

Lemonade for Sale

Summary

Students will construct their own graphs based on data they collect from the book *Lemonade For Sale*.

Main Core Tie

Mathematics Grade 3

[Strand: MEASUREMENT AND DATA \(3.MD\) Standard 3.MD.3](#)

Materials

- *Lemonade for Sale*
- [Rubric for Graphs](#)
- [Lemonade for Sale Summary](#)
- Crayons
- Pocket chart
- [Lemonade Graph](#)

Additional Resources

Books

- *Lemonade for Sale*
, by Stuart J. Murphy; ISBN 0-06-446715-5
- *Tiger Math: Learning to Graph from a Baby Tiger*
, by Ann Whitehead Nagda; ISBN 080507161X
- *Graph It!*
, by Lisa Trumbauer; ISBN 0736812822
- *Graphs*
, by Sara Pistoia; ISBN 1567661203
- *Graphing Activities*
, by Joy Evans; ISBN 1557991243
- *Graphs*
, by Bonnie Bader; ISBN 0448432374

Background for Teachers

Students should be involved in collecting and describing data. Students will construct their own graphs based on data they collect from reading *Lemonade For Sale*.

Rubrics for graphs help students understand the requirements needed to complete a graph.

Intended Learning Outcomes

3. Reason mathematically.
4. Communicate mathematically.
6. Represent mathematical situations.

Instructional Procedures

Invitation to Learn

How many students have ever had a “lemonade stand” or sold Kool-Aid in their front yards?

Today we are going to read a book about children who want to earn money. We will keep track of how much lemonade they sell in our journals. Let’s find out what happens.

Instructional Procedures

Have students glue the [Rubric for Graphs](#) onto inside cover of journals.

How much lemonade do you think the children will sell?

Will they sell the same amount every day of the week?

Is there a day that might be better than another day of the week? Why do you think?

Make any other predictions the students may have ideas for.

Pass out the [Lemonade Graph](#).

Have students follow along and create the graph in student journals as the teacher reads the [Lemonade for Sale Summary](#).

Use the *Rubrics for Graphs* to complete the graph.

Extensions

Have students write what they learned about bar graphs in their journals.

Have students gather information, tally the totals, and create their own graphs following the rubrics glued to the covers of their math journals.

Extend learning to include other types of graphs:

Use a graph to take attendance in the morning.

Have the students mark the lunch chart graph.

Use graphs to enhance other curriculum areas, such as science, social studies, reading, etc.

Use different types of objects to make graphs. Some ideas might be clothespins, paper clips, magnets, name strips, Postit® notes, tally marks, pictures of objects, etc.

Use different mediums to help maintain interest levels. Examples might include water in 2 liter bottles (each student pours in 1/2 cup of water for the bottle of their choice: favorite place to swim: ocean, lake, swimming pool, etc.).

Remember to ask probing questions about the graph after it has been made:

Which category had the most, greatest, fewest, or least?

How many more or less did one choice have over another?

Which was the class favorite?

Graph the syllables of the spelling words or syllables of students' names.

Graph favorite candy or treats such as Skittles, M&M's, candy bars, etc.

Use a variety of questioning when graphing:

Which do you prefer?

My favorite _____ is:

My choice for _____ is:

What is your estimate (for counting, measuring, timing, etc.)?

Other Graphing Questions (which are limitless):

Which graph do you like best, bar graph, tally marks, or pictographs?

Do you prefer primary or secondary colors?

What is your favorite three dimensional shape?

How do you feel today, happy, frustrated, tired?

Which is your favorite, fishing, hiking, or camping?

What is your favorite sport, football, soccer, basketball, or baseball?

Do you like antonyms or synonyms?

Do you like subjects or predicates? Nouns or Verbs? Adjectives or Nouns?

What weather do you like best, rain, snow, or sunny?

Would you rather travel in a car, plane, or train?

What is your favorite subject, art, music, or science?

What drink do you like best, hot chocolate, orange juice, or punch?

Do you prefer hamburger, pizza, or fries?

