

Intermediate Math Parts  
Pre-Interview

Interviewer: Are you guys good?

Teacher 1: Mm-hmm (affirmative).

Teacher 2: Ready.

Interviewer: Okay. Why did you guys choose to teach this lesson?

Teacher 2: That's a loaded question.

Teacher 1: Excuse me. I still have a cough. Well, one of the reasons, it's very similar to the last time, but it was one of the next ones in the unit. We're in the Let's Be Rational unit which is all about rational numbers. Basically, it's all fractions, operations with fractions. We just finished adding and subtracting fractions with unlike denominators and estimating sums and differences of fractions. This next step is finding parts of parts. Essentially, multiplying fractions.

Teacher 2: We're making sure, though, to be really purposeful about saying parts of parts because we want the students ... Too often, students are taught, "Here is how you multiply fractions," but they don't understand the concepts behind multiplying with fractions. When you multiply fractions, you're finding parts of a part. We want to make it very clear that this is what you're doing and then to then associate that concept with multiplication.

Teacher 1: Right.

Interviewer: How are these learning outcomes associated with a larger learning schools?

Teacher 1: I guess kind of what we said sort of answers that, but also huger picture. We're trying to get them to be fluent and comfortable in understanding what's actually happening behind the formulas that they learn or the rules that they learn. Kind of like comfortable navigating the world and their mathematical situations smoothly and by comfort, we mean like what's actually happening if you're sharing a pizza with someone and you each have half a pizza and then a friend comes, and he's like, "I want a fourth of your half." Like what's actually happening there.

[00:02:00]

Teacher 2: we're also making connections to money.

Teacher 1: Yeah.

Teacher 2: For instance, one of the problems in this section is like you're fundraising. You're doing a bake sale, but not everyone wants a half of a batch of brownies. People want fourths

and then sometimes they'll have a fourth left and then they'll only want this portion. Then how do you calculate how much to charge them on that? I think like, again, to connect to the bigger picture, we're working on building that mathematical fluency within what kids needs for the real world and then also for those higher concepts that they're eventually going to go to. Yeah, just building a foundation of fluency with fractions.

Fractions are taught in third and fourth grade, not in super detail. It's pretty foundational, but some of our students we're finding in sixth grade are like, "We know this."

Teacher 1: Yeah.

Teacher 2: It's been a little bit of a challenge because there's a lot of differentiation to do.

Teacher 1: There's some push back with "We know this already. Why are we doing it?" But then putting it in the context of a larger problem, sometimes, they think they the formulas, they just apply it, and then when you say, "Well, what's happening?" or "How did that work? Prove why that mathematically works." They're like, "Oh, well my mom said to do it this way" or "That's how I learned in third grade."

Teacher 2: "It's a trick." You can switch, you can get the inverse of that. It's really important to us that they're understanding the concepts that they're applying because if they understand that, that's going to help them figure out in problem-solving in the future instead of just being like "I see the word multiply. I see that they're fraction. So I know this rule applies" because they're not always going to know that in a problem, you need to multiply.

Teacher 1: Yeah.

Teacher 2: We're trying to teach them fluency with the skills.

[00:04:00]

Interviewer: That's good. Students can identify the solutions to things, but they can't necessarily articulate probably why [inaudible 00:04:09].

Teacher 1: Right.

Teacher 2: Yeah.

Interviewer: How would you describe this lesson as meaningful, useful, or relevant to the students [inaudible 00:04:14]?

Teacher 2: We did just mentioned the part about like the shopping and like dividing things up. I think that's the main connection the lesson makes. It's kind of with the fundraising and with splitting up the brownies, but we actually also were starting the lesson with

something that's not in the book. We're starting with something that applied last week which is like floor plans.

Teacher 1: Giving them a chance to ... We are very explicit about the fact that the lesson before this in the book talked about adding subtraction fractions with like a farming land and it had all these generic last names. There was like Bob's land plus Stewart's land, so we decided to give them a chance to personalize that problem instead. They each got a 10 by 10, 10-inch by 10-inch piece of paper, had to create a carnival or a park or literally anything they wanted.

Teacher 2: Zoo, aquarium, magical animals.

Teacher 1: Yeah, as long as it have five sections and all the sections were split up with straight lines, at least, five sections. They don't have to be equal. They could have like, "I don't really like hippos, so they're really confined to this corner. Mine had an elephant waterpark." They got creative with that and then we use that in class that day to estimate sums and then we use it again to ... They wrote their own subtraction problems based on their maps and so we're going to bring that in the beginning of the lesson. We made up one that, [we said it's 00:05:44] Ms. Meg's zoo. That's kind of where the relevance comes in. This is like continuous spiral of bringing the same thing back. It's fun for them and-

[00:06:00]

Teacher 2: It definitely boosted engagement when they created their own. Some connected it to the video games that they play and things like that. Spiraling back to that map is they already have a connection to that. They know it was a fun activity. They know that we've used it into two different ways. One was to estimate what fraction of the whole each part was. Then one was to estimate adding parts. Then the other one was they had to pair up and then they created their own number sentences. Like, "What is the kangaroo's part of the zoo. Mine is the hippo's part of the zoo." They had to actually create subtraction problems and solve them, finding the LCM and then common denominator.

