

Intermediate Math Food Drive  
Pre-Interview

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

Teacher: There's a few reasons. One of the reasons is that it's the next lesson in the book. It's actually not the next lesson. It's the last lesson of this investigation and we don't always do every single lesson but this was one that we felt wrapped up the fractions and decimals investigation well and it was one that we didn't think we needed to ... or that we shouldn't skip. It was the next one that we thought was worthy of teaching and there's this really cool connection that's about an earthquake-relief project where a bunch of middle schoolers gather supplies to help victims of the earthquake in Haiti in 2010 I believe.

Teacher 2: The connection is that this week we're starting at our school a food and toiletries drive and so we want to kids to organically make that connection and then also see this is a real-world connection. This is math that I'm going to need in the real life, in the real world. I think this lesson dives into the relationship between decimals and fractions and this overall investigation is called Bits and Pieces, so it's looking at parts of a whole basically. We like the way that it went over the relationship between fractions and decimals and didn't just look at fractions as a separate unit and decimals as a separate unit.

Interviewer: What are the learning outcomes for this lesson and how are they related to that larger learning sequence?

Teacher: One of the questions that we're going to start the class and end the class with is, "When are decimals more useful and when are fractions more useful and why, so in what types of situations?" What we hope the students recognize through this investigation is that in the scenario of this investigation, decimals are actually more useful because they're working with weights of how much powdered milk should we put in this box, in each box, if we have this much and there's 14 boxes, so saying, "I want 1-1/3 kilograms of powdered milk," is more difficult than saying, "3.2 kilograms." Those are not equivalent but you know what I'm saying. We want them to organically see that decimals are more useful but investigation will have them put all their answers in decimals and fractions. The outcome we want them to see is when is it more useful to use decimals and when is it more useful to use fractions.

Teacher 2: This lesson is also not perfect. It's definitely not perfect. There are parts of it that we really don't like and mainly it's that when you have jars of peanut butter in a food drive, you can't really say, "Oh, I only want 8 ounces of peanut butter." How are you going to get 8 ounces of peanut butter outside of the jar, the 16-ounce jar, and put it in a cardboard box to mail without it leaking. We're hoping that the students take a real inquiry-based approach and are asking questions the entire time, like, "If we have containers of peanut butter, does it really matter if we need .8 of a kilogram or one whole kilogram because we can we actually separate this big jar of peanut butter?"

I think we're hoping, too, that they're continuing to ask these hard questions and recently been in discussions is .99999 the same as one? Kids are thinking meta and we are appreciating their overall inquiry of the lessons in the investigations that we're doing.

Teacher: There's also one part of the problem that says there's 24 kilograms of oranges and in the setup to the problem, the teacher version says that it should just be 24 oranges and so we're hoping that the students see ... One of my predictions is that students might think, might equate one kilogram of oranges with one orange, and so we have a water bottle full of about a kilogram of water. We'll pass it around for them to see this is how many a kilogram weighs. Do you really think that one kilogram of oranges is just one orange? That's in line with the thinking of, "How can we split up .8 ounces of ... .8 kilograms of peanut butter. Same thing with oranges. If we only want ...

[00:04:00]

Teacher 2: Knowing our kids, they'll then dive into ...

Teacher: Can we cut it up into wedges?

Teacher 2: Yeah, they'll ask if they can cut it up into wedges and then they'll be like, "You know, I think this might have been a genetically modified orange, so I actually don't even know if we should send it to Haiti." We'll get all sorts of questions like that but we're excited to see where they go with it.

Interviewer: How would you guys describe this lesson, as meaningful, useful or relevant to students?

Teacher: I think we touched on that a little bit with the connection to the toiletry drive that we're doing here and also the fact that when things happen around the world, people come together to provide relief for other groups of people. We want them to have a real connection to that. They might be working as one of those humanitarian-effort leaders in their future or even now, a lot of their projects that we do in their EQS class might have to do with splitting up amounts into ... Like someone's making soaps and maybe they had to weigh their soap and each soap bar needs .8 ounces of liquid to make ... I don't know.

We want them to make real connections for the fact that when you split up ... Not everything in the world is perfectly weighed and comes in perfect whole numbers so they're going to have to deal with splitting things up and predicting how much it'll be and estimating, "We want about this much but we can't split up a whole jar of peanut butter, so is this close to the benchmark that we wanted?" We want them thinking about the real applications of splitting up imperfect numbers.

Teacher 2: Yep.

Interviewer: What are the big questions that you're using to drive student discussions?

Teacher 2: The big question in this lesson today is, "When do we use fractions? When do we use

[00:06:00] decimals and why would we use either one of those formats?" Overall, though, I think we're looking at when you split a whole into parts, how you quantify it. How can we quantify this? What is it equal to in decimal form? What is it equal to in percent form, as we go into that later? We're basically looking at parts of a whole and why they're important. Why we can't just, in our life, say, "Okay, we don't even want to deal with fractions, so everyone always gets a whole pizza or a whole orange or a whole jar of peanut butter. We're not even going to talk about it." I think a lot of our kids can feel like, "Oh, fractions," but they're starting to see the real-life implications of using whole numbers as opposed to fractions, decimals, and percents.

