**OBSERVATION OF LESSON PLANNING:**

Teachers discuss where they are with learners and what issues that they are facing.

Present algebra in the idea of apples and oranges instead of variables. All the apples go together, all the oranges go together just as all the x’s go together and all the y’s go together.

Teacher two says that is how she introduced the topic and that the learners got it like that, until they get to distribution. Think it is a good idea to indicate the adding of coefficients and thinking that the exponents have to be changed as well. Okay now I am dealing with apples only. That concept actually works, to relate it to something they know and give them actual pictures, because with the variables they are like why is there alphabet? With apples they can see this apple actually relates to something and it becomes easier for them to actually understand.

The smarter kids picked up on it so quickly and once you’ve got it, you’ve got it. It is just getting those other kids who don’t get it, to just click.

Making sure we address those misconceptions of if you have a variable and now, we are dealing with them as like terms not just multiply and divide, then you treating them as apples and bananas, they don’t need to change what they are. So, if it is x, it will remain x, it does not become or any other variable because the moment you are changing it, now you are changing you are changing the fruit that it was not initially.

The moment you give them the equivalent fraction, they see it is a bigger number and a different fraction and they loose focus. But then you say to them, if you can just check, you can actually simplify this, ask do we have a common factor there? Can we simplify it? Yes. What is the common factor? Can we divide by the common factor? Yes. Okay what fraction do we have now? Oh, it is the same.

You can change any number into a fraction by putting it over one. A lot of them are like where does the one come from? That is another issue.

; okay it is x there, oh no you said . Where did the other x come from? So, what is this x. Now we saying we have an orange here and we have two oranges this side. You know you are going to consider that orange, there will be three altogether. You can’t just say there is no 1 in that orange so I am not calculating it. You need to add everything.

Go from the fruit thing, changing it into colours so that it gets them used to highlighting maybe x’s, y’s different colours. Give examples. This all be done as introduction.

Body, just give them a few, maybe six questions. An even number of questions, so that we can do half with fruits and the other half with colours and then maybe just challenge them with actual variable questions (scaffolding). Also give them something that is straight, something that they cannot do anything to just to see if they actually have that concept and that analysis of them saying that if it is apples plus bananas, you can’t add them together, they are not the same. Instincts will kick in and they will want to do something to this, you know you have to solve this. But someone who knows and has the knowledge because they have understood the food concept, then they will know that they are not supposed to do anything so they are just going to leave it as it is and then they are going to write it just as it is because that is how it goes. Putting emphasis on this.

You choose the number which makes a sum true. They grasp this concept more than what they do when multiplying and word sums. So, start with the first type of example.

Conclusion of the lesson. Should we maybe give them a little test or how just we give them a formative assessment? We can give them a little test to see if they actually understand enough. It is important to for us to see if they *actually* understand the concept of having the different variables mean something. Puts pressure on them to kind of work.

Remember we have done exponents already and those are supposed to serve as a base, but then when it comes to disturbing, they don’t, they can distribute like three multiplied by x or multiplied by two. But the moment now that they , then they need to remember that oh the moment now we have the same base multiplied.

Remind them of that, refer to the laws again, do you remember that, now we have the same base, what do we do to the exponents? Then they have to say the exponents add. If the teacher is going to write , the learners must know where the it came from. It means x times x, not just x plus x. We need to address those misconceptions, x plus x is not the same as x times x. That is what they missed in their test. Sometimes they multiply the exponent when they remove the brackets. Something like they will make it this is over simplification.

Conclusion will take 10 minutes, maybe five or six questions of different forms. Starting with something g simple like, and so that we can see if they can see when solving something that is simple, and then increasing the difficulty level of the sums and increasing their cognitive levels.

What else should be added? What things have you seen that we should go about a different way or maybe? Maybe we can do a mix of exponents and algebra. Like and somewhere they may have to say true or false is it equal to or or It is like when adding like terms, instead of . Just checking for these misconceptions while teaching.

**INTERVIEW OF LESSON PLANNING:**

QUESTION:

What are your desired lesson outcomes? What do you want the learners to know by the end of this lesson?

ANSWER:

*T1:* Just to start off with the rules of algebra, if it is times this is what happens, it is plus this is what happens, if you have brackets this is what happens. Kind of just get the main basics and then we can just build from that.

*T2:* How to identify like terms.

QUESTION:

How will you check learner understanding? What will you do to make sure that they understand? Like what kind of questions would you ask them?

ANSWER:

*T2:* Maybe we can give them a mini activity at the end of the lesson to actually see if they have any key takeaways, from what was actually done in class. Because then if we start from simple things like x + x and we see that there is a problem there, and that there is no way they will be able to distribute and still group like terms. Because they can’t group something that is plain and simple.

QUESTION:

When you get your key takeaways, are you going to address the issues in the next lesson?

ANSWER:

*T2:* No, intervention and extra classes.

*T1:* Possibly even when we are done marking that small assessment, we can come back and see we struggled with question 3 for example. Let us discuss question 3.

*T2:* And when we giving extra exercises, then maybe put more of those questions to reinforce it.