

Class Day Three

Groups working before class begins

Group 1 Nadira, Aleyna, and Brian

Teacher: Brian, could you put the numbers out here by the cities?

Brian: Okay.

Teacher: Would that work? So you don't need calculators, right?

Teacher: You guys need to explain to Aleyna what you all did, since she wasn't here, is that okay?

Nadira: By any chance did you throw away the papers we were working on yesterday?

Teacher: No, I have it.

Nadira: Oh.

Brian: These are like um,

Nadira: Thank you.

Brian: This is how safe and dangerous the different cities are, and so what it is, is like um, the higher the number the more, for instance out of every 100,000 people for murder, robbery, and assault and then, and then

Nadira: We had to figure out where Nashville ranked basically, so what we did was we took them, we added them together and gave me the total and so now we just have to rank them in order.

Brian: I just ranked them.

Teacher: Which he did.

Nadira: Oh.

Teacher: Like that so you are all finished.

Nadira: Oh, where was I?

Teacher: Well he came in early and I just asked him to go ahead and start so we can get started. Okay, is that all right?

Group 2 Stephanie, Shevba, and Megan

Teacher: Look what I did, your numbers, these are the numbers you got right?

Megan: Right.

Teacher: So are you guys finished or is this what?

Megan: We have to write the numbers, the ranks. So this was six.

Stephanie: Seven.

Megan: Seven.

Shevba: This is eight.

Stephanie: Then this is eight right here.

Megan: Then this right here is supposed to be eight, right?

Group 3 Rob, Chris, and Alfred

They are all finished

Group 4 Sherika, Gionni, and Caleb

Gionni: Three, six.

Class Begins

Teacher: All right. Let me have your eyes just a minute. Is any group still working on their project right now? You ladies, Shevba you and Megan are finishing up right now? Let's, I think we can go ahead and get started okay? Okay, Tina, you mind going first?

Tina: Okay.

Teacher: Can you all see it, in the back, if we do it, put it right here, are we straight? All right, now Tina I want you to use a big voice and everybody else's job is to listen as she explains her way.

Tina: Okay, well what we did was, we just looked at the um, underlined Nashville you know to make sure we got it. Okay, anyway we looked at the total like violent and the total property because that was pretty much like, the total violent like murder and blah, blah, blah. Okay, anyway, so we just decided that we would add up like both of them, instead of like, we were going to add up the total violent like, you know, and like and put them together and then compare all of them, but we thought it would be easier if we just went ahead and like added the total for each state or whatever. So we did that and then we went through and just looked and put them in order from greatest to least. And then the ones that were greatest were the like, no, no, yeah, and then we looked.

Teacher: Wait, wait, wait. The one's that were the greatest.

Tina: The one's that were the greatest were the one's that had the most crime.

Teacher: Okay, you don't want to be a big number.

Tina: And then, so we looked at Nashville and the little sheet said that um, the Mayor or whatever said that um, Nashville had a low like crime rate. And so we found it was eleven so it really wasn't that low. It was one of the highest on here.

Teacher: Okay, I think I may have confused you. Miami had the biggest number right?

Tina: Uh-huh.

Teacher: And you put it number one?

Tina: Yeah, like, that's like, we did it a different way.

Teacher: Yeah you did.

Tina: We did it like Miami was like the first, like, the first highest like,

Teacher: Right. So if you went further down the list that means you had...

Tina: Like less.

Teacher: Less violence.

Tina: And then the more.

Teacher: Okay, so there were twelve all together and their way Nashville came in number eleven or next to the best, right?

Tina: Uh-huh.

Teacher: Cause this would be, San Diego would be the least amount of crime. So do you understand? Questions for her?

Tina: We still did it a different way.

Teacher: Yeah, absolutely, any questions? Who could explain her way? Who understood? Okay, what, Nadira?

Nadira: She added up both the totals for the violent crime and the other crime and she ranked them. But the only thing that may be very confusing is when she said the highest numbers are the worst. The highest numbers are the best. Therefore Nashville's second best. So the numbers are just backwards.

Teacher: Okay, the problem is when you talk about the highest number, which numbers are you talking about?

Nadira: The ones,

Teacher: Right. So when she says the highest numbers are the worst, she's talking about this column. When she's saying the highest numbers are the best, she talking about this column.

