Martina: That’s – okay, good. Okay. So we just gave you a copy of the questions, so if you’re like me, I like to read rather than -

B-Gr3: Oh, sure.

Martina: If I need to look back at the question, then it’s in front – it’s there for you. So we start with looking for your recommendations. Next year we will be starting a hub school with another set of teachers coming on board. What specific advice would you give to new teachers joining Math Minds? And why do you see this as useful or important?

B-Gr3: I think it's important that they would recognize - I think it's tough for teachers who are, you know, used to using their old materials or making a transition to a new resource.

Maybe, as Michelle had mentioned earlier today, that it’s – that, you know, we have permission to still - to use our resources and that it can, you know, support the program and, you know, maintain the integrity of the JUMP Math program.

And that – so they - I think to eliminate that fear would be important and just helping the teachers to understand the whole philosophy of the program and just understanding why, you know, it's so procedural, I guess, and so systematic that it's all - has a purpose in mind and that it, you know, we will – they’ll see the fruits of all the efforts in the end.

Martina: Would you have a suggestion as to how – like how would you explain that to them, I guess, like having used it for the past year?

B-Gr3: I think - in terms of, you know, whether through professional development or -?

Martina: Just your views on that. You're saying it seems very procedural and systematic, but it's worthwhile. Can you say more about that, in such, like just if you were having a casual conversation with someone. how would you explain that?

B-Gr3: I think emphasizing, you know, emphasizing the idea that it’s these microsteps, I think, is foundational, and that it allows children to - first of all as a teacher, to be able to identify where there's a, you know, perhaps a gap in understanding and be able to zero in on it and then meet the immediate needs of that student immediately, as opposed to a resource that might be very layered with different multi-step problems where you might not necessarily identify immediately what knowledge or skill is lacking.

And so it has a purpose in mind that we have these microsteps in place so that the students can then - just like, I think that the word scaffolding is very useful to help teachers understand that it's allowing kids to kind of move up and develop these concepts one step at a time, and as a teacher, be able to assess it quickly and also just identify those gaps in knowledge immediately before moving on, so that you're not losing kids and having students fall between the cracks.

And then I think also just emphasizing the importance that the program - it looks back, not just - it's not a grade specific program, that it review is embedded into the program, and so - which is critical in terms of drawing students, or bringing them up to par, I guess, and helping them narrow that gap in terms of that range of students in the classroom. And then as that happens, the - I think the teaching of the program will move more quickly too.

So I think that's the struggle. Like right now, I think, we're in this period now where we're narrowing that gap. And so the process of getting through the material is a long process. And so there's this tension between staying true to the program and teaching everything, not a mile wide and an inch deep, but really going into depth and that, I think, in the end it’ll pay off, whereas -

Martina: So you're saying it's okay to go deep, don't worry about it.

B-Gr3: Yeah, I think so. I think – I mean I still have full confidence that in the end that these kids will, in the end, they will do very well.

And so right now, it’s -I know the stress for me has been the intention has been getting through the curriculum and trying to teach the program. And so I think the benefits of teaching at a - and going really into depth will outweigh than trying to cover it all and just fly through it. Because I think you end up losing kids that way.

So I think helping teachers understand that it's really important that you follow the way the teachers’ guide outlines it and that it's all intentional and meaningful, and there's no shortcuts need to be taken. And that in the end, as the students sort of - as that gap is narrowed, it'll become much easier to teach the material, and it will just go much more quickly.

So two years or three years into this program, it’ll - once all the students are on board, it'll just -

Martina: The pace will pick up then.

B-Gr3: Yeah. I think the pace will pick up, and I think that's the fear is that what if it doesn't? And that's where we're at right now. But I have full confidence it will, because we're seeing the results and the - we're seeing the students’ understanding improving.

Martina: And nice for a school that's more similar to this school to have that kind of vote of confidence kind of coming from the teachers here.

B-Gr3: Yeah. So it will be very interesting as the program continues, to see how things begin to pick up.

Martina: Yeah. Okay, well, thanks. So what advice would you give the research team as we go forward in the project, either with the new teachers here or in the hub school?

B-Gr3: I guess for me the - there's been, I've always found it – sometimes some of the PD days, we've had very theoretical or philosophical approaches to, I guess, answering the why questions, and sometimes, I guess my - I would prefer more of a practical approach.

Martina: So more practical, less theory and philosophy. Yes?

B-Gr3: Yeah. And just having – and having more time to work on and plan materials, as opposed to just sitting and always listening, or having a balance between the two, I guess, whereas it's a lot of talk, and I just don't know how sometimes - they're have been some really insightful things that I picked up through the course of the year, but it's - in all honesty, it's more practical things that I've grabbed on to and have put right into use into my classroom.

And a perfect example I see, which was fantastic and I - or even today, as Michelle was talking about the grid paper. Using grid paper. Like that's very practical. Or I thought the Whiteboards in the classroom were fantastic, because it allowed the students to all respond.

It engages them, and then as a teacher, it allows you to assess their learning immediately as opposed to just picking one student to give a response and then leaving everyone else sort of sitting on their hands. It really brought the class to life that way.

