**Comparing Numbers between 1 and 10**

[MUSIC PLAYING]

TEACHER: All right, so boys and girls, ladies and gentlemen, it is time to start math. Remember, we're working on comparing numbers from zero all the way to ten. Talking, using words like greater, fewer to discuss numbers and compare them. It is time for us to do our warm up. That means Maddie, you must step into the math laboratory. OK, come on back and choose your number.

All right, she's going to pick a good one, I think. So the lessons today started out with something we call the math laboratory, which is a glorified game of guess my number. And so, the students step into the math laboratory and on the whiteboard there is a number line from zero to ten. And they select any number they want and they circle it with a dry erase marker. And they come out from behind the math laboratory and tell the kids, guess my number.

I see some people thinking about which number it could be. Looking at that number line, thinking about which numbers are greater or fewer. Maddie, tell them, say, guess my number.

STUDENT: Guess my number. Ariel?

STUDENT: Eight.

STUDENT: Too high.

TEACHER: Too high. Can I take a peek? Oh, good choice. All right.

STUDENT: Addie.

STUDENT: Nine?

STUDENT: Too high.

TEACHER: All right. Let's do a quick reflection. If eight is too high, does that mean nine is too high as well?

STUDENT: Yes. And 10.

TEACHER: So we're thinking of a number fewer than eight.

STUDENT: Elijah.

STUDENT: Four?

STUDENT: Too low.

STUDENT: Isabella.

STUDENT: Seven.

STUDENT: Ding, ding, ding.

TEACHER: Isabella, way to go. All right. I'm going to come back here and erase her guess. Go ahead and grab the marker, and pick your number. Go ahead and give me five. One, I'm sitting criss cross. Two, my hands are in my lap. Three, my mouth is quiet. Four, my ears listening. Five, all eyes on Isabella.

All right, yes, tell them. Say, guess my number.

STUDENT: [INAUDIBLE]

STUDENT: Two.

TEACHER: Is two too big of a number, or too small?

STUDENT: Too low.

TEACHER: Yeah, it's too low. So it's a number that's greater than two.

STUDENT: 10?

STUDENT: Too high.

TEACHER: OK. So it's a number that's fewer than 10.

STUDENT: Liam?

STUDENT: Four.

STUDENT: Ding, ding, ding.

TEACHER: You got it. It was four. OK, are you ready? All right. I'm going to erase four. Go ahead and take one of the blue markers and select your number. All right, our last friend. Bring your eyes to him.

STUDENT: Guess my number. Angel?

STUDENT: It wouldn't be four again.

TEACHER: Wait, no, let him-- let him think, he's thinking out loud. He said it wouldn't be four, so that's not his guess.

STUDENT: Two?

STUDENT: Too low.

TEACHER: Hold on, pause. Is two too high?

STUDENT: Too high.

TEACHER: Yeah, too high. It's a really low number. Make sure you're picking someone sitting down like Jevon, good choice.

STUDENT: One? Too low.

TEACHER: No, too high.

STUDENT: Too high.

STUDENT: What?

TEACHER: It's too high.

STUDENT: I know it!

TEACHER: You should know it by now.

STUDENT: Ariel.

STUDENT: You didn't raise your hand.

TEACHER: Ariel, what'd you say?

STUDENT: Zero.

STUDENT: Ding, ding, ding.

TEACHER: All right, my friends.

STUDENT: There's not a zero there.

STUDENT: Yes there is.

TEACHER: Sure there is. If you look at our number line up there, from zero to ten is our goal, right? No. You don't believe me? I can turn it around, sure. I think.

STUDENT: There is a zero.

TEACHER: There is a zero. That Liam, he's tricky in the math laboratory. You got to watch out for him.

STUDENT: Was I close to zero?

TEACHER: You were close. Yeah, you had just one, right?

Today we shifted into something called a solvent share. And a solvent share is a piece of the Pearson curriculum that I've decided to use in my math classroom. And we put up that problem of the day and work our way through it. And so, it's an opportunity for me to set the stage for the lesson. To tell them what the goal is, how they'll know if they're successful. And then, have them really really dig into the math behind that problem.

All right, boys and girls, ladies and gentlemen, can you please bring your attention to the board? I like how quiet you got. Thank you. The screen, the board. So we've got our problem of the day here. And I want you to take a quick look at the illustration that goes with it. It has our number line on it. And unlike the one on our board, this one goes from one to ten.

Before we start with this, I want to remind you, we're working on thinking about which numbers are greater than others, which numbers are fewer than others. And this is a tricky problem. So I want your best thinking here. OK, are you ready to listen to it?

