

# Word Problem Intervention

By Numeracy Consultants



## Multiplication / Division Structures

### Equal Groups Structure (Inverse Sequence)

Multiplication (Product Unknown), Partitive and Measurement Division

### Equal Groups Structure

Multiplication, Partitive and  
Measurement Division

### Comparison Structure

Product Unknown,  
Number of Times Unknown

### Mixed Operations

Addition and Subtraction, Multiplication, Equal Groups,  
Comparison, Partitive and Measurement Division

### Equal Groups / Comparison / Addition and Subtraction

Multi-digit – Single Digit with and without remainders

### Equal Groups / Comparison

Multi-digit - Multi-digit with and without remainders

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Free Supplement

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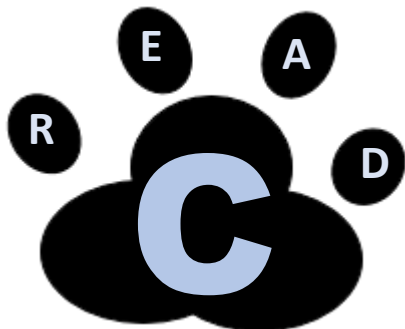
**Numeracy Consultants: Multiplication and Division**



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# CUBS Strategy



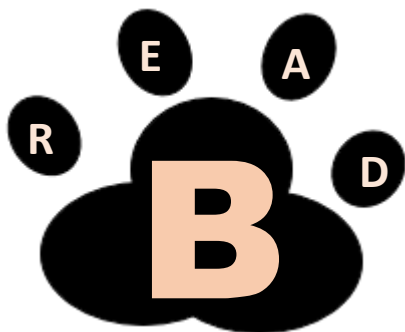
## Read the Problem and Comprehend

Say what is happening in your own words.



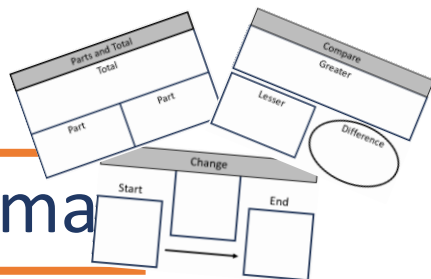
## Reread the Problem and Understand the Schema?

Is problem dealing with a total, parts, change, compare, equal groups?



## Reread and

## Build the Schema



Build the problem using a graphic organizer.

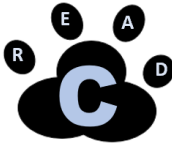


## Summarize and Solve



+ - x ÷ =

# CUBS Strategy



**Read the Problem and Comprehend**

Say what is happening in your own words.



**Reread the Problem and Understand the Schema?**

Is problem dealing with a total, parts, change, compare, equal groups?

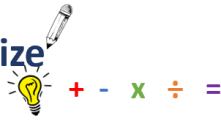


**Reread and Build the Schema**

Build the problem using a graphic organizer.



**Summarize and Solve**



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# CUBS Strategy



**Read the Problem and Comprehend**

Say what is happening in your own words.



**Reread the Problem and Understand the Schema?**

Is problem dealing with a total, parts, change, compare, equal groups?

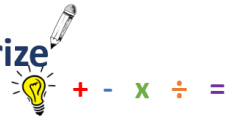


**Reread and Build the Schema**

Build the problem using a graphic organizer.

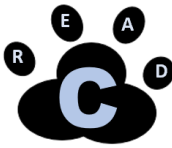


**Summarize and Solve**



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# CUBS Strategy



**Read the Problem and Comprehend**

Say what is happening in your own words.



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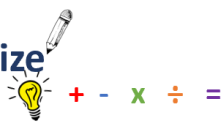


**Reread and Build the Schema**

Build the problem using a graphic organizer.



**Summarize and Solve**



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# CUBS Strategy



**Read the Problem and Comprehend**

Say what is happening in your own words.



**Reread the Problem and Understand the Schema?**

Is problem dealing with a total, parts, change, compare, equal groups?

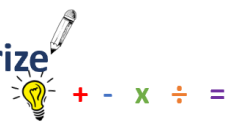


**Reread and Build the Schema**

Build the problem using a graphic organizer.



**Summarize and Solve**



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# CUBS Strategy — Classroom Implementation Guide

Step-by-step guide for teaching math word problems

**C**

STEP 1 · COMPREHEND

## Read the problem — understand what's happening

→ Read the problem aloud together, then ask: "What is this problem about? Tell me in your own words."

→ Circle key nouns — who or what the problem involves. No numbers yet.

→ Have students retell the story to a partner before moving on.

**Tip:** Resist pointing out numbers here — pure comprehension of context comes first.

**U**

STEP 2 · UNDERSTAND THE SCHEMA

## Reread — identify the problem type

→ Reread slowly, looking for the structure of the problem. Ask: "Is something being joined, separated, compared, or split into equal groups?"

