

A Parent's Guide to the "NEW" Math

****Module 1 Topics****

Here are some things I think might be useful to you if your child is struggling with the current math topics. I hope they are helpful.

We are learning to solve multiplication and division word problems.
Your child has been learning to solve these using the following strategies.

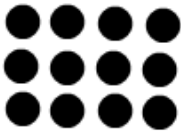
- arrays
- tape diagrams
- number bonds

An **array** is a way to represent multiplication and division using rows and columns. Rows represent the number of groups. Columns represent the number in each group or the size of each group.

Here are 2 word problems that involve multiplication.
Below are arrays that represent the information in each problem.


Bob has 3 cups. In each cup he has 4 marbles. How many marbles does he have in all?

This array has 3 rows (they go across) and 4 columns (they go up and down). This array is a model for $3 \times 4 = 12$.
Bob has 12 marbles in all.



Bob has 4 cups. In each he has 3 marbles. How many marbles does he have in all?

This array has 4 rows (they go across) and 3 columns (they go up and down). This array is a model for $4 \times 3 = 12$.
Bob has 12 marbles in all.



Both arrays can also be used to model division.
The word problem will determine which way to draw the array.

Bob has 12 marbles. He puts them into 3 cups. How many marbles will be in each cup?
 $12 \div 3 = 4$
There will be 4 marbles in each cup.



Bob has 12 marbles. He puts them into 4 cups. How many marbles will be in each cup?
 $12 \div 4 = 3$
There will be 3 marbles in each cup.



It is important for your child to remember that rows (groups) are drawn horizontally and columns (number in each group) are drawn vertically.

A **tape diagram** is another way to represent information in a word problem.

We are learning to use tape diagrams to solve problems that involve both multiplication and division.

A tape diagram starts with a rectangle. The students must label the tape diagram using information from the problem.

Since multiplication and division problems always involve ***number of groups, size of each group and the total***, your child should label 3 things in the diagram.

Since one of the 3 labeled items will be the unknown fact, we label it with a question mark. The actual answer to the problem is revealed in sentence form after the diagram is completed.

Once the tape diagram is labeled with all the known and unknown information, the sections (called units) are filled in. This can be done using dots or by skip counting and writing numbers.

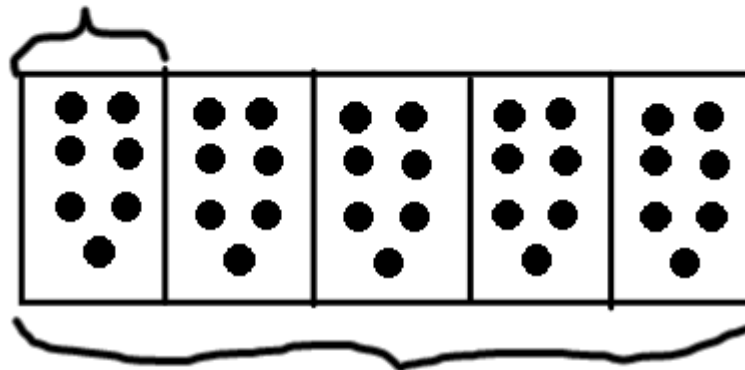
Below is an example of a multiplication type problem, a labeled tape diagram and a sentence written to show the solution.

Karen has a 5 boxes of cookies. There are 7 cookies in each box. How many cookies does Karen have in all?

In this problem we are given the number of groups (5 boxes) and the size of the groups (7 cookies). These are considered KNOWN facts.

We are asked to find the total number of cookies that is our UNKNOWN fact. We will label it with a question mark.

7 cookies in each



? cookies in all

5 boxes

$$5 \times 7 = 35$$

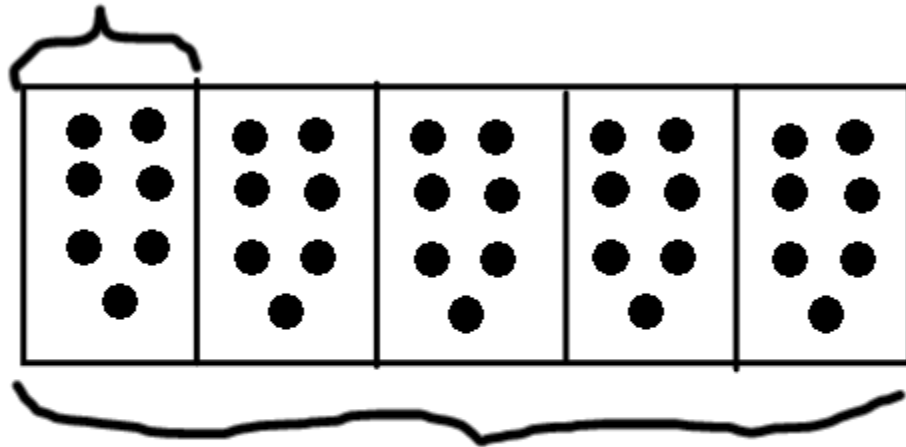
Karen has 35 cookies in all.

Tape diagrams can also be used to solve problems involving division.

Here is an example:

Karen has 35 cookies.
She packs them into boxes of 7.
How many boxes does she pack?

