Maths Accelerator Centre

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P5 Problem Sums – Mini Lesson

Term 1 Lesson 4

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🖍️ Strategy: Number x Quantity

The **Number x Quantity** strategy (often called the "Grouping" or "Units x Value" method) is a staple in primary school mathematics. It's designed to help students organize two different sets of data—the **count** of items and the **value** of each item—into a single, solvable total.

Here is how that strategy breaks down for this specific problem:

The Strategy Breakdown

Category	Number (Units)	Quantity (Balloons)	Total Value
Boys	1 unit	2	2 units
Girls	3 units	3	9 units

Step-by-Step Execution

1. **Assign Units (Number):** Since there are "three times as many girls as boys," we set the boys as $1 \text{ unit}(1u)$ and the girls as $3 \text{ units}(3u)$.
2. **Multiply (Quantity):** Multiply the number of units by the balloons assigned to each.
   - Boys: $1u \times 2 = 2u$
   - Girls: $3u \times 3 = 9u$
3. **Solve for 1 Unit:** Use the "difference" provided in the question.
   - The difference in balloons is $9u - 2u = 7u$.
   - We know this difference is actually 161 balloons.
   - $7u = 161$
   - $1u = 161 \div 7 = \mathbf{23}$
4. **Find the Total:** The total children are $1u(\text{boys}) + 3u(\text{girls}) = 4u$.
   - Total children $= 4 \times 23 = \mathbf{92}$.

🔑 Key Takeaway

The "Number x Quantity" strategy's greatest strength is **organization**.

By separating the **ratio of people** (the "Number") from the **ratio of items** (the "Quantity"), students avoid the common mistake of simply adding 1 + 3 or 2 + 3. It forces the student to recognize that the "Total Value" is a product of both factors, transforming a wordy comparison into a clear, solvable equation.

Discussion Question

Follow the trainer in this video and solve this question.

There were some boys and girls at a party.

Each boy was given 2 balloons and each girl was given 3 balloons.

There were three times as many girls as boys.

In total, the girls received 161 more balloons than the boys.

How many children were there at the party?

Practice Time

Here are **4 practice questions** based on this strategy.
Follow the step-by-step method we discussed in the video to solve each one.

✅ Work through the problems carefully.
✅ Check your solutions against the **Answer Key** provided on the last page.

1. There were some pens and pencils in a box. Each pen cost **$2** and each pencil cost **$3**. There were **three times** as many pencils as pens. In total, the pencils cost **$112** more than the pens. **How many items were there in the box altogether?**

2. Ali and Siti have some stamps. Each of Ali's stamps is worth **2 cents** and each of Siti's stamps is worth **3 cents**. Siti has **three times** as many stamps as Ali. In total, Siti's stamps are worth **231 cents** more than Ali's. **How many stamps do they have in total?**

3. A group of adults and children donated money to a charity. Each adult donated **$2** and each child donated **$3**. There were **three times** as many children as adults. The total amount donated by the children was **$105** more than the amount donated by the adults. **How many people (adults and children) donated in total?**

4. A teacher prepared goody bags for some boys and girls. Each boy received **2 stickers** and each girl received **3 stickers**. There were **three times** as many girls as boys. In total, the girls received **147 more stickers** than the boys. **What was the total number of children who received goody bags?**

Answer Key

1. 64 items
2. 132 stamps
3. 60 people
4. 84 children