

**List of Data Literacy Skills Across the Scenarios
Drawn from Mandinach and Gummer (2016a, 2016b)**

This is a list of the Data Literacy for Teachers skills as outlined in the work of Mandinach and Gummer. Not every skill is expected to be demonstrated in each of the scenarios. Different scenarios tap different subsets of skills. Each skill is addressed in at least one scenario. Some skills are tapped in all four of the scenarios. To assist users in understanding the specific skills intended to be used in each of the scenarios, we have created the table below as a reference.

Skill/Knowledge/Disposition	Formative Assessment	Summative Assessment	Early Warning	Workplace Decision	Totals
IDENTIFY PROBLEMS/FRAME QUESTIONS	2/5	5/5	4/5	2/5	
Articulate the problem/frame question	N	Y	Y	Y	3
Understand contextual issues - student	Y	Y	Y	N	3
Understand contextual issues - school	N	Y	Y	Y	3
Involve other participants	N	Y	Y	N	2
Understand student privacy	Y	Y	N	N	2
USE DATA	24/27	22/27	18/27	18/27	
Understand assessment	Y	Y	Y	N	3
Develop sound assessment design and implementation	Y	N	N	N	1
Understand data properties	Y	Y	N	N	2
Use qualitative and quantitative data	Y	Y	Y	Y	4
Understand the specificity of data to problem/question	Y	Y	Y	Y	4
Understand statistics and psychometrics	Y	Y	N	N	2
Identify possible data sources	N	N	Y	Y	2
Understand the purposes of different data sources	Y	Y	Y	Y	4
Use multiple measures/sources of data	Y	Y	Y	Y	4
Understand how to generate data	Y	Y	N	N	2
Understand how to analyze data	Y	Y	Y	Y	4
Understand how to prioritize data	Y	N	Y	Y	3
Understand how to integrate data	Y	Y	Y	Y	4
Understand how to examine data	Y	Y	Y	Y	4
Understand how to manipulate data	Y	Y	Y	Y	4
Understand how to organize data	Y	Y	Y	Y	4
Understand how to manage data	Y	Y	Y	Y	4
Understand how to drill down into data	Y	Y	N	N	2
Understand how to aggregate data	Y	Y	Y	N	3
Understand how to disaggregate data	Y	Y	Y	N	3
Use formative and summative assessments	Y	Y	Y	N	3
Understand aspects of data quality	Y	N	N	Y	2
Understand data accuracy, appropriateness, and completeness	N	Y	N	Y	2
Understand the appropriate level of data	Y	Y	Y	Y	4
Understand how to access data	Y	Y	Y	Y	4
Find, locate, retrieve data	N	Y	N	Y	2
Use technologies to support data use	Y	N	N	Y	2

Skill/Knowledge/Disposition	Formative Assessment	Summative Assessment	Early Warning	Workplace Decision	Totals
TRANSFORM DATA INTO INFORMATION	11/11	9/11	8/11	7/11	
Consider impact and consequences (intended or unintended)	Y	Y	Y	Y	4
Test assumptions	Y	Y	Y	Y	4
Generate hypothetical connections to instruction	Y	Y	Y	N	3
Understand how to interpret data	Y	Y	Y	Y	4
Predict possible or likely consequences	Y	N	Y	N	2
Understand and use data displays and representations	Y	Y	Y	Y	4
Assess patterns and trends	Y	Y	Y	Y	4
Summarize data	Y	Y	N	Y	3
Synthesize diverse data	Y	Y	Y	Y	4
Probe for causality	Y	N	N	N	1
Use statistics	Y	Y	N	N	2
TRANSFORM INFORMATION INTO A DECISION	5/5	4/5	3/5	1/5	
Apply understanding of context for the decision	Y	Y	Y	Y	4
Determine next instructional steps	Y	Y	N	N	2
Monitor student performance	Y	Y	Y	N	3
Diagnose what students need	Y	N	Y	N	2
Make instructional adjustments	Y	Y	N	N	2
EVALUATE OUTCOMES	4/5	1/5	2/5	0/5	
Consider need for iterative decision cycle	Y	N	N	N	1
Re-analyze original question or decision	Y	N	N	N	1
Compare data pre- and post-decisions	Y	N	N	N	1
Monitor for student changes	Y	N	Y	N	2
Monitor for classroom practice changes	Y	Y	Y	N	3
DISPOSITIONS AND HABITS OF MIND	2/5	4/5	4/5	1/5	
Belief in data/think critically	Y	Y	Y	Y	4
Belief in improvement in education requires a continuous iterative cycle	Y	N	Y	N	2
Ethical use of data	N	Y	N	N	1
Collaboration	N	Y	Y	N	2
Communication	N	Y	Y	N	2

Mandinach, E. B., & Gummer, E. S. (2016a). *Data literacy for educators: Making it count in teacher preparation and practice*. New York, NY: Teachers College Press.

Mandinach, E. B., & Gummer, E. S. (2016b). What does it mean for teachers to be data literate: Laying out the skills, knowledge, and dispositions. *Teaching and Teacher Education*, 60, 366-376.