethical leadership and effective management.
CRP.K-12.CRP9.1	Career-ready individuals consistently act in ways that align personal and community-held ideals and principles while employing strategies to positively influence others in the workplace. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the directions and actions of a team or organization, and they apply insights into human behavior to change others' action, attitudes and/or beliefs. They recognize the near-term and long-term effects that management's actions and attitudes can have on productivity, morals and organizational culture.
CRP.K-12.CRP10	Plan education and career paths aligned to personal goals.
CRP.K-12.CRP10.1	Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals, and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experiential process, and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors, and other experts to assist in the planning and execution of career and personal goals.
CRP.K-12.CRP11	Use technology to enhance productivity.
CRP.K-12.CRP11.1	Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring new technology. They are proficient with ubiquitous technology applications. They understand the inherent risks-personal and organizational-of technology applications, and they take actions to prevent or mitigate these risks.

CRP.K-12.CRP12	Work productively in teams while using cultural global competence.
CRP.K-12.CRP12.1	Career-ready individuals positively contribute to every team, whether formal or informal. They apply an awareness of cultural difference to avoid barriers to productive and positive interaction. They find ways to increase the engagement and contribution of all team members. They plan and facilitate effective team meetings.
CAEP.9.2.8.B	Career Exploration
CAEP.9.2.8.B.1	Research careers within the 16 Career Clusters ® and determine attributes of career success.
CAEP.9.2.8.B.2	Develop a Personalized Student Learning Plan with the assistance of an adult mentor that includes information about career areas of interest, goals and an educational plan.
CAEP.9.2.8.B.3	Evaluate communication, collaboration, and leadership skills that can be developed through school, home, work, and extracurricular activities for use in a career.
CAEP.9.2.8.B.4	Evaluate how traditional and nontraditional careers have evolved regionally, nationally, and globally.
CAEP.9.2.8.B.5	Analyze labor market trends using state and federal labor market information and other resources available online.
CAEP.9.2.8.B.6	Demonstrate understanding of the necessary preparation and legal requirements to enter the workforce.
CAEP.9.2.8.B.7	Evaluate the impact of online activities and social media on employer decisions.

21st Century Skills/Interdisciplinary Themes

Please list only the **21st Century/Interdisciplinary Themes** that will be incorporated into this unit.

- 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

21st Century Skills

Please list only the **21st Century Skills** that will be incorporated into this unit.

- Civic Literacy
- Environmental Literacy
- Financial, Economic, Business and Entrepreneurial Literacy

- Global Awareness
- Health Literacy

Differentiation

Please remember: Effective educational **Differentiation** in a lesson lies within content, process, and/or product.

* Extra time to complete assignments.

Differentiations:

- Small group instruction-Small group instruction will be given as necessary
- Small group assignments
- Extra time to complete assignments-Students will be given extra time to complete tasks when necessary
- Pairing oral instruction with visuals
- Repeat directions-Directions will be repeated and available online
- Use manipulatives
- Center-based instruction
- Token economy
- Study guides
- Teacher reads assessments allowed
- Scheduled breaks
- Rephrase written directions
- Multisensory approaches
- Additional time
- Preview vocabulary-A shared google document will be available with vocabulary
- Preview content & concepts
- Story guides
- Behavior management plan
- Highlight text
- Student(s) work with assigned partner
- Visual presentation
- Assistive technology
- Auditory presentations
- Large print edition
- Dictation to scribe
- Small group setting

Hi-Prep Differentiations:

- Alternative formative and summative assessments-will be given that cover additional activities and concepts
- Choice boards
- Games and tournaments
- Group investigations
- Guided Reading
- Independent research and projects
- Interest groups
- Learning contracts
- Leveled rubrics

- Literature circles
- Multiple intelligence options
- Multiple texts
- Personal agendas-students will create a personal agenda to map their progress through the unit.
- Project-based learning
- Problem-based learning
- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products
- Varying organizers for instructions

Lo-Prep Differentiations

- Choice of books or activities
- Cubing activities
- Exploration by interest-students will pick their own topic
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills-Mini-workshops to re-teach will be available
- Open-ended activities
- Think-Pair-Share
- Reading buddies
- Varied journal prompts
- Varied supplemental materials

Special Education Learning (IEP's & 504's)

* Students can work with an assigned partner.

- 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
- multiple test sessions
- multi-sensory presentation
- preferential seating
- preview of content, concepts, and vocabulary
- Provide modifications as dictated in the student's IEP/504 plan
- 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

English Language Learning (ELL)

* Students will be assigned a partner for tutoring & assistance in class.

- 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

At Risk

* Student will be allowed to correct errors on assignments.

- 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

Talented and Gifted Learning (T&G)

* Utilize project based learning for greater depth of knowledge.

- Above grade level placement option for qualified students
- Advanced problem-solving
- Allow students to work at a faster pace
- Cluster grouping
- Complete activities aligned with above grade level text using Benchmark results
- Create a blog or social media page about their unit
- Create a plan to solve an issue presented in the class or in a text
- Debate issues with research to support arguments
- Flexible skill grouping within a class or across grade level for rigor
- Higher order, critical & creative thinking skills, and discovery
- Multi-disciplinary unit and/or project
- Teacher-selected instructional strategies that are focused to provide challenge, engagement, and growth opportunities

- Utilize exploratory connections to higher-grade concepts
- Utilize project-based learning for greater depth of knowledge

Sample Lesson

Using the template below, please develop a **Sample Lesson** for the first unit only.

Unit Name:

NJSLS:

Interdisciplinary Connection:

Statement of Objective:

Anticipatory Set/Do Now:

Learning Activity:

Student Assessment/CFU's:

Materials:

21st Century Themes and Skills:

Differentiation/Modifications:

Integration of Technology: