



Problem Solving Using Units of 2-5, and 10

Unit 1 Lesson 10

Word Problems for Units of 2, 3, 4, 5, 10

In solving multiplication, we already know different strategies to help visually and efficiently get the product of factor pairs. Equal groups illustrate the number of groups and the size of each group. Array models illustrate factors in rows and columns. We also know that multiplication has an inverse relation with division, which can help us adapt to different multiplication and division problems. Now, **we can now solve for word problems by applying the different strategies to solve multiplication and division.**

There are some steps in order to help in solving word problems:

First, read and understand the situation at hand. **Second, identify the values** involved. Know what the stated factors are. **Third, choose which operation is more appropriate** to use. If there is a factor pair and what you are looking for is the product, then, it is more appropriate to use multiplication. If there is an unknown factor and you already have the total, then, it is more appropriate to use division. **Fourth, write the number sentence.** Identify the multiplicand and multiplier, or the dividend and divisor. **Fifth, draw the appropriate strategy** to help you solve. **Sixth, solve for the unknown and label** your final answer.

Word Problems for Units of 2, 3, 4, 5, 10

Consider this word problem:

Betty is baking strawberry cupcakes. She wants to put exactly 5 strawberry toppings in each cupcake. She made 4 cupcakes. How many strawberry toppings did she use?



Word Problems for Units of 2, 3, 4, 5, 10

First, understand:

Betty baked 4 cupcakes with 5 toppings each.



Word Problems for Units of 2, 3, 4, 5, 10

Second, identify the values:

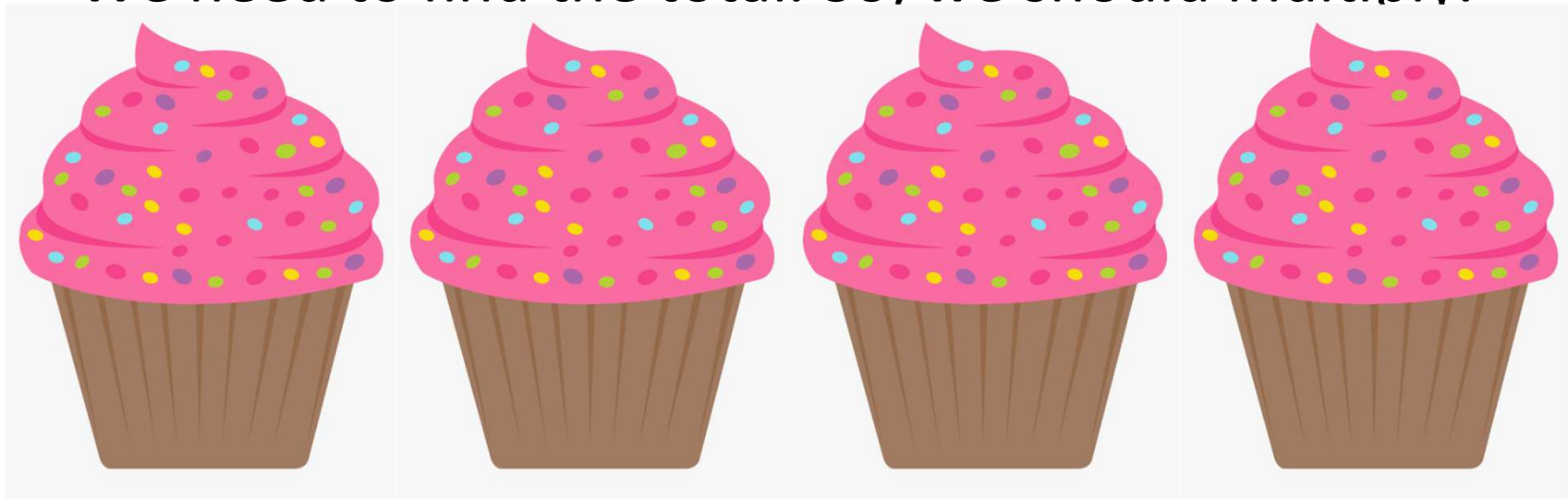
5 strawberry toppings and **4** cupcakes



Word Problems for Units of 2, 3, 4, 5, 10

Third, choose the operation:

We need to find the total. So, we should multiply.



Word Problems for Units of 2, 3, 4, 5, 10

Fourth, write the number sentence:

5 is the multiplicand and 4 is the multiplier: $5 \times 4 = ?$



Word Problems for Units of 2, 3, 4, 5, 10

Fifth, illustrate:

We can use the equal groups strategy!



