

Core Content

Cluster Title: Represent and interpret data.

Standard 4: Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

MASTERY Patterns of Reasoning:

Conceptual:

Students will understand that there are different ways to represent data.

Students will understand that the same data can be organized in many ways.

Students will understand data collection processes.

Students will understand that data is gathered from answering questions, and that questions can be answered by analyzing data.

Procedural:

Students can use three categories to organize and present information.

Students can ask and answer questions to generate data.

Students can organize data in a logical way.

Students can use the generated data to answer questions (e.g., How many in each category? How many more or less are in one category than in another?).

Students can collect and categorize data.

Students can organize data as a class.

Representational:

Students can record answers to simple questions and make comparisons from analysis of a given data set.

Supports for Teachers

Critical Background Knowledge

Conceptual:

- Students can classify objects into given categories.
- Students can count the numbers of objects in each category.

Procedural:

- Students can ask questions to gain information.
- Students can sort objects into categories.

Representational:

- Students can draw a picture to represent categories and label with attribute and quantity.

Academic Vocabulary and Notation

data, sort, classify, group, organize, graph (pictograph, t-chart), tally marks, category, attribute, less than, more than, fewer, compare, title, labels, survey

Instructional Strategies Used	Resources Used
<p>Using a daily question (like lunch count), have students respond on a graph (pocket chart, Smart Board, clothes pins on a poster board, etc.) then discuss: “How many are the same? How many are different? How do you know? How many more __ than __?” etc.</p> <p>Create a pictograph of the weather each day. Ask questions about the data.</p> <p>Have students generate questions (eye color, how you get to school, favorite sport, food, etc.) and three possible categories. Have the students survey (gather data) other students in the classroom (or in their family, other classes, etc.). Represent the data visually (pictograph, t-chart, or other graphic organizers, any student lead ideas, etc.).</p>	<p>Math activities and lessons: http://illuminations.nctm.org/</p> <p>Graphing manipulatives: http://www.nlvm.usu.edu</p> <p>Graphing game: http://toytheater.com/fruit-fall.php</p> <p>Lessons and activities: http://www.abcteach.com/directory/basics/math/graphing/</p> <p>Leedy, Loreen. <i>The Great Graph Contest</i>. Holiday House, 2006.</p> <p>Murphy, Stuart. <i>Lemonade for Sale (MathStart 3)</i>. HarperCollins, 1997.</p> <p>Murphy, Stuart. <i>Tally O'Malley (MathStart 2)</i>. HarperCollins, 2004.</p> <p>Carlson, Nancy. <i>Harriet's Halloween Candy</i>. First Avenue Editions, 2002.</p>

Assessment Tasks Used

Skill-Based Task:

Mr. Smith’s class took a survey of how they get school every day.

How Do You Get to School?

Car Riders					
Bus Riders					
Bike Riders					

How many students ride in a car to get to school?

How many students ride a bike to get to school?

How many students ride on a bus to get to school?

How many more students ride their bike to school than ride the bus to school?

How many fewer students ride in a car than ride a bike to get to school?

Problem Task:

See graphics and problem on next page.

A first grade class was asked what their favorite sport was.
Organize the data below to answer the questions.



How many students are in each category?
How many more students like soccer than basketball?
How many fewer students like football than soccer?