



Who's More Popular?

Mathematics

One vote for Toto, two votes for Lion, and three votes for Dorothy.

The character that has my vote is...you guessed, Auntie Em!

National Standards: Mathematics > Data Analysis and Probability

NM-DATA.PK-2.1, NM-DATA.3-5.1 Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer. (Grade K-3)

- Pose questions and gather data about themselves and their surroundings.
- Design investigations to address a question and consider how data-collection methods affect the nature of the data set.
- Collect data using observations, surveys, and experiments.
- Recognize the differences in representing categorical and numerical data.
- Represent data using concrete objects, pictures, and graphs.
- Represent data using tables and graphs such as line plots, bar graphs, and line graphs.

NM-DATA.PK-2.2, NM-DATA.3-5.2 Select and use appropriate statistical methods to analyze data (Grade K-3)

- Describe parts of the data and the set of data as a whole to determine what the data show.
- Describe the shape and important features of a set of data and compare related data sets, with an emphasis on how the data are distributed.

Kentucky: Mathematics Standard

2. Students shall develop their abilities to apply core concepts and principles from mathematics, the sciences, the arts, the humanities, social studies, practical living studies, and vocational studies to what they will encounter throughout their lives.

Probability and Statistics (2.8, 2.12, 2.13: Grades K-3)

2.8 Students understand various mathematical procedures and use them appropriately and accurately.

2.12 Students understand mathematical structure concepts including the properties and logic of various mathematical systems

2.13 Students understand and appropriately use statistics and probability.

Skills

Grades K-3

MA-E-3.2.1 Pose questions that can be answered by collecting data.

MA-E-3.2.2 Collect, organize, and describe data (e.g., drawings, tables, charts).

MA-E-3.2.3 Construct and interpret displays of data (e.g., line graph, bar graph, pictograph, line plot, simple Venn diagram, table).

MA-E-3.2.4 Interpret circle graphs.

MA-E-3.2.5 Make predictions and draw conclusions based on data.

Ohio: Mathematics > Data Analysis and Probability

- Pose questions and collect, organize, represent, interpret and analyze data to answer those questions.
- Develop and evaluate inferences, predictions, and arguments that are based on data.

Benchmark(s) Grade K-2

- A. Pose questions and gather data about everyday situations and familiar objects.
- B. Sort and classify objects by attributes, and organize data into categories in a simple table or chart.
- C. Represent data using objects, picture graphs and bar graphs.

Benchmark(s) Grade 3

- A. Gather and organize data from surveys and classroom experiments, including data collected over a period of time.
- B. Read and interpret tables, charts, graphs (bar, picture, line, line plot), and timelines as sources of information, identify main idea, draw conclusions, and make predictions.
- C. Construct charts, tables and graphs to represent data, including picture graphs, bar graphs, line graphs, line plots and simple Venn diagrams.

Ohio: Mathematics > Mathematical Processes Standard

- Use mathematical processes and knowledge to solve problems.
- Apply problem-solving and decision-making techniques, and communicate mathematical ideas.

Note: The following benchmarks are embedded within the grade level indicators.

Benchmark(s) Grades K-2

A, B, D, F and I

Benchmark(s) Grade 3

A, B, C, D, G, H, I and K

Grades K-3

Objective

Student will:

- Conduct a classroom survey to gather data that is both numerical and of opinion.
- Collect and analyze data and present the results in both numerical and graphic formats.

Assessment

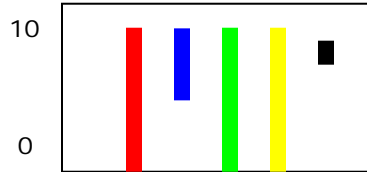
Students will be able to:

- Craft survey questions and interview classmates/schoolmates regarding preference and opinion of the story, The Wizard of Oz.
- Gather relevant data regarding students' favorite characters, scenes, songs, events, etc., and represent findings in both a numerical and visual format.

Sample items to gauge student understanding:

1. Explain what is data? (*factual information; information that is true*)

2. Describe ways to collect information. (*asking questions; talking to people, through reading, by observing, etc.*)
3. What is this type of graph called? How is it used?



(bar graph; used to illustrate and compare how much of something)

Vocabulary

- Data
- Analyze
- Bar graph
- Pie chart

Materials

- Paper and pencils
- Colored pencils
- Handout: Sample survey questions regarding the story/play, The Wizard of Oz.

Activity 1

My Favorites!

Teacher will:

1. Share with students a brief history of the story of The Wizard of Oz, and how it has been depicted in book form, as well as movie formats and theatrical performances.
 - a. The original story title was, The Wonderful Wizard of Oz.
 - b. Written by the author L. Frank Baum in 1899.
 - c. The story was first published in the year 1900, 105years ago.
 - d. Baum wrote the story solely to “pleasure children of today.” (His desire to just tell a good story.)
 - e. The film version was made in 1939; 66 years ago.
 - f. First shown on television in 1956, and 49+ times since.
2. Ask students to think about their favorite character and event from the story and from The Children’s Theatre stage production of The Wizard of Oz.
3. Record the students’ favorite characters and events on chart paper (or on the board) with a number count to reflect how many students chose the same one.
4. Model for students how to interpret the information just gathered in the form of a bar graph and/or pie (circle) chart.
5. Explain to students that this activity produced a collection of data (information) now organized in the form of a graphic interpretation.
6. Explain to students that they will each receive a question about The Wizard of Oz for which to survey classmates. They will ask each student in the class that question and record their answer on a tally sheet.
7. Instruct students to create a chart or graph based on the data they collect.
8. Collect student graphs and post them around the classroom.

9. Have students observe, analyze and write a summary statement to reflect the data collected.

Students will:

1. Share with the class their favorite character and event from The Wizard of Oz story/production.
2. Interview and survey classmates to collect and record data on "favorites" from The Wizard of Oz. (*Each student will have an assigned question.*)
3. Create a bar or pie graph to reflect the data collected regarding answers collected for their survey question on The Wizard of Oz favorites.
4. Display and present their graphs to the class.
5. Observe, analyze and write a summary statement about the data.

Activity Extension

- Students generate additional questions regarding favorites and/or opinions about The Wizard of Oz story, and survey other students within the school.
Students will interpret tallies in a graph format to evaluate findings and draw conclusions.



**Handout: Math (K-3)
Sample Survey Questions**

Question:	Tally:		Student Statements:
Who was your favorite character?			
1. Glinda the Good Witch			
2. Dorothy			
3. The Wicked Witch of the West			
4. Scarecrow			
5. Tin Man			
6. Lion			
7. Wizard			
8. Toto			
9. Other			
What was your favorite event in the story?			
1. Dorothy singing "Somewhere Over the Rainbow?"			
2. Tornado			
3. Dorothy meeting the Munchkins			
4. Journey through the enchanted forest.			
5. Dorothy captured by the Flying Monkeys			
6. Melting of the Wicked Witch			
Was Toto important to the story?	Yes	No	
Did you like the ending?	Yes	No	
Other question to be decided by teacher and/or students			