So those are great ideas that could be used right in the classroom. Other things which were very interesting, and a specific example I’ll use, where we were talking - at one point talking about the – and I can't even remember the language that was used - but looking at an equation in terms of verbs and nouns and what it is in terms of the language, I guess. Do you know what I'm talking about?

Martina: I don't remember us talking about that at a – but -

B-Gr3: There was one PD where we were talking about how, say, a multiplication statement, that the multiplication sign is not actually a verb but is - what did they call it? I can't remember.

But anyways, the long end - the long story short is that - I think Lissa was mentioning that. That whene we - quite often in textbooks, that they would refer to – let me use an example. When they’re discussing an array - so you have two rows of three, right? And in most textbooks, including JUMP Math, they would refer to this as two times three.

And then - I remember Lissa saying that in fact it should be three two times, and so it's backwards. So I found that very interesting. But at the end of the day, when it came time to teach it, I taught it this way, because this is how it was reflected in the textbook.

And so – and I thought that trying to explain this to the kids would just confuse them more. And so until that change becomes a part of the text, then I'm not comfortable trying to teach it this way.

So this was an example where, you know, they’re helping us - trying to help us understand the language of Math, I guess, and comparing it to the - I don't know who to say it but - anyways -

Martina: Not particularly helpful.

B-Gr3: It didn’t really – at the end of the day it didn't help me in the classroom, so it was sort of a - to me, that was - and in some ways, it almost confused me more. And so that would be an example where we sort of got - we're delving into this – the philosophical aspect of Math, and at the end of the day, it really didn’t - I didn't feel like it was useful enough for me to really apply to my teaching, or if I did, it would just cause more confusion. So I guess - I don't know if that answers your question.

Martina: Yeah, that's a helpful example.

B-Gr3: So I guess long story short is I think the more practical it is where - and the more time that we're given to kind of implement it and just sort of work - in actual planning and less talking and the - I think the more effective the PD would be.

Martina: Okay. One of the specific goals is to support the development of a strong Math Minds community both within and between St. Rita's and the hub school. Do you have any suggestions in that regard?

B-Gr3: I think - well, obviously it requires there’s some sort of communication to take place between the two schools. And perhaps teachers at St. Rita where we would become somewhat of a mentor to a teacher at the hub school.

So how that would look, I'm not sure whether or not we would - whether it would just be open or - I guess it depends also on each teacher and how much time they have available.

But I don't know, maybe some sort of – maybe having a communication through email, I think, would be the simplest where they would have a list of our emails and grade levels that we teach and they could just fire off questions that way and we could communicate that way.

Or also, I’m not sure how much money is available for the hub school, but I guess having them join us in -

Martina: PD days?

B-Gr3: PD days, or perhaps having them come to - maybe come to our school to observe us in the classroom and sort of build those connections that way as well. And just start those conversations and so they can, when they have questions and they can easily drop a line with us. That's what comes to my mind right away. I'm not sure what - yeah, I think that's the easiest way for me.

Martina: Yeah, well, you have a good sense of what’s – you know, what the day to day life of the school is like and what's feasible. So yeah, that's helpful. Okay, so Two A, JUMP material, such as teachers ‘guides, Smartboard lessons and workbooks are intended to help with planning and implementing Math instruction. Have you found these materials to be helpful or restrictive or difficult? Examples of any of those?

B-Gr3: I think the – well, again, okay, I guess, initially when I first started teaching the JUMP Math, I wasn't even aware of the Smartboard lessons. And so the teacher's guide - it was difficult in one sense - it's very clear in say this and do this, and I think there was that idea that I have to teach it this way or else, because of this procedural type of guide that you had to teach it in certain steps, otherwise it might not work.

So there was a little bit initially there was that - it was restrictive because it - when I first began, I didn't feel like I had the freedom to perhaps go into my own toolbox of teaching methods or whatever.

So I was trying to follow very closely to the lesson, and I guess because this is the first time, you're trying to teach a lesson and almost keeping an eye on the kids and having another eye on the book. And you're trying to follow along, and so it was a little bit awkward, I guess, trying to follow along, because there's just no way for you – I mean unless you memorize the lesson, you’re just – you’re constantly going back and forth to it.

Martina: Because it wasn't what you would have done naturally kind of, so you had to remember.

B-Gr3: I meanI think I wanted to follow it very closely, so I think I had – I would have had my lesson laid out in front of me. And so while you're trying to teach it, you're - okay, what am I going to say next and look at the line.

And so I think that way, and perhaps - I know MJ said the kids don't necessarily notice that, but it wouldn't have felt - for me, it wouldn't have felt natural. It would have been a little more awkward because you’re - now the more you teach it, the more natural it would become.

And as MJ would have said too, you need to make it your own as well. So that's a question of just more time, I think. The more experience that it would just become more natural.

Martina: So you do find you're using more of your own, as well as finding the structure within the lessons more comfortable? Like is it helpful or is it -

B-Gr3: I think so. And I think - I know initially - and then when I discovered the Smart lesson, I thought this is the hand of God here. Finally, this is exactly what I needed. So then the -and it was closely tied to the lesson.