Tina: Like we were just going to, like after we did this, but we didn't have enough time. We were going to go through and like put number 1,2,3,4,5 to whatever.

Teacher: Write them out.

Tina: And then, yeah, so it would be like Miami has the most, like if you list from greatest to least.

Teacher: Okay, questions? Yes?

Gionni: Okay, I want to know if I can do ours?

Teacher: I want to save yours for just a minute because I have two groups, thank you very much. Tina, let me ask you a question before you go away, sorry. If I wanted to come up with a way to use symbols to explain this, and this is kind of what you're learning in pre-algebra, isn't it? How you use symbols? Are you working with variables? You are. To express this, it looks to me that you took the total violent crime, I'm just going to call that, do you understand what I'm saying here? And you added it to the total property crime and then that gave you your new value, which you then went back and ranked. So is that, would that be a fair way to explain the system that you used? Okay, questions about what I wrote, about that? Okay, now this group and this group did it similar but different right?

Student: Actually, we did it the same way.

Teacher: You did it the exact same way?

Student: We added both those up, got a number, and just ranked it.

Teacher: But you got Miami as number twelve, she's got Miami as number one. What do you have Miami as?

Student: We have Miami as number twelve.

Teacher: As number twelve.

Brian: We did ours the exact same way except,

Teacher: Why don't you bring it up here?

Brian: For ours twelve,

Teacher: Brian.

Brian: Is the most dangerous and the one is the least dangerous.

Student: Yeah, that's the way we done ours.

Teacher: So you did it just like theirs, okay. All right, so tell me how it's alike and how it's different. Could you?

Nadira: It's alike cause we went through the same process.

Teacher: Big voice.

Nadira: It's alike because we went through the same process to get here to the value, but when we came over here to just make it simpler, to go through our steps we started from 1 to 12 and they started from 12 to 1.

Teacher: Okay, so let me ask Brian a question. Brian, according to your way do I want to be a low number or a high number when you finished?

Brian: The low numbers are the safest, they have the least crime.

Teacher: Oh, okay, so you even got me a scale here or a legend to tell me how this works. Now, I'm going to ask you but I want everybody to listen to this question to see if you have, if you could help them. If I wanted to do the same thing that I did with, with Tina's way, and come up with a way to symbolize what you did, how might I do that?

Brian: Reverse the ranked numbers.

Teacher: All right, so what was the procedure, or what was your system? How would I symbolize? See I see she took total violent crime plus total property crime and found a new value.

Brian: We did it the exact same way. Added those...

Teacher: Okay, so you're saying that your total violent crime plus total property crime also gave you the value. So in finding the value you did it the same way. Alfred, the same way?

Alfred: Yeah.

Teacher: The same way, so then it was what you did with that value that was different right? Okay, great. Everybody with me so far? All right, thanks. Now let's try this group. Nina come on up here and bring your group up. All right, let me get out of the way, okay.

Nina: Okay we did ours,

Teacher: Big voice.

Nina: Exactly the same way that they did theirs, but when we got our answers to the both of them, to the value, we divided it by two and when we did that we took and see which one had, had like if we got a tie we took which one had the most population and we put that higher.

Teacher: Okay, questions for this, for her, Megan?

Megan: Okay, if you all divided by two, then how did you all get a tie because like all of the numbers are different?

Nina: Like this, like 6, and like 6 divided by 2 is like 3.

Teacher: All right. So let me, Rob was that your question also? Okay, Tina did you have a question also?

Tina: I was just listening to see if I could figure it out.

Teacher: Okay, Nadira?

Nadira: Can she just say it one more time?

Teacher: Say it one more time, what you did, big voice.

Nina: Okay, when we did that, we okay, we put these in order from like lowest to highest and we like then, it would come in first or second and we did the same things to these. And we took those numbers and we added those together and then we divided by two.

Teacher: Okay, now I heard a difference in what she just explained and what these two groups said they did. You heard the difference also, Tina? Can you say what you think the difference is?

Tina: Yes. At first, the first time I thought she said like she just plainly added the numbers but then she said she actually put them in order so it would be like first or second and she would use one of those numbers, like the order, the ordered numbers.

