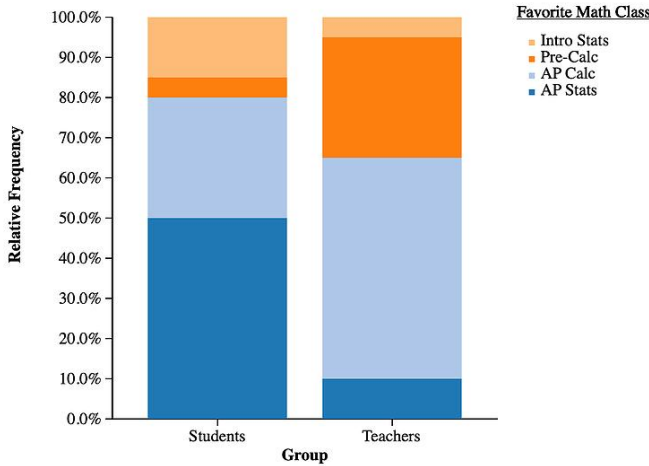These fancy things are just widen segmented bar graphs. They are here to show us a more representative graph for categorical variables.

Let's look at this one here.

The graph is broken into two different groups, students and teachers. They are asked what their favorite math class is and then charted in the graph.

This graph shows us the percent of each group but what is missing is the size of each group. What if I told you that there were 100 students surveyed and 20 teacher? Does the segmented bar chart really portray that well to a reader?

So this is where a Mosaic plot comes in. Look at the one below.
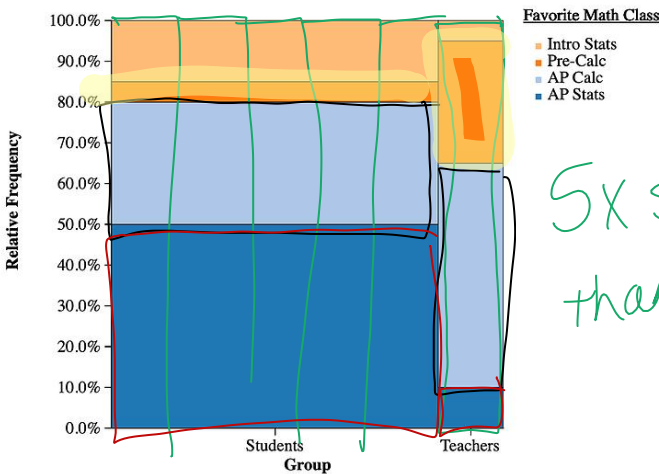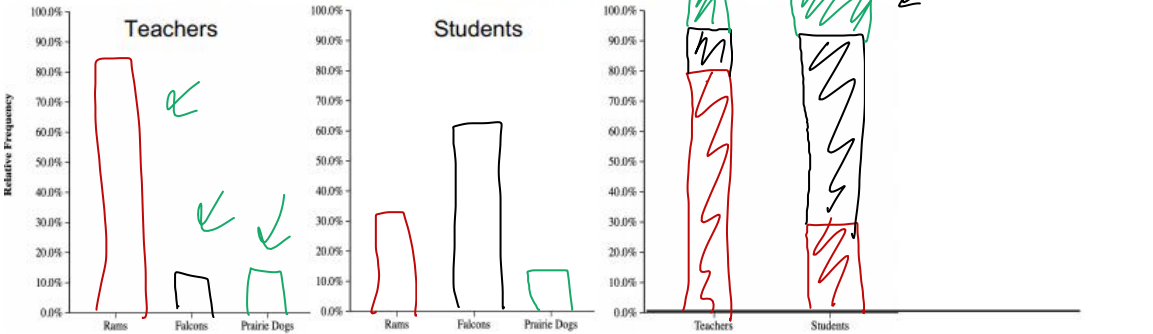

5x students than teachers

The key here is we have to scale on the x-axis too. By looking at this graph, we can see that there were way more students surveyed than teachers and can now actually get a true feel of the answers to this survey.

Now let's try to make one

Teachers and students were asked to vote for their favorite mascot. The results are below of a random sample of teachers and students.

	Rams	Falcons	Prairie Dogs
Teachers	80%	10%	10%
Students	30%	60%	10%

1. Create two bar graphs below to display the results. Use three different colors for the bars.

2. Complete the third graph by taking each bar from the teacher sample and stacking them. Use the colors to mark each section. Do the same for the student sample. ← ← 5 of these

3. According to your displays, which mascot appears to have the most support? Explain.

The rams, they have the highest percentages. If you stack the bars for Rams together for students and teachers, it would be more (taller) than the other two teams.

4. Upon hearing the results of the surveys, the students argued that the decision was incorrect because 100 teachers had been surveyed and 500 students had been surveyed. Use this information to fill in the table below with the number of responses.

	Rams	Falcons	Prairie Dogs	
Teachers	80	10	10	100
Students	150	300	50	500
	230	310	60	

5. How many times more students were sampled than teachers? __5__. How can you update the third graph in #1 to take into account the sample size? Adjust your graph.

Add 4 more student bars so there R 5 student + 1 teach

6. What should they make the EK mascot? Explain.

The falcons because have the most support. It was the highest rated mascot with 310 votes. On the graph that was fixed (mosaic plot) you can see that the falcons area covers the most.

snapple chat   Jumez

Big Ideas

Categorical variables
Values that R names or Labels

Quantitative variables
numerical & measure quantity

Displays of categorical variables
Bar graph, side/side bar graph, segmented
Each shows proportion of ind. in each category

Association
If knowing the value of one variable helps to find the other, they R assoc.

Mosaic Plot → modified seg. bar chart w/width proportional to size of group

Check!

The following table gives the result of a random sample of upper level students at Rocky Vista University (the Fighting Prairie Dogs!), along with a mosaic plot.

Employment Status	Grade Level	
	Junior	Senior
Currently working	14	30
Not working but have had a job	22	40
Never had a job	15	10

Employment status
- Never had a job
- Not working but did in the past
- Currently working

0.27
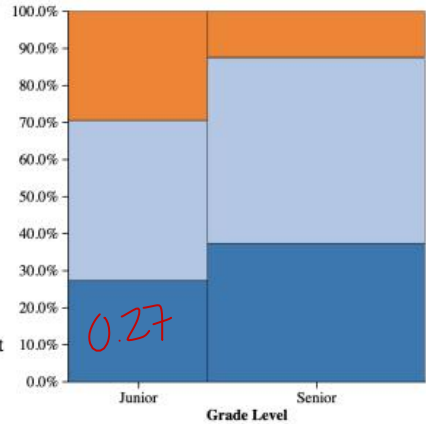
a. Calculate the proportion of Juniors that are currently working, not working but have had a job, and never had a job.

JR work $\frac{14}{51} = 0.27$ 0.43   0.29

b. Calculate the proportion of Seniors that are currently working, not working but have had a job, and never had a job.

0.38   0.5   0.13

c. Write a few sentences summarizing what the display in part (a) reveals about the association between grade level and job experience for the students in the sample.

There is an association between grade level and job experience. Seniors tend to be more likely to be currently working (0.38) than a junior (0.27). Knowing the status of junior or senior impacts the likelihood of their employment status.

5 for 5

Then grab out the packet
and work on Free resposne
until I come back