So here I had this Smart lesson, which would then guide me, and I wasn't necessarily glued to the guide book right there because it supported the lesson right there. But then the issue I ran into the Smart lesson is sometimes I found the Smart lessons to be – there’s just too much that you - not always, it depends on the lesson.

Sometimes you do a lesson and there's 10 slides, which I found something like that would be very reasonable. Whereas then other times, you'd open up and there's 35 slides. And so then it became a process of really, okay, picking and choosing, okay, there's just no way I'm going to get through all of this or I need to really spend some time and sort of look through, okay, what I'm going to need or actually during the lesson, being able to assess, okay, the kids got this. We can skip this. And sort of getting comfortable with that.

Whereas I think when you first begin, you feel like, okay, I've got to go through each one, and it just wasn't working. So again, it's just the experience and sort of knowing, okay - and obviously previewing the slides and saying, okay, we don't - we can skip this one, or this - unless they're really struggling or - and just being able to know where can I stop and how much do I really need to go through all of this. And just getting comfortable with that.

Martina: And that has increased over - becoming comfortable.

B-Gr3: Yeah, I think I'm becoming more - I am more comfortable teaching, and I'm also, as I'm teaching, becoming less and less reliant on the Smart lessons too. Like they're a go-to, but I can divert from them as well.

So they're more of as a supporting role, I guess, and yeah, I guess for me, my personality is like I want to do it all, right. So it's just physically impossible, and that's been the struggle is like I really need to know - I have to pare things down and know where can we skip it.

Feeling comfortable with, hey, you know, we did the Smart lesson, they all understood it. We can skip, we're not going to do the workbook. Like why beat a dead horse, right? So and just being able to be comfortable with that, because I think the Smart lessons were also intended that it covers the same material that's in the JUMP books, so you do you necessarily need both.

And just being able to find your own groove and just sort of - because I think bottom line for me, I love the JUMP Math, but it's still – I’m struggling with the time component. Because there's still that – you know, there’s that tension between getting through the curriculum and wanting to – and how much can I release of that to just working through or we need to get on to the next thing.

So it's finding that balance too, because, yeah, I'm going to be lucky if I cover book one this year. And so book two - and is that okay? And so I have to be comfortable in thinking, okay, well, these kids, they’re going to have a solid understanding of this and so next year, they're going to move that much more quickly right?

Martina: Excuse me.

B-Gr3: So I think just being able to not be allowed to - not feeling like you're restricted and just knowing that you're doing a good – and in depth teaching of the material, and that this will pay out in the end. So I think – I think -

Martina: Okay, well, I think you've kind of answered B as well, do you want to add anything? I'll read it, but I think - to what extent did you follow the teachers’ guide, Smartboard lessons, workbook. In what ways did you improvise, extend, elaborate? Would you add anything to that?

B-Gr3: I think I have followed them extremely closely - perhaps too closely. And that in that way it’s - I think – I think I personally have become better at assessing and knowing when to move on, because I think I tend to be very much following the guide and I mean I even heard Vicky – or no, Cindy - talking too. Hey, these kids, they understand this, we don't need to do this. Why do something that they already know?

And sort of being able to just judge that quickly and sort of be comfortable and just moving on, and that's - I think I allow the program to restrict me, when really as I become more comfortable with the material and more experience, I'm slowly releasing that grip that it has on me.

So I think - and that's going back to that question in terms of advice, is reminding teachers at the beginning to – that - don't let it restrict you, that you can just feel free to skip a Smart lesson slide if you know the kids got it.

Like don't keep doing the same thing over and over. Or if you know the kids are all understanding a concept, you don't have to do it. You can just – you can move through material. You don't have to follow it step by step necessarily if you know the kids understand it. Whereas I think at the beginning of the year, I thought, I have to do it step by step and I - you know what I'm saying?

Martina: Yeah, that makes sense. C is JUMP emphasizes teaching with microsteps, frequent assessment and feedback, the use of bonus questions and attention to mental Math. Have you found these ideas, helpful, restrictive, difficult?

B-Gr3: I think the – it definitely has changed my teaching. With the microsteps, I am constantly assessing. You know, we’ll - I break my – I try to break my lessons into small chunks and it's not just me teaching for half an hour and then assigning thelve questions. I'll teach a little bit and then quickly assess how the kids are understanding and using those Whiteboards. I can quickly do that and move along.

And if need be, I can go and work with students to help them understand. So I think that's invaluable. It still surprises me - I know it's microstep - but it still surprises me how some students, not all, but some, still get tripped up. Like I guess I expected being microsteps to see more - the students moving through things more quickly.

Like it sometimes surprises me still how they always do understand in the end, but it's not - quite often some of them do require that one on one help, despite it being broken up into these microsteps. So occasionally, I'm still surprised that the program isn't moving more quickly.

Like I - but perhaps it's just the population of students we have. It would be very interesting to see how this program would be in another community, I guess.

And I still struggle with the bonus questions. They are hard to make. It - as I think was mentioned even earlier today, just finding those questions that – because I do - I do have those students who - they grasp things immediately and other kids that are - take a lot of individual work and finding a bonus question that can engage those other kids yet not - allow me, free me up to still work with those students who need the extra help.

Because sometimes I give a bonus question and then it’s still – and then I’m – and then I have those kids that are stumped and they're asking me questions. What do I do? You’re like, you're supposed to be doing this.

