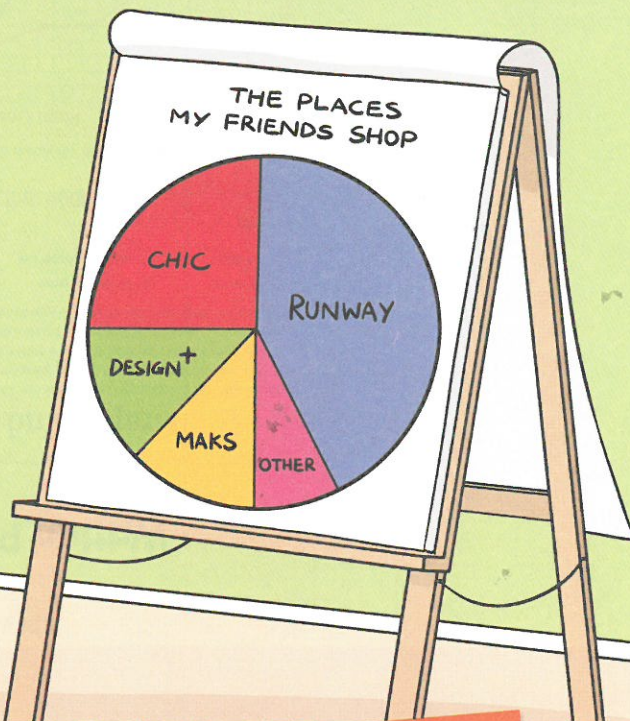
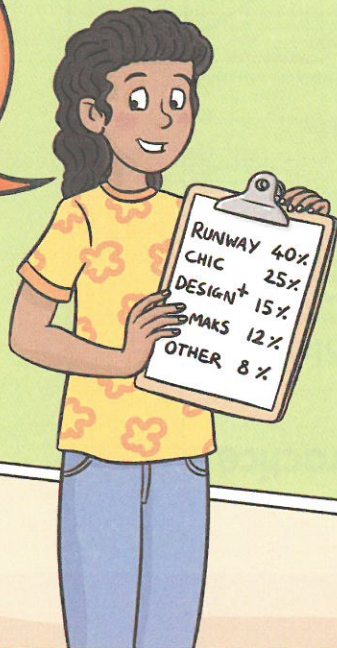


Graphs and Statistics

Skill: Use graphs and plots to organize and display statistical data

Graphs are a good way to organize and display numerical data.



- 1 Lay out the mats and the cards and read the information on **Types of Graphs**.
- 2 Read each study or survey on the mats and review the data.
- 3 Decide which type of graph is the best way to organize and display the data.
- 4 Find the card that names the best graph and place it in the colored box below the data.
- 5 Complete the written practice activity.

Types of Graphs

Museum Attendance

Favorite High School Sports

Graphs and Statistics

1 Anita is doing a research project on the country of Monaco for her geography class. She has to include a graph that shows the nationalities of the people who live there.

French	47%
Monegasque	16%
Italian	16%
Other	21%

circle graph

2 Jimmy and Maia are helping Mr. Wilson, their PE teacher, prepare for a citywide junior tradition. Mr. Wilson asked them to make a graph that shows how many entries there are in each age group.

ages 8-10	17 entries
ages 11-13	16 entries
ages 14-16	25 entries
ages 17-19	14 entries

line graph

3 Mrs. Morace wanted to find out how many students in her social studies class needed extra help and how many needed enrichment opportunities. She decided to graph the students' midterm test scores to see how most of the students were performing.

midterm test scores:
35, 55, 72, 72, 81, 84, 83, 89, 74, 86, 91, 80, 88, 81, 84, 76, 82, 88, 80, 99, 77, 81, 85, 68, 72

box-and-whisker plot

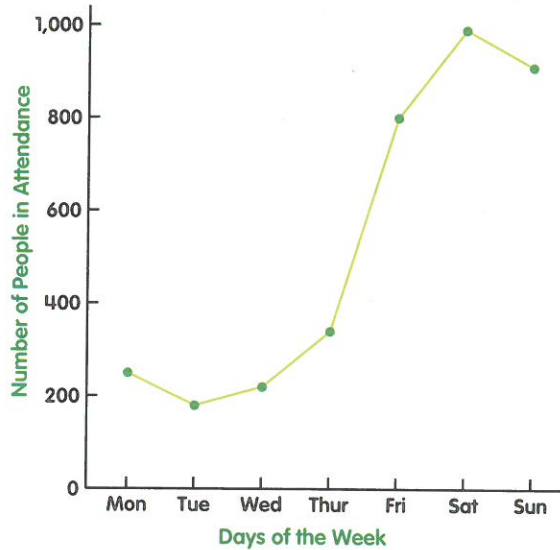
4 Mr. Fredrick gave his math students a class assignment to do a graph project together. The students took a survey of how they each get to school every day. They planned to show the results of the survey on a graph.

