Tips for Helping at Home

- Questions to ask:

  What is it that you don't understand (have the student be specific)?

  What about putting things in order?

  Could you try it with simpler numbers?

  Can you guess and check?

  Does this make sense?

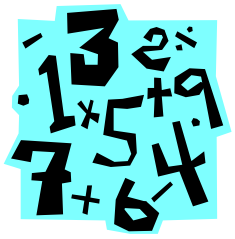
  What can you do to explain your answer to show others what you are thinking?

  Does your answer seem reasonable?

- Look for items around your house or at the grocery store that are packaged or arranged in rectangular arrays:tiles on the floor, egg cartons, window panes, six-packs of juice cans, and the like. Talk with your child about the dimensions (rows and columns) and discuss ways to figure out the total number.

- Play the Array Games that your child brings home for homework.

- Help your child practice skip counting by 3's, 4's, 5's, and so forth.



Mathematical Emphasis

Investigation 1—Multiples on the 100 Chart

- Using skip counting as a model for multiplication
- Seeing multiplication as an accumulation of groups of a number
- Looking for the multiplication patterns of numbers
- Interpreting standard multiplication and division notation

Investigation 2—Arrays

- Using an array as a model for multiplication
- Becoming more familiar with multiplication pairs
- Recognizing prime numbers as those that each have only one pair of factors and only one array
- Becoming familiar with a variety of notation used for multiplication and division
- Understanding how division notation represents a variety of division situations
- Determining what to do with "leftovers" in division

Investigation 3—Multiplication and Division with Two-Digit Numbers

- Becoming fluent in basic multiplication relationships
- Partitioning numbers to multiply them more easily
- Recognizing multiplication and division situations and representing each situation using a mathematical statement
- Learning about patterns that are useful for multiplying by multiples of 10

Websites

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

http://www.resourceroom.net/Math/1timestables.asp#practice

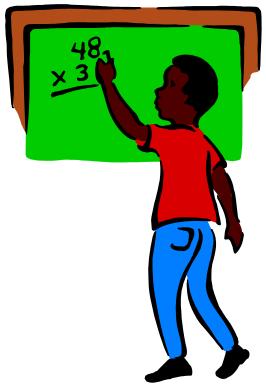
http://www.funbrain.com/tictactoe/index.html

Investigations in Number, Data, and Space

Grade 4

Arrays and Shares

Multiplication and Division



Everett Public Schools

Vocabulary

Area: the size of a two-dimensional figure in square units

Perimeter: distance around the outside edge of a closed figure

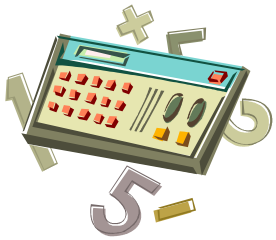
Factor: a number that is multiplied by another number

Product: the answer to a multiplication problem

Multiple: the product of any two whole numbers

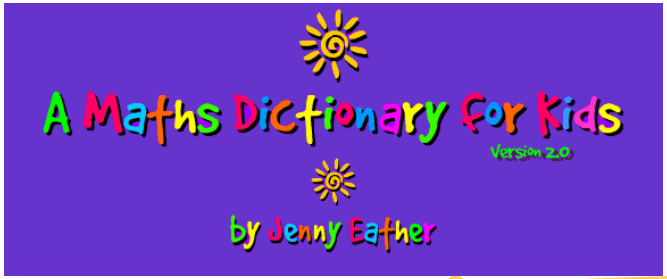
Array: a rectangular arrangement of objects with equal amounts in each row

Prime number: a number with only 2 factors: 1 and itself



Glossary

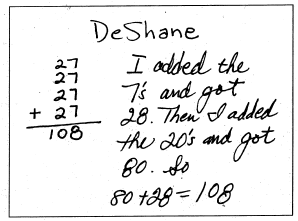
http://www.amathsdictionaryforkids.com/

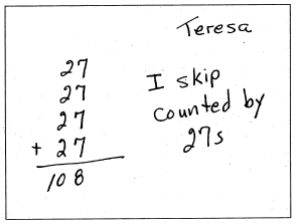


Two Ways to Solve 27 X 4

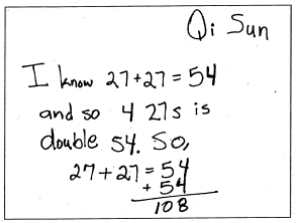
In this Investigation, students are learning reliable strategies to solve multiplication problems. Asking students to solve problems in more than one way helps them to think flexibly and also gives them a way to check their work.

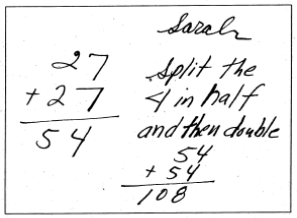
Some students will see this problem as one of repeated addition. These two students used the same strategy, but had different explanations as to what they did.



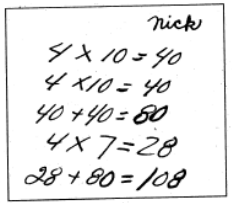


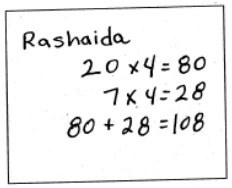
Other students may know that if two 27's is equal to 54, then four 27's is double that. These two students explained that strategy in slightly different ways.





We expect that students will be able to break apart the problem into smaller, more familiar multiplication problems as one of their strategies. These two students show that strategy in slightly different ways.





Economopoulos, K. Investigations in Number, Data, and Space: Arrays and Shares. Dale Seymour, 1998.

Multiple BINGO

Materials:

- 100 chart (one for each player)
- Deck of factor cards (3 - 2's, 2 - 3's, 2 - 4's, 5, 6, 7 ,8 9, 12, 15, 16, 20, 4 - wild cards)
- Crayons or markers

Procedure:

- Each player has a 100 chart
- Set the factor cards in the middle of the table
- The first person turns over a factor card.
- Every player colors in one number that is a multiple of that factor and writes the factor in the square. For example, if someone turns over a 5, any of the numbers 5, 10, 15, 20, 25, and so on can be chosen.
- If a Wild Card is turned over, the player who picked it can decide on the factor to be used. Any number from 1 to 100 can be chosen when a Wild Card is drawn. For game strategy, the player should choose a number that helps his or her game but doesn't help the other players. Often the most useful number to pick is a prime number, such as 23, to fill in a gap between other multiples; other players could mark 23,46,69, or 92.
- The game continues until one player colors five numbers in a row and gets BINGO. Players can choose to continue until other players also get five in a row.

Variations:

- **Limiting the Factors:** An easier version of Multiple BINGO is to use only the 2's, 3's,4's, and 5's factor cards and a few Wild Cards.
- **Limiting the 100 Chart:** When students first play multiple BINGO, they will tend to use only "easy" numbers-especially the single-digit numbers and the multiples of 10. To encourage them to use more difficult numbers, you might**:** **(**1). Have them omit the top row and right column of the 100 chart. (2) Insist they start with a number near the middle of the chart. (3) Give two points for a win that is diagonal. (Five numbers next to each other on any diagonal is fine.) This may encourage them to notice the 9's and 11's on the two main diagonals.