The Twelve Types of Word Problems

I. Easy Addition and Easy Subtraction

	set A	set B	set C – their union
Easy Addition	given	given	find
Easy Subtraction	find	given	given
Easy Subtraction	given	find	given

1. Easy Addition: Suppose that there are 3 boys in the playground and 2 girls in the playground. How many children are in the playground altogether? The number of elements in set A (3 boys) and the number of elements in set B (2 girls) are both given. The problem is to find the number of elements in C (the 5 children). The corresponding equation is 3 + 2 = □.

2a. Easy Subtraction: Suppose that there are 5 children in the playground. Suppose that 2 of those children are girls. How many of those children are boys? The number of elements in B (2 girls) is given and the number of elements in C is given (the 5 children altogether). The problem is to find the number of elements in A (the 3 boys). The corresponding equation is 5 − 2 = □.

2b. Easy Subtraction: Suppose that there are 5 children in the playground. Suppose that 3 of those children are boys. How many of those children are girls? The number of elements in A (3 boys) is given and the number of elements in C is given (the 5 children altogether). The problem is to find the number of elements in B (the 2 girls). The corresponding equation is 5 − 3 = □.

N.B. The two Easy Subtraction problems are not identical, but they are both examples of Easy Subtraction. They are the **same type** of problem.

The Twelve Types of Word Problems

II. Hard Addition and Hard Subtraction

	relationship	smaller set A	larger set B
Hard Addition	given	given	find
Hard Subtraction 1	find	given	given
Hard Subtraction 2	given	find	given

3. Hard Addition: Eva has 2 lollipops (the smaller set A). Rose has 3 more lollipops (the relationship) than Eva has. How many lollipops does Rose have (the larger set B)? The number of elements in the smaller set A is given. The relationship between the smaller set A and the larger set B is given. The problem is to find the number of elements in B. The corresponding equation is
3 + 2 = 5.

4. Hard Subtraction 1: Rose has 5 lollipops and Eva has 2 lollipops. How many more lollipops does Rose have than Eva? The number of elements in both A and B is given. The problem is to find the relationship between the two sets. The corresponding equation is 5 − 2 = □.

5. Hard Subtraction 2: Rose has 5 lollipops. Rose has 3 more lollipops than Eva has. How many lollipops does Eva have? The number of elements in the larger set B is given. The relationship between the larger set B and the smaller set A is given. The problem is to find the number of elements in A, the smaller set. The corresponding equation is 5 − 3 = □.

N.B. The Hard Subtraction 1 problem and the Hard Subtraction 2 problem are not just different problems – they are **different types** of problems.

The Twelve Types of Word Problems

III. Easy Multiplication, Easy Measurement, Easy Partition

	multiplier	multiplicand	product
Easy Multiplication	given	given	find
Easy Measurement	find	given	given
Easy Partition	given	find	given

6. Easy Multiplication: Trixie has 3 fish tanks with 2 fish in each tank. How many fish does Trixie have altogether? We are given the number 3 (the multiplier) and the number 2 (the multiplicand). We need to find the product. The corresponding equation is 2 x 3 = □.

7. Easy Measurement: Trixie has 6 fish. She has 2 of those fish in each of her fish tanks. How many fish tanks does Trixie have? We are given the number 6 (the product) and the number 2 (the multiplicand). We need to find the multiplier. The corresponding equation is 6 ÷ 2 = □.

8. Easy Partition: Trixie has 6 fish and 3 fish tanks. She has the same number of fish in each fish tank. How many fish are there in each fish tank? We are given the number 6 (the product) and the number 3 (the multiplier). We need to find the multiplicand. The corresponding equation is 6 ÷ 3 = □.

N.B. A model of 3 fish tanks with 2 fish in each tank is **not the same** as a model of 2 fish tanks with 3 fish in each tank – even though in both cases there are 6 fish altogether. Easy Multiplication is different from Easy Addition in this way. A model of 3 boys and 2 girls in the playground is **identical** to a model of 2 boys and 3 girls in the playground.

The Twelve Types of Word Problems

IV. Hard Multiplication, Hard Measurement, Hard Partition

	multiplier (relationship)	multiplicand	product
Hard Multiplication	given	given	find
Hard Measurement	find	given	given
Hard Partition	given	find	given

9. Hard Multiplication: Trixie has 2 fish. Rose has 3 times as many fish as Trixie has. How many fish does Rose have? We are given the number 2 (the multiplicand) and the number 3 (the multiplier). We need to find the product. The corresponding equation is 2 x 3 = ☐.

10. Hard Measurement: Rose has 6 fish. Trixie has 2 fish. Rose has how many times as many fish as Trixie has? We are given the number 6 (the product) and the number 2 (the multiplicand). We need to find the multiplier. The corresponding equation is 6 ÷ 2 = ☐.

11. Hard Partition: Rose has 6 fish. She has 3 times as many fish as Trixie has. How many fish does Trixie have? We are given the number 6 (the product) and the number 3 (the multiplier). We need to find the multiplicand. The corresponding equation is 6 ÷ 3 = ☐.

V. Combinations

12. Combinations: Punch, the dog, has 2 different collars and 3 different scarves. How many different outfits does Punch have? Both the equations 2 x 3 = ☐ and the equation 3 x 2 = ☐ could be used to represent this word problem.

N.B. One could make up two division word problem that corresponds to this problem, but that is rarely done. Each of those word problems could be modeled as either a Measurement problem or a Partition problem.