survey results:
3 students walk
8 students ride bikes
12 students ride the bus
9 students come by car

circle graph

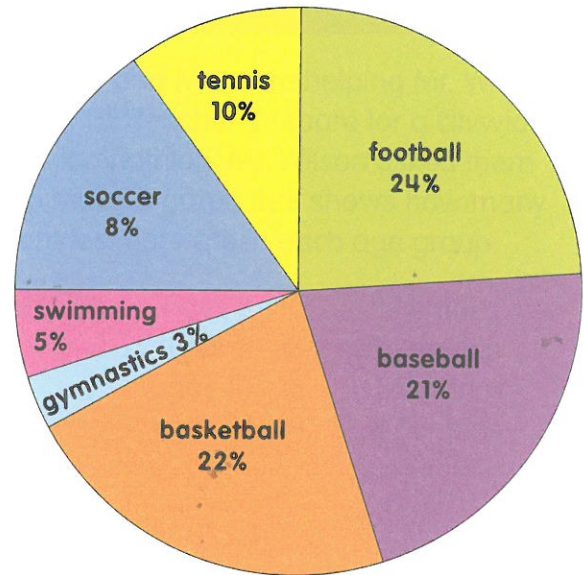
Types of Graphs

Museum Attendance



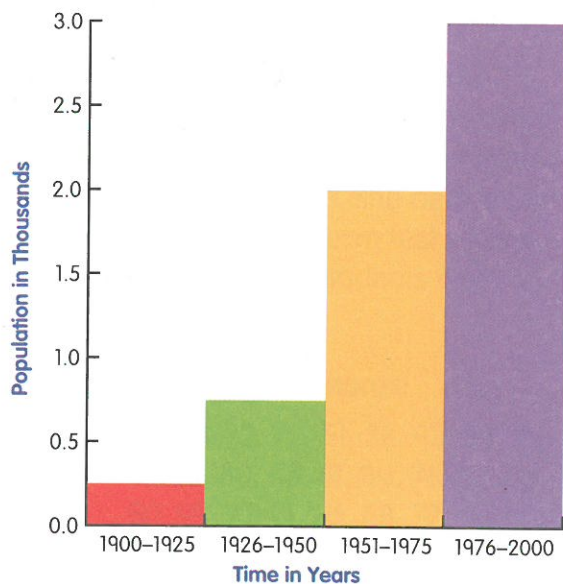
A **line graph** shows change over time. From this graph, we can infer that attendance is low early in the week and high on the weekends.

Favorite High School Sports



A **circle graph** compares parts of a whole. From this graph, we can infer that football is the most favorite high school sport.

Population of Oakville

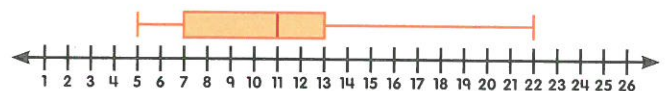


A **histogram** is a bar graph that shows like data over equal intervals or spans of time. From this graph, we can infer that the population of Oakville increased the most from 1950 to 1975.

Lengths of Pet Snakes

Data: the lengths (in inches) of 11 pet snakes
11, 5, 13, 7, 9, 22, 13, 7, 8, 12, 13

- Step 1** Arrange the data from lowest to highest:
5, 7, 7, 8, 9, 11, 12, 13, 13, 13, 22
- Step 2** Find the median value (middle number): **11**
- Step 3** Find the median range: lower median = **7**; upper median = **13**
- Step 4** Plot the data on a number line: Draw a box between the lower and upper medians, with a line at the median. Draw lines (whiskers) out to the lowest and highest data values.



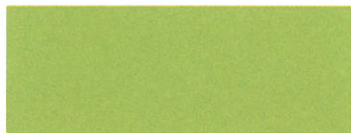
A **box-and-whisker plot** shows the median values and the outliers in a set of data. From this plot, we can infer that most of the snakes are 7 to 13 inches long, with a median length of 11 inches.

Graphs and Statistics

1

Anna is doing a research project on the country of Monaco for her geography class. She has to include a graph that shows the nationalities of the people who live there.

Data	French.....	47%
	Monacan.....	16%
	Italian.....	16%
	other.....	21%



2

Jimmy and Maia are helping Mr. Wilson, their P.E. teacher, prepare for a citywide junior triathlon. Mr. Wilson asked them to make a graph that shows how many entries there are in each age group.

Data	ages 8–10.....	17 entries
	ages 11–13.....	16 entries
	ages 14–16.....	25 entries
	ages 17–19.....	14 entries



3

Mrs. Marcee wanted to find out how many students in her social studies class needed extra help and how many needed enrichment opportunities. She decided to graph the students' midterm test scores to see how most of the students were performing.

Data	midterm test scores:
	35, 55, 72, 72, 51, 58, 93, 89, 74,
	86, 91, 80, 88, 81, 84, 76, 82, 88,
	80, 99, 77, 81, 85, 68, 72



4

Mr. Fredrick gave his math students a class assignment to do a graph project together. The students took a survey of how they each get to school every day. They planned to show the results of the survey on a graph.

Data	survey results:
	3 students walk
	6 students ride bikes
	12 students ride the bus
	9 students come by car



Graphs and Statistics

5

Suri can bring only one suitcase with her to summer camp, so she has to pack carefully. She decides to graph average daily temperatures over a week to help her determine the kinds of clothes to take.

