

Instructions

The data literacy scenarios were developed with three purposes in mind. First, they can be used as measures of data literacy. Second, they can be used for instruction in college courses or in professional development settings. Third, they can be used for research.

For each of the four scenarios, there is the actual scenario that sets the context and an answer key for each scenario's activity. For the Formative Assessment, Summative Assessment, and Early Warning Indicators scenarios, there are accompanying data sets. For the Early Warning Indicators scenario, there are two articles that can be used for supplementary understanding of the topic. For the Workplace Decisions scenario, the scenario contains URLs to active websites and databases for the user to access. Access to these websites is needed to complete the questions. The answer keys include suggested or idealized responses to open-ended questions embedded in the scenarios. A matrix is provided to show a list of the data skills each scenario is intended to target. These skills are linked to the Data Literacy for Teachers construct developed by Mandinach and Gummer.

We have also provided additional materials to help users understand data literacy and make more effective use of the scenarios. These include:

- Definitions of Data Literacy Skills – this document provides information about the data skills that users are expected to demonstrate in the assessment or learn through instruction;
- The Data Literacy Inquiry Cycle – this document provides background information about the inquiry cycle that is formed by the data skills and components;
- Scenario Objectives, - this document outlines the objectives for each of the scenarios, providing guidance on their general foci;
- A List of Data Literacy Skills Across the Scenarios – this document provides a matrix of the skills tapped across the four scenarios;
- Overview – this document provides a general summary of the scenarios and accompanying materials; and
- Instructions for how to use the scenarios – this document provides guidance on how to use the materials for assessment and instructional purposes.

These are to help instructors, users, or researchers understand data literacy and how to use the scenarios and the accompanying materials.

For Assessment Purposes

These are only suggested uses. The materials are meant to be used flexibly. The primary materials needed for assessing data literacy will be the scenarios and the data sets. The articles for the Early Warning Indicator scenario can supplement understanding. Access to the URLs for the Workplace Decisions scenario is necessary to complete the scenario. The Formative Assessment and Summative Assessment scenarios each have one data set. The Early Warning Indicator scenario has a data dashboard and three other data files. We have included for each scenario a List of the Data Literacy Skills that may be demonstrated by the user.

Background information about data literacy is contained in the additional materials. They can help the instructor and student/educator to understand more about data literacy and how the scenarios address the data literacy skills.

The scenario, data set(s), and reading materials (for the Early Warning Indicator) should be given to the student or educator. They can work through the documents at their own pace. Within each scenario are sets of questions to be answered. Some require an objective answer; others are open-ended and require a descriptive response. We have provided Answer Keys. For the open-ended responses, we have prepared possible answers to help users understand what kind of responses might be expected.

We have also provided a List of Skills practiced within each scenario and the List of Skills Across the Scenarios. In the ideal situation, these skills will be demonstrated in the responses. Each scenario should require slightly different subsets of skills. The Answer Key, in combination with the Objectives and the List of Skills, should help determine whether a skill has been demonstrated. The objective responses are either correct or incorrect. The open-ended items are more subjective. Note that we decided not to provide a scoring rubric to provide gradations of expertise and did not tie each potential response to each possible expected skill. The expected skills will become obvious as users examine the responses and link them to the List of Skills.

For Instructional Purposes

The scenarios can be embedded into instruction or professional development to help students and educators learn about data literacy through the demonstration of skills in different types of contexts found in education. The Objectives document outlines the expected overarching goals for each of the scenarios. Along with a discussion of the inquiry cycle and the types of uses for data and the skills required, instructors would give students a scenario and the accompanying materials and data set. Have the students work through the materials and respond to the questions. Use the List of Skills and the Definitions of the Data Literacy Skills documents to determine if the skills have been demonstrated in the responses. As noted above, we have not provided an explicit scoring rubric that links responses to each skill. The possibilities are infinite. But the skill descriptions should help the instructor or professional development provider understand whether a student has shown any evidence of a particular skill targeted in each scenario. Of course, there will be gradations of demonstration. Some students may show sophistication in their responses, whereas others may demonstrate only a bare minimum of knowledge. These differences can be used to facilitate further instruction and discussion.

For Research Purposes

The scenarios can be used for research purposes with proper attribution. The scenarios are linked to the Data Literacy for Teachers construct. Note that there has not been a formal psychometric study, but one researcher and one professional development provider independently rated each scenario for targeted skills. There was 93% agreement. Minor adjustments were subsequently made to insure complete agreement across raters.

We are happy to answer any interpretive questions. Please contact:

Ellen Mandinach, emandin@wested.org

Diana Nunnaley, diana.nunnaley@gmail.com

Ryan Miskell, rmiskel@wested.org