STUDENT: Yeah.

TEACHER: OK.

NARRATOR: Emily's mother asked her to bring the towels in off the line. Her basket can hold less than seven towels, how many towels might Emily bring in? You can give more than one answer. Show how you know your answers are right.

TEACHER : All right. So before I see any hands, I just want you to sit, blink, and think. Think and blink. There's some really important information in there. So we've got these towels that are hanging on the line. Sorry, are you OK? And her mom asked Emily to bring in the towels off the line, right? But this basket has a problem. It can only hold fewer than seven. So how many might she bring in?

If you have a thought, turn and talk to a friend.

STUDENT: So what do you think is it?

STUDENT: I think we're going to pick nine.

STUDENT: Eight.

STUDENT: Nine.

STUDENT: I'll pick eight, because eight is more the number.

STUDENT: No, nine.

TEACHER : All right, so the end of this problem was kind of interesting. It says that there could be more than one answer. So if one of you gives an answer, there might be another person in the room that has another or a different answer. But I'm wondering what you and your partner talked about. Nas, can you tell us what you and Nathan talked about? Is this something you already knew? But maybe something you also learned from Nathan, what'd you guys talk about?

STUDENT: I picked eight, Nathan picked nine. And then, we tried to get it right. But it's OK if I don't get it right.

TEACHER : OK. So you thought maybe eight, and Nathan thought maybe nine? Does anyone have any thoughts on that? Uh oh, Bianca, you look concerned. What did you want to say?

STUDENT: I think it's ten.

TEACHER : You think it could be ten? OK. Ariel, what do you think?

STUDENT: Me and my partner said that it could be six, or two. And my partner said that it could be ten. But the basket's to tiny.

TEACHER : Oh, wait a minute. Hold on. Ariel just said something really important. She said her partner said it could be ten, but the basket is too tiny. What do you mean by that? Can you tell me more?

STUDENT: Cause like, if the basket can fit less than seven, then it should be like six or two. And it can't be ten because the basket is too tiny.

TEACHER : Nas, can I come back to you for a second?

STUDENT: OK.

TEACHER : What do you think about what Ariel just said?

STUDENT: 10 is the longest number.

TEACHER : One more time?

STUDENT: The 10 is the longest number, so it cannot fit the whole thing into the basket, because it's small.

TEACHER: It is small, isn't it? So could 10 fit into the basket that only holds less than 7? No. Could 9 fit in there?

STUDENT: No.

TEACHER: Could 8 fit in there?

STUDENT: No.

TEACHER: 8 could fit in there. Is 8 less than 7?

STUDENT: No?

TEACHER: No. So what numbers can fit in there?

STUDENT: 5.

STUDENT: 7.

STUDENT: 4?

STUDENT: 2.

TEACHER : Oh. All right. So I want to take a pause.

STUDENT: 0.

TEACHER: I want to take a pause from this big conversation. I want you to go back to the person that you were talking with, and have a conversation again with them. Maybe your answers will have changed.

STUDENT: Again.

STUDENT: Again.

STUDENT: OK. We'll do mine first. So I guess that, because, so I'll pick 5. And because 5 is a good a number to that basket. Because 5 can fit in the smaller basket.

STUDENT: I'm guessing, my number is 7 because on the board is the number 7.

STUDENT: 7 is not less than 2 of the basket because it's smaller. It's smaller like this. Because it's supposed to be a 5.

STUDENT: I'm guessing 4 because--

TEACHER: All right, finish your conversations in 3, 2, 1. Bring it on back.

STUDENT: [INAUDIBLE]

TEACHER : Thank you, and good job. This is your second chance. After hearing some good thoughts from our friends Nas, Ariel. Do you have a different thought? And anyone willing to share their answer? Gianni, what do you think?

STUDENT: You can put 2.

TEACHER: You could put 2 in there. All right. Nas, did you have a different answer?

STUDENT: Yeah. You could put 5 in there because it's a smaller number. Because 6 and 7, 8, 9, 10, because that is a bigger number.

TEACHER: Yeah. Can I show you guys something on the board? Take a look at this number 7. Ariel told us that the basket can only hold less or fewer than that. So can it be 7?

STUDENTS: No.

TEACHER: No.

STUDENT: It can be 6.

TEACHER: It could be 6.

STUDENT: 10.

STUDENT: 5.

STUDENT: [INAUDIBLE]

STUDENT: 5.

STUDENT: Can't be 9.

TEACHER: It could be any of those numbers, but it cannot be that because what we have learned about the number line is when something is fewer or less than, we automatically know it's not that number, and it's not the rest of the numbers on that number line. It takes them right out.