And there have been those moments where the bonus questions have worked amazingly well. I know an example - actually, when I was observing Ashley teaching a lesson on perimeter, and she had a great bonus question which was, it was - she only had to come up with one. It was how many different rectangles can you make with twelve squares or something like that. And so they had to manipulate. It was hands-on, and those kids who were finished early, they were able to work on this the whole class almost.

So it was really engaging, and it didn't take away – it didn’t take me – it didn’t take her away from the kids who needed the extra help. And so those – like if you could have those questions, just boom, ready to go.

But they don't always work that way. Sometimes the bonus question implodes or it doesn't do what you want it to do, I guess. And then it just ends up – and then you end up being - running around, trying to help everybody.

So I guess there was - and again, this is something that with experience and more time, I guess you'll find those bonus questions that will work and then - but it's not like they're there, waiting for me to just hand out.

It'd be kind of nice if the program provided those tried and true bonus questions that - that would be fantastic. Like if there was a forum out there where, hey, this is an awesome bonus question, this one worked. Ashley used this during a perimeter lesson - this particular lesson.

And then it's posted and anybody who's teaching that could just grab that. You know what I'm saying? Like you don't have to invent the wheel every day. And so I see the purpose of the bonus question, but sometimes it’s just, it's more of a struggle that it’s - at this point. So -

Martina: Okay, so for D, refer to this list of principles for prompting success. Have you found these helpful, restrictive, difficult?

B-Gr3: So do you want me to comment on each individual one or just in general?

Martina: Maybe just any that stand out for you, I think, as being particularly helpful or not? Some of them you've already spoken to.

B-Gr3: Yeah. Yeah, I think - as I had already mentioned about the bonus questions.

One thing I would say is - and I'll give you a specific example. Even today, I know that in our discussions about the JUMP Math it’s very - the way each lesson is structured, it kind of goes from the concrete to more abstract, and you can see that in each lesson.

And I do find a lot of times, those -I think that the kids aren't necessarily understanding the abstract as well. Maybe there's just not enough practice doing the abstract in general, because - an example today, we were talking about mass, and understanding grams and kilograms. And the kids are flying through the questions and getting them no problem.

And then they threw a question where it was asking - it had a chart and it said, okay, a nickel is four grams and a dime is one gram. So then all of a sudden, we're in the abstract here, and the question was if I had - how many dimes would I need to be the same weight as five nickels, let's say.

So all of a sudden, when had to do this sort of a - in a way, it was a multistep problem, whereas the vast majority of this program is very one step questions and these microsteps. So as soon as you throw a multistep problem at them, I was very surprised at how many kids were just like, whoa, what am I going - how do I solve this? And there was just no - not even an attempt to work through the problem. Everyone's hand’s up and so it was kind of surprising.

And then I had to guide them and say, okay, well, let’s draw a picture. Let's draw six nickels. And how much is each nickel? And let's write the weight of each nickel. And the Grade 4 - oh, look at this. What is we - if we add all these up together, how much does six nickels weigh? Okay, so they’re each - or let's see. Yeah, six nickels and there was four grams each, okay, so it's going to be 24 grams.

And now one gram - then let's answer the question. How many dimes, and one dime is one gram. Oh, and all of a sudden, then everyone's like, oh well, that's easy, that's 24 dimes. But they weren't able to get there until I kind of guided them and said draw a picture.

And so there was that - as soon as they hit the abstract, they were kind of - there was even the stronger students were just kind of - they needed that guidance.

And so I don't know that the JUMP program has enough abstract, but I think the teacher needs to adapt the content. And then an interesting comment I think Sharuff was that was that really to - the kids have - the way to really know if the kids have an understanding of the Math is when they understand the abstract.

So if that's the case, if we're just basing our assessments on their concrete knowledge, but they're not ever really leaping off the abstract, is that a problem? And so I think there needs to - the microsteps is useful, but I think it needs to take it a step further and then start to apply those into more problem solving. Because -

Martina: You've so is it – you mentioned two things there. The level of abstraction as well as the number of steps. Like the fact that it was a multistep problem, and the fact that it was more abstract.

B-Gr3: Yeah, I think it’s – because it - the kid - it wasn't visually standing in front of them. They had to - they didn't automatically know to just draw a picture of this to try and help visualize what the question was asking.

And so they – and so I think the JUMP Math, I think it does an excellent job in teaching the microsteps and developing a full and complete understanding, I guess, a concrete understanding of Math, but then I think it's a little bit - I think there needs to be more of this, I guess, abstract thinking to take them to that next level, which I think will help with responding to bonus question.

Whether or not - I guess the question remains is whether or not at this level, in Grade 3, is that necessary, or is this something that we would expect older students to do and not so much in the younger grades?

But it was interesting just seeing how many of them just melted into this puddle like as soon as they see this question where it’s like it wasn't just a yes/no type of answer or - they actually had to do some thinking, and a lot of them just - I think they could have if they spent some time thinking about it, but they really didt need that prompt to say okay, well draw a picture. And then oh, and then work your way through it that way.

Martina: Interesting. Yeah.

