

NDE Data Literacies, Concepts, and Indicators 9-11-2013

1. **Data Comprehension** *What do the data Show?*

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. **Multiple Measures of Data:** Team members will be able to identify four measures of data used in the Continuous Improvement Process and demonstrate understanding of the value of each measure of data.
 - i. Recognize the impact of a quality data culture on data accuracy
 - ii. Identify the four measures of data: demographic, student learning, perceptual, school processes
 - iii. State examples and explain the value of each measure of data
 - iv. Name and locate available data sources for each of the four measures at the district, building, grade, classroom, and individual student levels
 - v. Categorize the data sources into the four data measures
 - vi. Determine possible data sources for missing data measures
 - vii. Identify groups for disaggregation (i.e. gender, poverty, limited English proficient, special education, etc.)
- b. **Multiple Levels of Data Analysis:** Team members will be able to explain the intersection of multiple measures of data.
 - i. Explain the intersection of the four measures of data and the various intersections over time
 - ii. Explain how higher levels of analysis build upon lower levels and provide more comprehensive information
 - iii. Explain how levels of data analysis are more comprehensive if evaluated over time
- c. **Multiple Types of Data:** Team members will be able to identify different types of data and understand associated metrics.
 - i. Define the data types of categorical, continuous, quantitative, and qualitative data
 - ii. Using the four measures of data identified in your district, give examples of categorical and continuous data
 - iii. Using the four measures of data identified in your district, give examples of quantitative and qualitative data.
 - iv. Demonstrate understanding that the type of data determines appropriate reporting and display
 - v. Identify appropriate use of mean, median, and mode
 - vi. Understand how to use and interpret raw scores, scale scores, percentiles, NCE, cut scores and common errors made in using these metrics
 - vii. Evaluate the reliability and validity of instruments used to collect data
- d. **Data Literacy:** Team members will be able to make and record factual statements about snapshot, trend, cohort, panel data and program data.
 - i. Make statements about the data that are specific, understandable, related to focus question, and factual (SURF)
 - ii. Identify strengths and prioritize challenges
 - iii. Identify patterns
 - iv. Identify gaps
- e. **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.)
 - i. Organize data
 - ii. Display data
 - iii. Develop surveys

2. Data Interpretation - *Why might this be?*

Team members interpret and communicate data.

a. Team members will be able to interpret data results.

- i. Hypothesize and record reasons for data trends, patterns, strengths, weaknesses, and gaps
- ii. Question and validate the data quality/accuracy
- iii. Develop questions for inquiry using Root Cause Analysis
- iv. Use data to test hypotheses
- v. Identify and investigate factors not expressed in the data

b. Team members will be able to 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

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3. Data Use - *How Should We Respond?*

The school system engages in a continuous process to determine verifiable improvement in student learning including readiness for and success at the next level.

- a. **Continuous Improvement Process:** Team members will be able to demonstrate understanding of the continuous improvement process (CIP.)
 - i. Identify the stages of the continuous improvement process within the system being used by the district
 - ii. Identify all stakeholders involved in the school improvement process
 - iii. Describe the school district's current progress in the CIP
- b. **Identify strategies appropriate to the goal:** Team members will be able to implement appropriate strategies to address needs identified from analyzing the data.
 - i. Develop a 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
- c. **Action Plan:** Team members will be able to develop and implement an action plan to address needs identified from analyzing the data.
 - i. Based on an analysis of the data, identify a measurable goal to improve student learning
 - ii. Identify a baseline measurement for the goal
 - iii. Develop an action plan identifying specific steps and roles and responsibilities to address the improvement goal
 - iv. Set timelines for the improvement goal
 - v. Identify resources, including professional development, needed to implement the action plan
 - vi. Plan for evaluation of the action plan
- d. **Communicating Results:** Team members will be able to effectively communicate an action plan to 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
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 3. Including visualization components

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4. **Evaluation** *Did our response produce results?*

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. **Action Plan Evaluation:** Team members will be able to evaluate the impact of the action plan on student learning.
 - i. Measure the level of action plan implementation (program fidelity)
 - ii. Identify test and control variables to be measured and variables that may interfere with the evaluation
 1. Recognize and isolate variables being measured from 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. **Communication:** Team members will be able to effectively communicate action plan results to internal and external 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