Teacher 1: Yeah.

Interviewer: What are the big questions you guys are using to drive the student [discussion 00:06:57]?

Teacher 1: The first one that comes up is how we can find parts of parts? We're going to talk about the ... Ms. Meg is [going to have 00:07:03] a situation of like "Ms. Meg forgot to include wombats in her zoo. So she's taking a fourth of her zoo that was designated for hippos and we're taking a third of that for the wombat. So how much is that? What fraction of the zoo is for the wombats?" The question would be what strategies did you use, what strategies can we use to accurately find parts of parts. How? I guess it's kind of the same question.

Teacher 2: I think also like zooming out one more layer. Those are the questions that we're

addressing within the lesson, but I think zooming out one more layer, it's like why are fractions important and how do we use them or those essential questions of the unit. Then overall, we're sticking to our math essential question as well.

Teacher 1: We actually changed it since the last time. I don't know if we said it in the last video, but we iterated on our essential question to ... I don't know if I have it memorized which is-

[00:08:00]

Teacher 2: I don't have it memorized.

Teacher 1: The concept is how can we use mathematical concepts to think about the world around us in a mathematical way, is a paraphrase of our essential question and so that always comes in, floor plans of a zoo, floor plans of your bedroom, maybe your new house.

Teacher 2: It's also a connection. The floor plans are also a connection to something that we're going to be diving into later on in our covering and surrounding. That's like area, perimeter, volume, things like that.

Teacher 1: Yeah.

Teacher 2: This is like a way to introduce them to fractions, but it also hinds out like ... Because some of them split their square in 10 inches. They did each side by 10 inches and they split it into 100 grid of 100 squares and then did parts of 100. We had this great share out and reflection and they were kind of like, "Well, if we knew we had to estimate the fractions beforehand, we wouldn't have made it into a tiny Pokemon [exploratorium 00:09:01] with like 18 million little Pokemon shelters."

Teacher 1: Yeah.

Teacher 2: Yeah.

Interviewer: I could see how [continue 00:09:04] to use the grid and then modeling up would be really good.

Teacher 1: Yeah, scaling also works into it.

Teacher 2: Yeah, definitely.

Interviewer: Okay. How are you planning to check or understanding or assess the student outcomes?

Teacher 1: We have a share out after we're letting them ... So the exciting thing about this lesson which we did a few times before when we started this fraction unit was using Play-Doh. We call it [modeling dough 00:09:34] very explicitly so that it's not for play, it's to model. They each get their own little individual thing of Play-Doh and they're going to ... And have a little [place mat 00:09:45]. It's just a sheet protector with a piece of paper in it, but they are supposed to have whiteboard markers so they can mold their Play-Doh into, this time, it'll be a square, and they can actually label it on the [place mat 00:09:58]

[00:10:00] too. It's like, "This is one-eighth" or "Remove a part and put it here." I mean like, "Circle." Like, "This is a fourth of an eighth."

Teacher 2: Then they use a ruler to cut it into straight parts based on ... I mean, overall, the modeling, though, really boost their engagement no matter what. It's also great for our learners who need a little bit more hands on and a little extra visual ques and then they take that to the lesson once they're actually solving investigation 2.1.

Teacher 1: It gives us a chance to walk around the room and check their visual. We could check understanding that way. I can see very clearly if your square is split up into even parts or I can tell you, "Pinch a little bit more. You have to make those all even." That's what we will check for understanding. Then we have a share out of what strategies did you use and so at that time-

Teacher 2: We're going to check their problem solving and mathematical thinking around finding parts of parts. At that time, we're hoping that some of the kids are identifying. We're actually multiplying two fractions together in order to find a part of a part and so we're hoping some of those connections start to emerge. Then we're going to be a little bit more explicit, right?

Teacher 1: Yeah.

Teacher 2: Or are we doing that after the brownies?

Teacher 1: I think after that discussion ... We talked about this plan [just a bit 00:11:23]. After the discussion, we're being a little bit more explicit about what we're actually doing when we find the part of a part. There's that explicit kind of like I do, the teacher direct instruction. Then we have a chance for them to go into their own notebooks, then we'll transition them to the book problem which is very similar, about the brownies and the bake sale. We'll have them do just the first part of that and they'll work on that. Even if they work in partners or in small groups, it needs to be written in each of their notebooks. Their notebooks, we'll probably collect them too because we haven't in a while and that'll be our check for understanding for that. Then the homework is connected to that. The homework problem will be another check for understanding after that.

[00:12:00]

Teacher 2: There's summative assessment, though, for the Let's Be Rational unit or we may have a summative quiz for half of the book which is what we've been doing, is doing a quiz halfway through, but that will be their summative content standard grade for ... Will be their performance on that quiz. Our push in standards-based grading is to really only be recording assessments and only recording grades on authentic assessments. Assessments where they have had ample time to practice, ample time to ask questions, ample time to make mistakes and learn from them. Then finally, when we give them a summative assessment, that's an actual indicator of what they know about this content standard.

