

Example 6: Grades 11–12 Data Analytics

SPBL Unit Plan		
Stage 1: Learning Intentions (A Major Concept for the Unit and a CASEL Competency)		
<p>1. Content learning intention: I can use my understanding of data to transform and communicate data as critical to responsible decision making (3B-AP-15, 3A-AP-16, 3A-AP-18).</p> <p>2. SEL learning intention (responsible decision making): I can utilize principles of data analytics to gather, analyze, and make decisions based on ethically sourced data.</p>		
Stage 2: Success Criteria (Daily Learning Goals)		
<i>You could have multiple goals, written without context or specificity.</i>		
<p>Surface-Level Success Criteria for Content</p> <p>I can restate analytic models or describe visualizations for a given data set.</p>	<p>Deep-Level Success Criteria for Content</p> <p>I can analyze data using R code to clean data sets, create analytic models, and create visualizations.</p>	<p>Transfer-Level Success Criteria for Content</p> <p>I can compile a data set from primary sources or an original collection and then utilize R code to clean data sets, create analytic models, and create visualizations for a given data set.</p>
<p>Surface-Level Success Criteria for SEL</p> <p>I can describe what <i>ethically sourced data</i> means.</p>	<p>Deep-Level Success Criteria for SEL</p> <p>I can use data sets to compare and contrast different perspectives on a community issue.</p>	<p>Transfer-Level Success Criteria for SEL</p> <p>I can present data that I have collected and analyzed related to a community issue to support my perspective and outline a solution.</p>
Stage 3: Driving Question (Written at the Transfer Level)		
<p>Driving question: When is it appropriate and ethical to use information gleaned from past observations in order to make informed decisions and predictions about the future?</p> <p>Authentic context: Students will collect, clean, and analyze data and create a visualization answering a measurable question of meaning to the local community.</p>		

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Stage 4: Tasks (Specific Strategies and Activities)		
<p>Surface-Level Content Tasks</p> <p>Reading: Read a short article on how to conduct a design review protocol.</p> <p>Writing: Define key terms to develop a course glossary.</p> <p>Speaking: Present conclusions from a design review protocol.</p>	<p>Deep-Level Content Tasks</p> <p>Reading: Compare the data-cleaning process in R versus in Python.</p> <p>Writing: Create a diagram comparing and contrasting data mining and big data.</p> <p>Speaking: Conduct a Harkness seminar on data visualization about home ownership by neighborhood.</p>	<p>Transfer-Level Content Tasks</p> <p>Reading: Do a peer review of data analysis and visualizations created by classmates.</p> <p>Writing: Create a program in the R programming language to clean a data set.</p> <p>Speaking: Present answers to the driving question or a student-created data visualization.</p>
<p>Surface-Level SEL Tasks</p> <p>Reading: Read an article about ethically sourced data.</p> <p>Writing: Define key data-sourcing terms such as <i>AIDC</i>, <i>fuzzy logic</i>, and <i>recommendation engine</i>.</p> <p>Speaking: Have small-group discussions on what <i>ethical</i> data means.</p>	<p>Deep-Level SEL Tasks</p> <p>Reading: Read an article comparing decision-making models.</p> <p>Writing: Write a journal article reflecting on the data collection attempts blocked over twenty-four hours when using the DuckDuckGo web browser.</p> <p>Speaking: Conduct a Socratic seminar comparing and contrasting the roles of data in the following decision-making styles: analytical, behavioral, conceptual, and directive.</p>	<p>Transfer-Level SEL Tasks</p> <p>Reading: Read an article about the future changes in data collection implied by Apple’s App Tracking Transparency policy.</p> <p>Writing: Write an action plan for a community issue you have studied.</p> <p>Speaking: Describe a case study of unethically sourced data and the limits people and organizations face when they commit to ethically sourced data.</p>
Stage 5: Entry Event		
<p>Students will develop questions about data analytics as a career field in advance of a panel with data analysts from Northwestern Mutual. Three students in the class will attend a training to facilitate the panel and work as facilitators or hosts for the event.</p>		

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Source for standards: Computer Science Teachers Association. (2017). K–12 computer science standards, revised 2017. Accessed at www.doe.k12.de.us/cms/lib/DE01922744/Centricity/Domain/176/CSTA%20Computer%20Science%20Standards%20Revised%202017.pdf on May 25, 2021.