Word Problems for Units of 2, 3, 4, 5, 10

Sixth, solve and label your final answer:

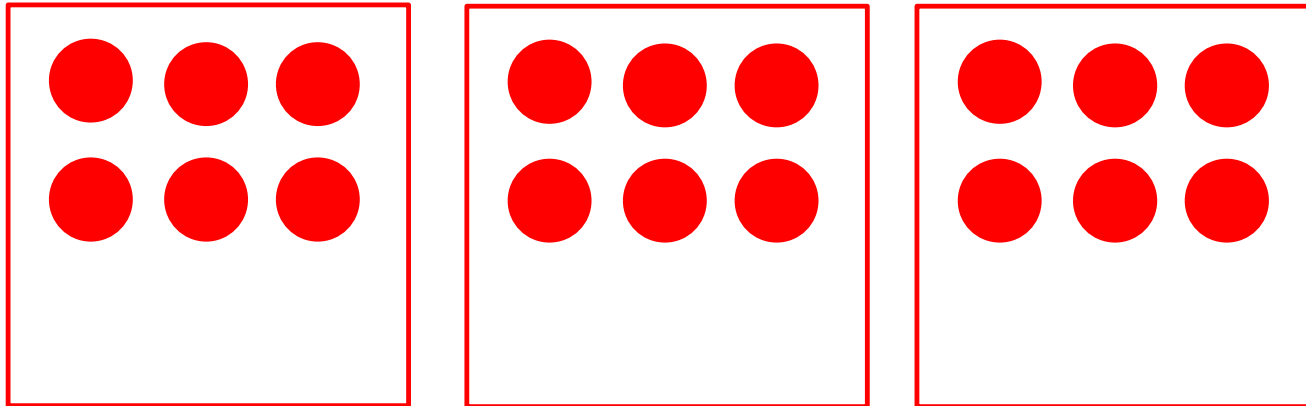
$$5 \times 4 = 20$$



20 strawberry toppings

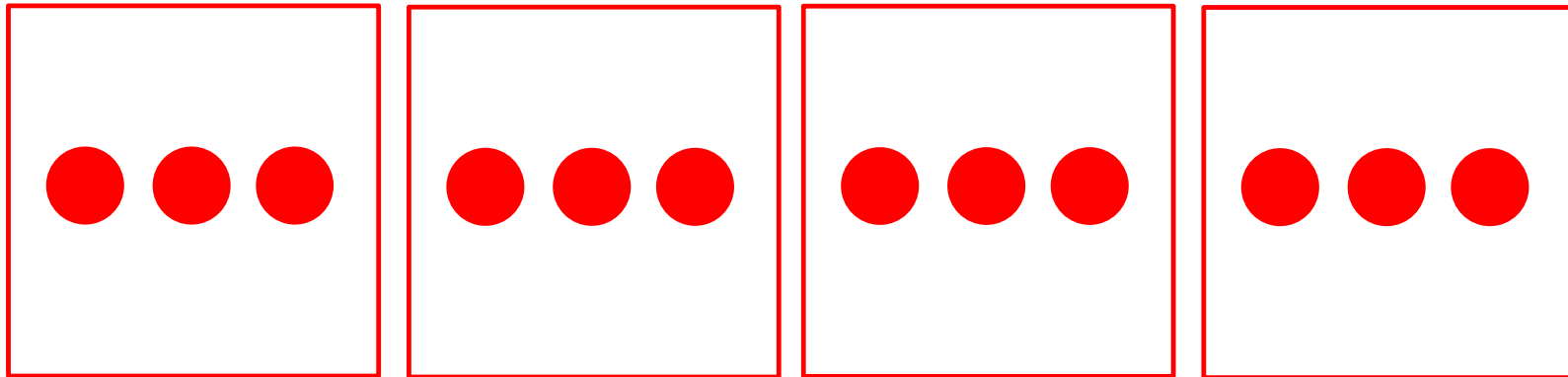
Draw the equal groups

1. Sylvie has 18 crayons. She wants to put them equally in 3 boxes. How many crayons are there in each box?



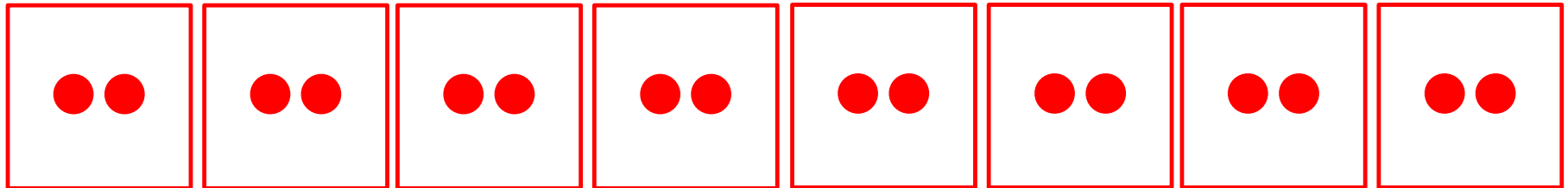
Draw the equal groups

2. Bella has four sheets of paper and she wants to stick 3 stickers in each paper. How many stickers are there?



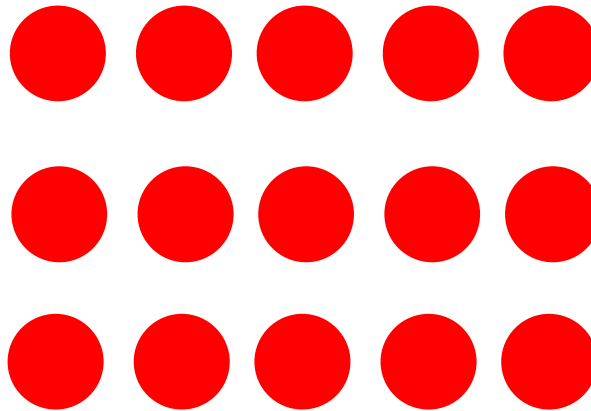
Draw the equal groups

3. Henry wants to put 2 candies each in 8 plastic bags. How many candies will he put all in all?



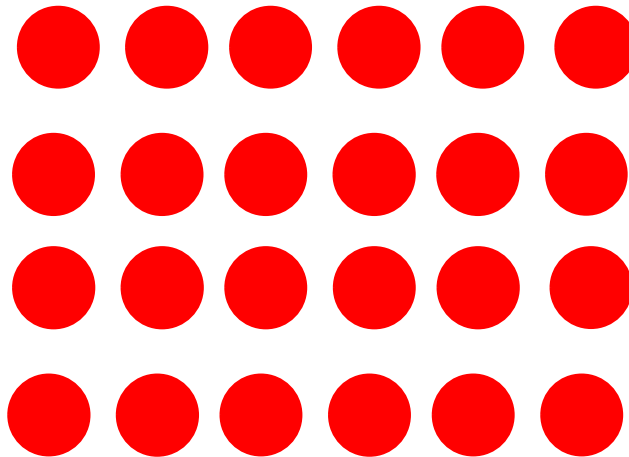
Draw the array model

1. Carlos wants to place 5 books each in his 3 shelves. How many books will Carlos store?



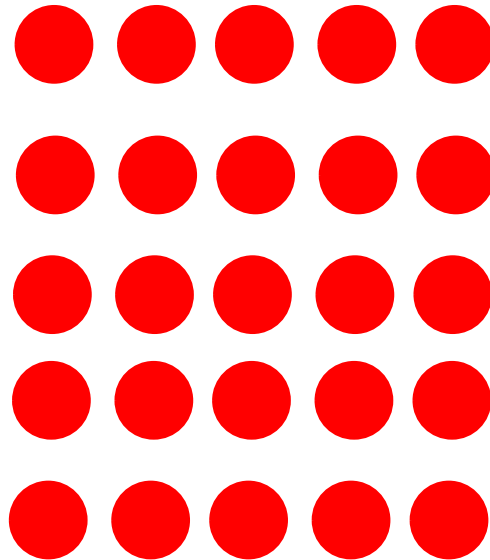
Draw the array model

2. Diana has 24 lollipops. She places them in an array with 4 rows. How many lollipops are in each row?



