

Algebra/Geometry Institute Summer 2006

Lesson Plan 3: Making a Table

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Grade Level: 6



1 Teaching Objective:

Mississippi Mathematics Framework (Sixth)

5d. Solve problems involving combinations

2 Instructional Activities :

Introducing the Lesson:

The teacher begins by asking the students to name a method or strategy he/she may use when solving problems. The teacher then lists the responses on the board. The teacher gives her background information of problem solving by saying, “Problem solvers that use the strategy of making tables can quickly and easily organize data, spot patterns, and identify missing information.

Tell students today they will learn a new problem solving strategy (making a table). Then show this problem below on a transparency.

Tina’s school is putting on its first musical. In order to encourage attendance, the principal offered to give door prizes. Every second person who walks in the door will receive a school towel. Every fifth person to come in will receive a school T-shirt. Of the first twelve people to walk through the door, will anyone receive both a pencil and a T-shirt?

Read the problem to your students, while making sure each student understands what the problem is asking. Tell students that they will first try to solve the problem by acting it out.

Then, select twelve students to form a straight line to simulate the people entering through the door. Select someone to distribute the pencils to every second student and someone to hand out a T-shirt (whatever item you choose to substitute a T-shirt) to every fifth student. Once the items have been distributed, point out that only one student received both items.

Next, Draw the table below (removing the Xs) on a transparency to display the problem. Model for your students how they can solve the same problem by filling out the table as shown

| | | | | | | | | | | | | |
|----------------|---|---|---|---|---|---|---|---|---|----|----|----|
| Student | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Pencil | | X | | X | | X | | X | | X | | X |
| T-shirt | | | | | X | | | | | X | | |

The teacher will distribute copies of the problems to each student. Inform the students that they will solve the problems by making a table. (See Attachment 1). The students will work independently to solve the problems. After students have solved the problems, the teacher should discuss the problems and allow students to show the strategies they used to solve the problems.

3. Materials and Resources:

- 1 copy of the activity for each student
- 1 typed transparency
- 1 blank transparency
- overhead projector pen
- 6 pencils
- index cards (to substitute for T-shirts)

Alarie, J., Barton, M., Crump, I., Durhman, T., Fischer, R. The Mailbox
Ready-to- Go Lessons Grade 6, The Education Center, Inc., 2002.

4 Assessment:

Distribute one copy of page 135 to each student. Have each student solve each problem by making a table. The teacher will take up papers to be checked. For for those students who need additional practice the teacher can create additional tables. Give students problems that can be solved using the make-a-table strategy, but ask them to solve the problems using strategies. This will show that there is more than one way to solve problems.

Example:

If every third day (3) the dancers practiced and every sixth day (6) the singers practiced, then you can figure that on every day that is a multiple of six, they will both practice (the LCM of 3 and 6 is 6). So, in 21 days the dancers and singers will practice together three times: on the sixth day ($6 \times 1 = 6$), on the twelfth day ($6 \times 2 = 12$), and on the eighteenth day ($6 \times 3 = 18$). (See Attachment 2)

Attachment 1

Have students solve the following problems:

1. Every morning Gina looks out her bedroom window. She has noticed that every three days she sees a rabbit in her yard and every seventh day she spots a squirrel. How many times in six weeks will Gina see the rabbit and squirrel on the same day?

Answer: Gina will see the rabbit and squirrel on the same day once in three weeks; therefore she will see them twice in six weeks.

2. Jeremiah worked during the summer as a peach inspector at an orchard. He noticed that 2 out of every 7 peaches had wormholes. How many good peaches did he find in a basket containing 70 peaches?

Answer: Jeremiah found 50 out of 70 good peaches in the basket

3. Tia spends twice as much time practicing basketball as practicing the piano. One week her total practice time was 24 hours. How many hours did she practice the piano?

Answer: Tia practiced the piano for eight hours.

Behind the Scenes

The production of a musical involves a great deal of planning. Help the actors out by solving the problems below. Each one can be solved by making a table. Be sure to write each solution in a complete sentence.

- Before the musical, the dancers will need to rehearse by themselves and with the singers. The singers will also need time to rehearse by themselves. They decided on following schedule: Every third day the dancers will rehearse, and every second day the singers will rehearse. In the first three weeks of rehearsal how often will the dancers and singers rehearse together as a group?



| Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| Dancers | | | | | | | | | | | | | | | | | | | | | |
| Singers | | | | | | | | | | | | | | | | | | | | | |

Solution: _____

- The dancers were given the opportunity to design their butterfly costumes that Stacey’s mother made. As a group, they decided the costumes should look similar but not identical. They asked Stacey’s mother to put purple polka dots on every second costume she made and pink polka dots on every third costume she made. If Stacey’s mother made 15 costumes, how many had both pink and purple polka dots?



| Costume | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| Pink | | | | | | | | | | | | | | | |
| Purple | | | | | | | | | | | | | | | |

Solution: _____

3. After the musical, the director wanted to treat the performers to ice-cream sundaes. Jesse's dad planned to dish the ice cream ahead of time so the students wouldn't have to wait long. He knows how picky people are about their ice cream, so after putting ice cream in every dish, he decided on the following plan: In every third dish he puts chocolate syrup, in every fourth dish he put whipped cream, and on top of every sixth dish he sprinkled peanuts. If he prepared 30 dishes, how many had peanuts and chocolate syrup? How many dishes had all three toppings?



| | | | | | | | | | | | | | | | |
|------------------------|----------|--|--|--|----------|--|--|--|--|-----------|--|--|--|--|-----------|
| Sundae | 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Chocolate Syrup | | | | | | | | | | | | | | | |
| Whipped Cream | | | | | | | | | | | | | | | |
| Peanuts | | | | | | | | | | | | | | | |

Solution: _____