Representing Data Carefully
Video Script

Scene		Full Transcript
1	**Kali:**	Hey there, it's Kali. This afternoon, I'm at Maucker Bank. My friends, Harun and Zaid, are meeting with the bank's loan officer, Kate, to ask for a business loan.
2	**Voice-Over Kali:**	Harun and Zaid are the cofounders of a popular online music lesson site called MyConservatory.com. The site offers music lessons with some of the finest musicians in the world for a monthly subscription fee. Harun and Zaid are seeking a loan to purchase new equipment and create TV commercials to help grow their company.
3	**Kali:**	Unfortunately, the last meeting they had with the banker didn't go so well. The presentation of their business plan was a little flat. They have a great company, and they have the data to support it, but they weren't able to effectively make their case. I told the guys there are lots of ways to represent their company's data. They just need to choose ways that highlight the strengths of their company. Let's get their business plan in tune and get another *Problem Solved*.
4	**Voice-Over Kali:**	Kate seems impressed. This time around, Harun and Zaid's presentation is having a positive impact.
5	**Kali:**	MyConservatory has been flourishing.
6	**Voice-Over Kali:**	Zaid created this graph to show their last banker that they started with 90,000 subscribers at the beginning of last year and increased that number to 100,000. Subscribers fluctuated close to that number throughout the year. Here the x-axis represents the number of days since January 1st, and the y-axis represents the number of subscribers.
7	**Kali:**	MyConservatory launched their first marketing campaign at the beginning of last year, and new subscriptions increased dramatically. Did you notice that? The first banker certainly didn't.
8	**Voice-Over Kali:**	This graph is correct, but it doesn't really highlight the growth in new subscriptions. Watch what happens when we truncate the y-axis so it begins at 90,000 subscriptions. See how the graph shows subscriptions skyrocketing over the first 60 days. To see this even better, let's look at subscription growth during that time period only. We do this by changing the x-axis from ending at 365 days to ending at 60 days. Voila! They gained almost 8,000 new subscribers in 30 days. This information should

		help persuade Kate to loan them money for additional advertising.
9	**Kali:**	Now remember, we started with a graph that, although correct, didn't emphasize what we wanted to show. We made some adjustments to both the y-axis and the x-axis, which stretched out the graph and highlighted the successful efforts of the marketing campaign.
10	**Voice-Over Kali:**	So, we have one set of data, two different graphs, and two different stories.
11	**Kali:**	MyConservatory's membership has been fluctuating because the company hasn't had enough video equipment to provide a consistent set of advanced classes.
12	**Voice-Over Kali:**	When they made their presentation to the first banker, you could barely see the fluctuation in subscribers. Can you see it? I encouraged Harun to include a graph that will show the way membership has risen and fallen over time. So, this time we will truncate the y-axis at 99,000. Notice how the fluctuations are a lot easier to see. Since we are interested in the last 9 months where the fluctuations are happening, we have changed the x-axis to only display that part of the data. Again, two different graphs, two different stories.
13	**Kali:**	The bank has also asked Zaid and Harun to include information about the last 60 days.
14	**Voice-Over Kali:**	Zaid was concerned the banker would look at the graph and think that enthusiasm for MyConservatory was plummeting. I pointed out to them that this decline represents about 330 members. So, we computed that 330 out of a total of 100,000 is about 1/3 of 1%, nothing to be alarmed about. So, they will tell Kate there was only a third of 1% decline. In fact, they also computed last year's growth as a percentage. The company gained about 10,000 members, so Zaid and Harun showed this change as a healthy 11% annual growth. Okay, next on the agenda was looking at salary information. This bar graph shows the current salaries of the nine members of the MyConservatory staff.
15	**Kali:**	They didn't show this graph to the last banker. Instead, Zaid just told the banker that the mean salary is $52,222. The banker was concerned that this average salary was too generous for the company.
16	**Voice-**	The truth is that Harun and Zaid make larger salaries than their employees.

	Over Kali:	These two salaries dramatically raise the mean giving the impression that everyone at the company has a big salary. I told Harun and Zaid to use the mode when describing their payroll to Kate. More members of the staff make $20,000 than any other salary level. They could also use the median salary to describe payroll. The median is $30,000. Half of the staff make at or below $30,000 and half make at or above $30,000. The mean, median, and mode are all ways of summarizing the nine different values, but as you can see, they each tell a different story.
17	**Kali:**	It looks like the meeting went very well. MyConservatory may just be starting its best year yet. Let's review why this meeting went so well compared to the last one.
18	**Voice-Over Kali:**	When displaying their data, they chose their x ranges and y ranges to show the part of the graph that was relevant to what they were describing. They expressed numbers as a percentage when appropriate, in order to put them into context, and they were careful when choosing whether to use the mean, median, or mode to aggregate data.
19	**Kali:**	Sounds like they hit all the right notes with their pitch perfect graphs and sharp delivery, and that's another *Problem Solved*.