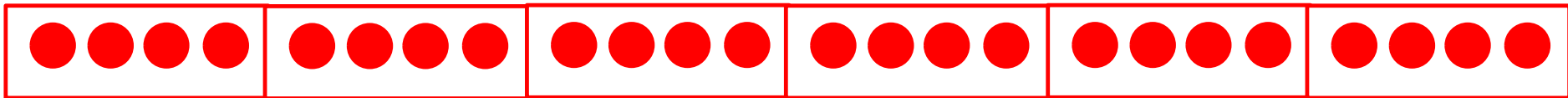
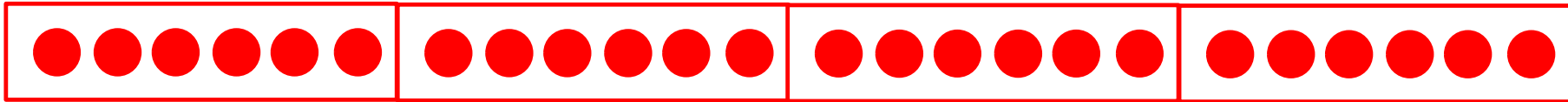
Draw the array model

3. The students needed to be in an orderly array with 5 rows and 5 columns. How many students are in the array?



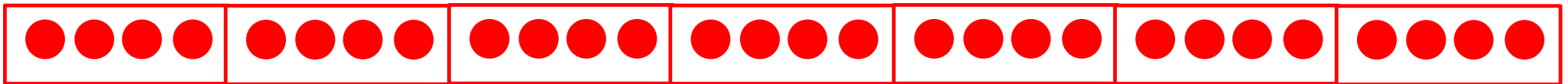
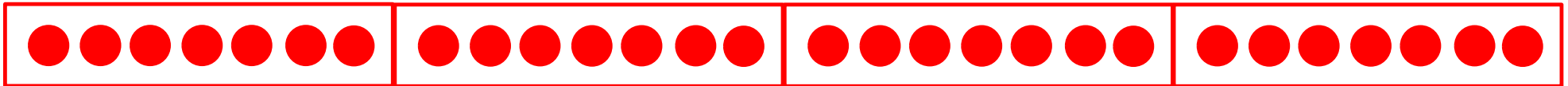
Draw the tape diagrams

1. Diana has 24 lollipops. She places them in an array with 4 rows. How many lollipops are in each row?



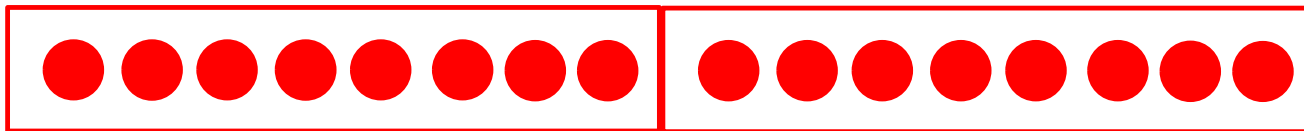
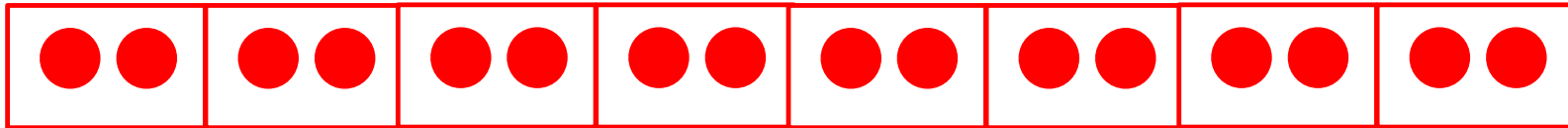
Draw the tape diagrams

2. Camille has 28 jellybeans. She gives her four friends an equal amount. How many jellybeans did each friend receive?



Draw the tape diagrams

3. Henry wants to put 2 candies each in 8 plastic bags. How many candies will he put all in all?



¿? Time to Think ¿?

How can Equal Groups help in solving word problems?

This can help if the problem is dealing with groups. Knowing how to represent number of groups and size of groups can help solve word problems that can be represented by groups of objects.

¿? Time to Think ¿?

How can Array Models help in solving word problems?

Array models help by showing an order of rows and columns. If the word problem states a particular order of objects, array models can help represent these situations.

¿? Time to Think ¿?

How can the Commutative property help in solving word problems?

➤ The commutativity of multiplication can help solve word problems by knowing that the order of factors can be changed. Even with a different order of the factors in the equations, we can still be sure it is the same answer.

¿? Time to Think ¿?

How can the Distributive property help in solving word problems?

➤ The distributive property can help solve word problems that have large numbers involved. We can decompose the numbers into smaller numbers and then we can distribute the multiplier or divisor to the two smaller numbers.

