

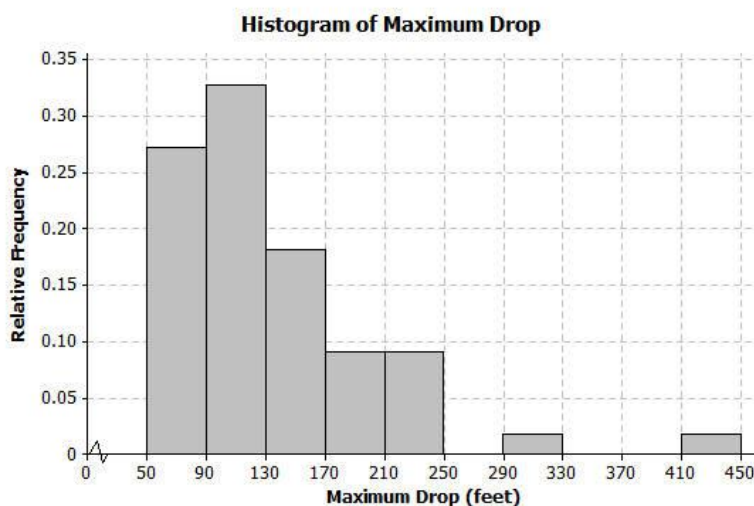
**Lesson Summary**

A **relative frequency** is the frequency for an interval divided by the total number of data values. For example, if the first interval contains 8 out of a total of 32 data values, the relative frequency of the first interval is  $\frac{8}{32} = \frac{1}{4} = 0.25$ , or 25%.

A **relative frequency histogram** is a histogram that is constructed using relative frequencies instead of frequencies.

**Problem Set**

1. Below is a relative frequency histogram of the maximum drop (in feet) of a selected group of roller coasters.



- Describe the shape of the relative frequency histogram.
- What does the shape tell you about the maximum drop (in feet) of roller coasters?
- Jerome said that more than half of the data values are in the interval from 50 to 130 feet. Do you agree with Jerome? Why or why not?

2. The frequency table below shows the length of selected movies shown in a local theater over the past 6 months.

Length of Movie (minutes)	Tally	Frequency	Relative Frequency
80–< 90		1	
90–< 100		4	
100–< 110	+++	7	
110–< 120	+++	5	
120–< 130	+++	7	
130–< 140		3	
140–< 150		1	

- Complete the relative frequency column. Round the relative frequencies to the nearest thousandth.
  - What percentage of the movie lengths are greater than or equal to 130 minutes?
  - Draw a relative frequency histogram. (Hint: Label the relative frequency scale starting at 0 and going up to 0.30, marking off intervals of 0.05.)
  - Describe the shape of the relative frequency histogram.
  - What does the shape tell you about the length of movie times?
3. The table below shows the highway miles per gallon of different compact cars.

Mileage	Tally	Frequency	Relative Frequency
28–< 31		3	
31–< 34		4	
34–< 37	+++	5	
37–< 40		2	
40–< 43		1	
43–< 46		0	
46–< 49		0	
49–< 52		1	

- What is the total number of compact cars?
- Complete the relative frequency column. Round the relative frequencies to the nearest thousandth.
- What percent of the cars get between 31 and up to but not including 37 miles per gallon on the highway?
- Juan drew the relative frequency histogram of the highway miles per gallon for the compact cars, shown on the right. Did Juan draw the histogram correctly? Explain your answer.