B-Gr3: So yeah, that's, I guess, developing general tools for problem solving, I think.

Martina: You would like to see more attention on that.

B-Gr3: I'd like to see more attention to that in the program itself. But - and perhaps - yeah. Perhaps that's more, that could be embedded into the bonus questions as well. But yeah, like, I do find the whole philosophy of the program and these -the principles have helped me to understand why I'm doing what I'm doing.

And so I can - it helps me to explain to parents what the direction of the program, and why we do what we do. And so it does give me -

Martina: Okay. E. Have particular - I think that's on your next page, yeah. Have particular experiences stretched you outside your comfort zone, and what felt more or less comfortable and why? And again, you've already spoken some to this but - so if you have things to add, great, but don't feel you need to say it all again.

B-Gr3: I think the - certainly being observed has stretched me outside of my comfort zone, and being videotaped and it's just - I think it just it just raises my, I guess my own self-awareness of what it is I'm doing and so then I – and so just sort of, at this stage, it causes anxiety. I do think again the more you teach, then it's just being, like you say that it will become more natural.

But at this stage, it's still

Martina: Stressful.

B-Gr3: I think because we're still learning the program too and it’s not - two years from now, it might be a completely different thing where you've done this before. So it's while you're still - while I'm still learning the program myself and I think I become more self-conscious about when someone else is watching.

And that I do believe that has an effect on how I teach then because then I just - I don't feel like I'm teaching naturally when someone's watching. And you can vouch for that, because - yeah. When I lost my train of thought and then I just -

Martina: That’s totally fair.

B-Gr3: Yeah.

Martina: Did you find it was helpful at all too? Like you said it raised your self-awareness. Was that in a - that was mostly in a way that prompted anxiety rather than helped then.

B-Gr3: I think it probably prompted more anxiety. It just – I mean I guess as a teacher, I'm my own worst critic so and so I think when other people are watching, I feel like I'm being judged, even though I know you 're not.

And so then that - I think that worry bubbles up inside of me that I'm not an effective teacher or that I’m not teaching well, and then raises self-doubt. And this is just -

Martina: That's perfectly understandable.

B-Gr3: It’s kind of a – I don’t know why it’s just –

Martina: So for you, would you say, like, overall, I know there's that one moment that was particularly uncomfortable, but would you say overall, that having that camera in your room was more of an – like – more - prompted more anxiety than it was worth in terms of raising your awareness of - in terms of giving you a tool for reflection, or did it - was the amount of anxiety not worth what benefits it might have given you?

B-Gr3: Well, again, I - in some respects, I sort of like the idea of the instant replay and if you're an athlete and you watch, and say, okay, well look what I did wrong here, and sort of look back and see what you need to do.

And I think if I'm correct, that's kind of the intention of the video, is sort of to be able to reflect and see what can I do better. For me though the - and this is just personally - I have - because just at the stage of my life with two kids under five at home, and being stretched in all directions in terms of home life, if this had happened five years ago, before the kids and we had this program it would be different story, because I would have the time to invest, but I simply – like I'll be perfectly honest.

I simply do not have the time to go back and look - watch these tapes. I mean I -there's barely enough time in the day for me to just plan tomorrow's day, never mind reflect by watching these videos over and over again.

So it’s in that sense - now if we were to use our professional development day time and have an entire day to just look at these things and spend it that way, then that would be, perhaps then the videotaping would then be - I could actually go back and look at them and sort of really assess myself that way. But up to this point, I honestly it hasn’t – I haven't had the time to really use it as a tool so it's just – yeah, I guess that's the fact of where I am in my life.

Martina: Yeah. No, that's perfectly fair, teachers have a lot on their plate. Okay. So number Three, Math teachers learn something new about Math as they teach it, but have you noticed something new about Mathematics this year? And if so, can you explain how it developed?

B-Gr3: That's a great question. Sort of a more general, or are you looking for a specific example?

Martina: Whichever. Specific is usually helpful, but if you have - yeah, whatever comes to mind in terms of your own Mathematical understanding.

B-Gr3: Well, I – I mean think I - maybe I'll come back to that. Is that okay, if I come back to that question, just sort of ponder it for a little bit?

Martina: Sure. There are times during the planning for or teaching of a lesson when it becomes evident that there are gaps in our own Mathematical understanding that make it difficult to teach a particular concept or to respond to a student's question. Have you noticed anything like that, and if so, can you describe a particular experience when that may have happened?

B-Gr3: Actually, that's - you know, I think this whole answer may be the same as the last question. In fact, it was - sorry.

When we go back to that lesson where I was teaching doubling, and we were talking about different ways of thinking about doubling. And so we looked at, if I can remember now, like multiplying something by two or adding something to itself.

And then I think that's when – and I think that’s when - it's funny, bringing this up, but I think that's when Lissa had interjected and then it was trying to lead me towards another way of thinking and left me completely stumped. And that’s when my – and of course that was when I lost my train of thought, and then game over.

But I remember reflecting, because we were talking - I remember discussing with the kids and we're thinking of it in terms of a pattern. And doubling - I think I said maybe two, and then doubling in four and eight and sixteen, and I think Lissa was - I think she said counting by twos. What about counting by twos?