Teacher: Right, the ranked order, the ranked numbers. Is that what you did? Is that what you did guys? Okay, so thanks. So that's a big difference. So here we might want to say, what were the numbers, they added the actual rates, is that not correct? So this was a total violent crime rate plus the total property crime rate over here, right? And this was the same thing too, so this was the total violent crime rate and the total property crime rate. But over here you added the rank of okay, so how, how could I write that? I'm going to, if I wrote RK for rank, would that be okay? Rank of total violent crime, if I wrote that notation would that make sense to you? It would. Okay, Tina you're frowning.

Tina: It does.

Teacher: It does make sense? Okay so you took the rank of the total violent crime plus the rank of the total property crime and then,

Nina: We divided.

Teacher: Excellent. So you took this whole thing and divided it by two. You're nodding, you agree that, that would explain your system? Everybody okay with that? Yes ma'am Megan?

Megan: How did you all get those to divide by two?

Nina: Cause there's two.

Jeff: There's two columns.

Student: They added.

Teacher: So that, if you do that, if they added the two things, and divided by two that's the same thing as finding the what?

Students: The average.

Teacher: Exactly. You found the average, nice job. So they decided to find the average. Nadira did you have another question?

Nadira: I got it.

Teacher: You got it? You forgot your question or you get it? You got it. Anybody else have a question for this group? Really nice job, thank you very much. So, it looks like, and I think Rob was pointing to this and Tina was pointing to this, if we use the ranks then it comes out to be a little bit different order than if we actually use the rates. Does that seem to be what's happening? Okay, now they decided to take the average, what do you think would have

happened to their order if they had just used the totals and not the average? I've got one person that has an idea.
Two, Tina big voice.

Tina: Some of the numbers with the decimal points like .5 or whatever, they could have added up to like a whole, or something and it could have been like a bigger number.

Teacher: Okay.

Tina: Instead of they just looked at like the whole number.

Teacher: Right, so they would have been looking at these whole numbers right in here instead of looking at the decimals. Do you think that their order would have changed if they had stopped here and found the order instead of finding the order after they divided, Megan?

Megan: It would have because it's the same thing, like if you,

Teacher: Big voice.

Megan: If you get the average and you get like the total number, it's going to be the same because the average is just like the percentage of your total.

Teacher: And in this particular case, what percentage of the total is the average? Do you know?

Megan: No.

Teacher: If we're dividing by two what percentage of the total would the average be? If I have this whole thing and I divide it in half, yeah, now each piece is fifty percent. So all I've done is take fifty percent of this so what Megan is saying is if you have this list of numbers, and you listen and you see if I'm saying what you're saying. You have this list of numbers and then you break them in all in half, or take fifty percent of them, they're going to be in the same order. The biggest one is still going to be biggest, the smallest one is still going to be smallest. You're nodding, you agree? Okay. Anybody have a question or something to add about that? So if that's the case, what would have happened if any of the three groups had taken these total rates and then divided them in half, would their order have changed?

Rob: Yes.

Teacher: Why Rob?

Rob: Because when they divided by two on that and they just used the average on this one, they had two for the average and two for the rank. All right, four for the rank. Because like Nashville's ranked four on that one and two on this one.

Teacher: Okay, all right. I don't want you to compare this way to this way. Let me ask my question again. If I took these numbers and divided these numbers by two and then ranked the cities would these ranks change?

Students: No.

Teacher: Okay. All right, Aleyna?

Aleyna: I was just going to say,

Teacher: Big voice.

Aleyna: It's the same rank just with smaller numbers.

Teacher: Okay. So the order is still the same, the numbers just got smaller. This is real important so if this is not making sense you need to ask me a question. Megan?

Megan: It's like thinking about like your age won't change, well it will change you'll get older but if somebody was just born like an hour before you they'll still be older than you as you go on through life and you can't change that.

Teacher: That's very nice. So if we like, let's take you and me for instance. Okay, I'm just a little bit older than you, right? But ten years from now I'm still going to be a little bit older than you, right? So there's no, that's nice. Okay, all right I got one more I want to put up, I'm going to take this one down and make a little room. Okay, this group right here, yeah, let's get some tape on yours. Let me get out of the way. All right, who's spokesman? Okay, why am I not surprised. All right Caleb, you need to, will you move back because I'm not sure Nina's group could see over there.

