Passion For Teaching and Learning
Grade 1: The Brownie Dilemma
Doing The Work - Solving The Dilemma

SPEAKER 1: Is there a strategy we can use to get you started here?

SPEAKER 2: Yes, there is. We can just write -- switch them, then write what two kids [INAUDIBLE] with different kids, like, different kids, like, five. They can just go to [INAUDIBLE] with this.

SPEAKER 1: Okay, well, maybe you could show me what you're talking about. Would drawing a picture be a good strategy? I'm going to let you get working on that, and I'll come back and check in with you guys in a minute, okay? Would it be easy if you had brownies right here?

SPEAKER 2: Yeah.

SPEAKER 1: Okay, well, I can't give you 10 brownies, but what could you do to create those brownies?

SPEAKER 3: We could draw them.

SPEAKER 1: So would that be a strategy that might start getting you unstuck a little bit here? Okay, so why don't you go --

SPEAKER 3: It would give us a start.

SPEAKER 1: Okay. So get started.

SPEAKER 2: We'll draw 10 brownies.

SPEAKER 1: You're going to draw 10 brownies? Okay, so you guys get started, and I'll come back and check in with you in a minute, now that you're unstuck.

Wait a second, so there's four kids, five brownies to each of the four kids. That sounds like a lot of brownies.

SPEAKER 4: I think we should take a [INAUDIBLE].

SPEAKER 1: But how many brownies do we have altogether?

SPEAKER 5: Ten.

SPEAKER 1: Okay. So if I give five to Michael and five to Charlie, wait, isn't it five and five? Aren't I already at 10 brownies?

SPEAKER 5: Yeah.

SPEAKER 1: But what about Jim and Nola? They haven't gotten any brownies yet.

SPEAKER 5: I guess we need to draw 10 brownies.

SPEAKER 1: You're going to draw 10 brownies.

SPEAKER 5: [INAUDIBLE]

SPEAKER 1: Draw it? That might be a good way to get started, right?

Is all right? What have we got? How many brownies?

SPEAKER 6: Ten.

SPEAKER 1: And how many kids?

SPEAKER 6: Four.

SPEAKER 1: Is that -- is that easy or hard? What would be easier?

SPEAKER 6: If it was 10 brownies and 10 kids.

SPEAKER 1: Why would that be easy?

SPEAKER 6: Because that's the exact same amount of kids as the brownies, so they would each have one.

SPEAKER 1: So what's tricky here is that it's not an equal match. Mmm. Okay. How are you going to get started, though? How are you going to do this? How are you going to get your thinking going? Would it be easy if I had brought you the 10 brownies, so you could have the 10 brownies right here in your hands? Would that make it easier? Okay, we can't -- I don't have the brownies. What could you do instead?

SPEAKER 6: Counters.

SPEAKER 1: Counters? You could try something like that, I'm sure.

SPEAKER 6: Okay, so --

SPEAKER 1: You can grab whatever you want.

SPEAKER 6: There's 10 brownies.

SPEAKER 2: We figured out the strategy.

SPEAKER 1: You think you figured something out?

SPEAKER 2: Cut them in half.

SPEAKER 1: Oh! So what do we have here? Is this the 10 brownies?

SPEAKER 2: Yeah.

SPEAKER 1: Okay, how do I know it's all 10 brownies?

SPEAKER 2: So there's two, four, six, eight --

SPEAKER 1: Oh, then we had eight --

SPEAKER 2: And 10.

SPEAKER 1: Okay. I'm satisfied. So then I noticed some of the brownies you've drawn a line down. So what are you doing here?

SPEAKER 2: We're halving it.

SPEAKER 1: You're cutting -- you're halving them. You're cutting them in half?

SPEAKER 2: Yeah.

SPEAKER 1: Okay, what's important when you cut something in half?

SPEAKER 2: Make sure you get even numbers.

SPEAKER 1: Okay?

SPEAKER 2: And make sure when you cut, you don't end up with an odd number.

SPEAKER 1: Okay, so then, how are you going to share them, though, now?

SPEAKER 2: So, like, two, and it's four, and we have one, and this one is the [INAUDIBLE]. Yeah. Four. Four each.

SPEAKER 3: Oh, does each person get four brownies?

SPEAKER 1: That's a good question. So that's where you're at now. You've got to figure out how much brownie each person gets.

