Core Content

Cluster Title: Represent and interpret data.

Standard 10: Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and comparison problems using information presented in a bar graph.

MASTERY Patterns of Reasoning:

Conceptual:
- Students will understand what a picture graph is and what the pictures represent.
- Students will understand what a bar graph is and what the data represents.
- Students will understand how to organize data in picture and bar graphs.
- Students will understand the parts of a graph and how to label them.
- Students will understand how to read and interpret bar and picture graphs.
- Students will understand that data can be used to solve problems.

Procedural:
- Students can read and understand data.
- Students can organize data into up to four categories.
- Students can draw a graph representing these categories.
- Students can label the parts of a graph.
- Students can analyze and solve put-together, take-apart, and comparison problems using a graph.

Representational:
- Using procedural steps, students can create a picture graph and bar graph to represent data.
- Students can solve simple problems using these graphs.
- Students can make comparisons within data sets.

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Supports for Teachers

**Critical Background Knowledge**

**Conceptual:**
- Students will understand that there are different types of graphs.
- Students will understand that a given data set can create a variety of graphs.
- Students will understand the data collection process.

**Procedural:**
- Students can collect, organize, and represent the data in categories.

**Representational:**
- Students can collect and categorize data.
- Students can create graphs (i.e., represent multiple data sets) with class.
- Students can record answers to simple questions and comparisons taken from analysis of a given graph.

**Academic Vocabulary and Notation**
- key, data, graph, survey, category, title, labels, columns, picture graph, bar graph, compare

**Instructional Strategies Used**

- Collect data as a class. Using the data collected, create a graph with students. Use this time to model the process of creating a graph (using student mastery procedural skills). Upon completion, let children create another graph on their own using another data set.

- Analyze and interpret the data presented in the graph. Ask students questions about the data set.

**Resources Used**

- [http://illuminations.nctm.org/](http://illuminations.nctm.org/) (search for “graph activities”)

**Assessment Tasks Used**

**Skill-Based Task:**
- Use the data to complete the graph, then answer the questions that follow.

**Problem Task:**
- A survey was taken to find out the favorite color in Mr. Parker’s class. The results are listed below:

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Mrs. Castro asked her students which fruit they had eaten for lunch. Here are the results:

Apples: 5
Grapes: 9
Pears: 2
Bananas: 7

Which fruit did most students choose at lunch?

Which fruit did the least number of students choose?

How many more children ate grapes than pears?

How many children ate fruit at lunch that day?

How many less children chose pears than bananas?

If two more children ate apples, how many children would have eaten apples at lunch?

Organize these results into a bar graph or picture graph. Analyze the graph and write five sentences telling what you learned from this graph (e.g., most popular color, least favorite color, etc.).

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