Which movie do you like best, Finding Nemo or Monster's Inc.?
What do you prefer, cooking, drawing, or reading?
What is your favorite kind of potatoes, baked, mashed, or french fries?
Do you prefer addition, subtraction, or fractions?
Which holiday is your favorite, Halloween or Valentine's Day?
Which farm animals are the most important, cows, chickens, pigs, or horses?
My home is heated by fireplace, gas heat, electricity, or woodburning stove?
Where do you prefer to live, city, suburb, rural community, or forest?
Which month do you predict will be the coldest, December, January, or February?
What will today's temperature be at 12:00 noon today?
How many hours of sleep do you usually get a night, seven, eight, nine, or ten?
Which coin do you like the best, quarter, nickel, dime, or penny?
Is your house number even or odd?
What season were you born?
What month were you born?
What time do you usually get out of bed? Or go to bed? (e.g., before 7:00, between 7-8:00, or after 8:00, etc.)
Which community worker has the most dangerous job, police officer, firefighter, or construction worker?
Which pet would you prefer to have, gerbil, puppy, kitten, or bird?
What is your favorite type of fruit, orange, peach, apple, or pear?
If you were an animal, where would you prefer to hibernate?
Where do you think a plant will live the longest, under the sink, on the porch, or by a window?
Do you prefer vertebrates or invertebrates?

Ideas for picture-graphs:

What is your favorite national park?
What is your favorite fruit?
Which animal would you like to be?
Which continent would you like to visit?

Ideas for 2-ring Venn Diagrams:

I like eating pretzels. I like eating potato chips
I like milk. I like orange juice.
I like pepperoni pizza. I like Canadian bacon pizza.
I like mashed potatoes. I like baked potatoes.
I am wearing pants with pockets. I am wearing a shirt with a pocket.
My clothes have a button. My clothes have a zipper.
I like to play soccer. I like to play basketball.
I am the oldest child. I am the youngest child.
I like it when it snows. I like to hear thunder.
My birthday is an even number. The sum of my birthday digits is less than 6.
There are more than four people living in my house. I have a pet.
I like to read chapter books. I like to read picture books.

Ideas for 3-ring Venn Diagrams:

I like to eat cake. I like to drink milk. I like to eat broccoli.
I am wearing a sweatshirt. I am wearing blue pants. I am wearing shoes with laces.
I am nervous when it thunders. I have seen a rainbow. I like to watch the lightning.
I wear green on St. Patrick's Day. I wear red on Valentine's Day. Christmas is my favorite holiday.
I can name the days of the week in order. I can name the months of the year in order. I can

tell you how many days there are in a year.

I can count to ten in another language. My parents speak another language. I speak another language.

So many different ways to incorporate graphs! Have fun!

Family Connections

Have students find graphs from newspapers or magazines at home. Have family members discuss the information found on the graph and then bring them to class to share.

Assessment Plan

Observe students graphing different kinds of information.

Have students complete the Lemonade Graph, including key, scale, titles, and markings.

Have students gather data or information about something in the classroom or home environment, or the class' favorite candy. Students complete a tally chart, bar graph, and write about their findings.

Bibliography

Research Basis

Goldsmith, L. T., & Mark, J. (1999). What is a standards-based mathematics curriculum? *Educational Leadership*, 5(57), 40-44. Retrieved July 2, 2004 from Ebscohost database.

This article discusses factors that influence student learning and promote a deeper and more substantial mathematical understanding, with an emphasis on conceptual understanding—students learn by doing.

Fogarty, R. (1999). Architects of the Intellect. *Educational Leadership*, 57(3), 76-78. Retrieved June 14, 2004, from Ebscohost database.

This article presents information on the proponents of constructivist theory of learning—John Dewey, Jean Piaget, and Reuven Feuerstein. Teachers can become architects of intellect as they design exquisite learning experiences for their students.

Levine, E. (2002). One kid at a time. *Educational Leadership*, 59(7), 29-32. Retrieved April 6, 2004, from Ebscohost database.

This article focuses on the strategic curriculum approach and factors that provide context for learning—students learn best when they are engaged.

Hartshorn, R., & Boren, S. (1990). Experiential learning of mathematics: Using manipulatives.

Washington, DC: ERIC Clearinghouse on Rural Education and Small Schools, ERIC Digest. (ERIC Document Reproduction Service No. ED321967)

Experiential education is based on the idea that active involvement enhances students' learning. This is difficult with abstract ideas, but the use the manipulatives can bring experience to students' mathematical understanding.

Authors

[Utah LessonPlans](#)