→ Underline action words (gave away, altogether, more than, each) that signal the schema.

→ Students name the type and explain why: "This is a \_\_\_ problem because \_\_\_."

**Tip:** This is the deepest step — spend the most time here, especially early in the year.

**B**

STEP 3 · BUILD THE SCHEMA

## Reread — fill in the graphic organizer

→ Students select the matching graphic organizer and reread to pull out numbers and unknowns.

→ Fill in known values; write "?" for what is unknown. Model: "I know the total is 24. I don't know one part, so I write a question mark."

→ Check: does the organizer match the story? If not, revisit Step 2.

**Tip:** Laminated organizers with dry-erase markers are great for repeated practice.

**S**

STEP 4 · SUMMARIZE AND SOLVE

## Write the equation — solve and check

→ Use the graphic organizer to write a number sentence. Ask: "What operation does this schema require?"

→ Solve using any strategy. Write a complete answer sentence tied to the story context.

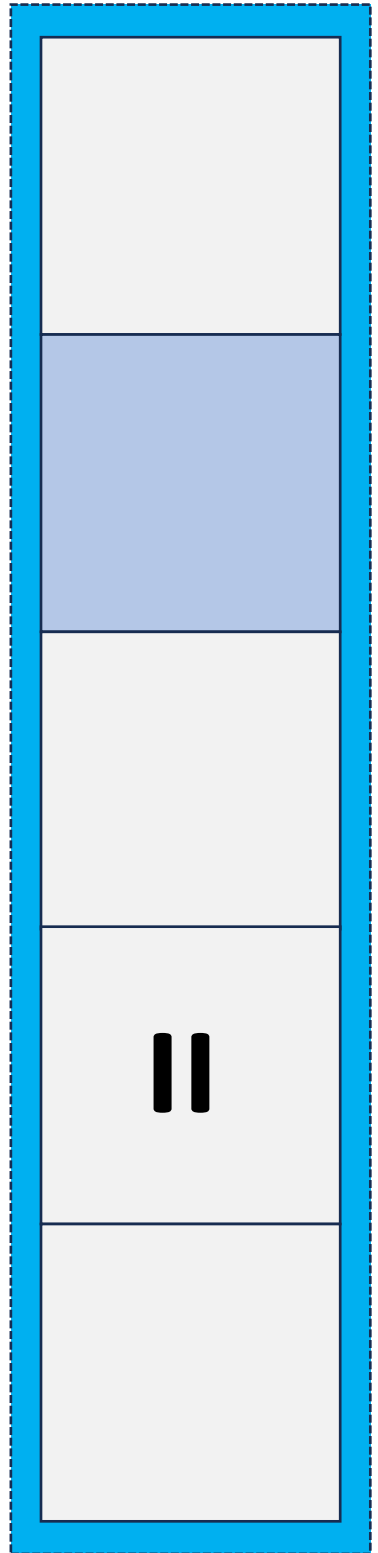
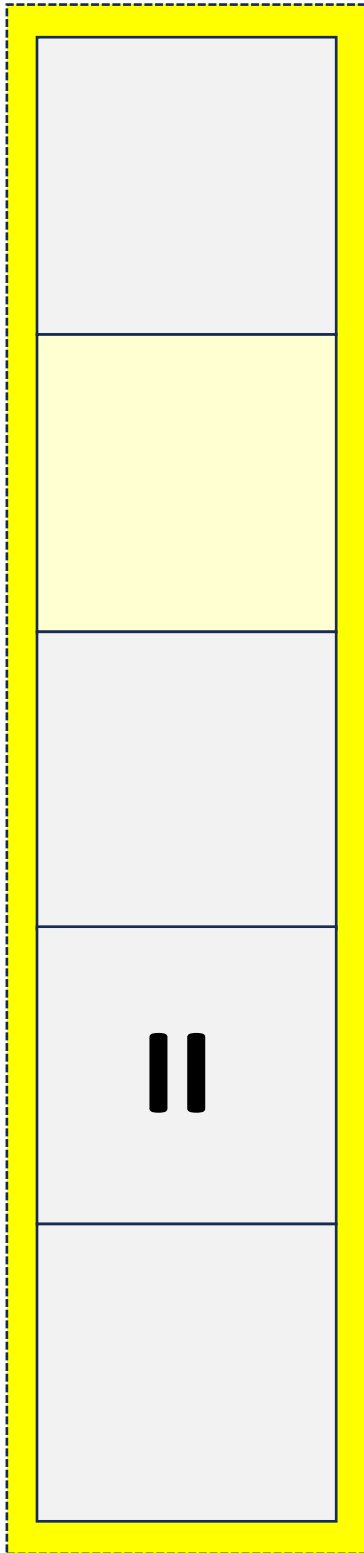
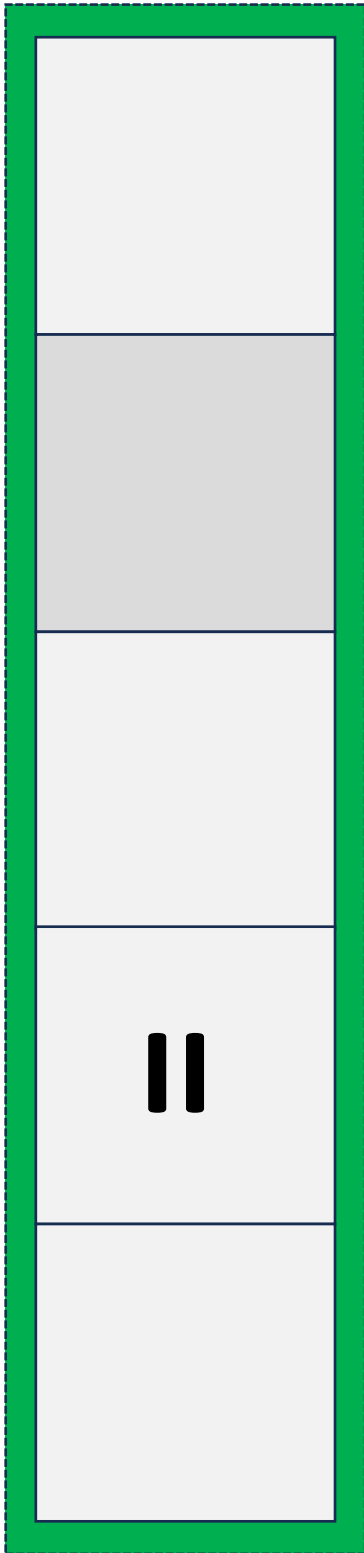
→ Check: reread the problem with the answer plugged in — does it make sense?

