3.7 Communicating about Graphs

You will need
- grid paper

GOAL
Make inferences and convincing arguments that are based on analyzing data and on trends.

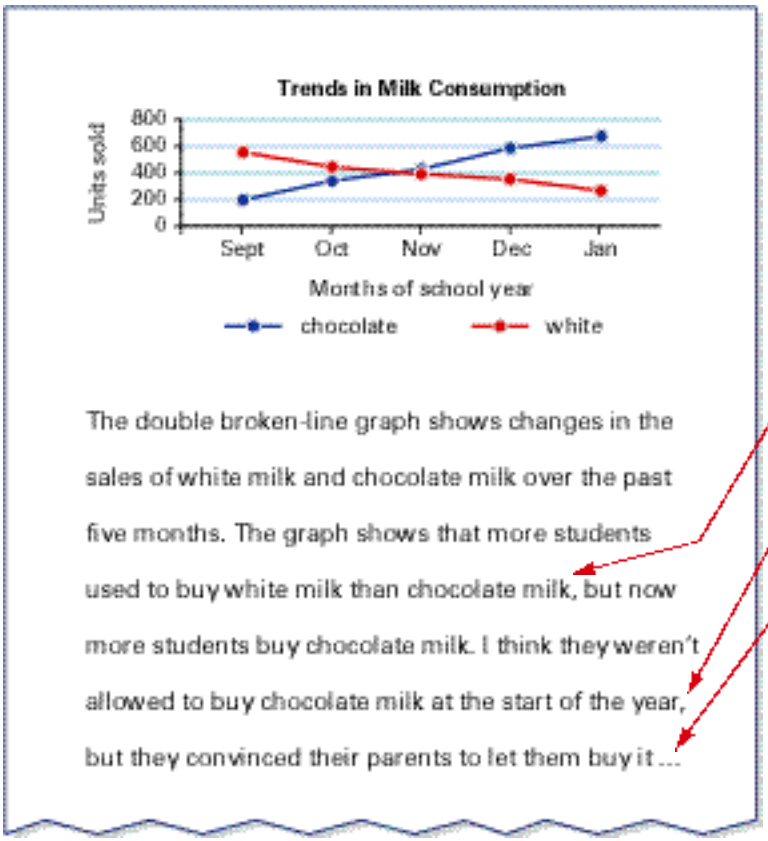
Communicate about the Math

Kevin is in charge of milk sales at his school. He has prepared a report for the principal to show the sales for the past five months, and to recommend the quantities of chocolate milk and white milk that should be ordered for the month of February.

Kevin's friend Jody reads his report and makes some comments.

? How can Kevin improve his report?

Kevin's Report



The double broken-line graph shows changes in the sales of white milk and chocolate milk over the past five months. The graph shows that more students used to buy white milk than chocolate milk, but now more students buy chocolate milk. I think they weren't allowed to buy chocolate milk at the start of the year, but they convinced their parents to let them buy it ...

Jody's Questions

How do you know that?

What do you mean by "start of the year"?

Why do you think that's the reason?

But how much of each kind of milk should be ordered for February? You need to make a recommendation.

A. Which of Jody's questions do you agree with? Why?

B. How could Kevin respond to Jody's questions and improve his report?

C. What other questions can you ask to help Kevin improve his report?

Communication Checklist

- ☑ Is the graph appropriate for the data?
- ☑ Did you include all the important details?
- ☑ Did you make reasonable conclusions?
- ☑ Did you justify your conclusions?
- ☑ Were you convincing?

Reflecting

1. Which parts of the Communication Checklist did Kevin cover well? Explain.

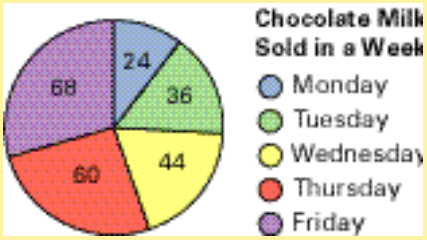
2. Why might it be useful to communicate about a graph?