Data	
Monday	77°F
Tuesday	80°F
Wednesday	82°F
Thursday	71°F
Friday	88°F
Saturday	89°F
Sunday	85°F



6

Jake wants to go fishing at Sure Catch Lake, but his dad says that the fish there are too small to make the long drive worthwhile. Jake knows that his friend Matthew caught thirteen fish there. Most of Matt's fish were pretty big, so Jake decides to graph the sizes of the fish to convince his dad that Sure Catch Lake has plenty of whoppers!

Data	Matt's fish (length in inches):
	6, 19, 10, 9, 12, 13, 12, 10, 23,
	14, 11, 12, 10



7

In health class, Kaneesha watched a movie on the importance of sleep, and her teacher assigned a follow-up project. Kaneesha decided to survey the students at a nearby elementary school to find out their average bedtimes. She grouped the survey results by age so she could show them on a graph.

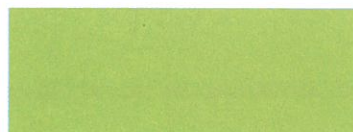
Data	age	bedtime
	5-6	8:00 p.m.
	7-8	8:30 p.m.
	9-10	9:00 p.m.
	11-12	10:00 p.m.



8

Administrators of the local school district must try to project student population growth for the next two years to help them determine staffing needs. To make reasonable estimates, they look up the total numbers of students in the district for a recent ten-year period and decide to organize the figures on a graph to show to the school board.

Data	2001 - 1,576	2006 - 1,848
	2002 - 1,680	2007 - 1,593
	2003 - 1,751	2008 - 1,445
	2004 - 1,607	2009 - 1,377
	2005 - 1,700	2010 - 1,210



line graph	circle graph	histogram	box-and-whisker plot
line graph	circle graph	histogram	box-and-whisker plot
line graph	circle graph	histogram	box-and-whisker plot
line graph	circle graph	histogram	box-and-whisker plot
line graph	circle graph	histogram	box-and-whisker plot
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Graphs and Statistics

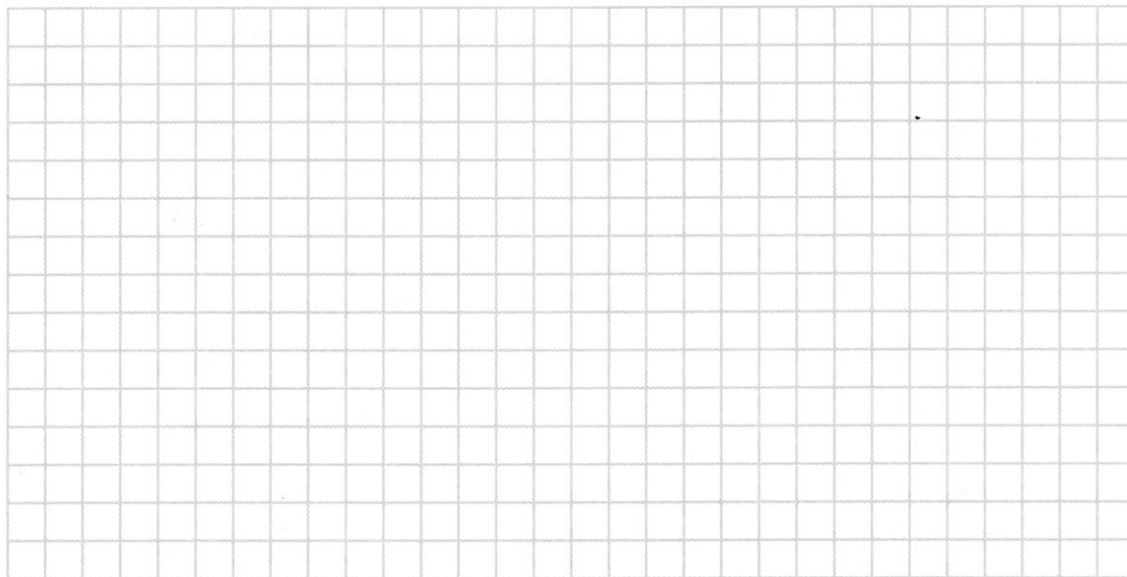
Tanya and Jamil are doing a project together for their Life Science class. They are each growing a plant. Tanya is giving her plant water only. Jamil is using plant food. They have tracked the growth of each plant for a month. Now they need to organize and display the information. Which type of graph should Tanya and Jamil use?

- bar graph double line graph
 histogram box-and-whisker plot

Day	Tanya's Plant	Jamil's Plant
2	1 cm	1 cm
5	1.5 cm	1 cm
8	1.8 cm	1.2 cm
11	2 cm	1.3 cm
14	2 cm	1.5 cm
17	2.1 cm	1.9 cm
20	2.1 cm	2.1 cm
23	2.2 cm	2.3 cm
26	2.25 cm	2.5 cm
29	2.3 cm	2.5 cm

Explain why.

Use the grid below to build the graph. (Be sure to include a title, axis labels, etc., on your graph.)



What can Tanya and Jamil infer from the graph?