STUDENT: But it could do that. It's like, we just circle the number, and it's just the number. And if it's too low, it's too low.

TEACHER: I love that you made a connection from our guess my number game to this.

STUDENT: I mean, it's kind of the same.

TEACHER: It is kind of the same. There's so many connections there, right? And so--

STUDENT: But this has a grandma and a daughter.

TEACHER: This has got a grandma and a daughter--

STUDENT: And a basket.

TEACHER: You've got it, and a basket. But it's the same thing, right? When we're working on the number line, thinking about numbers that are fewer or greater. You got it. All right, my friends. Are you guys ready to move into stations?

[CHEERING]

The standard address today was a counting and cardinality standard where students were to compare numbers from 0 through 10. And in the math stations, there's actually two mini lessons being given. And so there's a mini lesson being given by myself that really gets to the heart of what the math is about. And then there's a mini lesson given by my assistant teacher, Ms. Loafy, who also is supporting the work of learning. So she is well aware of how maybe if this student didn't understand what the math was behind my lesson, when they get to her, they can have a second opportunity, and as well as a second avenue for grabbing that math concept.

So in the Chromebook station, the students have a game called Fuzz Bugs, count, compare, and sort, where they are counting a number of fuzzy creatures. And once they're done counting them-- or they'll sort them first. Then they'll count how many were in each category, and then they have an opportunity to compare to see which container ended up with the most of these bugs, or the fewest of these bugs. And it hones in on exactly what I was hoping the students would take away from today's lesson. And so I chose to use that game because it lined up perfectly. And it's not always easy for me to find a game that lines up exactly perfectly with the math lesson that I'm after.

I'm looking for one friend who's sitting down really nicely to be able to help us out, picking out which bag to use. I've got a bag labeled c, and a bag labeled b. Angel, you're sitting nicely, and you moved with no problem. Nice job coming on over here. Do you want to use the bag labeled c or b?

STUDENT: I'm going to use my brain.

TEACHER: All right. Use your brain. Which one? C? OK. In this bag, there are marbles. And it's going to be your job to guess how many marbles are in the bag.

STUDENT: Me too?

TEACHER: Everyone's going to get a chance to guess. But before you guess what number is in here-- Bianca, please sit back. I want you to do two things. The first thing you're going to do is you're going to listen to the marbles to think about how many are in there. Are you ready to listen?

STUDENT: OK.

TEACHER: OK. You have your ears on?

[BAG CRINKLES]

OK.

[BAG CRINKLES]

OK.

[BAG CRINKLES]

STUDENT: Sounded like it was 3.

TEACHER: All right. So we've got one person who's already thinking about what number it could be. But I'm going to wonder if your answer might change when I give you the next direction. The next direction is that you're going to reach into the bag, and feel the marbles. And then you're going to make a guess. But don't make a guess right away, wait till everyone's felt it. OK? Are you ready? Close your eyes. No peeking. All right, reach in there. OK. Let go.

Do you have a different guess now? OK. You don't want to? You don't have to. OK. All right. Elijah.

STUDENT: I just saw a color.

TEACHER: That's OK. All right. OK. Let go. So now, after hearing the marbles in the bag--

STUDENT: I'm pretty sure it has to be 6.

TEACHER: --and feeling the marbles with your hands, we're going to make some guesses about how many marbles are in the bag. So--

STUDENT: This is fun.

TEACHER: I'm glad you say that. What is your guess? How many marbles do you think are in the bag?

STUDENT: What did you say?

STUDENT: There's going to be 6 of them.

TEACHER: You think I'm trickier than that?

STUDENT: Yeah.

TEACHER: OK.

STUDENT: There has to be 7.

TEACHER: All right. Angel says 7. Bianca?

STUDENT: I don't know.

TEACHER: Would you like me to write your name by it?

STUDENT: OK. I don't know.

TEACHER: Do you want me to come back to you?

STUDENT: Yeah.

TEACHER: OK.

STUDENT: No. That's not how you spell my name.

TEACHER: Yes it is.

STUDENT: No. It's B-I-A-N-C-A.

TEACHER: Yes. Those are the letters on there. Yes? Elijah? What's your guess?

STUDENT: 6.

TEACHER: OK. 6.

STUDENT: Wyatt [INAUDIBLE].

TEACHER: Wyatt?

STUDENT: It has to be probably it has to be 10.

TEACHER: OK. All right, Bianca. Everyone's gone. It's your turn. What is your guess?

STUDENT: Pick one.

STUDENT: 8.

