Applications



Connections

Extensions

Applications

For Exercises 1–4, use the stem-and-leaf plot at the right.

Student Travel Times to School

- 0 3 3 5 7 8 9
 1 0 2 3 5 6 6 8 9
 2 0 1 3 3 3 5 5 8 8
 3 0 5
 4 5
 Key: 2 5 means 25 min
- **1. Multiple Choice** How many students spent 10 minutes traveling to school?
 - **A.** 1 **B.** 9 **C.** 10 **D.** 19
- **2.** Multiple Choice How many students spent 15 minutes or more traveling to school?

F. 10	G. 16	H. 17	J. 25

- **3.** How many students are in the class? Explain.
- **4.** What is the typical time it took these students to travel to school? Explain.

For Exercises 5–8, use the table on the next page.

- **5.** Make a stem-and-leaf plot of the students' ages. The plot has been started for you at the right. Notice that the first value in the stem is 6, because there are no values less than 60 months.
- 6. What ages, in years, does the interval of 80–89 months represent?
- 7. What is the median age of these students?
- **8. a.** On a piece of grid paper, make a coordinate graph. Show age (in months) on the horizontal axis and height (in centimeters) on the vertical axis. To help you choose a scale for each axis, look at the least and greatest values for each measure.
 - **b.** Explain how you can use your graph to find out whether the youngest student is also the shortest student.

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- **c.** Use your graph to describe what happens to students' heights as the students get older.
- **d.** What would happen to the graph if you extended it to include people in their late teens or early twenties? Explain.

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Age (mo)	Height (cm)	Foot Length (cm)		Age (mo)	Height (cm)	Foot Length (cm)
76	126	24		148	164	26
73	117	24		140	152	22
68	112	17		114	135	20
78	123	22		108	135	22
81	117	20		105	147	22
82	122	23		113	138	22
80	130	22		120	141	20
90	127	21		120	146	24
101	127	21		132	147	23
99	124	21		132	155	21
103	130	20		129	141	22
101	134	21		138	161	28
145	172	32		152	156	30
146	163	27		149	157	27
144	158	25		132	150	25

Student Ages, Heights, and Foot Lengths



9. The coordinate graph below shows the height and foot length data from the table on the previous page. Notice that the scale on the *x*-axis uses intervals of 5 centimeters and the scale on the *y*-axis uses intervals of 1 centimeter.



- **a.** If you know a person's foot length, can you tell that person's height? Explain.
- **b.** Find the median height and the median foot length. The median height is about how many times the median foot length?
- **c.** Measure the length of your foot in centimeters. Your height is about how many times your foot length?
- **d.** Look at your responses to parts (b) and (c). How can you use this information to answer part (a)? Explain.
- e. What would the graph look like if you started each axis at 0?

Connections

- **10. a.** Use the data in the Student Ages, Heights, and Foot Lengths table from Exercises 5–8. Make a stem-and-leaf plot of the students' heights.
 - **b.** Describe how to make a line plot of the students' heights. What are the least and greatest data values? How does this help you make the line plot?
 - **c.** Describe how to make a bar graph of the students' heights. What are the least and greatest data values? How does this help you make the graph?
 - **d.** Why might you display these data using a stem-and-leaf plot instead of a line plot or a bar graph?
- **11.** The table below shows some of the Student Ages, Heights, and Foot Lengths data in centimeters. The table includes two new columns. Copy and complete the table to show heights and foot lengths in meters.
 - **a.** Round the height for each student to the nearest tenth of a meter.
 - **b.** Make a line plot showing these rounded height data.
 - **c.** What is the typical height for these students in meters? Explain.

Age (mo)	Height (cm)	Height (m)	Foot Length (cm)	Foot Length (m)
76	126		24	
73	117		24	-
68	112		17	-
78	123		22	-
81	117		20	
82	122		23	
80	130		22	
90	127		21	
138	161		28	
152	156		30	-
149	157		27	
132	150		25	

Student Ages, Heights, and Foot Lengths





12. The pie chart shows the portion of time Harold spent on homework in each subject last week.



Time Spent on Homework

- **a.** If Harold spent two hours on math homework, about how many hours did he spend on homework altogether?
- **b.** About what percent of his time did Harold spend on math, science, and history homework? Explain.



Extensions

For Exercises 13 and 14, use the jump-rope data on the next page.

- **13.** Make a back-to-back stem-and-leaf plot that compares either the girls in Mrs. Reid's class with the girls in Mr. Costo's class or the boys in Mrs. Reid's class with the boys in Mr. Costo's class. Did the girls (or boys) in one class do better than the girls (or boys) in the other class? Explain your reasoning.
- **14.** Make a back-to-back stem-and-leaf plot that compares the girls in both classes with the boys in both classes. Did the girls do better than the boys? Explain.

Mrs. Reid's	Class Data	Mr. Costo's	Class Data
Воу	5	Воу	1
Воу	35	Воу	30
Girl	91	Воу	28
Воу	62	Воу	10
Girl	96	Girl	27
Girl	23	Girl	102
Воу	16	Воу	47
Воу	1	Воу	8
Воу	8	Girl	160
Воу	11	Girl	23
Girl	93	Воу	17
Girl	27	Воу	2
Girl	88	Girl	68
Воу	26	Воу	50
Воу	7	Girl	151
Воу	7	Воу	60
Воу	1	Воу	5
Воу	40	Girl	52
Воу	7	Girl	4
Воу	20	Girl	35
Girl	20	Воу	160
Girl	89	Воу	1
Воу	29	Воу	3
Воу	11	Воу	8
Воу	113	Girl	48
Воу	33	Воу	42
Girl	45	Воу	33
Girl	80	Girl	300
Воу	36	Girl	104
Girl	37	Girl	53
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Number of Jumps

15. A group of students challenged each other to see who could come the closest to guessing the number of seeds in his or her pumpkin. The data they collected are shown in the table and the graph.



Number of Seeds in Pumpkins

1		Guess	Actual
aph.		630	309
		621	446
		801	381
		720	505
_		1,900	387
_		1,423	336
		621	325
		1,200	365
_		622	410
		1,000	492
		1,200	607
		1,458	498
_		350	523
		621	467
x		759	423
)		900	479
		500	512
		521	606
		564	494
		655	441
		722	455
		202	553
		621	367
		300	442
		200	507
		556	462
	•	604	384
		2,000	545
		1,200	354
		766	568
		624	506
-		680	486
-	-	605	408
Y		1,100	387

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- **a.** What do you notice about how the actual counts vary? What are the median and the least and greatest values of the actual counts?
- **b.** What do you notice about how the guesses vary? What are the median and the least and greatest values of the guesses?
- **c.** Make your own coordinate graph of the data. Draw a diagonal line on the graph to connect the points (0, 0), (250, 250), (500, 500), all the way to (2,250, 2,250).
- **d.** What is true about the guesses compared to the actual counts for points near the line you drew?
- **e.** What is true about the guesses compared to the actual counts for points above the line?
- **f.** What is true about the guesses compared to the actual counts for points below the line?
- **g.** In general, did the students make good guesses? Use what you know about median and range to explain your reasoning.
- **h.** The scales on the axes are the same, but the data are bunched together. How would you change the scale to show the data points better?