**Tip:** Require a labeled sentence every time — "There are 15 apples left." — to close the loop back to comprehension.

**Rollout suggestion:** Introduce one letter at a time over several days before using the full process. Model each step with think-alouds, then move to partner work, then independent practice. Post an anchor chart with all four steps visible throughout the unit.

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# Equal Groups: Inverse Relationship

## Multiplication, Partitive Division, and Measurement Division

In the equal groups section, there will be problems where either a group or a unit is multiplied by a number or a rate. Most problems will follow the traditional equal groups format, with some variations including problems involving rates such as cost, distance, or time.

The equal group's structure or schema is a mathematical concept that involves representing multiplication and division problems in terms of equal-sized groups. In this schema, quantities are partitioned into equal groups to facilitate understanding and problem-solving.

For example, if you have 4 groups of 3 apples each, you can represent this as  $4 \times 3 = 12$ ,  $4 \times 3 = 12$ , where 4 represents the number of groups and 3 represents the number of apples in each group. Conversely, if you have 12 apples and want to divide them into 4 equal groups, you can represent this as  $12 \div 4 = 3$ , where 12 is the total number of apples and 4 is the number of groups and 3 is the number in each group.

The equal groups schema helps students visualize and understand the relationship between multiplication and division, as well as how they can be used interchangeably to solve problems. It's a fundamental concept in elementary mathematics education.

## Equal Groups: Multiplication, Partitive, and Measurement

### Multiplication

Jason had 4 backpacks. There were 6 notebooks in each backpack. How many notebooks are there?

$$4 \times 6 = 24$$

### Measurement Division: How many Groups

Jason had some backpacks. Each backpack had 6 notebooks. All together there are 24 notebooks. How many backpacks are there?

$$\underline{\quad} \times 6 = 24 \quad \text{or} \quad 24 \div 6 =$$

### Partitive Division: How many are in each Group

Jason had 4 backpacks, each backpack had the same number of notebooks in it. There are 24 notebooks in total. How many notebooks are in each backpack?

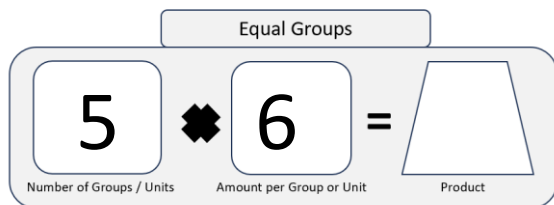
$$4 \times \underline{\quad} = 24 \quad \text{or} \quad 24 \div 4 =$$

# Equal Groups: Graphic Organizer

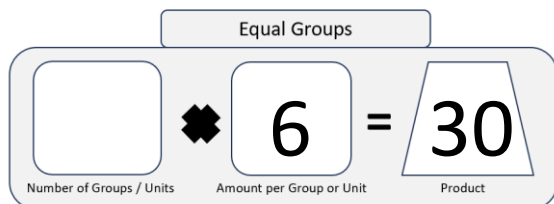
## Multiplication, Partitive Division, and Measurement Division

To master the graphic organizer, it helps to see how the same set of numbers shifts positions depending on what you are trying to find. Here are the three ways to apply the schema:

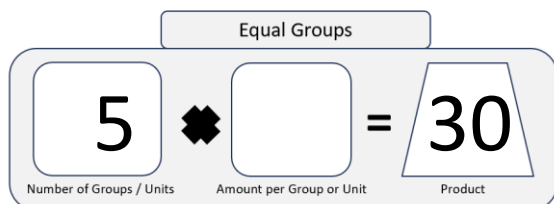
**Multiplication (Finding the Total):** If the problem says, "There are 5 boxes with 6 pencils in each," you fill in both squares. Since you have the **Number of Groups** (5) and the **Amount per Group** (6), the trapezoid is the unknown. You multiply 5 times 6 to find the **Product** of 30.



