Unit 3 Lesson 2: Relative Frequency Tables

1 Notice and Wonder: Teacher Degrees (Warm up)

Student Task Statement

Several adults in a school building were asked about their highest degree completed and whether they were a teacher.

What do you notice? What do you wonder?

	teacher	not a teacher
associate degree	4%	16%
bachelor's degree	52%	64%
master's degree or higher	44%	20%

## 2 City Cat, Country Cat

Student Task Statement

200 people were asked if they prefer dogs or cats, and whether they live in a rural or urban setting.

The actual values collected from the survey are in the first table.

|	urban	rural	total
cat	54	42	96
dog	80	24	104
total	134	66	200

The next table shows what percentage of the 200 total people included are represented by each combination of categories. The segmented bar graph represents the same information graphically.

|	urban	rural
cat	27%	21%
dog	40%	12%
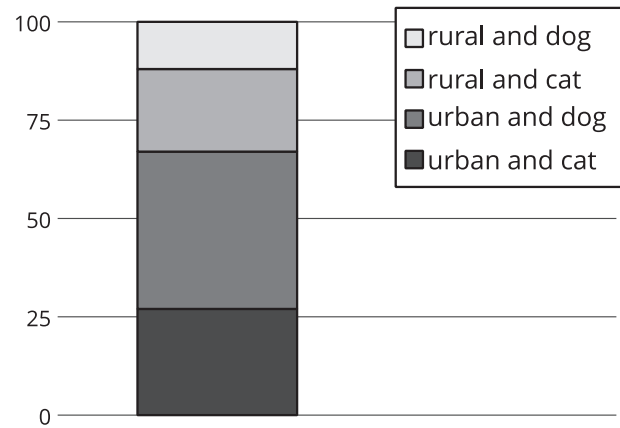
The next table shows the percentage of each column that had a certain pet preference in a column relative frequency table. The segmented bar graph represents the same information graphically.

	urban	rural
cat	40%	64%
dog	60%	36%
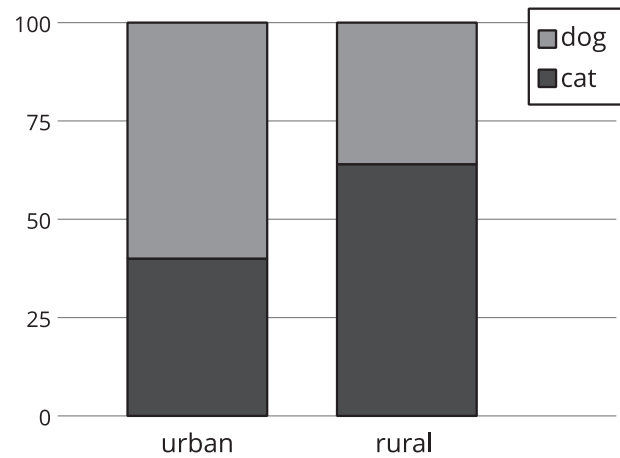
The last table shows the percentage of each row that live in a certain area in a row relative frequency table. The segmented bar graph represents the same information graphically.

	urban	rural
cat	56%	44%
dog	77%	23%
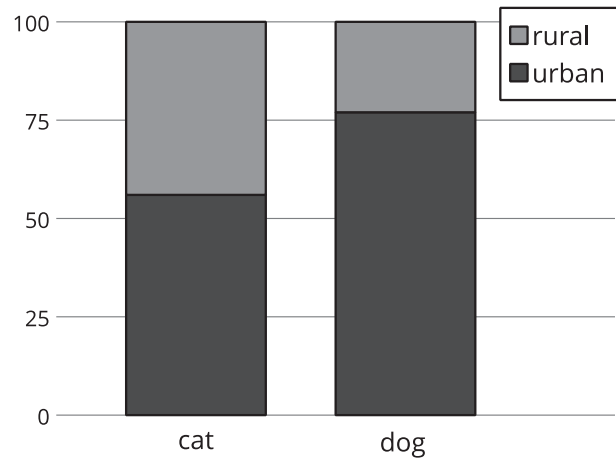
1. For each relative frequency table, select a percentage and explain how numbers from the original table were used to get the percentage.

2. What percentage of those surveyed live in an urban area and prefer dogs?

3. Among the people surveyed who prefer dogs, what percentage of them live in an urban setting?

4. What percentage of people surveyed who live in an urban setting prefer dogs?

5. How many of the people responded that they prefer dogs and live in an urban setting?

6. Among the people surveyed, are there more people who prefer dogs or cats?

7. Your pet food company has access to a billboard in a rural setting. Would you recommend advertising dog food or cat food on this billboard? Which table did you use to make this decision? Explain your reasoning.

3 Analyzing a Study With Two Treatments

Student Task Statement

In an experiment to test the effectiveness of vitamin C on the length of colds, two groups of people with colds are given a pill to take once a day. The pill for one of the groups contains 1,000 mg of vitamin C, while the other group takes a placebo pill. The researchers record the results in a table.

	group A	group B
cold lasts less than a week	16	27
cold lasts a week or more	17	53

1. First, the researchers want to know what percentage (to the nearest whole percent) of people are in each combination of categories. Fourteen percent of all the participants had a cold that lasted less than a week and were in group A. What percentage of all the participants had a cold that lasted less than a week and were in group B? Complete the rest of the relative frequency table with the corresponding percentages.

	group A	group B
cold lasts less than a week	14% ($\frac{16}{16+27+17+53} \approx 0.14$)	
cold lasts a week or more		

2. Next, the researchers notice that, among participants who had colds that lasted less than a week, 37% were in group A. Among participants who had colds that lasted a week or more, what percentage were in group B? Complete the table with the corresponding percentages.

	group A	group B
cold lasts less than a week	37% ($\frac{16}{16+27} \approx 0.37$)	
cold lasts a week or more		

3. Finally, the researchers notice that, among the participants in group A, 48% had colds that lasted less than one week. Among the participants in group B, how many had colds that lasted a week or more? Complete the table with the corresponding percentages.

	group A	group B
cold lasts less than a week	48% ($\frac{16}{16+17} \approx 0.48$)	
cold lasts a week or more		

4. To understand the results, the researchers want to know: Among people whose colds lasted less than a week, what percentage are in group B? Explain your reasoning.

5. If the researchers believe that vitamin C has a small effect on the length of a cold, which group most likely got the pills containing vitamin C? Explain your reasoning.