Division: The Number of Groups   Guided Notes   **Math 3**

What is the number of groups?

In division, we look for factors by **having equal amounts of items inside each group**. Recalling the equal groups strategy, we can remember that a product can be solved visually by having equal groups of a certain number of items. Each group contains the same amount of objects inside. The number deciding how many times the total will be separated into having the same size is called the number of groups, which is a factor of the total. Therefore, we can find the number of groups by dividing the total by the size of the group.

That means that **the total is grouped by the size of each group**. The number of times the total is separated is the answer, which is called the **quotient**.

We can read a division equation **A ÷ B = C** as **A can have a size of B in the number of groups C.**

For example, **15 ÷ 3** can be read as **15 can have a size of 3 in a certain number of groups.**
The quotient will be **5** because grouping 15 into 3 items each will have 5 groups.
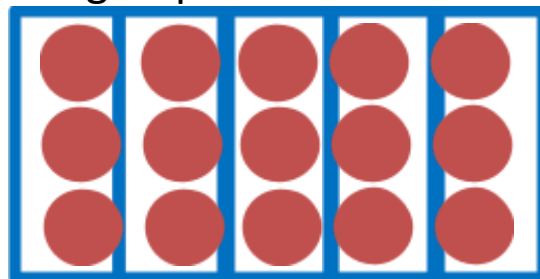
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For example:

15 ÷ **3**

Total   Size of the group

15 into   **3 sized groups**

First, draw 15 same-sized objects:

Then, count up to 3 and encircle into one group. Repeat until you've encircled all into groups.

Count all the groups made with the certain size:

There are **5** groups with a size of 3.

So, the number of groups is **5**.

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Observe the following equal groups:

What is the total number of stars? 12

What is the size of each group? 3

How many groups are there? 4

What is the total number of stars? 20

What is the size of each group? 4

How many groups are there? 5

Time to think

1. If the equation is "total ÷ size of group = number of groups,"
   what are the equations of the two equal groups examples?
   Stars: 12 ÷ 3 = 4
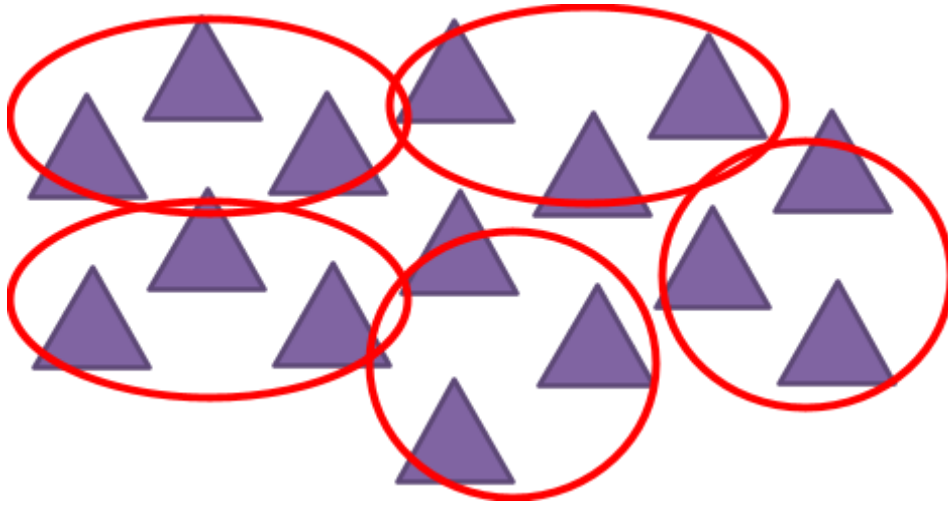   Hearts: 20 ÷ 4 = 5

2. Is the number of groups considered a factor?
   Yes because the number of groups and the size of groups are a pair. The number of groups multiplied to the size will have a product. They are factors of that product.

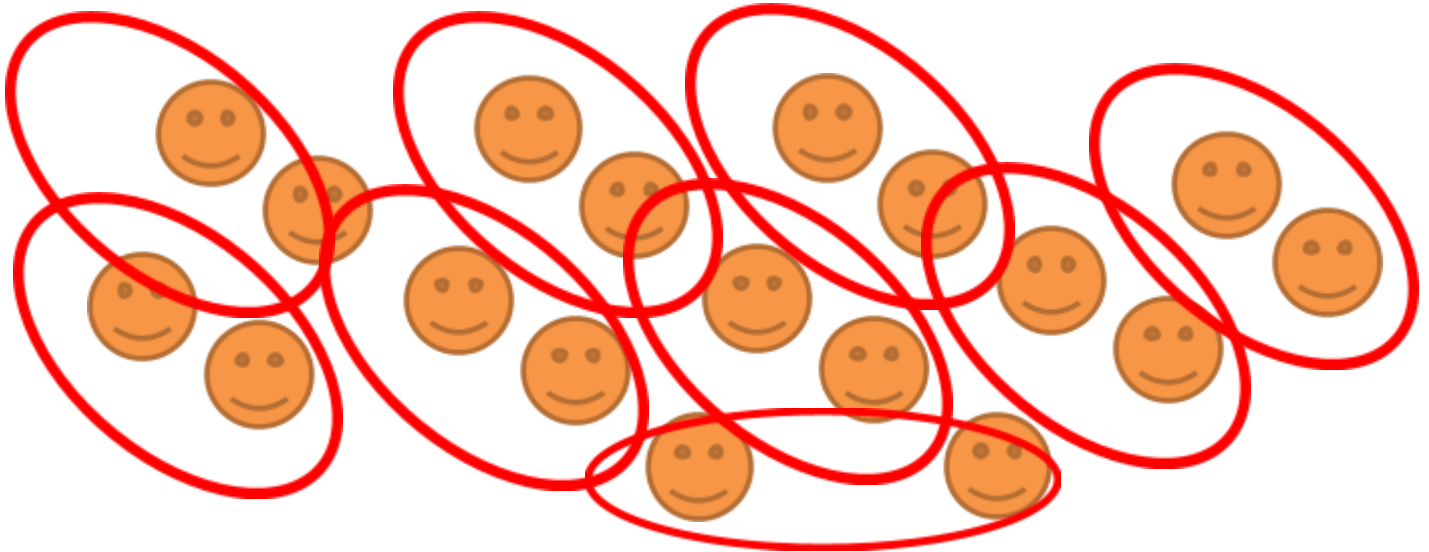**Division: The Number of Groups**   Guided Notes   **Math 3**