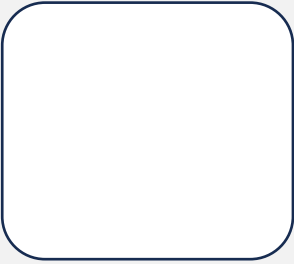
**Measurement Division (Finding how many Groups):** If the problem says, "You have 30 pencils and put 6 in each box," you fill in the second square (6) and the trapezoid (30). The first square—the **Number of Groups**—is missing. You solve for ? times 6 = 30, showing you need 5 boxes.



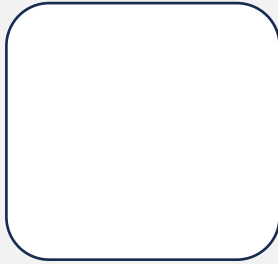
**Partitive Division (Finding the Amount in each):** If the problem says, "You have 30 pencils and share them equally among 5 boxes," you fill in the first square (5) and the trapezoid (30). Now, the **Amount per Group** is the mystery. You solve for 5 times ? = 30, revealing that each box gets 6 pencils.



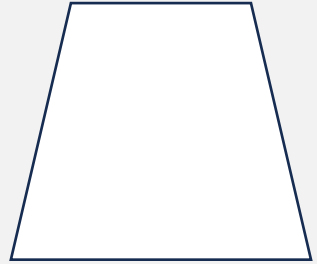
## Equal Groups



Number of Groups / Units

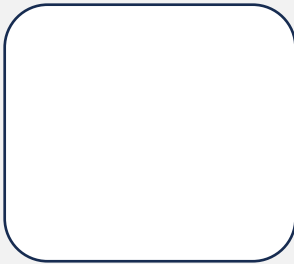


Amount per Group or Unit

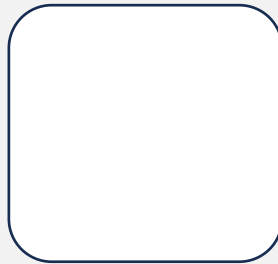


Product

## Equal Groups



Number of Groups / Units

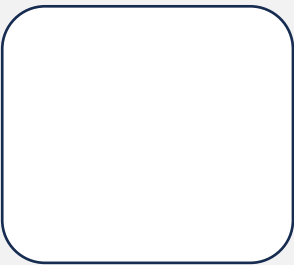


Amount per Group or Unit

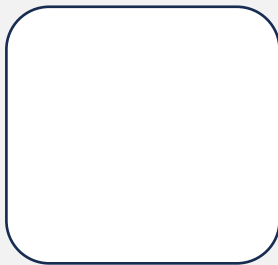


Product

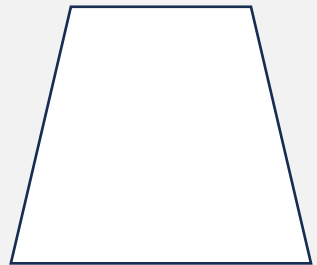
## Equal Groups



Number of Groups / Units



Amount per Group or Unit



Product

Name: \_\_\_\_\_

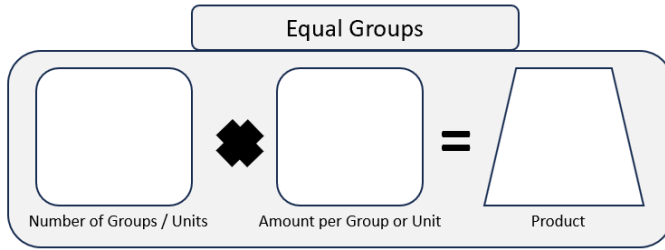
Free Supplement

Teacher Led

Emily has 5 groups of marbles. Each group has 6 marbles.

How many marbles does Emily have in total?

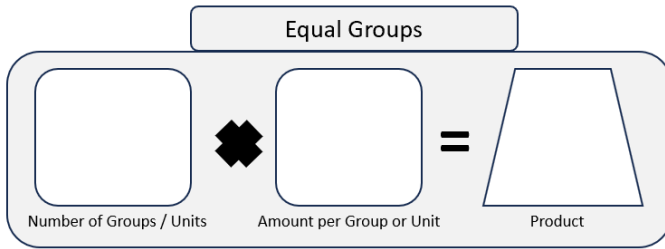
C ○  
 U —  
 B □  
 S =



Teacher Guided

Emily has 30 marbles total. If she separates the marbles into groups of 6, how many groups will she have?