7 cookies in each



35 cookies

? # of boxes

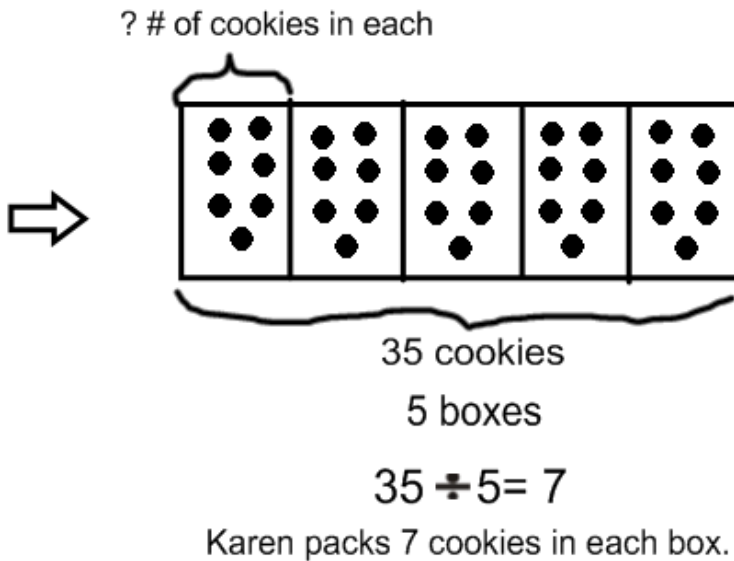
$$35 \div 7 = 5$$

Karen packs 5 boxes.

Tape diagrams are being used in class to solve 2 step word problems like the one below. Because there are 2 steps, your child will have to show their work for each step. This is done even if your child can do the math in his/her head!

Karen has 5 boxes of cookies. She has a total of 35 cookies. How many cookies are in 3 of Karen's boxes?

First a tape diagram is used to show the number of cookies in just 1 box.



Second, use the information learned to figure out how many cookies would be in 3 boxes.



$$3 \times 7 = 21$$

Finally, write a sentence to show your answer.

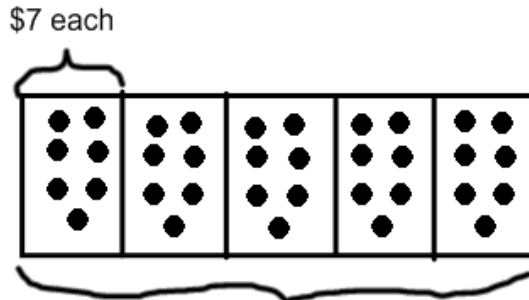


There are 21 cookies in 3 of Karen's boxes.

Sometimes a second tape diagram is used to represent the second step of a word problem.

Karen buys 5 bags of flour to make cookies. Each bag costs \$7. Karen also buys one bag of chocolate chips for \$3. How much did Karen spend at the market?

First, figure out how much Karen spent on the flour.



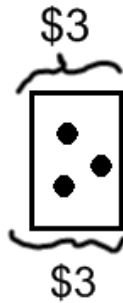
? total cost

5 bags of flour

$$5 \times \$7 = \$35$$

Karen spend \$35.

Second draw a tape diagram to represent the other information.



1 bag of chips

Then, put the information learned in both diagrams together.



$$\$35 + \$3 = \$38$$

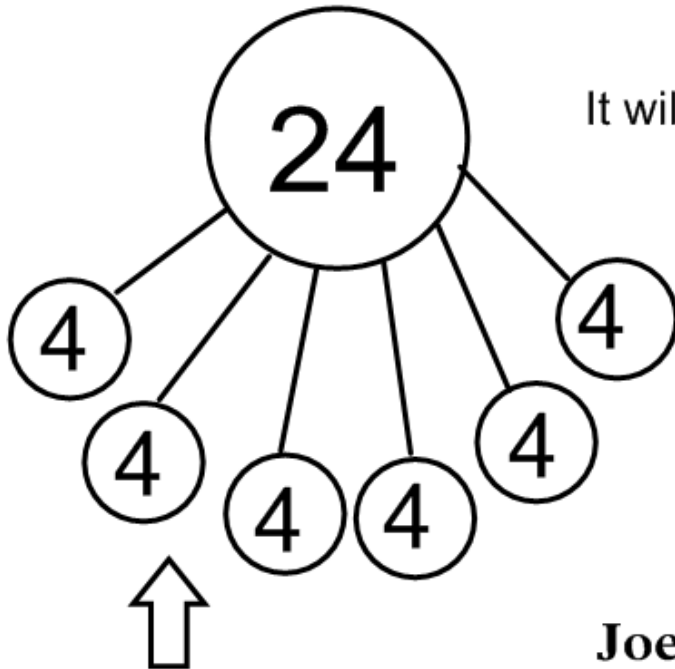
Finally, write a sentence to show the solution.



Karen spent \$38 at the market.

A **number bond** is another way to represent information in a word problem.

Joe has 24 Snickers Bars. He puts them into piles of 4 so he can eat an equal amount of bars each day till they are all gone. How many days will it take for Joe to eat his Snickers Bars?



It will take Joe 6 days to eat his Snickers Bars.

This number bond can also be used to show this word problem: \Rightarrow

Joe ate 4 Snickers Bars each day for 6 days. How many Snickers Bars did he eat in all?

Joe has 24 Snickers Bars.

Have you noticed RDWW on your child's math work?

RDWW stands for Read, Draw, Write and Write.

In order to solve a word problem, the children must:

R: Read the problem twice

D: Draw a picture or diagram

W: Write an equation (number sentence)

W: Write a sentence using the question and the
answer

Even if RDWW is not written next to the question, all students must follow the RDWW process for solving word problems.