TEACHER: All right. Excellent. These are all very good guesses.

STUDENT: I have to be close.

TEACHER: Are you ready to see?

STUDENTS: Yeah.

TEACHER: Are you sure?

STUDENTS: Yeah.

TEACHER: All right. If you're ready to see, go ahead and have a seat. OK. I'm going to lay out this eraser rag because I don't want the marbles to roll away. Are you ready for the moment of truth?

STUDENT: Yes.

TEACHER: Are you sure?

STUDENTS: Yes.

TEACHER: Wyatt's ready. Look at him.

STUDENT: I hope I'm right.

TEACHER: You hope you're right?

STUDENT: Let's count.

TEACHER: I can count them, but more importantly, you can count them. Are you ready?

ALL: 1, 2, 3, 4, 5--

STUDENT: No.

STUDENT: No.

TEACHER: I'm not done yet.

ALL: --6, 7, 8, 9.

STUDENT: 9.

STUDENT: No. That's--

TEACHER: That's it. That's it. What's our number?

ALL: 9.

STUDENT: Bianca.

TEACHER: Our number is--

STUDENT: No, Elijah.

TEACHER: --9. Did anybody guess it?

STUDENT: No.

TEACHER: Did anybody come close?

STUDENT: No.

TEACHER: Sure you did. Take a look at the number 9.

STUDENT: You almost got--

TEACHER: What number is close to 9?

STUDENT: 10.

TEACHER: On the number line, over there?

STUDENT: No.

TEACHER: Yes. 10 is right next to 9. What other number is really--

STUDENT: 8.

TEACHER: Go on back, thanks.

STUDENT: It's 7.

STUDENT: 8.

STUDENT: No, 8 doesn't--

TEACHER: Would you like to walk over the number line and check? Go and see where 8 is compared to 9. [INAUDIBLE] no. Not right now. So what did you discover over there? What numbers are close to 9?

STUDENT: 8.

STUDENT: 8.

TEACHER: 8 is right next to 9, so it is 10. So were those guesses close?

STUDENT: No.

STUDENT: Yeah.

TEACHER: Yes they were, weren't they Angel?

STUDENT: Yeah. I could say mine was close, right?

TEACHER: Sure. Yeah. But you know what, Angel's and Elijah's guess were also very close. So we're going to move on to our next step. We're going to leave our marbles right here. So we are going to use our guesses, as well as the real number of marbles to do some starting here. So the first thing it says is how many marbles? And this line right here says, the number is-- what was our number? How many were in the bag? How many were in there?

STUDENT: 9.

TEACHER: 9. So we're going to write a 9 on this line right here. Very good. Thank you. What was our number, though? You're not going to tell me?

STUDENT: 9.

TEACHER: Our number was 9, right Bianca? So can you please record 9 on here?

STUDENT: That looks like a p.

TEACHER: It does. Do you want to fix it? OK.

STUDENT: Does 9 look like a p?

TEACHER: No. Yours looks like a 9. This looks good. I'm not too worried about it, but if Angel's worried about it, we'll fix it. So our next step is to take our guesses, Elijah, and sort them out. OK? We're going to be looking at our guesses, and deciding if our guess was fewer than the number 9, or greater than the number 9. Are you ready for that? OK. So our first guest is by Angel. And Angel, your guest was 7. Was 7 fewer than or greater than 9?

All right. If it's fewer, we're going to record it right in here. So everyone, write the number 7. In the box, it says fewer than. The next guess was by Bianca, and she guessed 8. Is 8 greater than or fewer than 9?

STUDENTS: Fewer.

TEACHER: Yeah. All right. Then record it in the fewer than box. How do you guys know that it's fewer than?

STUDENT: Bianca, I think mine is more.

TEACHER: You think so? But I asked a question. How do we know if it's greater than or fewer than?

STUDENT: I don't know.

TEACHER: You don't know? Does anybody have an idea?

STUDENT: It's bigger. Right here. And it's going--

TEACHER: Your guess is? You think--

STUDENT: I think it is.

TEACHER: OK.

STUDENT: 6 goes in here because it's less.

TEACHER: Are you the teacher? All right. Moving on. Yes, you're correct. Elijah, your guess was 6. Is 6 greater or fewer than 9?

STUDENT: Fewer.

TEACHER: OK. So we're going to record Elijah's guess in here. Excellent.

STUDENT: Why is everything fewer?

TEACHER: I don't know. Those were your guesses. And it's OK to be fewer because you guys were all close. Wait a minute. What?

STUDENT: 10 is not fewer.

TEACHER: How do you know that?