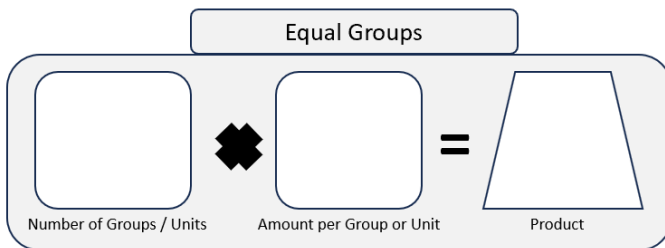
C ○  
 U —  
 B □  
 S =



Teacher Guided

Emily has 30 marbles total. If she split the marbles into 5 equal groups, how many will be in each group?

C ○  
 U —  
 B □  
 S =



Main Menu

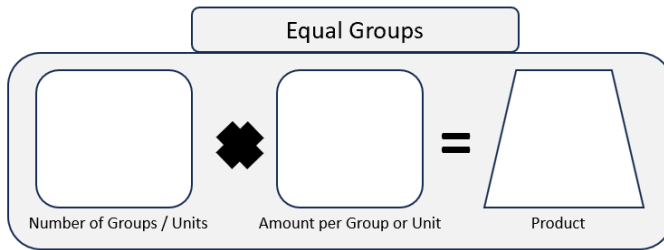
Name: \_\_\_\_\_

Free Supplement

Teacher Led

In Emma's garden, there are **3** rows of carrot plants. Each row has **4** carrot plants. **How many carrot plants are there in total?**

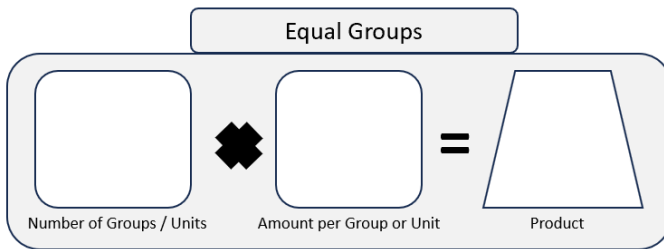
**C** ○  
**U** —  
**B** □  
**S** =



Teacher Guided

In Emma's garden, there are 12 carrot plants. She planted the carrot plants in rows of 3. How many carrot plants are

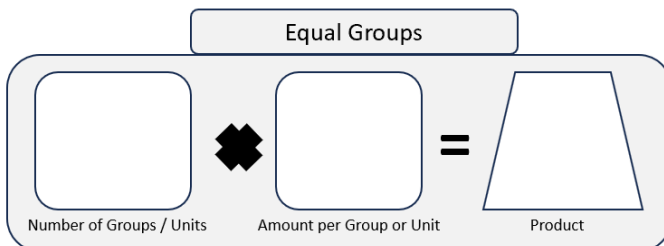
**C** ○  
**U** —  
**B** □  
**S** =



Teacher Guided

In Emma's garden, there are 12 carrot plants. She planted the carrot plants with 4 in each row. How many rows did she plant?

**C** ○  
**U** —  
**B** □  
**S** =



Main Menu

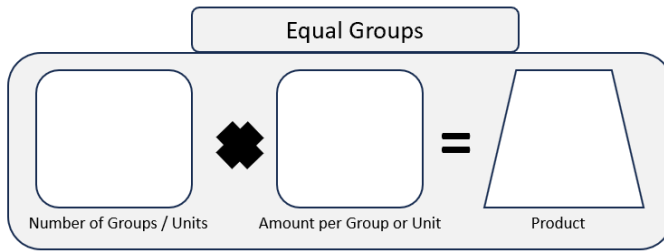
Name: \_\_\_\_\_

Free Supplement

Teacher Led

Jason had **4** backpacks. There were **6** notebooks in each backpack. **How many notebooks are there?**

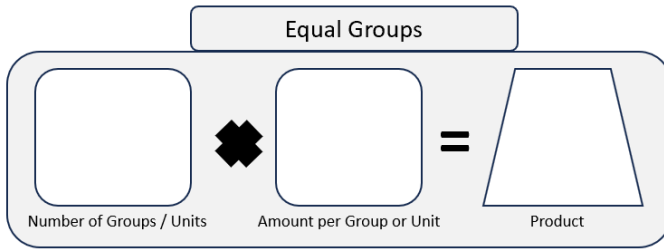
**C** ○  
**U** —  
**B** □  
**S** =



Teacher Guided

Jason had some backpacks. Every backpack had 6 notebooks. Altogether there are 24 notebooks. How many

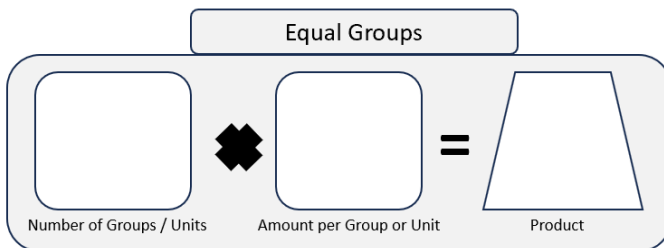
**C** ○  
**U** —  
**B** □  
**S** =



Teacher Guided

Jason had 4 back packs, each backpack had the same number of notebooks in it. There are 24 notebooks in total. How many notebooks are in each backpack?

