FIND A RULE – Math Lesson

OBJECTIVE: After modeling and practicing the concept, students will be able to, with at least 85% accuracy, complete tables representing patterns (functions) and will be able to provide the rule used to form the pattern.

PA ACADEMIC STANDARDS:
2.1.3 L – Demonstrate knowledge of basic facts in four basic operations.
2.3.2 A – Apply addition and subtraction to everyday situations using concrete objects.
2.8.3 A – Recognize, describe, extend, create, and replicate a variety of patterns.
2.8.3 B – Use concrete objects and trial and error to solve number sentences and check if solutions are sensible and accurate.
2.8.3 C – Substitute a missing addend in a number sentence.

MATERIALS:
- Teacher’s Edition and Student Textbooks, Scott Foresman/Addison Wesley Mathematics
- Access to Whiteboard and Markers
- Scott Foresman/Addison Wesley Student Homework Practice Books

PROCEDURE:
A) Anticipatory Set: Display a number pattern on the board. For example, a pattern involving adding three may be displayed. See if students recognize the pattern and can continue it. Elicit the rule for continuing this pattern and, if time allows, ask students to come up with a pattern of their own.

B) Practice: Explain that today we will be using numbers to find patterns in a slightly different way. Describe an “IN/OUT” machine and display an example table of numbers that may be put in and taken out of the machine. The numbers should follow an addition rule. See if students can recognize the rule and fill in the final number on the table. An example could be as follows:

<table>
<thead>
<tr>
<th>IN</th>
<th>4</th>
<th>7</th>
<th>1</th>
<th>6</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT</td>
<td>10</td>
<td>13</td>
<td>7</td>
<td>12</td>
<td>??</td>
</tr>
</tbody>
</table>

Ask students how they know the rule involved addition. Point out to students that a table involving an addition rule will include “OUT” numbers that are greater than “IN” numbers. To find the rule, we can think about “PART-PART-WHOLE” and think of the rule as the missing part. We start with the first pair of numbers given and check our guess with the second, etc. Then we can apply the rule to find other “IN” and “OUT” numbers.

Continue practice with another subtraction example, emphasizing that for a SUBTRACTION rule the “OUT” number is smaller than the “IN: number.
Practice other examples, as necessary. If students grasp the concept quickly, they may create their own examples. The teacher may select “IN” numbers and the student may provide “OUT” numbers. Other volunteers may guess the rule and continue the pattern.

C) Closure: Congratulate students on work well-done.

If time allows, students may complete the following activity: Use the attached sheet and allow each student to create their own “IN/OUT” table. (Have them write their rule on the back of the sheet). Collect the tables and exchange them amongst students. Have other students see if they can correctly complete the table and write the rule beneath it.

Provide Homework Practice Book page 18 for independent practice or homework.

ASSESSMENT: Homework Practice book page 18 and/or the closure activity may be collected and assessed for depth of understanding.
<table>
<thead>
<tr>
<th>IN</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT</td>
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</table>

RULE: ______________________________

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