Gionni: The way we did it is that the lower the rank is the safer and the higher the rank is the worst. And what we did, we took each of these columns and take Nashville for instance. Nashville in murder was ranked number six because ten was far below the, I messed up. Nashville is ranked number six because the sixth highest and on this one Nashville was ranked number six also and on this one Nashville was ranked number eight. So we took all of these columns, divide them least to greatest, not divided by.

Teacher: Right.

Gionni: Put them from least to greatest,

Teacher: Ranked.

Gionni: And then we added them all together and then this is what we came up with. And then we put the numbers, the numbers that we had, we took them and we ranked them by how low or how high they were.

Teacher: Good, Caleb, something to add to that?

Caleb: That's basically what we did and then.

Teacher: Okay. All right so, questions for this group? Rob?

Rob: How did you get a tie with San Diego and Nashville?

Gionni: Because San Diego, they may have had different numbers but when we added all the numbers up in both of the columns, we came out with the same numbers and instead of using two because there was another that came out as two, yeah there it is, Seattle and Burlington they did the same thing. They were both ranked 19 and so what we did this one we skipped two and for this one we skipped four because if you just even it out one would be two and one would be four.

Teacher: So instead of trying to break the tie they just said we're going to have two ones and we'll skip two and then we'll have two threes and we'll skip four, does that make sense what they did? And you could, they could have come up with a way to break the tie, this is just what they decided to do. Okay, all right? Thank you. Now, I need you, everybody to help me on this one because I'm afraid this is going to be a little more complicated. If we want to come up with a way to symbolize what they did, how many different things am I going to have to add together?
Rob?

Rob: You're going to do the murder average so you do MA for that, and then the robbery average, RA.

Teacher: Okay, what is this number actually? It's not the average.

Rob: It's how many.

Teacher: It's the rank.

Rob: Well, yeah.

Teacher: Okay, so can I use, can I use my same thing over here, my RK for rank?

Rob: Yeah.

Teacher: All right, so I'm going to do rank of,

Rob: Murder.

Teacher: Murder, and then what Rob?

Rob: Rank of robbery and rank of assault, rank of burglary, rank of theft, and rank of auto theft.

Teacher: And that equals their new value, okay? So that's a pretty big equation. If they had decided to find the average, what would they have divided by?

Student: Six.

Teacher: Okay, and would their order have changed? If they had, we had gone back and divided each of these by six, would their order have changed?

Rob: No, no.

Teacher: Why not?

Rob: Because you're doing the same thing to all of them.

Teacher: The same thing to all of them. So it's the same deal it's like reducing them all down one sixth of the size that they were, right? Now, let's suppose that you present this to the city council, and we have all these ways presented to the city council, and then the city council says to you, wait a minute. This is fine, I see where you've added the total violent crime rank and the total property crime rank and ladies you in the back, you added the rates also didn't you? You did it like this?

Shevba: No.

Teacher: What did you do, I can't remember?

Megan: We just added both of the columns together and then San Diego was one because it had the lowest.

Teacher: Okay, so you added the two total columns together, okay, all right. So but the city council said this is really good, but I don't think all of these crime are equally important. In fact, we think if people are coming to Nashville like on vacation or coming to move here, they might think some of these things are more important than the other. And which one's do you think, I mean do you agree, do you think you'd be just as interested in how many thefts there were as how many assaults, or are some of these more important when deciding if the city is safe? What do you think, yes sir Jeff?

Jeff: I was going to say, what about the size of the city because one city might be really small and not have as many crimes as another city has.

Teacher: Okay, hold your answer and let's answer Jeff's question. Jeff said what about the cities being different sizes. How have we accounted for that in this data, Rob?

Rob: The averages for like murder is 12.4 for every 100,000 people.

Teacher: Right, so this for every 100,000 people so that's how we are able to compare cities of different size. So this isn't saying that Nashville had 10.4 murders, it's saying for every 100,000 there were 10.4. And for every 100,000 in Baltimore, there's 15.9. Okay? Tina, a question or something?

Tina: That's what I was going to say.

Teacher: What Rob said?

