The leaky tank

Annotation

Aroha solves this multi-digit subtraction problem by using an equal additions strategy. She demonstrates and applies her knowledge of compatible numbers to 1000, her understanding of the principle of equal additions, and in her explanation she justifies her efficient strategy choice.

Problem: The leaky tank

The teacher shows this problem to the student and reads it with her as required:

There were 9608 litres of water in a large tank. The tank leaked and only 934 litres remain. How much water drained out of the tank?

Student response

Aroha: It's 8674.

Teacher: Tell me how you did that.

Aroha: When I see that 934 I just want to make it 1000 because it's easier so I add 66 to 934 and to 9608 which gives me an easier subtraction: 9674 – 1000.

Teacher: What do you know that helped you?

Aroha: I just know compatible numbers for 1000 and that when I add numbers to both parts of a subtraction equation the difference stays the same.

Teacher: Tell me why you did it that way.

Aroha: Because it's quick and it works for me. I could have written this as an algorithm but it was easier not to.

Teacher: How would you record this?

Aroha: I could write everything I did but the easiest is just to write the equation, 9608 – 934 = 8674.

$$9608 - 934 = 8674$$

$$9608 - 934 = 9674 - 1000 = 8674$$