**C** ○  
**U** —  
**B** □  
**S** =



Main Menu

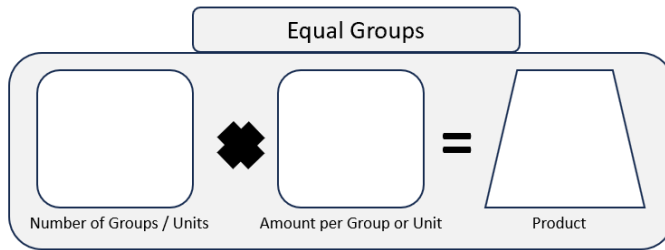
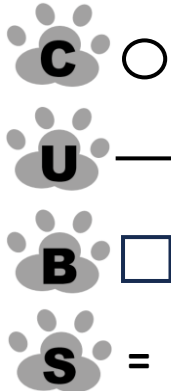
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Teacher Led

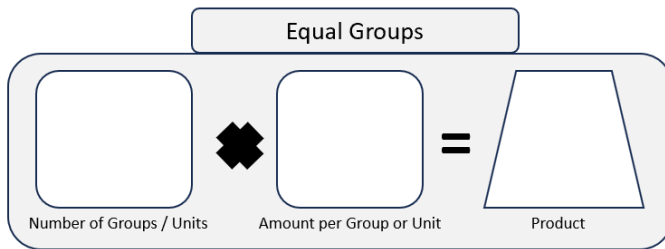
Sarah had **3** baskets. There were **8** apples in each basket.

How many apples are there?



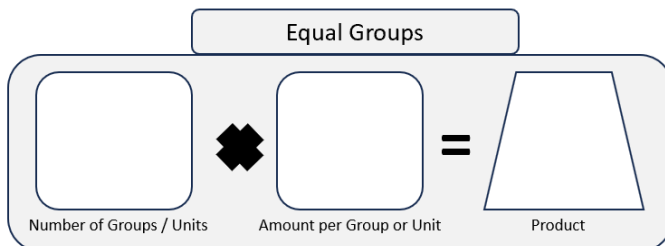
Teacher Guided

Sarah had some baskets. Each basket had 8 apples. All together there are 24 apples. How many baskets are



Independent Problem

Sarah had 3 baskets, every basket had the same number of apples in it. There are 24 apples in total. How many apples are in each basket?



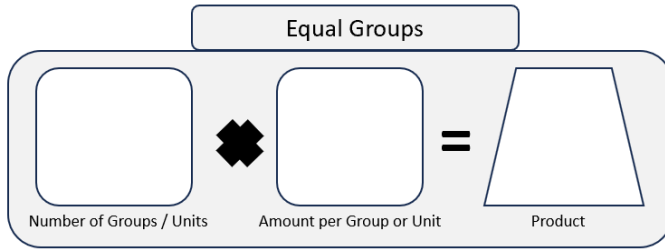
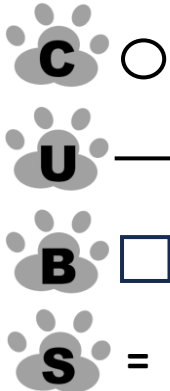
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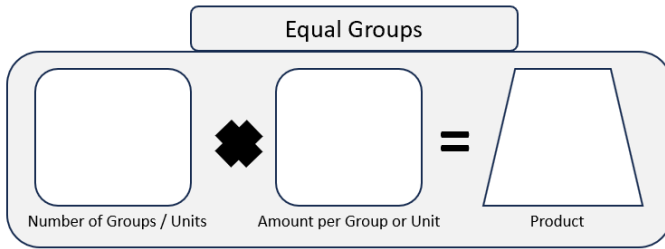
Teacher Led

Alex had **6** jars. There were **5** candies in each jar. **How many candies are there?**



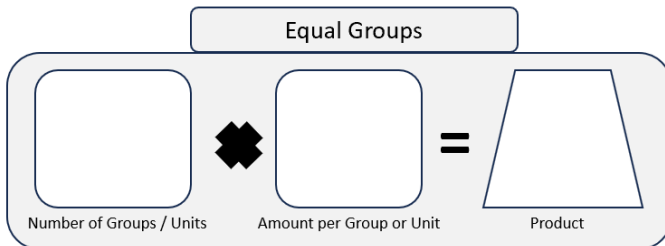
Teacher Guided

Alex had 6 jars, every jar had the same number of candies in it. There are 30 candies in total. How many candies are



Independent Problem

Alex had some jars. Each jar had 5 candies. All together there are 30 candies. How many jars are there?



