Nebraska Department of Education
Data Literacies, Concepts, and Indicators

1. **What do the data show?** - *Data Comprehension*
   Team members continuously collect, analyze, and apply learning from a range of data sources using multiple levels of analysis. Sources will include comparison and trend data about student learning, instruction, program evaluation, and organizational conditions that support learning.
   a. **Continuous Improvement Process:** Team members will be actively engaged in a continuous improvement process to determine verifiable improvement in student learning including readiness for and success in the next level.
      i. Identify the stages of the continuous improvement process within the system used by the district/school
      ii. Identify all stakeholders involved in the continuous improvement process
      iii. Describe the district/school's current progress in the continuous improvement process
      iv. Identify subgroups for disaggregation (i.e. gender, poverty, limited English proficient, special education, ethnicity, etc.)
   b. **District/School Profile:** Team members will create and maintain a district/school data profile using multiple types of data, multiple levels of data analysis, and metrics appropriate for the measure of data.
      i. Types of Data
         1. Recognize the impact of a quality data culture on data accuracy
         2. Identify the four types of data[2] (demographic, student learning, perceptual, school processes), state examples, and explain the value of each type of data
         3. Name and locate available data sources for each of the four types at the district, building, grade, classroom, and individual student levels
         4. Determine possible data sources for missing data types
      ii. Levels of Data Analysis
         1. Explain the intersection of the four types of data and the various intersections over time
         2. Explain how higher levels of analysis build upon lower levels and provide more comprehensive information when evaluated over time
      iii. Measures of Data
         1. Understand the basic characteristics of qualitative and quantitative research methods
         2. Define the data measures of categorical and continuous and give example of each using the four types of data identified in the district/school
         3. Demonstrate understanding that the measure of data determines appropriate analysis, reporting, and display
         4. Identify appropriate use of mean, median, and mode
         5. Understand how to use and interpret raw scores, scale scores, percentiles, normal curve equivalent (NCE), and cut scores, and recognize common errors made in using these metrics
         6. Evaluate the reliability and validity of instruments used to collect data
   c. **Data Tools and Skills**: Team members will be able to use appropriate tools to collect, analyze, and comprehend data (Other Tools and Skills to be determined)
         1. Organize data
         2. Display data
         3. Develop and use surveys

2. **Why might this be?** - *Data Interpretation*
   Team members interpret and communicate data.
   a. **Interpret data results**
      i. Make statements about the data that are Specific, Understandable, Related to focus questions, and Factual (SURF)[1]
         1. Hypothesize and record reasons for data trends, patterns, strengths, weaknesses, and gaps
         2. Identify strengths and prioritize challenges
      ii. Question and validate the data quality/accuracy
      iii. Develop an inquiry process to identify possible causes or contributing factors
      iv. Use data to test hypotheses
      v. Identify and investigate factors not expressed in the data
   b. **Identify relationship(s) between the data and the district/school's vision about teaching and learning**
      i. Agree and commit to a shared vision about teaching and learning that consists of:
         1. an articulated curriculum based on standards for learning that support the district/school's mission and vision
         2. instructional strategies designed to support the curriculum and improve student learning
         3. assessment processes that support student learning and effectively measure student achievement
         4. a safe and nurturing learning environment that treats each person with respect and is conducive to effective teaching and learning
      ii. Determine how vision will be implemented
      iii. Plan professional development to improve instruction
      iv. Implement processes for collaboration
   c. **Communicate data interpretation results effectively to all stakeholders**
      i. Summarize the steps taken to interpret the data and the results of those steps
      ii. Determine the most appropriate method for communicating the interpretation results to internal and external stakeholders
      iii. Disseminate information explaining the data analysis by:
         1. identifying the target audience
         2. identifying the appropriate communication medium
         3. including visualization components

3. **How should we respond?** - *Data Use*
   Team members will implement strategies and develop an action plan(s) to address student needs identified from analyzing the data
   a. **Identify researched-based strategies appropriate to the goal**
      i. Develop district process for selecting research-based strategies to use with students for the addressed need(s)
      ii. Identify the key components of research-based strategies
      iii. Identify two to four research-based strategies that target the areas identified for improvement
   b. **Develop Action Plan(s)**
      i. Based on an analysis of the data, identify a measurable goal(s) to improve student learning
      ii. Identify a baseline measurement for the goal(s)
      iii. Develop an action plan identifying specific steps and roles and to address each improvement goal(s)
      iv. Set timelines for the action plan(s)
      v. Identify resources, including professional development, needed to implement the action plan(s)
      vi. Plan for evaluation of the action plan(s)
   c. **Communicate action plan effectively to all stakeholders**
      i. Summarize the steps taken to address the improvement goal and the results of those steps
      ii. Determine the most appropriate method for communicating the results and the evidence of the results to internal and external stakeholders
      iii. Disseminate information explaining the action plan by:
         1. identifying the target audience
         2. identifying the appropriate communication medium
         3. including visualization components

4. **Did our response produce results?** - *Evaluation*
   Team members evaluate, monitor, and communicate comprehensive information about student learning, school performance, and the achievement of system and school improvement goals to stakeholders.
   a. **Evaluate Action Plan(s)**
      i. Measure the level of action plan implementation (program fidelity)
      ii. Recognize and isolate variables being measured and variables not being measured that may impact outcome
      iii. Compare baseline data with current data
      iv. Make factual statements and ask questions about the impact of the action plan on student learning
   b. **Effectively communicate action plan results to all stakeholders**
      i. Summarize the steps taken and results of those steps to evaluate the action plan
      ii. Determine the most appropriate method for communicating the results and the evidence of the results to internal and external stakeholders
      iii. Disseminate information explaining the action plan by:
         1. identifying the target audience
         2. identifying the appropriate communication medium
         3. including visualization components

References

[1] http://www.esu1.org/downloads/misc/DataESU1Guide.pdf p.18
[2] Bernhardt, V. L. (2013). *Data analysis for continuous school improvement* (3rd ed.). Larchmont, NY: Eye On Education.