And for some reason, I could not - at that point in time, I just could not make the connection. Like what does that have to do with doubling? I had those moments where I was just completely stumped and I didn’t really - because I wasn't thinking of it in terms of counting by twos.

But then when I - after the fact, when I reflected on her question, and - it became clearly -very evident that, of course, when you're counting by twos, you're always doubling, right, because everything doubled is multiplying by two.

So anyways, that was one of those moments where I – where my own Mathematical understanding, clearly, there was a gap where I just didn’t – I didn’t - couldn’t make the connection. And then after reflecting it, I was able to.

And so I think I – that’s - perhaps I learned something new at that point. How to think about doubling. But it was more – it wasn't that I didn't understand it. I think I just – it - I couldn't make the connection between what she was saying and the concept.

So anyways - which I guess goes back to the importance of language and being able to communicate ideas requires that the kids understand. And so I guess this program, how it uses - tries to use a consistent language throughout so that kids are not getting mixed messages as they go through the grades.

And so - but I think for me, perhaps learning some of the language has been something that I think, as we're going through the JUMP Math learning- here's a good example, where referring to - eight is bigger than four. And not using – using the term bigger is not correct and that we should be greater than or less than to make sure that kids have a complete understanding.

Whereas I think if you use the language bigger, it can cause confusion for some kids. Because they look at the word bigger as visually the size of something as opposed to a count, I guess.

And so I think going back to Three A, what have I learned, I think I've learned the importance of language and trying to be consistent in how I'm teaching things. So I even - oftentimes I catch myself saying something wrong, and then I correct myself. So hopefully as time goes on, I start becoming more consistent and using the correct language, and as I'm teaching things. And that example sure stands out.

I think I'm babbling here. I'm all over the map here. But anyways, yeah, I think in terms of gaps in my own Mathematical - I honestly think I’ve - I feel like I've - that I have a fairly good understanding of Math.

And so it’s - I guess I'm struggling in terms of identifying which gaps I had. But perhaps more than anything, it’s - if there's any gap, I would say it's being able to communicate my understanding to the kids so that they can understand too. Because just because I understand it doesn’t necessarily mean that I'm going to be able to teach it well so that they can understand it.

And so I think that JUMP Math has helped me learn some of the language to help me communicate my understandings to the kids so that they can understand. And not only that, I think this will - the fact that all the teachers are going to be using the same language and that it will be going back to that recursion by design, that in next year's grade, the kids will see that same word or be able to make that connection to this year as well.

And so it's not always every year having a different teacher using a different word or a different language. It will be consistent throughout the grades, and so that will reinforce their understanding.

Martina: Okay. So moving on to Four A. Think of a Math lesson prior to Math Minds that didn’t go as well as you hoped and talk about that. And then has anything that you've learned or experienced this year impacted how you would now approach that lesson?

B-Gr3: Okay. What comes to my mind - I know in the past, teaching Math Makes Sense, its approach tried to introduce a whole bunch of different ways of thinking about or - it would have multiple methods, I guess, of finding the same answer.

So quite often in a lesson, say we were doing a lesson on estimation, it would give you three or four different ways to estimate. And you would do this all in one lesson. One might be - say you're adding two numbers and they're looking for an estimate.

Step one might – or the first method of estimating would be round these two numbers to the nearest ten. Then the second one would be, okay, well just add the tens. Don't round to the -just add the tens digits would be another method to find the answer. And another one might be just round one of the numbers to the ten – nearest ten and then add it – and then add those two together.

And all great ideas, but then the bottom line was when it came time for the kids to do the work, they would all get it all mixed up together and be confused and they wouldn't know which method to use or they would combine methods and it would just become jumbled and I remember thinking if I had just taught them one way and - it would have been clear and concise and save me a lot of time and they'd all know what to do.

So I think I always found that frustrating. And the same would go to teaching, say, for example, addition. And there would be - the kids would learn several different algorithms to getting the same response. Okay, let's add the tens first and then the ones. Or let's add the tens, then the hundreds, then the ones and see what – and sort of experimenting that way and again, I found you would invest a lot of this time, and then the bottom line is at the end of it, they all would agree that okay, it’s the quickest, the most efficient way is just adding ones first and then that way.

And then I found sometimes it would just - you would invest all this time trying to like hammer home the point that this is why we would do it this way, but in essence, I found it would often cause a lot more confusion.

So I guess in JUMP Math, I think they just cut to the chase and say this is how we're doing it. And in all honesty, I think that is much more effective, because it just - it doesn't - it just removes a lot of the confusion, I think, that ends up happening.

And I mean you have - there's of course some kids who it doesn’t confuse, but there's enough of the kids in the class who it does, and so it just - I think it's better to give them one method, but at the same time, explaining why it is that you do that and helping them understand why it is that we add it this way instead of kind of working backwards, I guess.

Martina: Okay. So as you're thinking about a particular lesson and ways I might do this next year, can you - is there a lesson that you've taught this year that you are excited to try again next year?

B-Gr3: Which one are we on here?

Martina: This is Four B.

