Classroom A

In this classroom, the teacher introduces only one way to solve multidigit addition problems—by modeling how to add numbers using base-ten materials. The teacher distributes base-ten blocks so that pairs of children have enough materials to solve any problem. The teacher reads the class the monkeys and bananas problem. The class quickly agrees that they need to add the two numbers in the problem. Using a projector to demonstrate, the teacher directs the children to make the two numbers on their place-value mats. Care is taken that the 25 is shown with the base-ten clocks beneath the base-ten blocks for 36. The children are directed to begin combining the pieces in the ones place. A series of questions guides them though each step in the standard algorithm.

1. How many ones are there all together?
2. What do we need to do with the 11 ones? (regroup, make a ten)
3. Where do we put the ten?
4. How many tens are there?
5. What is the answer?

Next, the children are given five similar problems to solve using the base-ten blocks. They work in pairs and record answers on their papers. The teacher circulates and helps anyone having difficulty by guiding them through the same steps indicated by the preceding questions.

Classroom B

Some children use counters and count by ones. Some use the hundreds chart or base-ten models and others use mental strategies or an open number line. All are expected to use words and numbers and, if they wish, drawings to show what they did and how they thought about the problem. After about 20 minutes, the teacher begins a discussion by having children share their ideas. As the children report, the teacher records their ideas on the board so every one can see them. Sometimes the teacher asks the children who are listening if they understand or have any questions to ask the presenters. The following solution strategies are common in classrooms where children are regularly asked to generate their own approaches.

Avery: I know that 25 and 25 is 50—like two quarters. And 35 is ten more so that is 60. And then one more is 61.
Teacher: What did you mean when you say “35 is ten more”?
Avery: Well, I used 25 of the 36 and 25 and ten more is 35.
Sasha: I did 30 and 20 is 50 and then 6 + 5 more. Five and five is ten and so 6 + 5 is 11.
Juan: I counted on using the hundreds chart. I started at 36 and then I had to go 20 from there and so that was 46 and then 56. And then I went five more: 57, 58, 59, 60, 61.
Marie: I used an open number to help me. I started at 36 and went up to 4 to 40. Then I went to a jump of 20 and then one more to get to 61.
Teacher: Where is the “25” in your strategy?
Marie: It’s above the humps. 4 + 20 + 1 is the same as 25.
Janine's Work
Answer: 30

if each of the caterpillars need 2 1/2 leaves a day, then you just multiply 2 1/2 by 12 = 30.

Kyra's Work
Answer: 30

Jamal's Work
Answer: 30 leaves

if it takes 5 leaves for two caterpillars, you just count by tens, until you come to half of 12. The number is 5 x 12 = 60, and then you divide it by 2, and it equals 30.

Martin's Work
Answer: 30 leaves

Jason's Work
Answer: 30

Melissa's Work
Answer: 30

Darnell and Marcus
Answer: 60

5 Leaves
X2 Caterpillars
60 Leaves for Caterpillars

Missy and Kate
Answer: 15 Caterpillars

They added 10 caterpillars, and added 10 leaves.
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Who and What</th>
<th>Order</th>
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</thead>
<tbody>
<tr>
<td>Unit Rate</td>
<td><strong>Janine's Group</strong> – multiplied 12 x 2.5 (sticks representing caterpillars)</td>
<td>3rd</td>
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<tr>
<td></td>
<td><strong>Kyra's group</strong> – added 2.5 12 times (picture of leaves and caterpillars)</td>
<td>(Janine)</td>
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<tr>
<td>Scale Factor</td>
<td><strong>Jason's Group</strong> – narrative description</td>
<td>4th</td>
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<tr>
<td></td>
<td></td>
<td>(Jason)</td>
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<tr>
<td>Scaling Up</td>
<td><strong>Jamal's Group</strong> – table with leaves and caterpillars increasing in increments of 2 and 5</td>
<td>2nd</td>
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<td></td>
<td><strong>Martin and Melissa</strong> – did sets of leaves and caterpillars</td>
<td>(Jamal)</td>
</tr>
<tr>
<td>Additive</td>
<td><strong>Missy and Kate</strong> – since caterpillars increased by 10, then leaves must also increase by 10</td>
<td>1st</td>
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<tr>
<td></td>
<td></td>
<td>(Martin)</td>
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<tr>
<td>Other</td>
<td><strong>Darnell and Marcus</strong> – saw the problem as multiplicative, but did not understand the ratio. They saw the problem as 5 leaves per day per caterpillar. Did not see the 2 to 5 ratio in the problem (incorrect answer).</td>
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