Tina: Yeah, I was going to say that it's just per 100,000 people.

Teacher: Per 100,00 people, good. Megan, something to add?

Megan: I have a question, how did you come up with like every 100,000 people because like Nashville has 200,000 and Atlanta has 900,000, how did you get that?

Teacher: All right, so let's think about. Let's suppose that I knew the total number of murders and I knew how many 100,000's of people there were in the city, how could I come up with this rate?

Megan: Could you like if Nashville has 200,000 like well, would it work if you had like 200,000 for each city? You know, if all the cities had you know, had like the least amount common denominator like 200,000.

Teacher: Yes.

Megan: So what you do is like then.

Teacher: Yes, so you could just take that number, in fact we used 100,000 instead of 20,000 and we just divide that each time, we see how many there are for each 100,000. Does that make sense, are you with me on this? Okay, this is called a rate and it's kind of a tough thing to think about. All right so, let's come back to my other question. If I say to you, you've all come up with really nice systems for figuring out how to rank these cities. But suppose I wanted a system that allowed me to take into consideration that some of these are more important than others when deciding if the city is safe. Is there a way to do that? Gianni?

Gianni: Okay, I could think of a way like take in each murder rate, now I forgot what I was about to say.

Teacher: Okay. You think about that, we'll come back, okay Rob?

Rob: Murder consists of somebody being killed.

Teacher: Right.

Rob: Like burglary, and theft, and auto theft don't have anything to do with being killed. But robbery and assault would go a little bit less than murder because it goes either way on that, you may not be killed or you might be killed.

Teacher: Right. So you're saying murder's the worst and then these two are next and then these are not quite as important? So how, how could we do something with this that took account of that, Aleyna?

Aleyna: They all, they all can lead to murder.

Teacher: They can, they can all lead to murder but let's suppose that Rob said I'm thinking about moving to one of these cities and it's real important for me to know, I'm more concerned about violent crimes because that affects people than I am property crimes. Is there a way you might take that into account when developing a system?

Tina: I was saying like put the violent crimes together and figure out the rate for that?

Teacher: Well, we still have got to take this into consideration but somehow I need to, to come up with a system that makes these more important. And that's what I'm trying to figure out.

Tina: Instead of looking at the totals, just look at the,

Teacher: Each one of them?

Tina: Yeah.

Teacher: Rob?

Rob: You could take a vote, and get ten people and like ask them where they would place like murder, robbery, and assault. And then average those results together.

Teacher: Okay, so let's suppose we did that everybody said murder is the most important, robbery and assault are the second most important and these three are the third most important. So how can I create a system that reflects that? Is there a way to do that? Is there a way to create a system that would use this data and reflect that? Megan, and then Gionni?

Megan: Okay, well murder, then you're dead.

Teacher: Right.

Megan: And so I think about, okay so would I rather die or you know, like go to a city with a possibility of dying or would I rather just go to like a very small city whose crime rate is really, really low and you know you won't have as much to deal with as some other cities who you walk on the street and you might see somebody get shot because of the crime rate and you know, things are going on there.

Teacher: Okay, Gionni?

Gionni: Okay, it's kind of like, I'm not sure if this is right or not but I'm going to take a stab at it.

Teacher: Take a stab.

Gionni: I'm looking at these two charts, and actually these too because these are, like take Topeka, Kansas for example, Topeka on that chart is ranked number four. It has four. On our chart it's ranked number seven and on their chart it's ranked number ten. So you add all those together and the lower it would be the more important it is or,

Teacher: Safer it is.

Gionni: Yes.

Rob: Divide it by three.

Teacher: Yes, exactly, divide by three. Well let me ask you this, suppose I took this way and I decided to do that. Yeah times two. I decided to take the total violent rate and multiply it times two, and add it to the total property crime rate. What's that going to do to my system? Megan?

Megan: It's going to make the number higher but the ranks won't change.

Teacher: You don't think the ranks would change?

Megan: No, because like if you take a high number basically and you double it, it's still going to be a high number.

Teacher: Okay. Rob?

Rob: If you like times six over times two and times six over time three than you would get a different rank.

Teacher: Yes you would, absolutely you would. Okay, now tomorrow, I think we're almost out of time today.

Rob: You still have fifteen minutes.