¿? Time to Think ¿?

How can the relationship between multiplication and division help in solving word problems?

➤ **Knowing the appropriate operation is needed for solving word problems. However, because of the relationship of multiplication and division, we can actually represent the situations in both operations. We only need to know the equation that is equivalent to both multiplication and division as**

1. Tiffany has 30 pebbles. She wants to place an equal number each in 3 containers. How many pebbles are in each container?

First, understand:

Tiffany wants to divide 30 pebbles into 3 containers.

Second, identify the values:

30 pebbles and 3 containers

Third, choose the operation:

Division

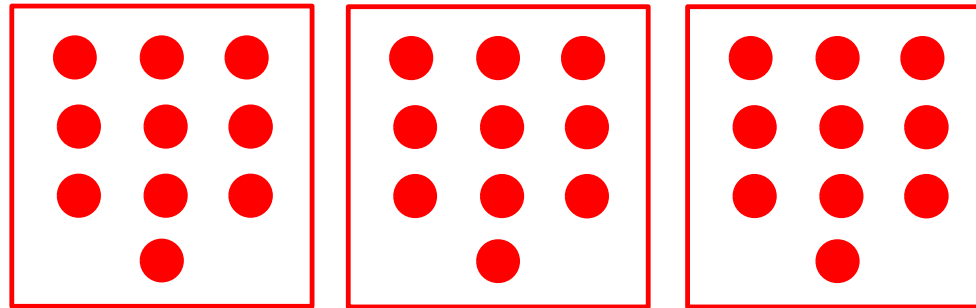
Fourth, write the number sentence:

$$30 \div 3 = ?$$

1. Tiffany has 30 pebbles. She wants to place an equal number each in 3 containers. How many pebbles are in each container?

Fifth, illustrate:

We can use the equal groups strategy!



Sixth, solve and label your final answer:

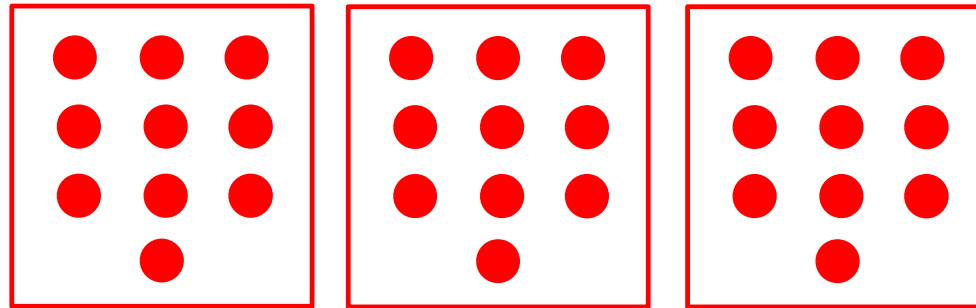
$$30 \div 3 = 10$$

Tiffany will have **10 pebbles** in each container.

1. Tiffany has 30 pebbles. She wants to place an equal number each in 3 containers. How many pebbles are in each container?

Fifth, illustrate:

We can use the equal groups strategy!



Sixth, solve and label your final answer:

$$30 \div 3 = 10$$

Tiffany will have **10 pebbles** in each container.

2. Troy went to the library and noticed that each shelf had 8 books each. There are 4 shelves. How many books are there?

First, understand:

Troy saw 8 books each in 4 shelves.

Second, identify the values:

8 books and 4 shelves

Third, choose the operation:

Multiplication

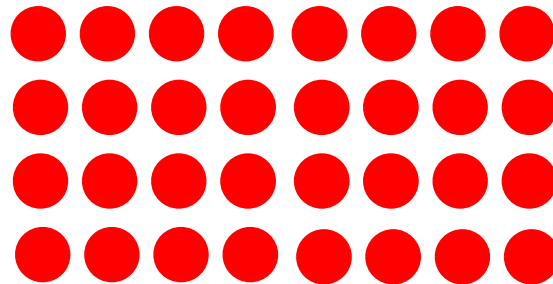
Fourth, write the number sentence:

$$4 \times 8 = ?$$

2. Troy went to the library and noticed that each shelf had 8 books each. There are 4 shelves. How many books are there?

Fifth, illustrate:

We can use the array model strategy!



Sixth, solve and label your final answer:

$$4 \times 8 = 32$$

Troy noticed **32 books** in the library.