

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?
- Play the number games that come home with your child
- Look for things that come in equal groups such as eggs, soda, and shoes.



- Discuss what "facts" mean and what their relationships are - for example, that 6×4 is four more than 5×4 or that 4×8 is double 2×8 .

Web Resources

You will find web resources at:

<http://www.dreamsbeginhere.org/static/aboutdcps/departments/acadprog/mathematics/index.asp>

www.illuminations.nctm.org Select Activities

<http://www.rainforestmaths.com/>

Mathematical Emphasis

Investigation 1: Things that Come in Groups

- Finding things that come in groups
- Using multiplication notation
- Using multiplication to mean groups of groups
- Writing and illustrating multiplication sentences

Investigation 2: Skip Counting and 100 Charts

- Recognizing that skip counting represents multiples of the same number and has a connection to multiplication
- Looking for patterns in multiples of 2 - 12 on the 100 chart
- Understanding that the patterns numbers make can help us multiply those numbers

Investigation 3: Arrays and Skip Counting

- Recognizing that finding the area of a rectangle is one situation where multiplication can be used
- Using arrays to skip count
- Using arrays with skip counting to multiply and divide
- Finding factor pairs
- Making connections between number and shape

Investigation 4: The Language of Multiplication and Division

- Understanding relationships between multiplication and division
- Identifying whether word problems can be solved using division and/or multiplication
- Using multiplication and division notation to write number sentences

Investigation 5: Problems with Larger Numbers

- Multiplying and dividing in real-life situations and using patterns to solve multiplication and division problems
- Organizing and presenting data in tables and line plots
- Sorting out complex problems that require both multiplication and addition
- Making up division and multiplication story problems from real data

Duval County Public Schools



Investigations in Number, Data, and Space



Things That Come in Groups Grade 3

Multiplication and Division

Unit Goals:

- Develop experience with some uses of multiplication and division
- Students invent and solve problems about the number of legs on living creatures
- Students become familiar with the multiplication tables up to 12's, with an emphasis on multiples with totals under 50.
- Students invent their own ways of solving multiplication and division problems.

Proposed Time Frame:

6 weeks

Vocabulary

Factor - a number that is multiplied by another number to find a product.

$$4 \times 5 = 20$$

Multiple - the product of a given whole number and another whole number

$$4 \times 5 = 20$$

Array - a set of objects or numbers arranged in rows or columns

2 x 6 array

Notation - using standard forms and symbols for multiplication and division.

$$\begin{array}{r} 12 \\ \times 3 \\ \hline \end{array}$$

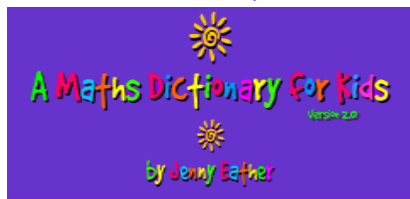
$$3 \times 12$$

$$12 \div 3$$

$$3 \overline{)12}$$

Glossary

<http://www.amathsdictionaryforkids.com/>



Talking and Writing About Division

Various division symbols are using as standard notation in our society:

In this unit, we use only the form $24 \div 4$. However, we want students to recognize the other forms (which they may have seen on tests and in other textbooks) as having the same meaning as $24 \div 4$. They will use the fractional form in the Fractions units of the Investigations curriculum.

There are many different ways to "read" or speak of these notations:

- Four goes into 24
- 24 divided by 4
- How many 4's are in 24?
- When 24 is shared among 4 people, how many does each person get?

So many symbols and so many different ways of reading can be very confusing to young students, especially because the numbers and symbols appear in different positions, depending on which notation you are using. We would like students to read division notation with as much meaning as possible, so that they connect the symbols to the situations they represent.

Sometimes a problem does not divide evenly. Rather than teaching students to write "R" for the remainder, have them describe the remainder in a way that makes sense to them for that problem. For example, how many groups of 3 can be formed with 26 students? Some students may decide they can make 8 groups of 3 and one group of 2. Others may decide to make 6 groups of 3 and two groups of 4. If the example was 26 cookies to share among 3 children, they might give 8 to each and leave the remaining 2 cookies on the plate, or break them up to share.

Game

Multiplication Pairs

Materials:

- Set of Array cards
- Paper and pencil

Players:

1 or 2

How to Play:

1. Spread out all of the cards in front of you. Some should be turned up, showing the dimensions. Others should be turned over to show the total or product.

2. Choose a card and put your finger on it. (Don't pick it up until you say the answer.) If the dimensions are showing then you must give the total. If the total is showing, you must say the dimensions of the grid. The shape of the array will help you.

For example: Suppose you pick an array with the total 36 showing. The dimensions could be 6×6 , or 9×4 , or 12×3 . You must decide which is right. The shape of the array is a good clue.

3. Turn the card over to check your answer. If your answer is correct, then pick up the card.

4. If you are playing with a partner, take turns choosing and identifying cards. Play until you have picked up all the cards.

While you are playing, make lists for yourself of "pairs that I know" and "pairs that I don't know yet." Use these lists to help you learn all the pairs.