3. How can you use the Communication Checklist to write a better report?

Work with the Math

Example: Analyzing a circle graph

Kevin wants to show that sales of chocolate milk are higher at the end of a week, so that more chocolate milk should be ordered then. He creates the following graph. Interpret his graph.

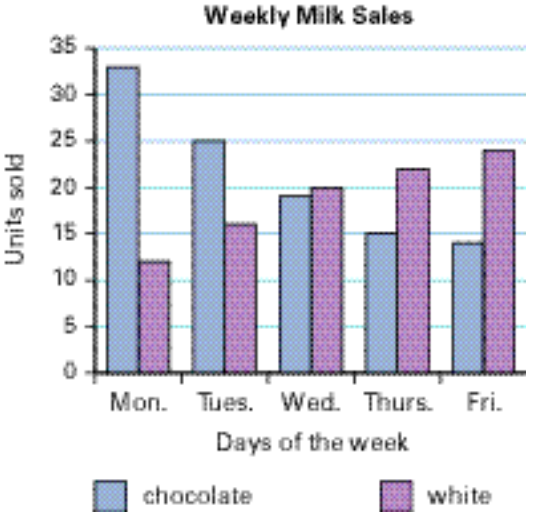


Jody's Solution

- The different numbers on the graph tell you the average number of chocolate milks sold each day.
- The sizes of the sections in the graph show that the amounts increase every day from Monday to Friday.
- Since more than half the circle is for Thursday and Friday, this means that more than half the chocolate milk is sold on the last two days in a week.
- On a Friday, more than $\frac{1}{4}$ of the week's chocolate milk is sold. So, if you order for a week that has a holiday on Friday, you need to reduce the usual order by $\frac{1}{4}$.
- On a Monday, only about $\frac{1}{10}$ of the week's chocolate milk is sold. So, if you order for a week that has a holiday on Monday, you need to reduce the usual order by only $\frac{1}{10}$.

A Checking

4. The school principal wants to know the quantities of chocolate milk and white milk that should be ordered each week, so Janet created a graph and interpreted it. Improve Janet's explanation, using the Communication Checklist to help you.

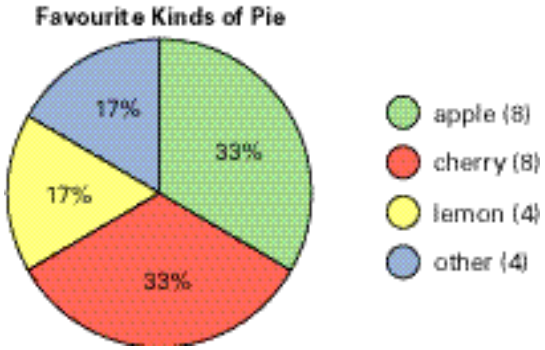


If you look at the graph, you can see that more people drink chocolate milk at the beginning of the week. So, we should order more chocolate milk than white milk since there are more people drinking chocolate milk. I think we should order 100 white milks each week since there are five days in a week and the greatest sales number is 24. I think we should order 150 chocolate milks each week since the highest sales day is about 30 milks.

B Practising

Use the Communication Checklist to help you answer the following questions.

5. Robert surveyed all 24 family members at his family reunion about their favourite kinds of pie. Then he prepared the following graph.



What advice could Robert give about the pies to serve at the next family reunion?

6. Karen and Ahmed work at a children's clothing store. They use a database to keep track of the kinds of pants that are sold each month. Here are their data:

Pants	January	February	March	April	May	June	Total
corduroy	235	215	303	185	170	120	1128
cargo	180	195	204	240	245	268	1332
denim	300	310	308	280	304	294	1808
dress	110	105	95	112	104	111	537
capri	28	36	52	78	102	185	481

a) Create a graph to show their data.

b) Use your graph to write a report that will help the store manager know what kinds of pants to carry in the store. Look at the trends. Include answers to the following questions:

- Which pants are increasing in popularity?
- Which pants are decreasing in popularity?
- Which pants are remaining steady?
- How can you use the data to order pants for the next six-month period?