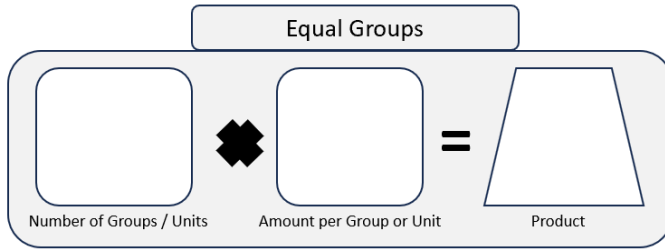
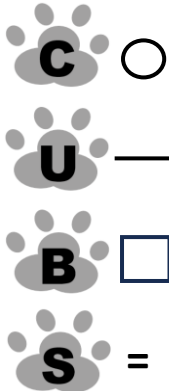
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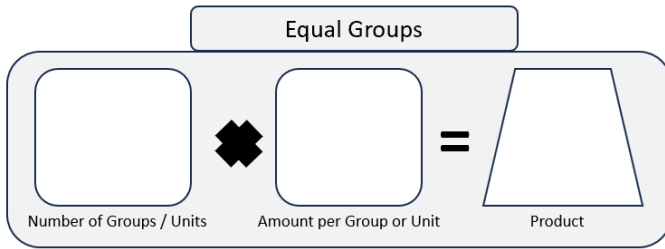
Teacher Led

Sam walks 5 miles a day. **How many miles would she have walked after 6 days?**



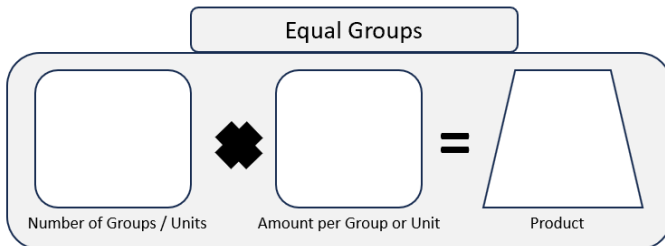
Teacher Guided

Sam walked a total of 30 miles. If she walked 5 miles a day, how many days did it take her?



Independent Problem

Sam walked a total of 30 miles. She walked for 6 days. If she walked the same number of miles, how many miles did she walk per day?



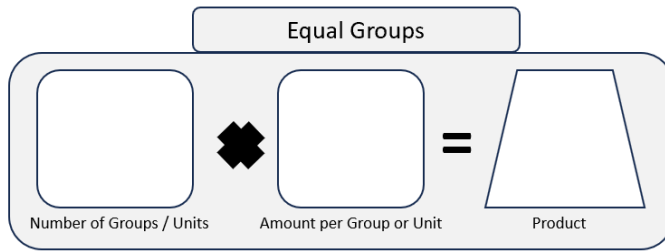
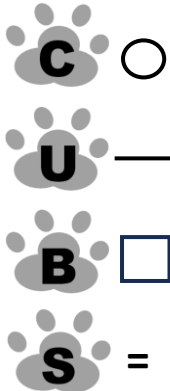
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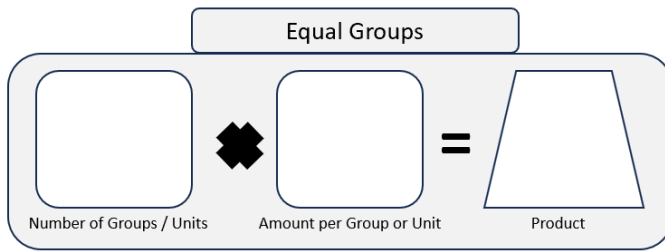
Teacher Led

Jake had **8** bins. There were **3** toys in each bin. **How many toys are there?**



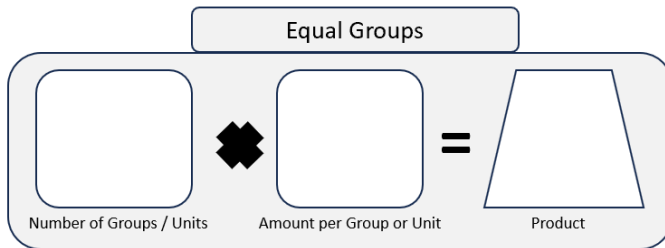
Teacher Guided

Jake had some bins. Every bin had 3 toys. All together there are 24 toys. How many bins are there?



Independent Problem

Jake had 8 bins, each bin had the same number of toys in it. There are 24 toys in total. How many toys are in each bin?