We're working on doing that more explicitly. Whereas, other times, we would have maybe in the past been like, "Oh, this is an opportunity to do the content standard grade." Then we build up so they may have a striving which is a two.

Teacher 1: A two out of four.

Teacher 2: Or starting which is a one. They may have a one or a two tomorrow because they're just exposed to the unit and they're just starting to get it. If we put that in our standards-based grading system according to Power Law, that would still be affecting their grades. We're trying really to only assess, on the content standards, the authentic assessments that we know that we've given them ample exposure to the topics, they've had time for all of that. That's one of our goals moving forward.

Interviewer: How would you describe this lesson as engaging the students?

Teacher 1: They liked the [modeling dough 00:13:53]. It comes in different colors. We don't really let them choose the [modeling dough 00:13:59]. A lot of kids are like, "Oh, okay." Like, "I'm not asking you to write anything. I'm not asking you to calculate anything. I'm just asking you to literally split this up. Show me one-fourth, a third of one-fourth." It's very step by step. I think that that also takes away of the fears like, "Am I writing the right thing? Am I calculating it right?" and allows them to just be more engaged and play with it and make mistakes. I think that does boost engagement when it's like, "It's okay to make a mistake. Just pinch a little bit more of Play-Doh on that side."

Teacher 2: It also gets away from ... Sometimes like writing down notes can be monotonous. It gives them a time to be hands on and to play with the Doh, even though technically they're modeling.

Teacher 1: Yeah.

Teacher 2: It gives them time to be more hands on. Another thing that we're hoping is the connection to the floor plan. They have already created their own floor plans and now ... I made my own zoo and now they're going to learn my favorite animals. Kind of building that relationship with the students and kind of like, "I love wombats. They are really wacky animals. They are crazy marsupials." I got to figure out some more facts about wombats by tomorrow because I don't really love wombats. Playing with that. Being like what if I wanted to add wombats. It sounds silly, but honestly, when I'm creating my own house one day then maybe I wanted to do something a little bit more boring like remodel my studio, so it's a bathroom and a studio. This is a more fun interactive connection for them to make while also connecting to the real world. We're hoping that builds engagement, especially since they have worked with floor plans before.

Interviewer: How do you plan to manage student behavior throughout the lesson starting new expectations?

Teacher 1: We'll have them remind us of what the expectations were in the past when we use

[00:16:00] [modeling dough 00:15:57]. Basically, it is that like the second your playing with it, you're getting it taken away because it's a tool for learning. As soon as it becomes a distraction, it stops being a learning tool. We could just take that away, not as much of a punishment, as a natural consequence of "It's not helping you focus. We're going to help you focus by removing your distraction." We'll have them remind us of those expectations. It's split up in a ... Like there's group work of trying to figure out this problem that we're posing to them of like, "What fraction of the zoo is for the wombats?"

That will be group work and that allows us to go around and check in with tables at a time. Then it's kind of direct instruction where one of us ... Whenever one of us is talking, the other one is always just like little reminders here and there going around. Then when it's independent work type, the [volume 00:16:45] should be quieter, so it allows us to catch distractions right away and allows us to check in with ... Maybe we'll pull a small group or check in with the whole table at a time or check in with partners. Depending on the size of the groupings and what's happening, we have different management strategies for each of those. I think I mentioned that one.

Teacher 2: Then also, I think it's just ... We are always hoping to be one step ahead of student behavior by just making things as consistent as possible within the learning environment. Everything from the color of the slide, as soon as they walk in, they know that their [do now 00:17:22] is in rainbow and they need to finish each of those colors before they move on. Then everything from also having the expectations up on the screen while we're talking, so that they know what they're working on right now which is helpful for us because we did plan ahead.

Teacher 1: Yeah. Also, we just ... This is a new thing that we [inserted 00:17:45] this semester, but we have student jobs so that every table, they have ... There's five different jobs.

Teacher 2: Yeah.

Teacher 1: Like attendance checker, materials organizer, basic things, but it allows us to put the responsibility for each transition on different students. Like, "Attendance people, I need to hear from you" or it's the materials organizer's job to give the Play-Doh and stuff to their table. Then it's the setups person's job ... I don't know what we said. That's a way to manage the behavior because we're not wasting time being like, "Okay, you come up." They already know their job and they know their expectations, so if they see their job title in one of the rainbow colors, like, "You need to do that."

Teacher 2: There's also less downtime.

Teacher 1: Yeah.

Teacher 2: The jobs help make the transition smoother because we don't have to be like, "You, you, and you, come collect the [modeling dough 00:18:33]" or like, "Choose one person from your table." We know this person is doing it. It's quick, it's easy, and we're moving on. I

think overall, the more ... Not necessarily fast pace but efficient we are in our class, the better behavior is. We're relying on both the day-to-day consistency and then also the engagement in the lesson that we're doing. Then we're also relying on the expectations that we're setting up within the class and with the students beforehand. As always, we have some students who have repeated behaviors and we'll need a couple of extra prompts or a couple of extra reminders and that's okay. That's what they need and that's why we're there and that's why there's two teachers.

Teacher 1: Yeah, thankfully.

Teacher 2: I know.