

Learning and Passing It On

First off just having the manipulatives was a real PLUS to my math program!!! Even without the kids helping other kids the project would have been a success from my standpoint as teacher. My students loved all the hands-on materials and gained much from using them. Older kids loved helping the younger kids and even got to be the teachers to kindergarteners. It was really cool to see the little ones showing their parents (many of whom spoke only Spanish) at Family Math Night how to make “worminoes.” I believe that anything that excites kids about math and learning is of value!

Curriculum/State Standard

Math EALR 1: The student understands and applies the concepts and procedures of mathematics including geometric sense and number sense.

Math EALR 2: The student uses mathematics to define and solve problems.

Math EALR 4: The student communicates knowledge and understanding in both everyday and mathematical language.

Overview

For my project I was able to buy different types of math manipulatives including dominoes, miras, Base 10 blocks, geometric solids, Geofix pieces, overhead calculators, dice, and Polydron sphaera. I used these with small groups of 3rd and 4th graders and also some whole classes to solve problems and make sense of numbers and geometry. Students then helped with younger students-k-2-and their parents at Family Math nights, as well as their own classes when some of the same items were used, and passed on their understanding, thus cementing their own learning and helping develop communication skills as well.

Continued on the back...

1-5

GRADE LEVEL



ARTS



LANGUAGE



MATH

Misc

MISCELLANEOUS



SCIENCE



HISTORY



SOCIAL STUDIES

1-9

MONTHS

\$750

TOTAL BUDGET



THIS WINNING LESSON PLAN WAS SUBMITTED BY:

Alix Carlson
A.H. Smith School
205 Fir, Grandview, WA 98930

“Learning and Passing It On” project continued...

Objectives

- The students will use manipulatives to gain understanding of math concepts, with an emphasis on number sense and geometric sense.
- The students will pass their new understanding on to younger students and parents to cement their learning and help develop communications skills as well.
- The students will select activities from books to use with younger students.

Materials

Base 10 Set, Miras, geometric solids, dominoes, Polydron Spheras, Dice, Geofix pieces, and calculators, plus some instruction books for the Miras and dominoes

Readiness Activity

Different readiness activities were used depending on the materials. For example, with the dominoes, students were to look at the dominoes and sort them according to some attribute. We then shared the different ways we had come up with for sorting. I also had a book called Domino Addition, which was used as a readiness activity. Base 10 blocks were first used just to illustrate simple addition and subtraction before we worried about place value. We looked at shapes and talked about faces, edges, and vertices and their names with the geometric solids and later made our own shapes using Geofix pieces. For one set of solids, we estimated the volumes of each in relationship to each other and then measured them using bird seed to see how close we were, looking for surprises.

Strategies/Activities

Materials were first introduced to small groups of 8-10 third and fourth graders. They became the “experts” on using these materials with their whole classes and also some of the materials with K-2 students. For example, they learned the names of geometric solids and looked at faces, edges, and vertices, plus other attributes such as color. They then took the solids into a kindergarten classroom and taught those kids the names of the shapes and also some of the attributes. The small groups then worked with dominoes, sorting according to attributes and, also, doing some problem solving. They then helped out with first and second grade classes who were working on these beginning strategies and just recognizing numbers with sets of dots and the commutative property of addition. The first and second graders were then able to help parents and other family members at their Family Math Night. All were able to work with the geometric solids and Geofix pieces with their parents, as well, finding that math can be fun!!

Culminating Activity

The culminating activities were a series of 4 Family Math Nights for grades 1-5. Most of the manipulatives were out for families to explore and some of them like the dominoes were used in a whole group session.

Evaluation

Students were evaluated by performance assessment. Could they show the commutative property of addition with dominoes? Could they find attributes that dominoes had in common? Could they explain what those attributes were? Could they make a series of “worminoes” having 12 dots on each one? Could the older kids help the younger kids without giving answers? Did the older kids know the names of the shapes so they could share with the kindergarteners? Students were also asked how their experiences as “teachers” and “manipulators” had helped their learning. In the future, students may be asked to lead some of the activities at Family Math Nights for more than just their immediate families.