

Ohio Standards Connections

Data Analysis and Probability

Benchmark B

Sort and classify objects by attributes, and organize data into categories in a simple table or chart.

(Grades Pre-Kindergarten - 2)

Indicator 2

Place information or objects in a floor or table graph according to one attribute (e.g., size, color, shape or quantity).

(Grade Pre-Kindergarten)

Indicator 3

Select the category or categories that have the most or fewest objects in a floor or table graph.

(Grade Pre-Kindergarten)

Mathematical Processes Standard

Benchmark F

Draw pictures and use physical models to represent problem situations and solutions.

(Grades Pre-Kindergarten - 2)

Benchmark H

Recognize the mathematical meaning of common words and phrases, and relate everyday language to mathematical language and symbols.

(Grades Pre-Kindergarten - 2)

Lesson Summary:

Students will create and interpret data from a simple table graph or chart using objects to represent their favorite snack.

Estimated Duration: 15 - 30 minutes per activity

Commentary:

Classroom experiences should build on children's curiosity and intuitive problem-solving skills. Children will likely have very different mathematical understandings and skills, and a situation that is a problem for one child may be answered quickly by another. Young children should be provided multiple opportunities to solve problems related to daily routines and situations arising from stories.

Children's reasoning skills also develop very early and are impacted by their experiences. They will have their own ways for solving problems and convincing themselves that their solutions are correct. Young children should have frequent opportunities to make conjectures, search for ways to support their thinking, and talk about their ideas.

Children begin using mathematical terms at a very young age. They ask for more cookies or four books at the library or describe things using "bigger" or "smaller." Children's communication skills grow with experience, through interaction with others and as language is modeled for them.

Young children represent their ideas and thinking in many different ways, such as drawing pictures or using physical objects. Teachers should listen to children's discussions, observe them engaged in activities, and ask questions that provide insights about the level of understanding conveyed by those representations.

Pre-Assessment:

Informally assess students' understanding and use of comparison terms, particularly "more than" and "most." Pose questions during daily activities. Ask students to compare the number of objects in two or three groups.

For example, provide two or three colors of crayons for students to use during a center activity, such as two red crayons, five blue crayons and nine yellow crayons. Ask students, "Do we have more red crayons or more blue crayons?" or "Which color - red, blue or yellow - do we have fewest number of crayons?" These and similar questions provide insights into students' familiarity with comparison terms. The number of objects should be relatively small (less than 10) or the difference in the number of objects clearly evident to students. Ask students to tell or demonstrate how they know there are more (or fewer). Some students may count the number of each object when small numbers are used or by pairing the objects (rearranging the crayons into pairs or sets of one red and one blue crayon) and noticing there are blue crayons "left over."

Scoring Guidelines:

Other Related Ohio Standards

Number, Number Sense and Operations

Benchmark B

Recognize, classify, compare and order whole numbers.
(Grades Pre-Kindergarten - 2)

Indicator 6

Compare sets of equal, more, and fewer and use the language of comparison (e.g., equal, more and fewer).
(Grade Pre-Kindergarten)

Benchmark F

Count, using numerals and ordinal numbers.
(Grades Pre-Kindergarten - 2)

Indicator 2

Touch objects and say the number names when counting in the context of daily activities and play.
(Grade Pre-Kindergarten)

Indicator 3

Demonstrate one-to-one correspondence when counting objects.
(Grade Pre-Kindergarten)

Benchmark G

Model, represent and explain addition as combining sets and counting on.
(Grades Pre-Kindergarten - 2)

Informally assess whether students can make comparisons and understand the meaning of and use comparison terms, such as "equal or same number as", "more" and "fewer."

Post-Assessment:

A formal post-assessment is not recommended. Assessment should be embedded within the lesson activities and play, such as:

- Observing students during the lesson as they place objects in the appropriate category in the table graph or chart.
- Listening to students' response to questions about the categories.
- Noting the students' use of comparison terms, such as "most" or "fewest", when making comparisons among the number of objects in categories or groups.

Scoring Guidelines:

Observe and make note of students who can make comparisons successfully and use terms appropriately and of students who may need targeted activities or assistance in making comparisons and using comparison terms.

Instructional Procedures:

Activity One:

1. Establish a context around what data can be collected and displayed in a simple table graph or chart. For example, snack time provides contexts for creating simple table graphs and charts of information, particularly if students regularly have a choice of two or three different options for juice or milk. Ask students to save their juice box or milk carton. Start the activity by posing a question such as, "I wonder what kind of juice (or milk) is our favorite? "
2. Ask students to predict or guess which kind of juice most students choose when given an option of orange or apple juice, or what kind of milk (white or chocolate).
3. Have students place their empty juice box or milk carton in a designated group or location. For example, ask students to put their box on the orange mat (or large sheet of orange paper) if they chose orange juice and on the red mat if they chose apple juice.
4. Ask students to identify the class' favorite drink, orange or apple, and how they know. Students may be able to verify the favorite visually if there is a clear preference. Have students help you arrange the boxes on each mat in a row, then compare the lengths of the rows. Have students count the number in each row with you to determine or verify the kind of juice most students chose.

Activity Two:

Plan an activity that gives students a choice of three options, such as a choice of three snacks. For example, provide three options of snacks (box of raisins, small bag of celery sticks, small bag of carrot sticks) or fruit (banana, apple, orange) or three kinds of candies. Note: The candies should all be of similar size such as miniature-sized candy bars.

Favorite Snack Graphing — Pre-Kindergarten

1. Pass a bowl containing the three choices of snacks and have each student choose his/her favorite.
2. Show students a chart or table graph with three rows or columns. Use actual objects (candies, fruits or snacks) as labels for the rows or columns for a table graph and empty wrappers or pictures of fruits or other snacks as labels on a chart that is displayed on a wall. Ask students to identify the categories on the graph or chart.
3. Have each student place his/her snack item in the row or column that matches his/her choice. When using chart paper on an easel or wall, provide students with pictures of snack items (such as apple, oranges, etc.) or when using candy, have students eat their candy and keep the empty candy wrapper. Have students use tape to affix their pictures or wrappers in the appropriate category on the chart or graph.
4. Ask students to describe the number of items shown in the chart or table graph, listening for use of comparison terms.
5. Have students count the number of wrappers or items in each column.
6. Ask students to identify which row or column(s) has the most, fewest, and which have the same or equal amounts.

Differentiated Instructional Support:

Instruction is differentiated according to learner needs, to help all learners either meet the intent of the specified indicator(s) or, if the indicator is already met, to advance beyond the specified indicator(s).

- Assist students who need help with counting.
- If a student is having trouble comparing two columns, have the student place a finger from each hand on the objects or wrappers and continue moving upward, until one column or row runs out of wrappers. This should help the student understand which column has more.
- Limit comparisons to two categories in which there is a relatively large difference in number.
- For the students who have grasped the concept of comparison, compare three or more categories. Compare categories that are closer in number.
- Give students large grid paper and crayons. Let them copy the graph by coloring in the number of objects or wrappers in each column a different color.

Homework Options and Home Connections:

- Have the student share what was done in class.
- Send home a sheet of grid paper and parent guide for making a simple graph or chart. Have parents help their child make a simple graph or chart, such as graphing the type of shoes (with strings, buckles, velcro, etc...) or some other topic.

Materials/Resources Needed:

For the teacher: Poster-sized grid paper, tape.

For the students: Different kinds of snacks (such as juice boxes, milk, fruit, raisins, carrot and celery sticks, or miniature candy bars).



Favorite Snack Graphing — Pre-Kindergarten