B-Gr3: Four B. I think - I mean I really enjoy teaching addition, because it’s so - I really enjoy seeing the kids develop the understanding of place value and looking at the - really breaking the numbers down into the tens and the ones and the hundreds, and helping them to understand why we regroup and - I think, I would, next year - I found this year a really amazing site called - it's the national library of virtual manipulatives.

And it gives – it’s a beautiful site, where it's very visual and it's also interactive. You can move manipulatives around and then you can break the tens apart and it turns into ones. And it just really brings it to life and it lets them see it visually.

And what I would love to be able to do next year is take that and somehow – or - for some reason, I tried to allow the kids to work with the iPads, because I thought integrating technology and allowing the kids to be able to work with an iPad and do it that way would be awesome, but for whatever reason, the site did not - I think it used Java and so when we tried to use it on our iPads, it wouldn't recognize the - or for whatever reason, it wouldn't load up onto the iPad.

And so we ended up using the computers, the computer lab, and they had to manipulate using their mouse, which was fine too. But it'd be nice to have - if I could find an app or something where they could have their iPads right in the classroom and right beside them and working through problems with the virtual manipulatives right there.

And I just find that in my experience, I find when you work with the hands-on manipulatives, like the base ten blocks, so often you got the kids playing. They start building things. And I know everyone says, oh well, the more you use it, the less - the novelty wears off. I find that that's never happened. All these kids they just want to play like Lego.

But to me, I find the virtual manipulatives to be just as effective. Because it's visual, it's interactive. And so my - if I could teach it next year and bring the iPads in the classroom and sort of have them be able to work with their hands on the page on the iPad and be able to work through problems that way, I think that would just really help them to - because it's hard, when you’ve got the computer lab, you ‘ve – it’s - there's - it's not the same as having it in the classroom.

And you've got to book the time, and it's not always available. Ideally, it'd be amazing if every kid could have their own iPad in the classroom, be able to just have it there. But you work with what you have. Yeah.

And so the - that's the other thing is I would like to see – like right now, this whole thing with the iPad, it's fairly restrictive in terms of - it's in the library, so it’s - up till this point, we're not really allowed to take it into classrooms and then in terms of getting apps, they have to be free apps, and so you might find a great app out there, but if it costs money, sorry, you can't use that app.

So it'd be nice if we could just have that freedom to just - not always just - there's great free apps out there, but there's great ones that cost money too. So it'd be nice if we could have some money towards that and so that we're not restricted there. Because then I think we're really missing out on some great apps out there that may cost some money.

And so yeah, I’d like to - I wish that there was more freedom around the iPad and being able to - because right now, the way it's set up, it's too restrictive and I think they're being under-utilized and not being used to their full potential. And then again, more time - more time.

Like PD, there could be time spent in our PD where we're looking for apps or finding stuff there or playing with it or experimenting, you know. Because again, for myself, there's just no time at home.

So again, I'm relying on other teachers to share what they have or – or with me this - I found that this virtual manipulative site that doesn't work on it. And that's based on stuff I had found years before I had a kid. Now I don't have the time to look for those sorts of things as readily. So - anyways.

Martina: Let's go on to C then. Where do you see your greatest strengths as an elementary teacher, and how is what you're doing in Math class similar to or different from what you're doing in other subjects?

B-Gr3: I think my greatest strength is the fact that I am meticulous, and I am systematic and so I don't gloss over things typically. And so I do, you know, if I'm going to do something, I do it well.

So in a way, it's my greatest strength but also time factor can become - this approach can become a hindrance too, because you're trying to plow through all this material and well -it is I guess a cause for stress too. Because in the back of your mind, you're like, how am I going to get through all this stuff and so then you're tempted to gloss over it.

So there’s a - I guess finding a balance or - I don't know. I guess knowing where to draw the line and – you know. And I do - I feel like probably my greatest strength as well is I do consider myself patient. And so I do take the time that's needed with the kids and so - and I don't - I'm not prodding them to hurry up.

So yeah, I think I - and I don't, I don't think I make them feel like - I don't get frustrated with them if they're not understanding. I just take the time that's required to just sort of - and I try to see things through their lens, I guess, and I guess - I think I'm empathetic towards those kids that aren't doing as well or - because I understand what it's like when you don't get things and I know when I was a kid in school, I was always slow and so not surprisingly, I'm slow as a teacher getting through material.

So I think I empathize with those kinds of kids that need that extra time to work through things and so that, I guess, it becomes a strength for me.

Martina: Okay, good. What are your goals or priorities for improving your teaching of Math. And again, you've spoken to that somewhat, but if there's anything you'd like to add?

B-Gr3: I think I, again, I feel like I need to speed up. I don't know. I need to become better at just moving on and not getting hung up on things and being able to recognize when we can move on and at the same time – and so it's not - at the same time, not compromising that in-depth study of things.

Like knowing where, hey they got it, we can go. We don't need to keep doing this. And just being able to really be confident in moving forward and not always feeling like I have to do absolutely everything. It's just in my nature to want to do everything, and I have to let go of that.

Martina: Okay. So Five A. One of the principles that drives JUMP Math is that the vast majority of students can succeed with challenging Math. What do you think about this principle, and has your thinking changed over the past year?

B-Gr3: I think - well, I've always believed that - I know in the past when we used to teach with interactions and it was very much about problem-solving and that's all it was.