Teacher: I still have fifteen minutes, great, all right. So right now what I'm going to ask you to do, that was yesterday that we got out at this time, all right keep me straight. What I am going to ask you to do is, I have a kind of dilemma here. The Mayor created this list of cities and he said Nashville's safe. Well, when you look at this you pretty much agree. You found that Nashville is up at the top, it looked pretty safe. But the members of the city council have said wait a minute, we've done the same type of analysis and we found out that Nashville wasn't safe at all. And in fact, what happened was, this is the group of cities that they decided to look at. So my question to you is that I would like you take either the system you used this time, a modification to your system, or somebody else's system and figure out if you think Nashville is safe when compared to this group of cities. Okay, questions? All right. Pass these out. I've got calculators for you. This time when you turn it into me I want you to put the system across the top using symbols that explains what you did, okay?

Group 1 Nadira, Aleyna, and Brian

Teacher: Okay, so have you come up with a plan?

Brian: Yeah, we're going to do the same thing.

Teacher: Okay. So are you okay with that, you weren't here yesterday? All right. You guys going to divvy it up, will that work? And then will you write it on here for me?

Nadira: Okay.

Brian: 847.4.

Nadira: I need the city first.

Brian: Albany, Georgia; Boston, Massachusetts; Casper, Wyoming; San Francisco, California; Santa Fe, New Mexico; and Tacoma, Washington.

Nadira: Okay

Brian: Okay, for Albany 847.4 plus, plus 7,922.

Teacher: Why are you writing all of these down?

Nadira: Because I thought the paper was so big.

Teacher: Well can't you just split them up?

Nadira: Okay.

Teacher: And just write them on here. I'm just trying to save you some trouble, if you feel really strongly about this, it's okay. Okay, so like, maybe one of you could add, and one of you could write. Or two of you could be adding and then one of you could be writing.

Nadira: All right.

Teacher: Is that Okay?

Nadira: So you have the calculator, I want to write. She could do the calculator too, start from the bottom and you start from the top and meet half way.

Brian: Um, you tell me the numbers.

Teacher: You've got a plan? Did my intervening mess you up or are you okay.

Brian: We're okay.

Teacher: Okay.

Aleyna: 847.4 plus 7,922.

Brian: 8769.4, 8769.4 okay.

Aleyna: 833.2 plus 4362.

Brian: Okay, 5195.2.

Teacher: Is that your symbol system? Why did you star there?

Nadira: Okay, just 'cause that's my city. I'm from Boston.

Teacher: Oh, are you from Boston?

Group 2 Megan, Shevba, and Stephanie

Megan: Okay, so we're going to do it the same way we did yesterday?

Stephanie: Yes.

Megan: So three of us, 1,2,3,4,5,6,7,8,9,10,11,12,

Stephanie: Stop, do like this, do like this, you do like this...

Megan: I do the first three.

Stephanie: 1,2,3, 1,2,3, 1,2,3

Megan: Wait a minute, I've got an idea.

Stephanie: No, you do the one's that got a three, you do the one's that got a two.

Megan: No, what I was saying like Shevba do the last four, you do, She-She do the last four, you do the middle four, and I do the top four, so we don't have to go all through those numbers. I'm helping with the numbers and stuff, I'm not talking.

Stephanie: We go, chill out girl. Are these your four or my four?

Shevba: I'll do this four.

Stephanie: You have four too?

Megan: Yeah, so, so you do all these right here.

Teacher: So it looks like you already have a plan and you're jumping right in here. What are you doing?

Shevba: The same.

Teacher: The same thing, okay.

Megan: What are you trying to write?

Stephanie: 5943.6.

Megan: So, now what are you going to do? Because we have to come up with a different way to get it.

Shevba: Average them.

Megan: So, you want to divide by what?

Shevba: Twelve.

Megan: So, take what you have and divide it by twelve.

Shevba: Or two.

Megan: We could do it like that.

Stephanie: We divide by two.

Megan: So do your same four. Everybody finished?

Stephanie: No. I messed up, I had to start over. Just do that one then. I'm through. Do that one right there.

Teacher: How are you coming ladies? You're going to do that in big marker when you get through? Great.

Megan: Now we got to go back and rank them all, right? She, she why don't you just rank them right here and then we could just write them all out.