SPEAKER 2: So there's 10 altogether here.

SPEAKER 1: Okay.

SPEAKER 2: So then each kid gets --

SPEAKER 1: These are the 10 brownies?

SPEAKER 2: Yeah, these are the 10 brownies. So then each kid gets two and a half.

SPEAKER 1: Whoa! Okay...

SPEAKER 3: Each kid gets two and a half.

SPEAKER 1: Two and a half brownies.

SPEAKER 3: Yeah.

SPEAKER 1: So --

SPEAKER 2: Before this one was a full, but Mikaila cut it in half, and then, yeah. That's two and a half.

SPEAKER 1: Okay, so I'm following that thinking. And so what if I -- I've got another question that you could tackle. Do you think you're ready for it?

SPEAKER 2: Yeah.

SPEAKER 1: So then, my other question for you is, how about this.

SPEAKER 2: Can you share it even if it was four kids?

SPEAKER 1: Can you try to tackle this one?

SPEAKER 2: Yeah.

SPEAKER 1: Adam, why don't you grab -- there's another piece of paper there, in case you need some more space to write. Ooh, okay. I'm going to give you this one to try.

SPEAKER 2: That's it, I can do it.

SPEAKER 1: You think you can do it? All right.

SPEAKER 3: I'll bet that each kid won't get the [INAUDIBLE] now.

SPEAKER 1: No, right? Now there's a lot less brownies to share.

SPEAKER 2: Yeah.

SPEAKER 1: So what's going to happen now?

SPEAKER 3: We figured out something.

SPEAKER 2: [INAUDIBLE].

SPEAKER 1: Okay, I see what you're thinking there. Because you're trying to keep everything equal, right?

SPEAKER 2: Yeah. So we're going to give one to each kid.

SPEAKER 1: See, you know, that's really nice. What if I told you that the grownups aren't going to eat any of the brownies? I didn't get a brownie. Okay? No, I didn't get a brownie. So what can you do? So you figured out, out of the 10 brownies, each kid could get one. Could each kid have more than one brownie?

SPEAKER 2: Yeah.

SPEAKER 1: How many full brownies could each kid have?

SPEAKER 3: They could have one more.

SPEAKER 1: There's enough for them to have one more?

SPEAKER 2: Yeah, that's what I was looking at.

SPEAKER 1: So then how many brownies would that be? If each kid had two brownies...

SPEAKER 3: Two and then two and then two, then two, it would be --

SPEAKER 1: So let's count by those twos, right? Two, four, six, eight. So if each kid had two --

SPEAKER 3: We got these two, each of them can have each amount.

SPEAKER 1: Okay, so Pierre's really onto something there. You guys should talk this out. So figure out how many whole brownies -- so it's possible they have whole brownies, and you're saying, and halves of brownies?

SPEAKER 3: Yeah, we can cut them in half.

SPEAKER 1: Cut then in half. Okay, so I'm going to leave you to think on that.

So each kid gets two whole brownies --

SPEAKER 4: And a half.

SPEAKER 5: And then, and then a half.

SPEAKER 1: Okay. Nice and fair, right?

SPEAKER 5: But it was just for a lot -- if there wasn't any half, it wouldn't be better.

SPEAKER 1: Okay, so do you think you could tackle another question like this?

SPEAKER 5: Yeah.

SPEAKER 1: I know you can. What about this? What if I leave you with this?

SPEAKER 5: Can you show three brownies with four kids? No, you -- wait --

SPEAKER 1: Oh, sorry, hang on. I actually didn't want to give you that one. I wanted to give you this one.

SPEAKER 5: Can you share brownies with four kids?

SPEAKER 4: Yes, you can. I think. Yes, you can.

SPEAKER 1: Okay, so what are you going to do to solve this one?

SPEAKER 5: Yes.

SPEAKER 4: They each get two wholes, and --

SPEAKER 1: Hang on, you've only got five brownies, but you've still got four kids. Two whole brownies and four kids. Isn't that two, four, six, eight -- isn't that already eight brownies?

SPEAKER 4: Oh, I mean they each get one brownie.

SPEAKER 1: Okay, now I'm following you. Okay, they each get one brownie.

SPEAKER 4: And the last one --

SPEAKER 5: Then the last one, there's still one more. So then you cut it into quarters.