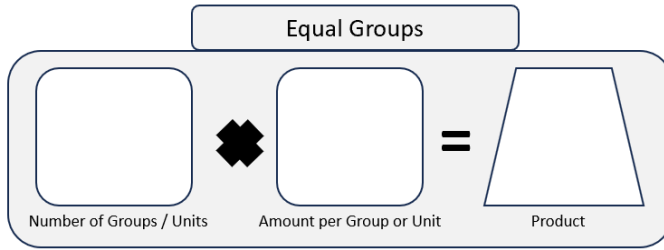
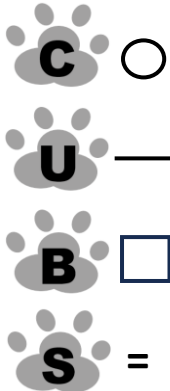
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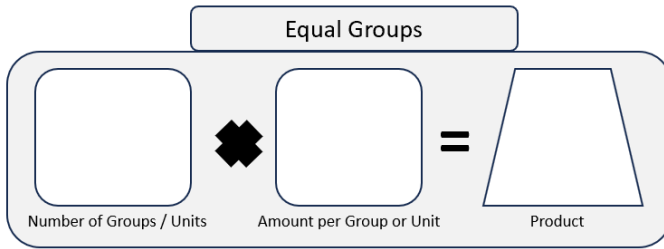
Teacher Led

David bought **3** buckets, each costing **\$6**. **How much did he pay for the buckets in total?**



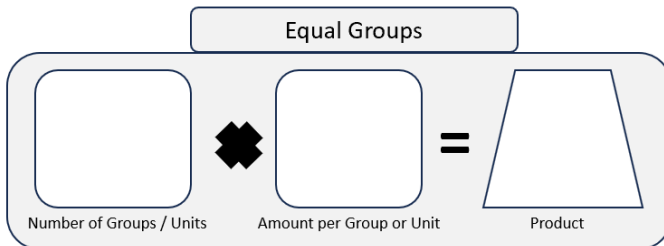
Teacher Guided

David bought some buckets, each costing \$6. In total, he paid \$18. How many buckets did he buy?



Independent Problem

David had 3 buckets, each costing the same amount of money. In total, he paid \$18 for them. How much did each bucket cost?



Main Menu

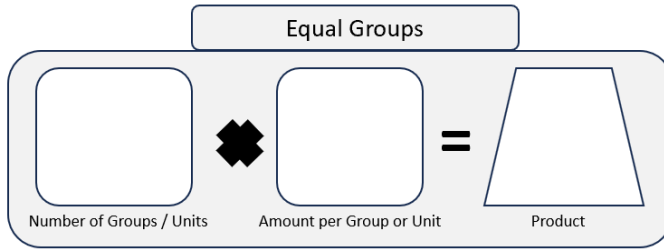
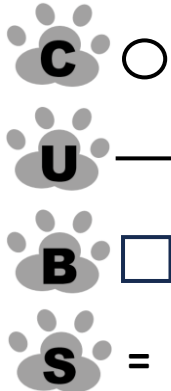
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Teacher Led

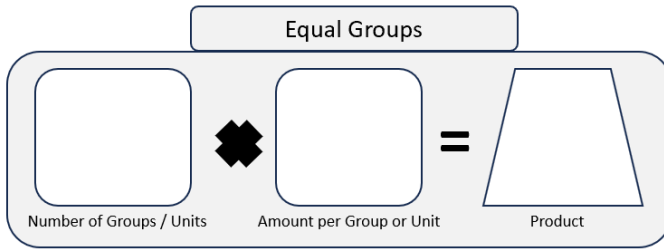
Mark had **4** shelves. There were **7** books on each shelf.

**How many books are there?**



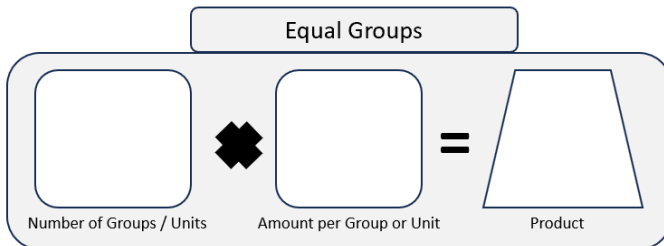
Teacher Guided

Mark had some shelves. Each shelf had 7 books. All together there are 28 books. How many shelves are there?



Independent Problem

Mark had 4 shelves, each shelf had the same number of books on it. There are 28 books in total. How many books are on each shelf?



Main Menu

Name: \_\_\_\_\_

Free Supplement

Emma bought 5 packs of stickers, and every pack cost \$8. How much money did all of the packs of stickers cost?

Emma has 4 friends she wants to equally share her candies with. She has 40 candies. How many would each friend get?

Main Menu

Emma has 6 containers that she wants to equally fill with colored pencils. If she has 24 colored pencils in total, how many colored pencils will each container have?