Encircle the triangles into groups of 3.

How many groups are there? 5

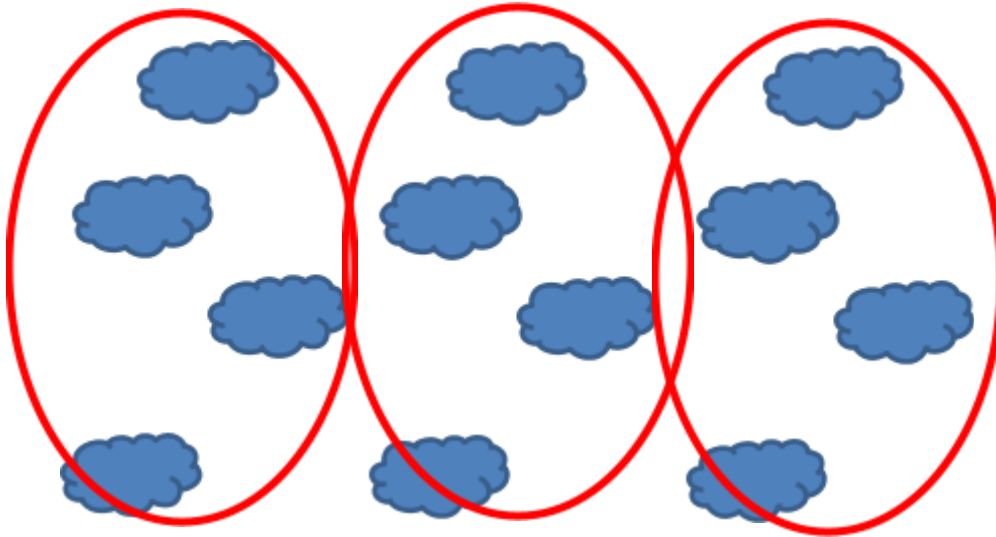$$15 \div 3 = 5$$

Encircle the smiley faces into groups of 2.

How many groups are there? 9

$$18 \div 2 = 9$$

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Encircle the clouds into groups of 4.

How many groups are there? 3

$$12 \div 4 = 3$$

Time to Think

1. Does having 6 groups of a number have the same answer as a number of groups of 6?
   Yes. Having 6 groups of something can be interchanged with having groups of 6. For example, 6 groups of 2 is 12. It is the same as 2 groups of 6 is 12.

2. If there are 2 groups of 4, what is the division equation wherein the quotient is the number of groups?
   2 x 4 = 8. So, total ÷ size of groups = number of groups will be 8 ÷ 4 = 2.

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Tiffany has 21 candies. She wants to have packs of 3 candies each. How many packs will she have?

Draw a total of <u>21</u> candies and encircle into groups of <u>3</u>

There are <u>7</u> packs of candies.

Valerie baked chocolate chip cookies. She has 24 chocolate chips. She put 4 on each cookie. How many cookies did she bake?

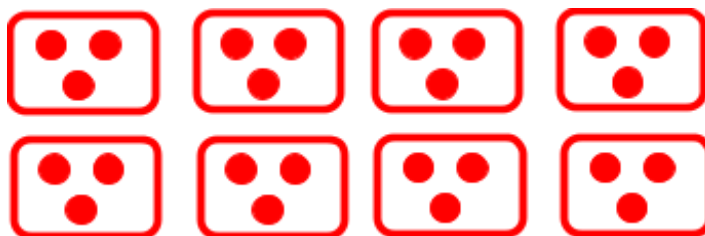Draw a total of <u>24</u> chips and encircle into groups of <u>4</u>

There are <u>6</u> cookies.

Division: The Number of Groups

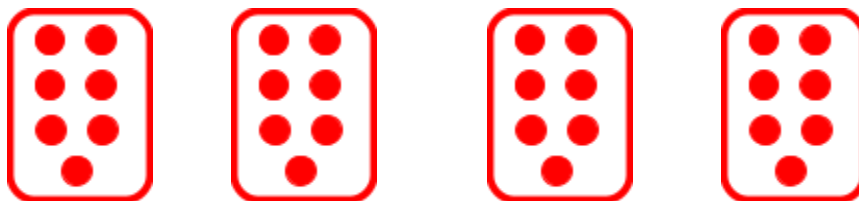Guided Notes **Math 3**

Time to Think

Using what we learned about the number of groups, answer these word problems:

1. Josh wants to put 3 marbles in each bag. He has 24 marbles. How many bags does he need?

    Total is 24 marbles and size is 3 marbles. 24 ÷ 3 = 8 bags.

2. Troy shot 7 hoops per minute. He did 28 hoops. How many minutes did he take shooting basketball hoops?

    Total is 28 hoops and size is 7 hoops. 28 ÷ 7 = 4 minutes.