Shevba: You mean put the least to greatest?

Megan: Like we did the last time.

Stephanie: But you guys see your writing. Let me do this. This is number one, this is number one right here. Yes she did. This is number one, and this right here is number two.

Megan: No this is number two. That's a five.

Stephanie: Number two. Then this is number three. Four right there. What are you doing with four?

Group 3 Rob, Chris, Alfred, and Tina

Rob: Which way do you all want to do this? Do you want to do this? Which way do you all want to do this? The way we did it earlier? It's easiest. We decided to do the two averages.

Teacher: Are you the only one working here?

Rob: No, they're adding them up. I'm helping.

Teacher: Okay. So, Tina, did they give you a job? You okay with what they're doing because you did it a different...

Rob: No.

Teacher: Oh it's the same way.

Tina: And you find the average of it?

Rob: No, just add them together.

Teacher: Your sheet should say Albany at the top not Atlanta. Okay.

Tina: I think I added up wrong.

Rob: No, just add these two together.

Tina: I know, but I'm wrong. Check this and see if it's okay.

Alfred: Let me see that.

Teacher: Are you finished?

Rob: Yeah, no not yet, we haven't got which one's top.

Teacher: Okay, and then you have got to put your system across the top, okay?

Rob: All right. Do you want to do the system?

Tina: I'll write it.

Rob: Okay. You have to write the system on the top.

Tina: What do you want me to write?

Rob: You see that there, TVC plus TPC equals value. Good, okay, what's the lowest? That's the lowest one right there... Finished.

Teacher: So how did Nashville do this time?

Rob: Eight. That's actually,

Teacher: What?

Rob: That's actually worse. Lower is better this time.

Tina: I don't know it's different every time.

Teacher: Yeah it is. And it looks like it depends on...

Tina: I don't know the right way to do it.

Teacher: So when you say you don't know the right way to do it, what do you mean by that?

Tina: Like if every body is doing all these different ways, then how do people like get it in magazines?

Teacher: Exactly, how do they decide? We're going to talk about that tomorrow, it's a really good question.

Group 4 Sherika, Gionni, and Caleb

Gionni: Actually, what comes, hey Caleb, look at this and tell me what comes after 2., 275.28

Sherika: These?

Caleb: How'd you get that for number one?

Sherika: What do you mean how'd I get what for number one?

Gionni: How'd we get this for number one, because it's the lowest and we're going from lowest to highest.

Caleb: No, this is the lowest.

Sherika: Yes, this is the lowest. See, this is the second lowest.

Gionni: This 116.4 and that's 616.

Caleb: Oh God, yeah.

Sherika: Oh, yeah. This is one.

Gionni: One.

Sherika: This is...

Gionni: Two.

Sherika: No, this is two.

Gionni: This is 275 that is 216, that's a whole number.

Teacher: It looks smaller doesn't it?

Sherika: Yeah, it looks so small compared to.

Teacher: I should have put .0 after those, shouldn't I?

Sherika: It's okay, I understand now.

Gionni: 421 is number four right? And 424 is number five. This is twelve.

Caleb: We've got to do this one and then we've got to do that one. No, nevermind.

Gionni: These is the totals, Caleb.

Caleb: I know that. I know that.

Gionni: These is the totals.

Sherika: That means we're not going to do those.

Caleb: Exactly.

Gionni: So all we have to do is... Lower total amount of people, better, higher is worst. We all confused.

Caleb: This is...

Gionni: Actually, 'cause it is very easy to make a mistake over here. I make plenty of them, trust me. It's very easy 'cause you could overlook a number just like that.

Sherika: Then this one is six, this is seven. This is, no this is eight.

Gionni: No, you missed one.

Students: That's one, that's two...

Caleb: That's eleven. That would be eleven. That's twelve.

Gionni: No, we missed one.

Caleb: That's twelve.

Gionni: That's twelve.

Teacher: Okay, so you got one more, so you got a few minutes time.

Gionni: Okay, wait, wait you still...

Sherika: No I'm not.

Teacher: It's almost time to go, so why don't you just let me. Thank you, Rob. I need you to leave your sheets on the table for me, please and your markers and I'll see you tomorrow.