STUDENT: Because it's bigger.

TEACHER: How do you know that?

STUDENT: [INAUDIBLE]

STUDENT: --our magic number.

TEACHER: 10 is our magic number. So where should we record 10?

STUDENT: Greater.

TEACHER: In the greater than column?

STUDENT: [INAUDIBLE].

TEACHER: Do your best, and forget about the rest, my dear.

STUDENT: I don't know how to write 6.

TEACHER: When you make a 6, you make a c like this, and then you curl in the little line. So I know you know how to make a c because it's in your name. Oh, that's a beautiful 6. Nice job. Way to go.

STUDENT: This is how I do my 6's.

TEACHER: Perfect. All right, my friends. And so all of your guesses were very close. How many of our guests were fewer than our number 9?

STUDENT: 10.

TEACHER: No. 1, 2, 3 guesses. How many were greater than?

STUDENTS: 10.

TEACHER: Just 10. So how many guesses is that?

STUDENT: 1.

TEACHER: Just 1 guess was greater, and 3 were fewer. Are you guys ready to shift?

STUDENT: No.

TEACHER: OK. So thank you. And good job for playing my game. Yours was close.

STUDENT: So now we switch?

TEACHER: Yes. All righty. Boys and girls, and ladies and gentlemen, please clean up.

STUDENT: I could balance it.

TEACHER: I try to, when I'm planning lessons, not take them as individual lessons. And so I try and think about what I want my students to learn throughout the course of a unit. And so a big concept is obviously, as we've talked about, thinking about the essential question. How do we compare numbers? And then honing it in on, how do we compare numbers 0 through 10? From there, we really hone into how we're going to break that apart into bite-sized pieces. And so today's lesson really was a continuation of past learning, as well as thinking about future learning.

And so I started there. Came up with the goal, how many marbles are in the bag, as the main focus task, and really built the lesson around that. I want my students to have as much practice, as much hands-on experience doing those type of things as possible. And so when I thought about my lesson, I thought a brief mini lesson would be the best way to approach the new learning. And then stations would be the best way to have as much hands-on practice. And by inserting myself into a station with a small group, I'm able to still continue teaching the entire time, and make sure that my students have a deep level of understanding by the time we move on, so there's not any holes or gaps in their knowledge.

All righty. Boys and girls, ladies and gentlemen, we are going to bring our lesson to a close. And I have asked Maddie and Ariel to share what happened, and what they learned in their group. And so something kind of interesting happened, where there is a math argument. And they worked together with my friend Carter to solve it. Right, Carter? And so are you guys ready to tell? So tell one thing that you learned. And then Ariel, like it's a story, tell your story of what happened with you and Carter. OK? Maddie, you have your work up on the screen. So tell us all about what happened.

STUDENT: I learned that 7 is greater than 6.

TEACHER: OK.

STUDENT: And if 5 equals 5, it's the same.

TEACHER: You got it. I love that. Ariel, did you want to tell the story of when there was a math argument?

STUDENT: Carter thought that 7, that 6 was in greater than, like, this greater than. And then--

TEACHER: What did you think?

STUDENT: But I thought that it goes in the fewer than because 6 isn't after 8, or 7.

TEACHER: How did you help Carter, though? Because I liked how you helped him.

STUDENT: I helped Carter by telling him that 6 is fewer than 7, and so it shouldn't go in the greater than because it's fewer than.

TEACHER: Was there a math learning tool in the room that you used to help him see?

STUDENT: Yeah.

TEACHER: What did you use?

STUDENT: I used the calendar.

TEACHER: You used the calendar to help figure out whether a number was greater or fewer than another number?

STUDENT: Mm-hmm.

TEACHER: I love it. Excellent. Carter, did she help you out? Can you please sit down? Thanks, friend. Did she, can you turn around and talk to us? OK. So did her showing you that on the calendar help you? All righty, my friends.

What I hoped the students would accomplish by the end of the lesson, they would have the ability to identify-- take one number, compare it to another number, and identify if that other number is greater or less than that number. I measured their success by being able to-- once they had, in my example, the case of marbles in a bag. Once we had the concrete number, or our number, if they could figure out whether or not the number was greater or less than that flag number. So if they were able to look at our guesses, identify, and then correctly put it into the correct category of greater and less than, as well as using the written number.

And so a lot of times, our students can count objects accurately, and tell us how many afterwards, but struggle to use the symbol of the number. And so today's lesson was really about taking that next step from talking about symbols, and using symbols, or using counters and manipulatives, and talking all greater and less than to actually putting that number with it.

[CHEERING]