Formative Lesson Plan Analysis
Performance Based Assessment

EDUC 614
Designing and Assessing Teaching & Learning
George Mason University

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4th Grade Mathematics

Chapter 4: Lesson 4.1~Relate Multiplication and Division

DESIRED RESULTS

Established Goal/s:

- *Content Standard 1.0~Knowledge of Algebra, Patterns, and Functions*

   Students will algebraically represent, model, analyze, and solve mathematical and real-world problems involving patterns and functional relationships.

- *Content Standard 6.0~Knowledge of Number Relationships and Computation*

   Students will describe, represent, and apply numbers and their relationships, and they will estimate and compute using mental strategies, paper/pencil, and technology.

Understanding/s:

- What is a Fact Family?
- How are multiplication and division related?

Essential Question/s:

- How can a fact family demonstrate the interrelatedness of multiplication and division?

ASSESSMENT EVIDENCE

Performance Task/s:

- Students will be able to create their own fact family using manipulative.
- Students will write the fact family they created to show the interrelatedness of multiplication and division in an index card.

Other Evidence:

- Students will answer #s 1-4 of their textbook's "Check What You Know" on pg. 148.
- Checking for Understanding through Scaffolded Questioning will be used to assess students' learning at the end of the lesson.

LEARNING PLAN

Learning Activities:

I. Warm Up

- Students will complete the 5-Minute Check posted on the board to review previous lesson on addition and subtraction problems.
- Students will go over the learning goals and the agenda for the day.

II. Presentation

- Using models, teacher will give a whole group instruction to represent multiplication and division using this equation: 3 x 4.
- Teacher will introduce key vocabulary words using the model of instruction above: factor (a number that divides a whole number evenly/ a number that is multiplied by another number) and product (the answer or result of a multiplication problem. It also refers to expressing a number as the product of its factor).
- Teacher follows the step in representing the factors 3 and 4 in different ways to come up with the same product: 3 x 4 = 12; 4 x 3 = 12.
- Teacher makes a connection to show that the factors are related and proceeds to how it apply with division: 12 / 4 = 3; 12 / 3 =4.
- Teacher introduces the vocabulary word "fact family" (a set of four related multiplication and division facts that use the same three numbers).

III. Practice

- Small Group Activity: Students group together and are given manipulative and an index card to create their own fact family.

IV. Assessment

- Closing discussion: Discuss the answers to #s 1-4 of Check What You Know on pg. 146 to check for students understanding using questioning.
- Teacher gives feedback/correction when necessary to correct misunderstanding.

V. Homework

- Answer #s 19-24 of "Practice and Problem Solving" on pg. 149 of the textbook.

APPENDIX: Student Artifact

All

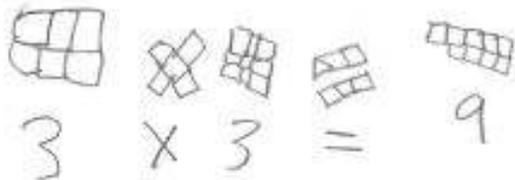$6 \times 3 = 18$ $3 \cdot 6 = 18$ $18 \div 6 = 3$ $18 \div 3 = 6$

$4 \times 3 = 12$ $3 \times 4 = 12$ $12 \div 4 = 3$ $12 \div 3 = 4$

3 X 3 = 9

$9 \times 3 = 27$ $27 \times 3 = 81$

$3 \times 9 = 27$

2012 tuesday