If you were the teacher of these students and were holding a whole class discussion (or even working with a small group), how would you record the reasoning of each child below in order to make it visible to all students in the class? How would you record (e.g., double ten frame, pictures, symbols, equations) the “stated” steps as well as the “hidden” steps (e.g., think bubble)? How would you label each strategy so that you and your students would have some common language?

<table>
<thead>
<tr>
<th>Basic Fact</th>
<th>Student Explanation</th>
<th>Teacher Recording of Strategy</th>
<th>Strategy Name</th>
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</thead>
<tbody>
<tr>
<td>11 – 8 = ?</td>
<td>“I counted with my fingers. I said 9, 10, 11 (holding up three fingers), so it’s 3.” Michael, Grade 1</td>
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<td>9 – 2 = ?</td>
<td>“I just thought 9… 8 (holding up one finger), 7 (holding up another finger).” Shirley, Grade 1</td>
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<tr>
<td>14 – 6 = ?</td>
<td>“Six and six is 12 ... two more makes 14 ... six and two is eight.” Melissa, Grade 2</td>
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<tr>
<td>14 – 6 = ?</td>
<td>“I usually add when it is more than 10. I would go 6 plus box equals 14. Then I would add 4 up to 10 and I’d have to have 4 more [to get to 14], so 4 plus 4 is 8 and I know that the box is 8.” Simon, Grade 2</td>
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<td>13 – 6 = ?</td>
<td>“I was thinking how far is 6 from 13. So I know 6 and 6 is 12, that gets me close. I need 1 more to get to 13. So the answer is 6 plus that 1 more, 7.” Tanisha, Grade 2</td>
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<tr>
<td>13 – 6 = ?</td>
<td>“I’m good at my tens. I know 6 and 4 is 10. Then I need to get to 13, that’s 3 more. So, that was… 4 and… 3, so 7.” Marko, Grade 2</td>
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<td>13 – 6 = ?</td>
<td>“First I subtracted 3 and that got me to 10. Then I subtracted 10 minus 3 and that’s 7, so the answer is 7.” Annie, Grade 2</td>
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<td>12 – 5 = ?</td>
<td>“I took two from 12 and took three more away and got seven.” John, Grade 2</td>
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<tr>
<td>12 – 5 = ?</td>
<td>“Well, five plus five is ten, and two more is 12, so it’s seven.” Shantae, Grade 2</td>
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</table>
Subtraction Levels of Thinking Transcript

**Tyler**

Teacher: 13 minus 7 or take away 7

*Student draws 13 tallies, then crosses of 7 starting from the right, then counts the uncrossed tallies.*

Tyler: 6!

Teacher: So you drew 13 tallies there.

Tyler: Um hm

Teacher: Then what did you do?

Tyler: Then I start with if I Xed them out, then I count these.

*Student indicates the uncrossed tallies.*

Teacher: The ones that were not crossed off?

Tyler: Nods head

Teacher: Ok

**Janet**

Teacher: 13 minus 7.

*Student counts quietly up from 13, stops, then counts from 13 down until she has 7 fingers up*


Teacher: 13 minus 7 is 6. And can you tell me what you were doing there?

Janet: First I did another answer, but then I put the number in my head.

Teacher: Which number?

Janet: I put 13 in my head then I counted it down, then I had 6.
Teacher: Ok. So when you put 13 in your head then you went 13… or did you do it differently?

Janet: I did it differently.

Teacher: Can I hear how you did it?

Janet: I did 13 in my head and I did 12, 11, 10, 9, 8, 7, 6.

*Student puts up one finger for each number.*

Teacher: Got it. And how many fingers did you have up?

Janet: I had up 7

Teacher: How come?

Janet: Because when I counted down – when I had my fingers up, I had 7 more.

Teacher: Ok, why did you stop at 7 and not 8 or 9 or 10 fingers up?

Janet: Because, because, because, it doesn’t say 9, 8, or the other numbers.

Teacher: It says 7.

**Artemius**

Teacher: Ok Artemius, can you solve 13 take away 7?

Artemius: Ok. I put 10 plus 3 that equals 13. Then if you’re going to minus, you take away 3 and I got 10. Then I take away 4 then I got 6.

Teacher: Ok, can you tell me where the 3 that you took away first and the 4 that you took away second - where did those come from?

Artemius: The 7.

Teacher: The 7. So you broke 7 apart. You took the 3 away first then you took the 4 away.

*Student nods.*

Teacher: Perfect.