

STATISTICS

&

PROBABILITY

GRADE 3

Ministry of Education
Mathematics Curriculum 1999

OBJECTIVE	ACTIVITIES	ASSESSMENT
1. Collect, record and interpret data on horizontal, and vertical bar graphs.	a. <i>See appendix</i> "What Colours Is Our Food.?" b. "What Food Colouring Needed?" <i>See appendix</i>	
2. Draw graphs to include title, labels and a key where needed.	a. <i>See</i> "How Much Milk" activity in <i>appendix SP-3</i> . b. Let students conduct their own surveys and graph the results.	
3. Analyse graphs (draw conclusions and make predictions.		
4. Apply the terms possible, impossible, always, sometimes, never to everyday situations.		

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HOW MUCH MILK?

Get ready. The main purpose of this activity is to help students understand that a symbol on a pictograph may represent more than one item. A secondary purpose is to emphasize the relationships among customary units of capacity. You can use variations of the activity to discuss multiplication and fractions.

If your students have not previously explored the relationships among pints, quarts, and gallons, furnish models of these units, such as milk cartons.

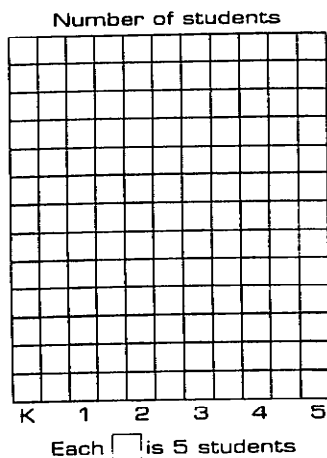
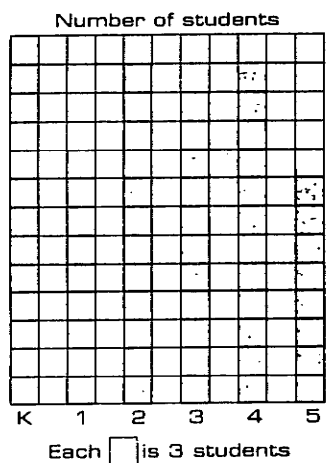
You will need copies of the milk carton from the blackline master (p. 25), crayons in four colors, a large space for a graph, and a stapler, tacks, or tape to attach the milk cartons.

Get going. The type of question that you pose will determine whether this is a short-term or a long-term project. Use your judgment to evaluate the interest of your students, remembering that your excitement about a question can raise their interest.

How many quarts of milk do you think our class drinks in a week while we are at school?

A teacher posed this question to her class after Monday's lunch. She had each student write an estimate on a sticky note, and she made a

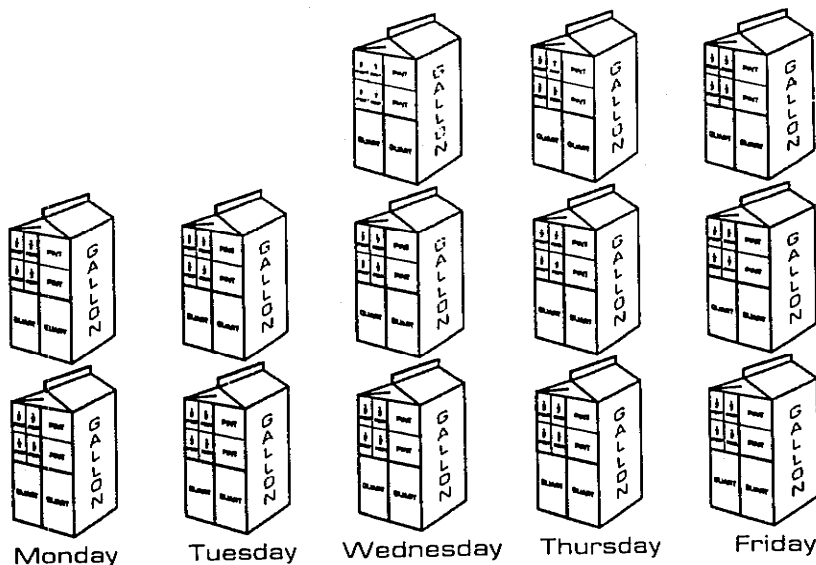
Throughout the three months, the teacher kept the students counting by 2s, 4s, and 8s as they discussed how many half-gallons, quarts, and pints they had drunk to date. Children also developed fraction ideas as they referred to the original milk container pictures. Children used calculators to help them find the cost of the milk they had drunk at various times. Individual children posed many other problems. One child kept track of the milk orders for the weeks and examined the pattern of use.



quick graph of their estimates. She then had each child color on the gallon graph the number of half-pints that the child had drunk. When one quart was completely colored, the children used a different color so that each quart would stand out.

She continued this each day, letting the children change their estimates on Wednesday. On Friday, they discussed the graph and their estimates. They found that the amount of milk purchased each day had increased by the end of the week. She asked, "Why do you think this happened?"

After this introduction, the children kept a record for three months of the milk they drank each month. Each time a gallon from the blackline master had been completely colored, the class added a small rectangle to represent that gallon on a monthly graph.



At the end of April, they found that they had drunk more milk in March than in February or April. An interesting discussion of why this had happened led to finding out the number of days in school and the temperature during April.

Keep going. One variation of this activity is to graph foods that come in packages of 2, 3, 4, 5, or 6. For example, students could graph the number of juice six-packs that they drink, with each square on the graph representing 6 drinks.

Another extension is to have different groups of children graph the same data on graphs with different scales. That is, one group would let each square represent 2, another group would let each square represent 3, and so on. (See the graphs from groups who graphed the number of students in each grade.) In choosing a topic to graph, keep the numbers reasonable so that the students can have practice grouping by 2s through 6s (some students may need counters to help them), or let the students use calculators to investigate the groupings. After the students have completed their graphs, compare them. They should have the same general shape (ups and downs), but they will be different sizes.

