Math Game

The Estimation Game

Materials:

◊ Paper for score sheet, calculator or watch, Numeral Cards

Players: 3 - 4

Procedure:

1. Choose a problem template.
   Example: __ __ __ x __ __
2. Take turns being the leader. The leader deals one card for each slot in the template and records the digits in order without showing anyone.
   Example: Deal 7,4,1,0,3 Write 741 x 03
3. The leader uncovers the problem and starts timing. You have exactly 30 seconds to estimate the answer mentally, without paper and pencil. The leader finds the actual answer with a calculator.
4. Record your estimate and the actual answer on your score sheet. The difference between them is your score.
5. The leader deals new Numeral Cards for Rounds 2 and 3. Use the same problem template.
6. After three rounds, total your scores. Lowest score wins.

Score Sheet:

Game 1 Difference

Round 1: _____ - _____ = _____

Round 2: _____ - _____ = _____

Round 3: _____ - _____ = _____

Total Score: _____

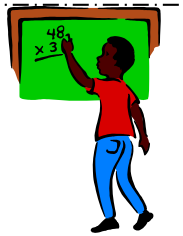
Web Resources

You will find web resources at:

http://www.everett.k12.wa.us/math

www.illuminations.nctm.org - select Activities

http://www.rainforestmaths.com/



Glossary

Multiple:The product of a given whole number and another whole number

Factor: A number that is multiplied by another number to find a product

Estimate: (To make) an approximate or rough calculation, usually based on rounding

Equation: A number sentence which shows that two quantities are equal

Example: 5 x 6 = 30

On-Line Glossary

http://www.amathsdictionaryforkids.com/

Kliman, M. Investigations in Number, Data, and Space: Building on Numbers You Know. Dale Seymour, 1998.

Investigations in Number, Data, and Space

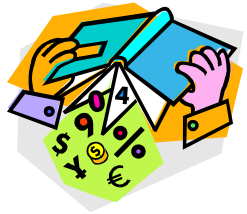
Everett Public Schools

Building on Numbers You Know

Computation and Estimation Strategies

Unit Goals:

- Explore a wide range of strategies for computation and estimation, especially with multiplication and division
- Use what the student already knows about number relationships and the meaning of operations.
- Use estimation both before and after computation to check the reasonableness of their results.



Proposed Time Frame:

4 weeks

Mathematics in Investigations

Investigation 1:

* Skip counting between 2-, 3-, and 4-digit numbers between any two 4- or 5-digit numbers
* Relating repeated addition to multiplication
* Using skip counting patterns to help solve multiplication and division problems
* Developing, explaining, and comparing strategies for subtracting 4- and 5-digit numbers
* Recording computation strategies using words, numbers, and arithmetic symbols.
* Reading, writing, and sequencing 4-and 5-digit numbers

Investigation 2:

* Developing, recording, and comparing strategies for solving multiplication and division problems
* Making sense of remainders
* Understanding relationships between multiplication and division
* Modeling situations with multiplication, division and other operations

Investigation 3:

* Developing, explaining, and comparing strategies for estimating and finding exact answers to multiplication and division problems.
* Recording strategies for solving problems
* Solving problems in more than one way
* Using relationships between multiplication and division to help solve problems

Listed below are questions to help teachers during observations and assessments.

Getting Started

* What is it that you don't understand? (Have your child be specific.)
* What do you need to find out?
* What do you need to know?
* What terms do you understand or not understand?

While Working

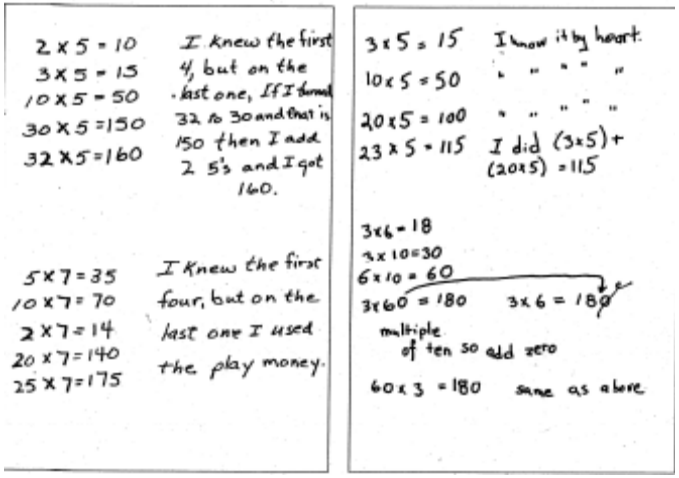
* How can you organize the information?
* Do you see any patterns or relationships that will help solve this?
* What would happen if…?

Reflecting about the Solution

* How do you know your answer is reasonable?
* Has the question been answered?
* Can you explain it another way?

About Cluster Problems

Cluster problems are sets of problems that help students think about using what they know to solve harder problems. The cluster problems in this unit are designed to help students make sense of multiplying 2- and 3-digit numbers. They build an understanding of the process by pulling apart multiplication problems into manageable sub-problems, solving each of the smaller problems, then putting the parts back together.



Cluster problems are intended to help students learn how to look at a problem and build a strategy to solve it based on the number relationships they know. When working on cluster problems with your child, encourage them to add to the clusters any problems they think of that they use to solve the final problem in the cluster.

Kliman, M. Investigations in Number, Data, and Space: Building on Numbers You Know. Dale Seymour, 1998.