Teacher: One of the homework problems we're going over at the beginning of class or we're having them discuss was a problem saying that there's 8 ... 10 students went to order pizza at a pizza place and there's 8 mini-pizzas so how many slices should each student get? That was a real-life very relaxed example of a time when you're going to need to find the least common multiple between 2 numbers and split up the pizzas. You're not going to say, "Oh, everyone gets .75 of a pizza because what does that mean, right?" You would say, "3 out of 4 slices."

Interviewer: How are you guys plan to check for understanding and assess the student [inaudible 00:07:21]?

Teacher 2: We check for understanding pretty organically throughout the lesson. A lot of times because there's 2 of us, we'll go to a table group and just take mental check of where everyone is and then in passing, we'll just be like, "Hey, can you keep your eye on this person?" With checks for understanding, we're ending the lesson with an ExitTicket on Google Classroom. The students will be submitting their answers to the essential questions of the units and we'll be able to overall see where was their understanding. We also do notebook checks so we'll be able to see this investigation, the work that they [00:08:00] did in their notebook, and make sure that they were on task during that time. Also, there's just other ways for checking for understanding will be with us, working in small groups.

Teacher: Right, this lesson really allows for us to move around organically throughout the classroom. When we see if one discussion is going really well, that allows us to step away from that table and move to another table who might look like they need a little bit more guidance in their discussion and we have these poster papers set out on the table. Each student will be asked to keep notes of their work in each of their notebooks. We can glance over shoulders and see where notebooks are at but as a whole, they are expected to add to this poster paper to help organize their thinking.

We can also take a glance at the poster paper of the table as a whole and see, "Is this table getting thinking down or do we need to provide a few more guiding questions?" We're pretty good at eye contact across the room, checking in with each other as well because we can't both be in both places at once. That's a big part of it.

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

Teacher 2: Let's hope it is, right? We're hoping that it's engaging because of all the real-life connections that are built in throughout the lesson. I think another reason that it's organically engaging is that they're working in groups and they're working in different groups today too, so it's a purposeful grouping for us, which helps with the classroom management and knowing which groups to check in on first. We also may love working with their peers in end groups and so it's really let us see how they're doing collaborating productively. Overall, that's motivating for them, like, "We get to work in groups. Let's get this done. Let's work together to find the answers," sort of thing.

Teacher:  
[00:10:00] They all have to be part of adding to this bigger representation of their thinking and we've decided to only allow them one marker for each thing that they need to do so there can't be 5 people adding the same thing on the poster at the same time. The poster can only be added to when everyone has come to the same agreement and understanding so we're hoping ... It's fine if they decorate or if they get creative with it, as long as it's not taking away from their work time, but some students like to take ownership of putting the thinking on the paper. Hopefully, the goal is that there is a role for everyone within each group and that everyone does bring their thinking together and actually talk to each other.

Interviewer: Finally, how do you manage student behavior throughout the lesson, starting with expectations?

Teacher: We're hoping that our consistency that we've set up in the beginning of the year really organically shows how this class ... the expectations are every single day. We've tried to be consistent from the very beginning of the year in terms of how we expect them to collaborate, how we expect them to ... how we get their attention. We have a few different attention-grabbing techniques, depending on what we've asked them to do. We have on silent signal that's meant to be used when we've asked them to have a conversation and we'd like them to finish their sentence and then look up at us. We have other attention-grabbing techniques that are more for immediate attention grabbing and because they'll be working in groups, we have the ability to manage behavior within a small group and not have to address the whole class, if something isn't relevant to everyone.

Teacher 2:  
[00:12:00] Yeah, and I think also the time that we spend on purposeful groupings with allow for every person within the group to feel valued and not to feel like, "Hey, I have no idea what's going on." There's one student who's quite obviously doing all the work because he knows what's going on and instead, the 3 different problems that their groups will be tackling are at different ability levels and at different levels of challenge. Each group has been assigned a core problem that is at their own level, which will prevent frustration and a lot of those off-task or distracting behaviors are coming from students who are simply frustrated with the material. We're hoping that those behaviors will be decreased since we made these purposeful groupings.

Teacher: There's also very clear instructions. You need to be showing your work in your

notebook. We all set up a notebook page together and we're going to have problems for like, "If you need help thinking of the way to answer the problem," we have sentence starters for how they might answer the problem. It's easier for us if there is someone off task to be like, "What do you need to be doing right now? You know exactly what you need to be doing. You don't have anything written in your notebook." It's a very direct ... Instead of saying, "Stop messing around," you can say, "Write your thinking down." It's a very clear ... There's no question about what they need to be doing to correct the behavior. It's just, "You need to be showing your work and adding to the poster like everyone in the class."

Teacher 2: We try to, overall, our method of classroom management, though, is giving very specific what-to-do prompts, so that students are not confused about what they should be doing at that moment, instead of what they shouldn't be doing. Yeah, you shouldn't be tapping your pencil so, okay, I'm going to bang on the desk now. No, instead, what should you be doing right now and having them answer that question or go to a peer for the answer to that question instead of hearing it from us, allows us to remain as collaborative co-learners with the students and not as disciplinarian within the classroom ... although we are when we have to be.

Interviewer: Sounds great. I look forward to seeing ...