SPEAKER 1: Wait! That's completely different than what you did here. Are you following us, here? So what did you do with this last brownie?

SPEAKER 5: You can cut it into four quarters.

SPEAKER 1: What are -- so quarters? You've used --

SPEAKER 5: There's only one, there's not two. Because if there was two, then it would be --

SPEAKER 1: So this one, these are halves? And these are quarters?

SPEAKER 5: Yeah.

SPEAKER 1: So what are halves and what are quarters?

SPEAKER 5: Quarters are four equal halves, and halves are two equal parts.

SPEAKER 1: See now, what's really interesting is, I gave another group a question over there. And I'm wondering if you guys would share this with them, and if they could share theirs with you. Let me go check in and see if they figured out their other question, too. Mmmm. It gets you guys to talk to each other.

SPEAKER 3: Okay, so this one is, can you share five brownies with four kids? Yes, you can, because they each get one whole, right? And then you cut the last one into quarters. So for one person, one person, one person, one person.

SPEAKER 1: So you guys, so what have you guys got? Three brownies?

SPEAKER 5: And four kids.

SPEAKER 1: And four kids. Well, when you started with the picture before, that seemed to be a good strategy. Let's do that, let's see. Let's draw a picture and give something a try.

SPEAKER 5: Okay, let's give it a try.

SPEAKER 1: Because sometimes mathematicians, they need to just try something. And maybe they don't get the right answer, but maybe it gets them on track to an answer that works.

SPEAKER 2: I didn't want to try, I wanted to think first, because you can't erase Sharpie.

SPEAKER 1: But the great thing about this paper is, there's lots of it. Okay. So we've got four kids though, right?

SPEAKER 4: Yeah.

SPEAKER 1: Okay, so hmm. Do you have an idea for them? What's your idea?

SPEAKER 5: That's already there.

SPEAKER 1: Okay, so hang on. So let's just draw -- I saw my friend, Greg, over there. He was drawing circles and putting happy faces, and these were the kids, the happy kids that are getting the brownies, okay? All right. So now, what can we do with these brownies? You started to cut one in half already. So --

SPEAKER 5: So you cut all the others in half.

SPEAKER 1: Well, I don't know. Try something. Let's see.

SPEAKER 5: Try and cut all the other ones and let's see what happens.

SPEAKER 2: Yeah, I bet it's gonna be --

SPEAKER 1: Okay, so --

SPEAKER 4: One, two, three, four. Six and four?

SPEAKER 3: There's four happy faces, even though there's not one more for the --

SPEAKER 1: See what they decided to do here? So there's their three brownies, and they thought maybe make more pieces. So they've got six halves now. Hmm. So we could give some to this guy...

SPEAKER 2: Wait, no, I know what they have to do.

SPEAKER 1: What should they do?

SPEAKER 2: They all -- yes, this is right. But cut one of them into quarters.

SPEAKER 3: Oh, so cut that one into quarters --

SPEAKER 2: Because this one, one person, one person, one person, one person -- that's for the four of them, right?

SPEAKER 3: Yeah.

SPEAKER 2: And then this one, they each get one quarter.

SPEAKER 3: Oh!

SPEAKER 5: Because there already is four people. They all get -- so they all get two.

SPEAKER 1: So what was trickier about this one, did you think?

SPEAKER 2: You know, they're thinking like --

SPEAKER 3: Because it's the brownies --

SPEAKER 4: It's the odd and the even number.

SPEAKER 1: Okay, so I was going to ask you. So do you think there are numbers of brownies that would be easier to share --

SPEAKER 4: Yes. Yes.

SPEAKER 1: -- than --

SPEAKER 4: If they were both even.

SPEAKER 1: So when we come to the congress, maybe you could think about what would -- because I'll ask that question in the congress. What's the number of brownies that's easy to share? What a number of brownies that's not easy to share?

SPEAKER 5: This one's mine, and three and three.

SPEAKER 1: What would be easy to share?

SPEAKER 4: Make a even -- one that both has even numbers.

SPEAKER 5: We only should do a little bit of things [INAUDIBLE].

SPEAKER 1: Very cool, so hang on. Five, four, three, two, one, zero. Okay, give yourself one out of three if you counted with me, two out of three if you're looking at me, and that perfect three out of three if you have nothing in your hands. Okay. So I want us to gather together in our congress.