And I remember the first year I taught and the kids couldn't do it. They just sit there and stare at the book and at the end of the day, I would have to almost - we would have to work through the problems as a class. Like there was very little independence, and I was teaching in a very affluent community when I first started, very bright kids, and they were struggling.

So so it – and so that challenging Math, I felt like they were missing some of the foundational or basic skills that they needed. Or we weren't teaching enough of that, and it was focused all on higher level thinking and I guess the - I kind of likened it to teaching music and saying, okay, here's a violin, now play it.

Well, you need to learn - even though violin is an art, there is a craft to learning the instrument and learning the – learning how to play the thing, and then you can - once you develop those skills, then you can begin to sort of get more into the creative side or to - you know what I'm saying?

And so – and I always view Math as much the same way that there is these foundational skills, the craft of learning Math, so to speak, that these kids needed to understand and to know well before they could really be able to tackle those higher level problems.

And so – like I do believe that the JUMP Math is very good at making sure these kids have that solid foundation, so then they can leap into the - down the road. Now at this point, like I was mentioning earlier, I think some of the kids in my class still aren't there yet. Like they're not - they're doing very well, but they’re not -when we get to the abstract questions, they're still stumbling there.

But I do firmly believe that as this program continues that this will - these kids will do much better in the long run than just throwing out a bunch of problems to begin with and not having those foundational skills. You know what I'm saying?

So I do believe that it's doing the right thing by teaching the microsteps and really - and also the - emphasizing this systematic recursion so that these kids are making sure they really understand the past year's concept and that it's just really a solid base there before they even attempt to think abstractly and that they need to have those skills there in place to then leap into that more problem solving multistep type of thinking.

And so that's what this program I think is really preparing these kids for and they're not all there yet, but I do believe that – like I believe that the whole philosophy of it is correct and that it will have a great impact on the kids' understanding.

So it'll be – like again – it’ll be very interesting to have this conversation in five years from now, and see how these same kids now are doing in Grade 6 or -

Martina: And hopefully we get that chance to have that conversation.

B-Gr3: Because right now, I mean it’s just so - we're still in those – I guess, in infancy stage where we're still sort of at the beginning stages, and we haven't seen the full - the fruits of all our labour yet, but I do believe that that's coming and we are starting to see it becauase I - but - so what do you think about -

Martina: I think we're good there. If we want, we can move on to number Six, and that's just a wrap up general. Having participated in this interview, does anything else come to mind that you would offer to teachers at the hub school, to the research team or to JUMP developers as they embark on the next phase of the project?

B-Gr3: I think just, again, just communication is key. Having that - I know in the past where I've been sent to other schools, I know - a few years back, I taught ES One, and I went to another school and observed a teacher. And I think I went there for several sessions and I really did develop a relationship with that teacher and stayed connected to her.

Martina: And that was by having a chance to actually visit?

B-Gr3: Yeah, where I was introduced to her and then we – and then just that conversation started and next thing you know, we’re - whenever I had questions or - her door was always open and I could always fire off an email and talk to her.

Now, it was - I think - I know last year, I taught a 2/3 split and I went off to a classroom in it for one day. And although it was helpful, again, I think in just connecting with that teacher once, it just wasn't enough to really bond the relationship.

So after that, I didn’t - I honestly didn't feel comfortable talking or emailing that person, because I just - there wasn't that relationship there. So I think the more connections we can make with those teachers or they can make with us, the more likelihood that those relationships will be formed and then that communication can stay open and then those conversations can happen.

So - and it may also depend on the personality of the person. Like I’m not a particularly outgoing person, so other people, they might just meet once and that’s - they're off and flying, but someone like me, it was really helpful when I was, like I said, teaching ES One where I went and I had several classroom visits and really developed that relationship through that.

So I guess the more often that - the more opportunities that those teachers have to meet with us to make those connections and then be able to ask those questions then the - I think the more - I think that would be probably the most helpful thing where they can - because they're going to have so many questions and want to ask somebody, and so I think the more they feel comfortable coming to us, then we can answer those questions and help guide them.

And then put out those - remove any stress that perhaps is coming their way and then help them move forward. Sorry, once I start talking, I don't stop. Ramble on and on.

Martina: Thank you for your time. It’s so helpful to be able to sit down and go in depth on things. Otherwise you're just passing in the hallway. But yeah, that's good for - that really helps the research too.

B-Gr3: Okay. Awesome.

Martina: So it sounds like things are going well though and they -

B-Gr3: Yeah, I mean it’s just - it's continually getting better. It's not that it was ever – it’s just getting - the more you practice it, the more you get comfortable with like the program and next year it'll be just that much more easier and you'll have your – it’s just your go-to resources that you can just pull out, sort of support you in whatever you're teaching.

So it’s just – it’s just with time and experience, just becomes more easier. And I've always been behind the philosophy. It's just putting into action has been the - not that it's been challenging, it's just making it go from being that kind of awkward to a smooth flow.

Martina: Yeah.

B-Gr3: And being able to just and – being able to just kind of move efficiently as well. So - all right.

Martina: Well, do you mind, oops, I guess this one -

**[End of audio]**

**[Duration: 1:20:06]**